Title: Encyclopaedia Britannica, 11th Edition, "Home, Daniel" to "Hortensius, Quintus"

Author: Various

Release date: March 13, 2012 [EBook #39127]

Language: English

Credits: Produced by Marius Masi, Don Kretz and the Online Distributed Proofreading Team at http://www.pgdp.net

Transcriber's note: A few typographical errors have been corrected. They appear in the text like this, and the explanation will appear when the mouse pointer is moved over the marked passage. Sections in Greek will yield a transliteration when the pointer is moved over them, and words using diacritic characters in the Latin Extended Additional block, which may not display in some fonts or browsers, will display an unaccented version.

Links to other EB articles: Links to articles residing in other EB volumes will be made available when the respective volumes are introduced online.

THE ENCYCLOPÆDIA BRITANNICA

A DICTIONARY OF ARTS, SCIENCES, LITERATURE AND GENERAL INFORMATION

ELEVENTH EDITION

VOLUME XIII SLICE VI

Home, Daniel to Hortensius, Quintus

Articles in This Slice

HOME, DANIEL DUNGLAS (1833-1886), Scottish spiritualist, was born near Edinburgh on 625
the 20th of March 1833, his father being said to be a natural son of the 10th earl of Home, and his mother a member of a family credited with second sight. He went with his mother to America, and on her death was adopted by an aunt. In the United States he came out as a spiritualistic medium, though, it should be noted, he never sought to make money out of his exhibitions. In 1855 he came to England and gave numerous séances, which were attended by many well-known people. Robert Browning, the poet, went to one of these, but without altering his contempt for spiritualism, and he subsequently gave his impression of Home in the unflattering poem of “Sludge the Medium” (1864); Home, nevertheless, had many disciples, and gave séances at several European courts. He became a Roman Catholic, but was expelled from Rome as a sorcerer. In 1866 Mrs Lyon, a wealthy widow, adopted him as her son, and settled £60,000 upon him. Repenting, however, of her action, she brought a suit for the return of her money, on the ground that it had been obtained by “spiritual” influence. It was held that 626
the burden of establishing the validity of the gift lay on Home, and as he failed to do so the case was decided against him. He continued, however, to give séances, mostly on the Continent, and in 1871 appeared before the tsar of Russia and two Russian scientists, who attested the phenomena evoked. Returning to England he submitted to a series of experiments designed to test his pretensions before Professor (subsequently Sir William) Crookes, which the latter declared to be thoroughly genuine; and Professor von Boutlerow, of the Russian Academy of Science, after witnessing a similar series of experiments, expressed the same opinion. Home published two volumes of *Incidents of my Life and Lights and Shadows of Spiritualism*. He married successively two well-connected Russian ladies. He died at Auteuil, France, on the 21st of June 1886.

HOME, JOHN (1722-1808), Scottish dramatic poet, was born on the 22nd of September 1722 at Leith, where his father, Alexander Home, who was distantly related to the earls of Home, filled the office of town-clerk. He was educated at the grammar school of his native town, and at the university of Edinburgh, where he graduated M.A. in 1742. Though he showed a fondness for the profession of arms, he studied divinity, and was licensed by the presbytery

of Edinburgh in 1745. In the same year he joined as a volunteer against the Pretender, and was taken prisoner at the battle of Falkirk (1746). With many others he was carried to the castle of Doune in Perthshire, but soon effected his escape. In July 1746 Home was presented to the parish of Athelstaneford, Haddingtonshire, vacant by the death of Robert Blair, the author of *The Grave*. He had leisure to visit his friends and became especially intimate with David Hume who belonged to the same family as himself. His first play, *Agis: a tragedy*, founded on Plutarch's narrative, was finished in 1747. He took it to London and submitted it to Garrick for representation at Drury Lane, but it was rejected as unsuitable for the stage. The tragedy of *Douglas* was suggested to him by hearing a lady sing the ballad of *Gil Morrice* or *Child Maurice* (F. J. Child, *Popular Ballads*, ii. 263). The ballad supplied him with the outline of a simple and striking plot. After five years' labour he completed his play, which he took to London for Garrick's opinion. It also was rejected, but on his return to Edinburgh his friends resolved that it should be brought out in that city. It was produced on the 14th of December 1756 with overwhelming success, in spite of the opposition of the presbytery, who summoned Alexander Carlyle to answer for having attended its representation. Home wisely resigned his charge in 1757, after a visit to London, where *Douglas* was brought out at Covent Garden on the 14th of March. Peg Woffington played Lady Randolph, a part which found a later exponent in Mrs Siddons. David Hume summed up his admiration for *Douglas* by saying that his friend possessed "the true theatric genius of Shakespeare and Otway, refined from the unhappy barbarism of the one and licentiousness of the other." Gray, writing to Horace Walpole (August, 1757), said that the author "seemed to have retrieved the true language of the stage, which has been lost for these hundred years," but Samuel Johnson held aloof from the general enthusiasm, and averred that there were not ten good lines in the whole play (Boswell, *Life*, ed. Croker, 1848, p. 390). In 1758 Home became private secretary to Lord Bute, then secretary of state, and was appointed tutor to the prince of Wales; and in 1760 his patron's influence procured him a pension of £300 per annum and in 1763 a sinecure worth another £300. Garrick produced *Agis* at Drury Lane on the 21st of February 1758. By dint of good acting and powerful support, according to Genest (*Short Account* &c., iv. 513 seq.), the piece kept the stage for eleven days, but it was lamentably inferior to *Douglas*. In 1760 his tragedy, *The Siege of Aquileia*, was put on the stage, Garrick taking the part of Aemilius. In 1769 his tragedy of *The Fatal Discovery* had a run of nine nights; *Alonzo* also (1773) had fair success in the representation; but his last tragedy, *Alfred* (1778), was so coolly received that he gave up writing for the stage. In 1778 he joined a regiment formed by the duke of Buccleuch. He sustained severe injuries in a fall from horseback which permanently affected his brain, and was persuaded by his friends to retire. From 1767 he resided either at Edinburgh or at a villa which he built at Kilduff near his former parish. It was at this time that he wrote his *History of the Rebellion of 1745*, which appeared in 1802. Home died at Merchiston Bank, near Edinburgh, on the 5th of September 1808, in his eighty-sixth year.

The Works of John Home were collected and published by Henry Mackenzie in 1822 with "An Account of the Life and Writings of Mr John Home," which also appeared separately in the same year, but several of his smaller poems seem to have escaped the editor's observation. These are—"The Fate of Caesar," "Verses upon Inveraray," "Epistle to the Earl of Eglintoun," "Prologue on the Birthday of the Prince of Wales, 1759" and several "Epigrams," which are printed in vol. ii. of *Original Poems by Scottish Gentlemen* (1762). See also Sir W. Scott, "The Life and Works of John Home" in the *Quarterly Review* (June, 1827). *Douglas* is included in numerous collections of British drama. Voltaire published his *Le Caffé, ou l'Écossaise* (1760), *Londres* (really Geneva), as a translation from the work of Mr Hume, described as *pasteur de l'église d'Édimbourg*, but Home seems to have taken no notice of the mystification.

HOMEL, or GOMEL, a town of Russia, in the government of Mogilev, and 132 m. by rail S.S.E. of the town of Mogilev, on the Sozh, a tributary of the Dnieper. Pop. (1900) 45,081, nearly half of whom are Jews. It is an important junction of the railways from Vilna to Odessa and from Orel to Poland, and is in steamer communication with Kiev and Mogilev. In front of Prince Paskevich's castle stands an equestrian statue of the Polish general Joseph Poniatowski, and in the cathedral is the tomb of the chancellor Nikolai Petrovich Rumantsev, by Canova. The town carries on a brisk trade in hops, corn and timber; there are also paper-pulp mills and oil factories. Homel was founded in the 12th century, and after changing hands several times between Poles and Russians was annexed to Russia in 1772. In 1648 it suffered at the hands of the Cossack chieftain Bogdan Chmielnicki.

HOME OFFICE, a principal government department in the United Kingdom, the creation of which dates from 1782, when the conduct of foreign affairs, which had previously been divided between the northern and southern secretaries, was handed over to the northern department (see Foreign Office). The home department retained control of Irish and colonial affairs, and of war business until 1794, when an additional secretary of state was re-appointed. In 1801 the colonial business was transferred from the home department, which now attends only to domestic affairs. The head of the department, the principal secretary of state for home affairs, or home secretary, is a member of the government for the time being, and of the cabinet, receiving a salary of £5000 a year. He is the proper medium of communication between the sovereign and the subject, and receives petitions addressed to the crown. He is responsible for the maintenance of the king's peace and attends to the administration of criminal justice, police and prisons, and through him the sovereign exercises his prerogative of mercy. Within his department is the supervision of lunatic asylums, reformatories and industrial schools, and it is his duty to see after the internal well-being of the country, to enforce the rules made for the health or safety of the community generally, and especially of those classes employed in special trades or dangerous occupations. He is assisted by a permanent under-secretary, a parliamentary secretary and several assistant under-secretaries.

See Anson, *Law and Custom of the Constitution*. (1907).

HOMER[1] (Ὅμηρος), the great epic poet of Greece. Many of the works once attributed to him are lost; those which remain are the two great epics, the *Iliad* and the *Odyssey*, thirty-three *Hymns*, a mock epic (the *Battle of the Frogs and Mice*), and some pieces of a few lines each (the so-called *Epigrams*).

Ancient Accounts of Homer.—Of the date of Homer probably no record, real or pretended, ever existed. Herodotus (ii. 53) maintains that Hesiod and Homer lived not more than 400 years before his own time, consequently not much before 850 B.C. From the controversial tone in which he expresses himself it is evident that others had made Homer more ancient; and accordingly the dates given by later authorities, though very various, generally fall within the 10th and 11th centuries B.C. But none of these statements has any claim to the character of external evidence.

The extant lives of Homer (edited in Westermann's *Vitarum Scriptores Graeci minores*) are eight in number, including the piece called the *Contest of Hesiod and Homer*. The longest is written in the Ionic dialect, and bears the name of Herodotus, but is certainly spurious. In all probability it belongs to the time which was fruitful beyond all others in literary forgeries, viz. the 2nd century of our era.[2] The other lives are certainly not more ancient. Their chief value consists in the curious short poems or fragments of verse which they have preserved—the so-called *Epigrams*, which used to be printed at the end of editions of Homer. These are easily recognized as "Popular Rhymes," a form of folk-lore to be met with in most countries, treasured by the people as a kind of proverbs.[3] In the Homeric *epigrams* the interest turns sometimes on the characteristics of particular localities—Smyrna and Cyme (*Epigr.* iv.), Erythrae (*Epigr.* vi., vii.), Mt Ida (*Epigr.* x.). Neon Teichos (*Epigr.* i.); others relate to certain trades or occupations—potters (Epigr. xiv.), sailors, fishermen, goat herds, &c. Some may be fragments of longer poems, but evidently they are not the work of any one poet. The fact that they were all ascribed to Homer merely means that they belong to a period in the history of the Ionian and Aeolian colonies when "Homer" was a name which drew to itself all ancient and popular verse.

Again, comparing the "epigrams" with the legends and anecdotes told in the Lives of Homer, we can hardly doubt that they were the chief source from which these Lives were derived. Thus in Epigr. iv. we find a blind poet, a native of Aeolian Smyrna, through which flows the water of the sacred Meles. Here is doubtless the source of the chief incident of the Herodotean Life—the birth of Homer "Son of the Meles." The epithet Aeolian implies high antiquity, inasmuch as according to Herodotus Smyrna became Ionian about 688 B.C. Naturally the Ionians had their own version of the story—a version which made Homer come out with the first Athenian colonists.

The same line of argument may be extended to the *Hymns*, and even to some of the lost works of the post-Homeric or so-called "Cyclic" poets. Thus:—

1. The hymn to the Delian Apollo ends with an address of the poet to his audience. When any stranger comes and asks who is the sweetest singer, they are to answer with one voice, the

"blind man that dwells in rocky Chios; his songs deserve the prize for all time to come." Thucydides, who quotes this passage to show the ancient character of the Delian festival, seems to have no doubt of the Homeric authorship of the hymn. Hence we may most naturally account for the belief that Homer was a Chian.

2. The *Margites*—a humorous poem which kept its ground as the reputed work of Homer down to the time of Aristotle—began with the words, "There came to Colophon an old man, a divine singer, servant of the Muses and Apollo." Hence doubtless the claim of Colophon to be the native city of Homer—a claim supported in the early times of Homeric learning by the Colophonian poet and grammarian Antimachus.

3. The poem called the *Cypria* was said to have been given by Homer to Stasinus of Cyprus as a daughter's dowry. The connexion with Cyprus appears further in the predominance given in the poem to Aphrodite.

4. The *Little Iliad* and the *Phocaïs*, according to the Herodotean life, were composed by Homer when he lived at Phocaea with a certain Thestorides, who carried them off to Chios and there gained fame by reciting them as his own. The name Thestorides occurs in *Epigr.* v.

5. A similar story was told about the poem called the *Taking of Oechalia* (Οἰχαλίας Ἅλωσις), the subject of which was one of the exploits of Heracles. It passed under the name of Creophylus, a friend or (as some said) a son-in-law of Homer; but it was generally believed to have been in fact the work of the poet himself.

6. Finally the *Thebaid* always counted as the work of Homer. As to the *Epigoni*, which carried on the Theban story, some doubt seems to have been felt.

These indications render it probable that the stories connecting Homer with different cities and islands grew up after his poems had become known and famous, especially in the new and flourishing colonies of Aeolis and Ionia. The contention for Homer, in short, began at a time when his real history was lost, and he had become a sort of mythical figure, an "eponymous hero," or personification of a great school of poetry.

An interesting confirmation of this view from the negative side is furnished by the city which ranked as chief among the Asiatic colonies of Greece, viz. Miletus. No legend claims for Miletus even a visit from Homer, or a share in the authorship of any Homeric poem. Yet Arctinus of Miletus was said to have been a "disciple of Homer," and was certainly one of the earliest and most considerable of the "Cyclic" poets. His *Aethiopis* was composed as a sequel to the *Iliad*; and the structure and general character of his poems show that he took the *Iliad* as his model. Yet in his case we find no trace of the disputed authorship which is so common with other "Cyclic" poems. How has this come about? Why have the works of Arctinus escaped the attraction which drew to the name of Homer such epics as the *Cypria*, the *Little Iliad*, the *Thebaid*, the *Epigoni*, the *Taking of Oechalia* and the *Phocais*. The most obvious account of the matter is that Arctinus was never so far forgotten that his poems became the subject of dispute. We seem through him to obtain a glimpse of an early post-Homeric age in Ionia, when the immediate disciples and successors of Homer were distinct figures in a trustworthy tradition—when they had not yet merged their individuality in the legendary "Homer" of the Epic Cycle.

Recitation of the Poems.—The recitation of epic poetry was called in historical times "rhapsody" (ῥαψῳδία). The word ῥαψῳδός is post-Homeric, but was known to Pindar, who gives two different explanations of it—"singer of stitched verse" (ῥαπτῶν ἐπέων ἀοιδοί), and "singer with the wand" (ῥαβδός). Of these the first is etymologically correct (except that it should rather be "stitcher of verse"); the second was suggested by the fact, for which there is early evidence, that the reciter was accustomed to hold a wand in his hand—perhaps, like the sceptre in the Homeric assembly, as a symbol of the right to a hearing.[4]

The first notice of rhapsody meets us at Sicyon, in the reign of Cleisthenes (600-560 B.C.), who "put down the rhapsodists on account of the poems of Homer, because they are all about Argos and the Argives" (Hdt. v. 67). This description applies very well to the *Iliad*, in which Argos and Argives occur on almost every page. It may have suited the *Thebaid* still better, but there is no need to understand it only of that poem, as Grote does. The incident shows that the poems of the Ionic Homer had gained in the 6th century B.C., and in the Doric parts of the Peloponnesus, the ascendancy, the national importance and the almost canonical character which they ever afterwards retained.

At Athens there was a law that the Homeric poems should be recited (ῥαψῳδεῖσθαι) on every occasion of the Panathenaea. This law is appealed to as an especial glory of Athens by the orator Lycurgus (*Leocr.* 102). Perhaps therefore the custom of public recitation was exceptional,[5] and unfortunately we do not know when or by whom it was introduced. The Platonic dialogue *Hipparchus* attributes it to Hipparchus, son of Peisistratus. This, however, is

part of the historical romance of which the dialogue mainly consists. The author makes (perhaps wilfully) all the mistakes about the family of Peisistratus which Thucydides notices in a well-known passage (vi. 54-59). In one point, however, the writer's testimony is valuable. He tells us that the law required the rhapsodists to recite "taking each other up in order (ἐξ ὑπολήψεως ἐφεξῆς), as they still do." This recurs in a different form in the statement of Diogenes Laertius (i. 2. 57) that Solon made a law that the poems should be recited "with prompting" (ἐξ ὑποβολῆς). The question as between Solon and Hipparchus cannot be settled; but it is at least clear that a due order of recitation was secured by the presence of a person charged to give the rhapsodists their cue (ὑποβάλλειν). It was necessary, of course, to divide the poem to be recited into parts, and to compel each contending rhapsodist to take the part assigned to him. Otherwise they would have chosen favourite or show passages.

The practice of poets or rhapsodists contending for the prize at the great religious festivals is of considerable antiquity, though apparently post-Homeric. It is brought vividly before us in the Hymn to Apollo (see the passage mentioned above), and in two Hymns to Aphrodite (v. and ix.). The latter of these may evidently be taken to belong to Salamis in Cyprus and the festival of the Cyprian Aphrodite, in the same way that the Hymn to Apollo belongs to Delos and the Delian gathering. The earliest trace of such contests is to be found in the story of Thamyris, the Thracian singer, who boasted that he could conquer even the Muses in song (*Il.* ii. 594 ff.).

Much has been made in this part of the subject of a family or clan (γένος) of Homeridae in the island of Chios. On the one hand, it seemed to follow from the existence of such a family that Homer was a mere "eponymus," or mythical ancestor; on the other hand, it became easy to imagine the Homeric poems handed down orally in a family whose hereditary occupation it was to recite them, possibly to add new episodes from time to time, or to combine their materials in new ways, as their poetical gifts permitted. But, although there is no reason to doubt the existence of a family of "Homeridae," it is far from certain that they had anything to do with Homeric poetry. The word occurs first in Pindar (*Nem.* 2. 2), who applies it to the rhapsodists (Ὁμηρίδαι ῥαπτῶν ἐπέων ἀοίδοί). On this a scholiast says that the name "Homeridae" denoted originally descendants of Homer, who sang his poems in succession, but afterwards was applied to rhapsodists who did not claim descent from him. He adds that there was a famous rhapsodist, Cynaethus of Chios, who was said to be the author of the Hymn to Apollo, and to have first recited Homer at Syracuse about the 69th Olympiad. Nothing here connects the Homeridae with Chios. The statement of the scholiast is evidently a mere inference from the patronymic form of the word. If it proves anything, it proves that Cynaethus, who was a Chian and a rhapsodist, made no claim to Homeric descent. On the other hand our knowledge of Chian Homeridae comes chiefly from the lexicon of Harpocration, where we are told that Acusilaus and Hellanicus said that they were so called from the poet; whereas Seleucus pronounced this to be an error. Strabo also says that the Chians put forward the Homeridae as an argument in support of their claim to Homer. These Homeridae, then, belonged to Chios, but there is no indication of their being rhapsodists. On the contrary, Plato and other Attic writers use the word to include interpreters and admirers—in short, the whole "spiritual kindred"—of Homer. And although we hear of "descendants of Creophylus" as in possession of the Homeric poems, there is no similar story about descendants of Homer himself. Such is the evidence on which so many inferences are based.

The result of the notices now collected is to show that the early history of epic recitation consists of (1) passages in the Homeric hymns showing that poets contended for the prize at the great festivals, (2) the passing mention in Herodotus of rhapsodists at Sicyon, and (3) a law at Athens, of unknown date, regulating the recitation at the Panathenaea. Let us now compare these data with the account given in the Homeric poems. The word "rhapsode" does not yet exist; we hear only of the "singer" (ἀοιδός), who does not carry a wand or laurel-branch, but the lyre (φόρμιγξ), with which he accompanies his "song." In the *Iliad* even the epic "singer" is not met with. It is Achilles himself who sings the stories of heroes (κλέα ἀνδρῶν) in his tent, and Patroclus is waiting (*respondere paratus*), to take up the song in his turn (*Il.* ix. 191). Again we do not hear of poetical contests (except in the story of Thamyris already mentioned) or of recitation of epic poetry at festivals. The *Odyssey* gives us pictures of two great houses, and each has its singer. The song is on a subject taken from the Trojan war, at some point chosen by the singer himself, or by his hearers. Phemius pleases the suitors by singing of the calamitous return of the Greeks; Demodocus sings of a quarrel between Ulysses and Achilles, and afterwards of the wooden horse and the capture of Troy.

It may be granted that the author of the *Odyssey* can hardly have been just such a singer as he himself describes. The songs of Phemius and Demodocus are too short, and have too much the character of improvisations. Nor is it necessary to suppose that epic poetry, at the time to which the picture in the *Odyssey* belongs, was confined to the one type represented. Yet in several respects the conditions under which the singer finds himself in the house of a chieftain like Odysseus or Alcinous are more in harmony with the character of Homeric poetry than

those of the later rhapsodic contests. The subdivision of a poem like the *Iliad* or *Odyssey* among different and necessarily unequal performers must have been injurious to the effect. The highly theatrical manner of recitation which was fostered by the spirit of competition, and by the example of the stage, cannot have done justice to the even movement of the epic style. It is not certain indeed that the practice of reciting a long poem by the agency of several competitors was ancient, or that it prevailed elsewhere than at Athens; but as rhapsodists were numerous, and popular favour throughout Greece became more and more confined to one or two great works, it must have become almost a necessity. That it was the mode of recitation contemplated by the author of the *Iliad* or *Odyssey* it is impossible to believe.

The difference made by substituting the wand or branch of laurel for the lyre of the Homeric singer is a slighter one, though not without significance. The recitation of the Hesiodic poems was from the first unaccompanied by the lyre, *i.e.* they were confessedly *said*, not *sung*; and it was natural that the example should be extended to Homer. For it is difficult to believe that the Homeric poems were ever "sung" in the strict sense of the word. We can only suppose that the lyre in the hands of the epic poet or reciter was in reality a piece of convention, a "survival" from the stage in which narrative poetry had a lyrical character. Probably the poets of the Homeric school—that which dealt with war and adventure—were the genuine descendants of minstrels whose "lays" or "ballads" were the amusement of the feasts in an earlier heroic age; whereas the Hesiodic compositions were non-lyrical from the first, and were only in verse because that was the universal form of literature.

It seems, then, that if we imagine Homer as a singer in a royal house of the Homeric age, but with more freedom regarding the limits of his subject, and a more tranquil audience than is allowed him in the rapid movement of the *Odyssey*, we shall probably not be far from the truth.

Time and Place of Homer.—The oldest direct references to the *Iliad* and *Odyssey* are in Herodotus, who quotes from both poems (ii. 53). The quotation from the *Iliad* is of interest because it is made in order to show that Homer supported the story of the travels of Paris to Egypt and Sidon (whereas the Cyclic poem called the *Cypria* ignored them), and also because the part of the *Iliad* from which it comes is cited as the "Aristeia of Diomede." This was therefore a recognized part of the poem.

The earliest mention of the name of Homer is found in a fragment of the philosopher Xenophanes (of the 6th century B.C., or possibly earlier), who complains of the false notions implanted through the teaching of Homer. The passage shows, not merely that Homer was well known at Colophon in the time of Xenophanes, but also that the great advance in moral and religious ideas which forced Plato to banish Homer from his republic had made itself felt in the days of the early Ionic philosophers.

Failing external testimony, the time and place of the Homeric poems can only be determined (if at all) by internal evidence. This is of two main kinds: (*a*) evidence of history, consisting in a comparison of the political and social condition, the geography, the institutions, the manners, arts and ideas of Homer with those of other times; (*b*) evidence of language, consisting in a comparison with later dialects, in respect of grammar and vocabulary. To these may be added, as occasionally of value, (*c*) much evidence of the direct influence of Homer upon the subsequent course of literature and art.

(*a*) The political condition of Greece in the earliest times known to history is separated from the Greece of Homer by an interval which can hardly be overestimated. The great national names are different: instead of Achaeans, Argives, Danai, we find Hellenes, subdivided into Dorians, Ionians, Aeolians—names either unknown to Homer, or mentioned in terms more significant than silence. At the dawn of Greek history Mycenae is no longer the seat of empire; new empires, polities and civilizations have grown up—Sparta with its military discipline, Delphi with its religious supremacy, Miletus with its commerce and numberless colonies, Aeolis and Ionia, Sicily and Magna Graecia.

While the political centre of Homeric Greece is at Mycenae, the real centre is rather to be found In Boeotia. The Catalogue of the Ships begins with Boeotia; the list of Boeotian towns is much the longest; and they sail, not from the bay of Argos, but from the Boeotian harbour of Aulis. This position is not due to its chiefs, who are all of inferior rank. The importance of Boeotia for Greek civilization is further shown by the ancient worship of the Muses on Mount Helicon, and the fact that the oldest poet whose birthplace was known was the Boeotian Hesiod. Next to Boeotia and the neighbouring countries, it appears that the Peloponnesus, Crete and Thessaly were the most important seats of Greek population.

In the Peloponnesus the face of things was completely altered by the Dorian conquest, no trace of which is found in Homer. The only Dorians known in Homer are those that the *Odyssey* (xix. 177) places in Crete. It is difficult to connect them with the Dorians of history.

The eastern shores of the Aegean, which the earliest historical records represent to us as the seat of a brilliant civilization, giving way before the advance of the great military empires (Lydia and afterwards Persia), are almost a blank in Homer's map. The line of settlements can be traced in the Catalogue from Crete to Rhodes, and embraces the neighbouring islands of Cos and Calymnos. The colonization of Rhodes by Tlepolemus is related (*Il.* ii. 661 ff.), and seems to mark the farthest point reached in the Homeric age. Between Rhodes and the Troad Homer knows of but one city, Miletus—which is a Carian ally of Troy—and the mouth of one river, the Cayster. Even the Cyclades—Naxos, Paros, Melos—are unknown to the Homeric world. The disposition of the Greeks to look to the west for the centres of religious feeling appears in the mention of Dodona and the Dodonaean Zeus, put in the mouth of the Thessalian Achilles.

To the north we find the Thracians, known from the stories of Thamyris the singer (*Il.* ii. 595), and Lycurgus, the enemy of the young god Dionysus (*Il.* vi. 130). Here the Trojan empire begins. It does not appear, however, that the Trojans are thought of as people of a different language. As this is expressly said of the Carians, and of the Trojan allies who were "summoned from afar," the contrary rather is implied regarding Troy itself.

The mixed type of government described by Homer—consisting of a king guided by a council of elders, and bringing all important resolutions before the assembly of the fighting men—does not seem to have been universal in Indo-European communities, but to have grown up in many different parts of the world under the stress of similar conditions. The king is the commander in war, and the office probably owed its existence to military necessities. It is not surrounded with any special sacredness. There were ruling families, laying claim to divine descent, from whom the king was naturally chosen, but his own fitness is the essence of his title. The aged Laertes is set aside; the young Telemachus does not succeed as a matter of course. Nor are any very definite rights attached to the office. Each tribe in the army before Troy was commanded by its own king (or kings); but Agamemnon was supreme, and was "more a king" (βασιλείτερος) than any other. The assembly is summoned on all critical occasions, and its approval is the ultimate sanction. A king therefore stands in almost as much need of oratory as of warlike skill and prowess. Even the division of the spoil is not made in the *Iliad* by Agamemnon, but by "the Achaeans" (*Il.* i. 162, 368). The taking of Briseïs from Achilles was an arbitrary act, and against all rule and custom. The council is more difficult to understand. The "elders" (γέροντες) of the *Iliad* are the same as the subordinate "kings"; they are summoned by Agamemnon to his tent, and form a small council of nine or ten persons. In Troy we hear of elders of the people (δημογέροντες) who are with Priam, and are men past the military age. So in Ithaca there are elders who have not gone to Troy with the army. It would seem therefore that the meeting in Agamemnon's tent was only a copy or adaptation of the true constitutional "council of elders," which indeed was essentially unfitted for the purposes of military service. The king's palace, if we may judge from Tiryns and Mycenae, was usually in a strong situation on an "acropolis." In the later times of democracy the acropolis was reserved for the temples of the principal gods.

Priesthood in Homer is found in the case of particular temples, where an officer is naturally wanted to take charge of the sacred inclosure and the sacrifices offered within it. It is perhaps an accident that we do not hear of priests in Ithaca. Agamemnon performs sacrifice himself, not because a priestly character was attached to the kingly office, but simply because he was "master in his own house."

The conception of "law" is foreign to Homer. The later words for it (νόμος, ῥήτρα) are unknown, and the terms which he uses (δίκη and θέμις) mean merely "custom." Judicial functions are in the hands of the elders, who "have to do with suits" (δικασπόλοι), and "uphold judgments" (θέμιστας εἰρύαται). On such matters as the compensation in cases of homicide, it is evident that there were no rules, but merely a feeling, created by use and wont, that the relatives of the slain man should be willing to accept payment. The sense of anger which follows a violation of custom has the name of "Nemesis"—righteous displeasure.

As there is no law in Homer, so there is no morality. That is to say, there are no general principles of action, and no words which indicate that acts have been classified as good or bad, right or wrong. Moral *feeling*, indeed, existed and was denoted by "Aidos"; but the numerous meanings of this word—shame, veneration, pity—show how rudimentary the idea was. And when we look to practice we find that cruel and even treacherous deeds are spoken of without the least sense that they deserve censure. The heroes of Homer are hardly more moral agents than the giants and enchanters of a fairy tale.

The religious ideas of Homer differ in some important points from those of later Greece. The Apollo of the *Iliad* has the character of a local Asiatic deity—"ruler of Chryse and goodly Cilla and Tenedos." He may be compared with the Clarian and the Lycian god, but he is unlike the Apollo of Dorian times, the "deliverer" and giver of oracles. Again, the worship of Dionysus,

and of Demeter and Persephone, is mainly or wholly post-Homeric. The greatest difference, however, lies in the absence of hero-worship from the Homeric order of things. Castor and Polydeuces, for instance, are simply brothers of Helen who died before the expedition to Troy (*Il.* iii. 243.)

The military tactics of Homer belong to the age when the chariot was the principal engine of warfare. Cavalry is unknown, and the battles are mainly decided by the prowess of the chiefs. The use of the trumpet is also later. It has been supposed indeed that the art of riding was known in Homer's own time, because it occurs in comparisons. But the riding which he describes (*Il.* xv. 679) is a mere exhibition of skill, such as we may see in a modern circus. And though he mentions the trumpet (*Il.* xviii. 219), there is nothing to show that it was used, as in historical times, to give the signal for the charge.

The chief industries of Homeric times are those of the carpenter (τέκτων), the worker in leather (σκυτοτόμος), the smith or worker in metal (χαλκεύς)—whose implements are the hammer and pincers—and the potter (κεραμεύς); also spinning and weaving, which were carried on by the women. The fine arts are represented by sculpture in relief, carving in wood and ivory, embroidery. Statuary is later; it appears to have come into existence in the 7th century, about the time when casting in metal was invented by Rhoecus of Samos. In general, as was well shown by A. S. Murray,[6] Homeric art does not rise above the stage of *decoration*, applied to objects in common use; while in point of style it is characterized by a richness and variety of ornament which is in the strongest contrast to the simplicity of the best periods. It is the work, in short, not of artists but of skilled workmen; the ideal artist is "Daedalus," a name which implies mechanical skill and intricate workmanship, not beauty of design.

One art of the highest importance remains. The question whether writing was known in the time of Homer was raised in antiquity, and has been debated with especial eagerness ever since the appearance of Wolf's *Prolegomena*. In this case we have to consider not merely the indications of the poems, but also the external evidence which we possess regarding the use of writing in Greece. This latter kind of evidence is much more considerable now than it was in Wolf's time. (See WRITING elsewhere in these volumes.)

The oldest known stage of the Greek alphabet appears to be represented by inscriptions of the islands of Thera, Melos and Crete, which are referred to the 40th Olympiad (620 B.C.). The oldest specimen of a distinctively Ionian alphabet is the famous inscription of the mercenaries of Psammetichus, in Upper Egypt, as to which the only doubt is whether the Psammetichus in question is the first or the second, and consequently whether the inscription is to be dated Ol. 40 or Ol. 47. Considering that the divergence of two alphabets (like the difference of two dialects) requires both time and familiar use, we may gather from these facts that writing was well known in Greece early in the 7th century B.C.[7]

The rise of prose composition in the 6th century B.C. has been thought to mark the time when memory was practically superseded by writing as a means of preserving literature—the earlier use of letters being confined to short documents, such as lists of names, treaties, laws, &c. This conclusion, however, is by no means necessary. It may be that down to comparatively late rimes poetry was not commonly read, but was recited from memory. But the question is—From what time are we to suppose that the preservation of long poems was generally secured by the existence of written copies? Now, without counting the Homeric poems—which doubtless had exceptional advantages in their fame and popularity—we find a body of literature dating from the 8th century B.C. to which the theory of oral transmission is surely inapplicable. In the Trojan cycle alone we know of the two epics of Arctinus, the *Little Iliad* of Lesches, the *Cypria*, the *Nostoi*. The Theban cycle is represented by the *Thebaid* (which Callinus, who was of the 7th century, ascribed to Homer) and the *Epigoni*. Other ancient epics—ancient enough to have passed under the name of Homer—are the *Taking of Oechalia*, and the *Phocaïs*. Again, there are the numerous works attributed to Hesiod and other poets of the didactic, mythological and quasi-historical schools—Eumelus of Corinth, Cinaethon of Sparta, Agias of Troezen, and many more. The preservation of this vast mass can only be attributed to writing, which must therefore have been in use for two centuries or more before there was any considerable prose literature. Nor is this in itself improbable.

The further question, whether the *Iliad* and *Odyssey* were originally written, is much more difficult. External evidence does not reach back so far, and the internal evidence is curiously indecisive. The only passage which can be interpreted as a reference to writing occurs in the story of Bellerophon, told by Glaucus in the sixth book of the *Iliad*. Proetus, king of Corinth, sent Bellerophon to his father-in-law the king of Lycia, and gave him "baneful tokens" (σήματα λυγρά, *i.e.* tokens which were messages of death), "scratching on a folded tablet many spirit-destroying things, and bade him show this to his father-in-law, that he might perish." The king of Lycia asked duly (on the tenth day from the guest's coming) for a token (ἤτεε σῆμα ἰδέσθαι), and then knew what Proetus wished to be done. In this account there is nothing to show

exactly how the message of Proetus was expressed. The use of writing for the purpose of the token between “guest-friends” (*tessera hospitalis*) is certainly very ancient. Mommsen (*Röm. Forsch*. i. 338 ff.) aptly compares the use in treaties, which are the oldest species of public documents. But we may suppose that tokens of some kind—like the marks which the Greek chiefs make on the lots (*Il.* vii. 175 ff.)—were in use before writing was known. In any system of signs there were doubtless means of recommending a friend, or giving warning of the presence of an enemy. There is no difficulty, therefore, in understanding the message of Proetus without alphabetical writing. But, on the other hand, there is no reason for so understanding it.

If the language of Homer is so ambiguous where the use of writing would naturally be mentioned, we cannot expect to find more decisive references elsewhere. Arguments have been founded upon the descriptions of the blind singers in the *Odyssey*, with their songs inspired directly by the Muse; upon the appeals of the poet to the Muses, especially in such a place as the opening of the Catalogue; upon the Catalogue itself, which is a kind of historical document put into verse to help the memory; upon the shipowner in the *Odyssey*, who has “a good memory for his cargo,” &c. It may be answered, however, that much of this is traditional, handed down from the time when all poetry was unwritten. Moreover it is one thing to recognize that a literature is essentially oral in its form, characteristic of an age which was one of hearing rather than of reading, and quite another to hold that the same literature was preserved entirely by oral transmission.

The result of these various considerations seems to be that the age which we may call the Homeric—the age which is brought before us in vivid outlines in the *Iliad* and *Odyssey*—lies beyond the earliest point to which history enables us to penetrate. And so far as we can draw any conclusion as to the author (or authors) of the two poems, it is that the whole debate between the cities of Aeolis and Ionia was wide of the mark. The author of the *Iliad*, at least, was evidently a European Greek who lived before the colonization of Asia Minor; and the claims of the Asiatic cities mean no more than that in the days of their prosperity these were the chief seats of the fame of Homer.

This is perhaps the place to consider whether the poems are to be regarded as possessing in any degree the character; of historical record. The question is one which in the absence of satisfactory criteria will generally be decided by taste and predilection. A few suggestions, however, may be made.

1. The events of the *Iliad* take place in a real locality, the general features of which are kept steadily in view. There is no doubt about Sigeum and Rhoeteum, or the river Scamander, or the islands Imbros, Lemnos and Tenedos. It is at least remarkable that a legend of the national interest of the “tale of Troy” should be so definitely localized, and that in a district, which was never famous as a seat of Greek population. It may be urged, too, that the story of the *Iliad* is singularly free from the exaggerated and marvellous character which belongs as a rule to the legends of primitive peoples. The apple of discord, the arrows of Philoctetes, the invulnerability of Achilles, and similar fancies, are the additions of later poets. This sobriety, however, belongs not to the whole *Iliad*, but to the events and characters of the war. Such figures as Bellerophon, Nïobe, the Amazons, which are thought of as traditions from an earlier generation, show the marvellous element at work.

2. Certain persons and events in the story have a distinctly mythical stamp. Helen is a figure of this kind. There was another story according to which she was carried off by Theseus, and recovered by her brothers the Dioscuri. There are even traces of a third version, in which the Messenian twins, Idas and Lynceus, appear.

3. The analogy of the French epic, the *Chanson de Roland*, favours the belief that there was some nucleus of fact. The defeat of Roncevaux was really suffered by a part of Charlemagne’s army. But the Saracen army is purely mythical, the true enemy having been the Gascons. If similarly we leave, as historical, the plain of Troy, and the name Agamemnon, we shall perhaps not be far wrong.

(*b*) The dialect of Homer is an early or “primitive” form of the language which we know as that of Attica in the classical age of Greek literature. The proof of this proposition is to be obtained chiefly by comparing the grammatical formation and the syntax of Homer with those of Attic. The comparison of the vocabulary is in the nature of things less conclusive on the question of date. It would be impossible to give the evidence in full without writing a Homeric grammar, but a few specimens may be of interest.

1. The first aorist in Greek being a “weak” tense, *i.e.* formed by a suffix (-σᾰ), whereas the second aorist is a “strong” tense, distinguished by the form of the root-syllable, we expect to find a constant tendency to diminish the number of second aorists in use. No new second aorists, we may be sure, were formed any more than new “strong” tenses, such as *came* or *sang*, can be formed in English. Now in Homer there are upwards of 80 second aorists (not reckoning aorists of “Verbs in μι,” such as ἔστην, ἔβην), whereas in all Attic prose not more

than 30 are found. In this point therefore the Homeric language is manifestly older. In Attic poets, it is true, the number of such aorists is much larger than in prose. But here again we find that they bear witness to Homer. Of the poetical aorists in Attic the larger part are also Homeric. Others are not really Attic at all, but borrowed from earlier Aeolic and Doric poetry. It is plain, in short, that the later poetical vocabulary was separated from that of prose mainly by the forms which the influence of Homer had saved from being forgotten.

2. While the whole class of "strong" aorists diminished, certain smaller groups in the class disappeared altogether. Thus we find in Homer, but not in the later language:—

(*a*) The second aorist middle without the "thematic" ε or ο: as ἔβλη-το, *was struck*; ἔφθι-το, *perished*; ἅλ-το, *leaped*.

(*b*) The aorist formed by reduplication: as δέδαεν, *taught*; λελαβέσθαι, *to seize*. These constitute a distinct formation, generally with a "causative" meaning; the solitary Attic specimen is ἤγαγον.

3. It had long been known that the subjunctive in Homer often takes a short vowel (*e.g.* in the plural, -ομεν, -ετε instead of -ωμεν, -ητε, and in the Mid. -ομαι, &c. instead of -ωμαι, &c.). This was generally said to be done by "poetic licence," or *metri gratia*. In fact, however, the Homeric subjunctive is almost quite "regular," though the rule which it obeys is a different one from the Attic. It may be summed up by saying that the subjunctive takes ω or η when the indicative has ο or ε, and not otherwise. Thus Homer has ἴ-μεν, *we go*, ἴ-ο-μεν, *let us go*. The later ἴ-ω-μεν was at first a solecism, an attempt to conjugate a "verb in μι" like the "verbs in ω." It will be evident that under this rule the perfect and first aorist subjunctive should always take a short vowel; and this accordingly is the case, with very few exceptions.

4. The article (ὁ, ἡ, τό) in Homer is chiefly used as an independent pronoun (*he, she, it*), a use which in Attic appears only in a few combinations (such as ὁ μὲν ... ὁ δέ, *the one ... the other*). This difference is parallel to the relation between the Latin *ille* and the article of the Romance languages.

5. The prepositions offer several points of comparison. What the grammarians called "tmesis," the separation of the preposition from the verb with which it is compounded, is peculiar to Homer. The true account of the matter is that in Homer the place of the preposition is not rigidly fixed, as it was afterwards. Again, "with" is in Homer σύν (with the dative), in Attic prose μετά with the genitive. Here Attic poetry is intermediate; the use of σύν is retained as a piece of poetical tradition.

6. In addition to the particle ἄν, Homer has another, κεν, hardly distinguishable in meaning. The Homeric uses of ἄν and κεν are different in several respects from the Attic, the general result being that the Homeric syntax is more elastic. And yet it is perfectly definite and precise. Homer uses no constructions loosely or without corresponding differences of meaning. His rules are equally strict with those of the later language, but they are not the same rules. And they differ chiefly in this, that the less common combinations of the earlier period were disused altogether in the later.

7. In the vocabulary the most striking difference is that many words appear from the metre to have contained a sound which they afterwards lost, viz. that which is written in some Greek alphabets by the "digamma" ϝ Thus the words ἄναξ, ἄστυ, ἔργον, ἔπος, and many others must have been written at one time ϝάναξ, ϝάστυ, ϝέργον, ϝέπος. This letter, however, died out earlier in Ionic than in most dialects, and there is no proof that the Homeric poems were ever written with it.

These are not, speaking generally, the differences that are produced by the gradual divergence of dialects in a language. They are rather to be classed with those which we find between the earlier and the later stages of every language which has had a long history. The Homeric dialect has passed into New Ionic and Attic by gradual but ceaseless development of the same kind as that which brought about the change from Vedic to classical Sanskrit, or from old high German to the present dialects of Germany.

The points that have been mentioned, to which many others might be added, make it clear that the Homeric and Attic dialects are separated by differences which affect the whole structure of the language, and require a considerable time for their development. At the same time there is hardly one of these differences which cannot be accounted for by the natural growth of the language. It has been thought indeed that the Homeric dialect was a mixed one, mainly Ionic, but containing Aeolic and even Doric forms; this, however, is a mistaken view of the processes of language. There are doubtless many Homeric forms which were unknown to the later Ionic and Attic, and which are found in Aeolic or other dialects. In general, however, these are *older* forms, which must have existed in Ionic at one time, and may very well have belonged to the Ionic of Homer's time. So too the digamma is called "Aeolic" by grammarians, and is found on Aeolic and Doric inscriptions. But the letter was one of the original alphabet, and was retained universally as a numeral. It can only have fallen into disuse by degrees, as

the sound which it denoted ceased to be pronounced. The fact that there are so many traces of it in Homer is a strong proof of the antiquity of the poems, but no proof of admixture with Aeolic.

There is one sense, however, in which an admixture of dialects may be recognized. It is clear that the variety of forms in Homer is too great for any actual spoken dialect. To take a single instance: it is impossible that the genitives in -οιο and in -ου should both have been in everyday use together. The form in -οιο must have been poetical or literary, like the old English forms that survive in the language of the Bible. The origin of such double forms is not far to seek. The effect of dialect on style was always recognized in Greece, and the dialect which had once been adopted by a particular kind of poetry was ever afterwards adhered to. The Epic of Homer was doubtless formed originally from a spoken variety of Greek, but became literary and conventional with time. It is Homer himself who tells us, in a striking passage (*Il.* iv. 437) that all the Greeks spoke the same language—that is to say, that they understood one another, in spite of the inevitable local differences. Experience shows how some one dialect in a country gains a literary supremacy to which the whole nation yields. So Tuscan became the type of Italian, and Anglian of English. But as soon as the dialect is adopted, it begins to diverge from the colloquial form. Just as modern poetical Italian uses many older grammatical forms peculiar to itself, so the language of poetry, even in Homeric times, had formed a deposit (so to speak) of archaic grammar. There were doubtless poets before Homer, as well as brave men before Agamemnon; and indeed the formation of a poetical dialect such as the Homeric must have been the work of several generations. The use of that dialect (instead of Aeolic) by the Boeotian poet Hesiod, in a kind of poetry which was not of the Homeric type, tends to the conclusion that the literary ascendancy of the epic dialect was anterior to the *Iliad* and *Odyssey*, and independent of the influence exercised by these poems.

What then was the original language of Homer? Where and when was it spoken? [The answer given to this question by Aug. Fick (in 1883) and still held, with modifications, by some European scholars can no longer be maintained. Fick's original statement was that in or about the 6th century B.C. the poems, which had originally worn an Aeolic dress, were transposed into 632
Ionic. To this it is easily answered that such an event is not only unique in history, but contrary to all that we know of the Greek genius. At the period in question an Aeolic literature, the lyrics of Sappho and Alcaeus, were in existence. If it was found necessary to transpose the Aeolic Homer, why did the Aeolic lyric verse escape? If, however, as is the view of some of Fick's followers, the transposition took place several centuries earlier, before species of literature had appropriated particular dialects, then the linguistic facts upon which Fick relied to distinguish the "Aeolic" and "Ionic" elements in Homer disappear. We have no means of knowing what the Aeolic and Ionic of say the 9th century were, or if there were such dialects at all. Certain prominent historical differences between Aeolic and Ionic (the digamma and $\bar{\alpha}$) are known to be unoriginal. The view that Homer underwent at any time a passage from one dialect to another may be dismissed. The tendency of modern dialectologists is to divide the Greek dialects into Dorian and non-Dorian. The non-Dorian dialects, Ionic, Attic and the various forms of Aeolic, are regarded as relatively closely akin, and go by the common name "Achaean." They formed the common language of Greece before the Doric invasion. As the scene which Homer depicts is prae-Dorian Greece, it is reasonable to call his language Achaean. The historical divergences of Achaean into Aeolian and Ionic were later than the Migration, and were due to the well-known effects of change of soil and air.

To what local variety of Achaean Homeric Greek belonged it is idle to ask. Thessaly, Boeotia and Mycenae have equal claims. It seems clearer that when once this local variety of Achaean had been used by poets of eminence as their vehicle for national history, it established its right to be considered the one poetical language of Hellas. As the dialect of the Arno in Italy, of Castille in Spain, by the virtue of the genius of the singers who used them, became literary "Italian" and "Spanish," so this variety of Achaean elevated itself to the position of the *volgare illustre* of Greece.[8]]

(T. W. A.)

(*c*) The influence of Homer upon the subsequent course of Greek literature is a large subject, even if we restrict it to the centuries which immediately followed the Homeric age. It will be enough to observe that in the earliest elegiac poets, such as Archilochus, Tyrtaeus and Theognis, reminiscences of Homeric language and thought meet us on every page. If the same cannot be said of the ancient epic poems, that is because of the extreme scantiness of the existing fragments. Much, however, is to be gathered from the arguments of the Trojan part of the Epic Cycle (preserved in the *Codex Venetus* of the *Iliad*, a full discussion of which will be found in the *Journal of Hellenic Studies*, 1884, pp. 1-40). An examination of these arguments throws light on two chief aspects of the relation between Homer and his "cyclic" successors.

1. The later poets sought to complete the story of the Trojan war by supplying the parts which did not fall within the *Iliad* and *Odyssey*—the so-called *ante-homerica* and *post-*

homerica. They did so largely from hints and passing references in Homer. Thus the successive episodes of the siege related at length in the *Little Iliad*, and ending with the story of the Wooden Horse, are nearly all taken from passages in the *Odyssey*. Much the same may be said of the *Nosti*.

2. With this process of expansion and development (so to speak) of Homeric themes is combined the addition of new characters. Such, in the *Little Iliad* (*e.g.*), are the story of the Palladium and of the treachery of Sinon. Such, too, in the *Cypria* are the new legendary figures —Palamedes, Iphigenia, Telephus, Laocoon. These new elements in the narrative are evidently due not only to the natural growth of legend in a people highly endowed with imagination, but in a large proportion also to the new races and countries with which the Greeks came into contact, as well as to their own rapid advance in wealth and civilization. It will be observed that the two poems of Arctinus are remarkable for the proportion of new matter of the latter kind. The *Aethiopis* shows us the allies of Troy reinforced by two peoples that are evidently creations of oriental fancy, the Amazons and Memnon with his Aethiopians. The *Iliu Persis*, again, was the oldest authority for the story of Laocoon and of the consequent escape of Aeneas—a story which connected a surviving branch of the house of Priam with the later inhabitants of the Troad. On the other hand the fate of Creusa (*sed me magna deum genetrix his detinet oris*) is a link with the worship of Cybele. The journey of Calchas to Colophon and his death there, as told in the *Nosti*, is another instance of the kind. These facts point to a familiarity with the Greek colonies in Asia which contrasts strongly with the silence of the *Iliad* and *Odyssey*.

Study of Homer.—The Homeric Question.—The critical study of Homer began in Greece almost with the beginning of prose writing. The first name is that of Theagenes of Rhegium, contemporary of Cambyses (525 B.C.), who is said to have founded the “new grammar” (the older “grammar” being the art of reading and writing), and to have been the inventor of the allegorical interpretations by which it was sought to reconcile the Homeric mythology with the morality and speculative ideas of the 6th century B.C. The same attitude in the “ancient quarrel of poetry and philosophy” was soon afterwards taken by Anaxagoras; and after him by his pupil Metrodorus of Lampsacus, who explained away all the gods, and even the heroes, as elementary substances and forces (Agamemnon as the upper air, &c.).

The next writers on Homer of the “grammatical” type were Stesimbrotus of Thasos (contemporary with Cimon) and Antimachus of Colophon, himself an epic poet of mark. The *Thebaid* of Antimachus, however, was not popular, and seems to have been a great storehouse of mythological learning rather than a poem of the Homeric school.

Other names of the pre-Socratic and Socratic times are mentioned by Xenophon, Plato and Aristotle. These were the “ancient Homerics” (οἱ ἀρχαῖοι Ὁμηρικοί), who busied themselves much with the hidden meanings of Homer; of whom Aristotle says, with his profound insight, that they see the small likenesses and overlook the great ones (*Metaph.* xii.).

The text of Homer must have attracted some attention when Antimachus came to be known as the “corrector” (διοθωτής) of a distinct edition (ἔκδοσις), Aristotle is said himself to have made a recension for the use of Alexander the Great. This is unlikely. His remarks on Homer (in the *Poetics* and elsewhere) show that he had made a careful study of the structure and leading ideas of the poems, but do not throw much light on the text.

The real work of criticism became possible only when great collections of manuscripts began to be made by the princes of the generation after Alexander, and when men of learning were employed to sift and arrange these treasures. In this way the great Alexandrian school of Homeric criticism began with Zenodotus, the first chief of the museum, and was continued by Aristophanes and Aristarchus. In Aristarchus ancient philology culminated, as philosophy had done in Socrates. All earlier learning either passed into his writings, or was lost; all subsequent research turned upon his critical and grammatical work.

The means of forming a judgment of the Alexandrine criticism are scanty. The literary form which preserved the works of the great historians was unfortunately wanting, or was not sufficiently valued, in the case of the grammarians. Abridgments and newer treatises soon drove out the writings of Aristarchus and other founders of the science. Moreover, a recension could not be reproduced without new errors soon creeping in. Thus we find that Didymus, writing in the time of Cicero, does not quote the readings of Aristarchus as we should quote a *textus receptus*. Indeed, the object of his work seems to have been to determine what those readings were. Enough, however, remains to show that Aristarchus had a clear notion of the chief problems of philology (except perhaps those concerning etymology). He saw, for example, that it was not enough to find a meaning for the archaic words (the γλῶσσαι, as they were called), but that common words (such as πόνος, φόβος) had their Homeric uses, which were to be gathered by due induction. In the same spirit he looked upon the ideas and beliefs of Homer as a consistent whole, which might be determined from the evidence of the poems. He noticed especially the difference between the stories known to Homer and those given by later poets,

and made many comparisons between Homeric and later manners, arts and institutions. Again, he was sensible of the paramount value of manuscript authority, and appears to have introduced no readings from mere conjecture. The frequent mention in the Scholia of “better” and “inferior” texts may indicate a classification made by him or by the general opinion of critics. His use of the “obelus” to distinguish spurious verses, which made so large a part of his fame in antiquity, has rather told against him with modern scholars.[9] It is chiefly interesting as a proof of the confusion in which the text must have been before the Alexandrian times; for it is impossible to understand the readiness of Aristarchus to suspect the genuineness of verses unless the state of the copies had pointed to the existence of numerous interpolations. On this matter, however, we are left to conjecture.

Our knowledge of Alexandrian criticism is derived almost wholly from a single document, the famous *Iliad* of the library of St Mark in Venice (*Codex Venetus* 454, or *Ven. A*), first published by the French scholar Villoison in 1788 (*Scholia antiquissima ad Homeri Iliadem*). This manuscript, written in the 10th century, contains (1) the best text of the *Iliad*, (2) the critical marks of Aristarchus and (3) Scholia, consisting mainly of extracts from four grammatical works, viz. Didymus (contemporary of Cicero) on the recension of Aristarchus, Aristonicus (fl. 24 B.C.) on the critical marks of Aristarchus, Herodian (fl. A.D. 160) on the accentuation, and Nicanor (fl. A.D. 127) on the punctuation, of the *Iliad*.

These extracts present themselves in two distinct forms. One series of scholia is written in the usual way, on a margin reserved for the purpose. The other consists of brief scholia, written in very small characters (but of the same period) on the narrow space left vacant round the text. Occasionally a scholium of this kind gives the substance of one of the longer extracts; but as a rule they are distinct. It would seem, therefore, that after the manuscript was finished the “marginal scholia” were discovered to be extremely defective, and a new series of extracts was added in a form which interfered as little as possible with the appearance of the book.[10]

The mention of the Venetian Scholia leads us at once to the Homeric controversy; for the immortal *Prolegomena* of F. A. Wolf[11] appeared a few years after Villoison’s publication, and was founded in great measure upon the fresh and abundant materials which it furnished. Not that the “Wolfian theory” of the Homeric poems is directly supported by anything in the Scholia; the immediate object of the *Prolegomena* was not to put forward that theory, but to elucidate the new and remarkable conditions under which the text of Homer had to be settled, viz. the discovery of an *apparatus criticus* of the 2nd century B.C. The questions regarding the original structure and early history of the poems were raised (forced upon him, it may be said) by the critical problem; but they were really originated by facts and ideas of a wholly different order.

The 18th century, in which the spirit of classical correctness had the most absolute dominion, did not come to an end before a powerful reaction set in, which affected not only literature but also speculation and politics. In this movement the leading ideas were concentrated in the word Nature. The natural condition of society, natural law, natural religion, the poetry of nature, gained a singular hold, first on the English philosophers from Hume onwards, and then (through Rousseau chiefly) on the general drift of thought and action in Europe. In literature the effect of these ideas was to set up a false opposition between nature and art. As political writers imagined a patriarchal innocence prior to codes of law, so men of letters sought in popular unwritten poetry the freshness and simplicity which were wanting in the prevailing styles. The blind minstrel was the counterpart of the noble savage. The supposed discovery of the poems of Ossian fell in with this train of sentiment, and created an enthusiasm for the study of early popular poetry. Homer was soon drawn into the circle of inquiry. Blackwell (Professor of Greek at Aberdeen) had insisted, in a book published in 1735, on the “naturalness” of Homer; and Wood (*Essay on the Original Genius of Homer*, London, 1769) was the first who maintained that Homer composed without the help of writing, and supported his thesis by ancient authority, and also by the parallel of Ossian. Both these books were translated into German, and their ideas passed into the popular philosophy of the day. Everything in short was ripe for the reception of a book that brought together, with masterly ease and vigour, the old and the new Homeric learning, and drew from it the historical proof that Homer was no single poet, writing according to art and rule, but a name which stood for a golden age of the true spontaneous poetry of genius and nature.

The part of the *Prolegomena* which deals with the original form of the Homeric poems occupies pp. xl.-clx. (in the first edition). Wolf shows how the question of the date of writing meets us on the threshold of the textual criticism of Homer and accordingly enters into a full discussion, first of the external evidence, then of the indications furnished by the poems. Having satisfied himself that writing was unknown to Homer, he is led to consider the real mode of transmission, and finds this in the Rhapsodists, of whom the Homeridae were an hereditary school. And then comes the conclusion to which all this has been tending: “the die is cast”—the *Iliad* and *Odyssey* cannot have been composed in the form in which we know them without the aid of writing. They must therefore have been, as Bentley had said, “a sequel of songs and rhapsodies,” “loose songs not collected together in the form of an epic poem till

about 500 years after." This conclusion he then supports by the character attributed to the "Cyclic" poems (whose want of unity showed that the structure of the *Iliad* and *Odyssey* must be the work of a later time), by one or two indications of imperfect connexion, and by the doubts of ancient critics as to the genuineness of certain parts. These, however, are matters of conjecture. "Historia loquitur." The voice of antiquity is unanimous in declaring that "Peisistratus first committed the poems of Homer to writing, and reduced them to the order in which we now read them."

The appeal of Wolf to the "voice of all antiquity" is by no means borne out by the different statements on the subject. According to Heraclides Ponticus (pupil of Plato), the poetry of Homer was first brought to the Peloponnesus by Lycurgus, who obtained it from the descendants of Creophylus (*Polit.* fr. 2). Plutarch in his *Life of Lycurgus* (c. 4) repeats this story, with the addition that there was already a faint report of the poems in Greece, and that certain detached fragments were in the possession of a few persons. Again, the Platonic dialogue *Hipparchus* (which though not genuine is probably earlier than the Alexandrian times) asserts that Hipparchus, son of Peisistratus, first brought the poems to Athens, and obliged the rhapsodists at the Panathenaea to follow the order of the text, "as they still do," instead of reciting portions chosen at will. The earliest authority for attributing any work of the kind to Peisistratus is the well-known passage of Cicero (*De Orat.* 3. 34: "Quis doctior eisdem temporibus illis, aut cujus eloquentia litteris instructior fuisse traditur quam Pisistrati? qui primus Homeri libros, confusos antea, sic disposuisse dicitur ut nunc habemus"). To the same effect Pausanias (vii. p. 594) says that the change of the name Donoessa to Gonoessa (in *Il.* ii. 573) was thought to have been made by "Peisistratus or one of his companions," when he collected the poems, which were then in a fragmentary condition. Finally, Diogenes Laertius (i. 57) says that Solon made a law that the poems should be recited with the help of a prompter so that each rhapsodist should begin where the last left off; and he argues from this that Solon did more than Peisistratus to make Homer known. The argument is directed against a certain Dieuchidas of Megara, who appears to have maintained that the verses about Athens in the Catalogue (*Il.* ii. 546-556) were interpolated by Peisistratus. The passage is unfortunately corrupt, but it is at least clear that in the time of Solon, according to Diogenes, there were complete copies of the poems, such as could be used to control the recitations. Hence the account of Diogenes is quite irreconcilable with the notices on which Wolf relied.

It is needless to examine the attempts which have been made to harmonize these accounts. Such attempts usually start with the tacit assumption that each of the persons concerned—Lycurgus, Solon, Peisistratus, Hipparchus—must have done *something* for the text of Homer, or for the regulation of the rhapsodists. But we have first to consider whether any of the accounts come to us on such evidence that we are bound to consider them as containing a nucleus of truth.

In the first place, the statement that Lycurgus obtained the poems from descendants of Creophylus must be admitted to be purely mythical. But if we reject it, have we any better reason for believing the parallel assertion in the Platonic *Hipparchus*? It is true that Hipparchus is undoubtedly a real person. On the other hand it is evident that the Peisistratidae soon became the subject of many fables. Thucydides notices as a popular mistake the belief that Hipparchus was the eldest son of Peisistratus, and that consequently he was the reigning "tyrant" when he was killed by Aristogiton. The Platonic *Hipparchus* follows this erroneous version, and may therefore be regarded as representing (at best) mere local tradition. We may reasonably go further, and see in this part of the dialogue a piece of historical romance, designed to put the "tyrant" family in a favourable light, as patrons of literature and learning.

Again, the account of the *Hipparchus* is contradicted by Diogenes Laërtius, who says that Solon provided for the due recitation of the Homeric poems. The only good authorities as to this point are the orators Lycurgus and Isocrates, who mention the law prescribing the recitation, but do not say when or by whom it was enacted. The inference seems a fair one, that the author of the law was really unknown.

With regard to the statements which attribute some work in connexion with Homer to Peisistratus, it was noticed by Wolf that Cicero, Pausanias and the others who mention the matter do so *nearly in the same words*, and, therefore, appear to have drawn from a common source. This source was in all probability an epigram quoted in two of the short lives of Homer, and there said to have been inscribed on the statue of Peisistratus at Athens. In it Peisistratus is made to say of himself that he "collected Homer, who was formerly sung in fragments, for the golden poet was a citizen of ours, since we Athenians founded Smyrna." The other statements repeat these words with various minor additions, chiefly intended to explain how the poems had been reduced to this fragmentary condition, and how Peisistratus set to work to restore them. Thus all the authority for the work of Peisistratus "reduces itself to the testimony of a single anonymous inscription" (Nutzhorn p. 40). Now, what is the value of that testimony? It is impossible of course to believe that a statue of Peisistratus was set up at Athens in the time of the free republic. The epigram is almost certainly a mere literary exercise. And what exactly does it say? Only that Homer was *recited in fragments* by the rhapsodists, and that these partial recitations were made into a continuous whole by Peisistratus; which does not

necessarily mean more than that Peisistratus did what other authorities ascribe to Solon and Hipparchus, viz. regulated the recitation.

Against the theory which sees in Peisistratus the author of the first complete text of Homer we have to set the absolute silence of Herodotus, Thucydides, the orators and the Alexandrian grammarians. And it can hardly be thought that their silence is accidental. Herodotus and Thucydides seem to tell us all that they know of Peisistratus. The orators Lycurgus and Isocrates make a great deal of the recitation of Homer at the Panathenaea, but know nothing of the poems having been collected and arranged at Athens, a fact which would have redounded still more to the honour of the city. Finally, the Scholia of the *Ven. A* contain no reference or allusion to the story of Peisistratus. As these Scholia are derived in substance from the writings of Aristarchus, it seems impossible to believe that the story was known to him. The circumstance that it is referred to in the *Scholia Townleiana* and in Eustathius, gives additional weight to this argument.

The result of these considerations seems to be that nothing rests on good evidence beyond the fact that Homer was recited by law at the Panathenaic festival. The rest of the story is probably the result of gradual expansion and accretion. It was inevitable that later writers should speculate about the authorship of such a law, and that it should be attributed with more or less confidence to Solon or Peisistratus or Hipparchus. The choice would be determined in great measure by political feeling. It is probably not an accident that Dieuchidas, who attributed so much to Peisistratus, was a Megarian. The author of the *Hipparchus* is evidently influenced by the anti-democratical tendencies in which he only followed Plato. In the times to which the story of Peisistratus can be traced, the 1st century B.C., the substitution of the "tyrant" for the legislator was extremely natural. It was equally natural that the importance of his work as regards the text of Homer should be exaggerated. The splendid patronage of letters by the successors of Alexander, and especially the great institutions which had been founded at Alexandria and Pergamum, had made an impression on the imagination of learned men which was reflected in the current notions of the ancient despots. It may even be suspected that anecdotes in praise of Peisistratus and Hipparchus were a delicate form of flattery addressed to the reigning Ptolemy. Under these influences the older stories of Lycurgus bringing Homer to the Peloponnesus, and Solon providing for the recitation at Athens, were thrown into the shade.

In the later Byzantine times it was believed that Peisistratus was aided by seventy grammarians, of whom Zenedotus and Aristarchus were the chief. The great Alexandrian grammarians had become figures in a new mythology. It is true that Tzetzes, one of the writers from whom we have this story, gives a better version, according to which Peisistratus employed four men, viz. Onomacritus, Zopyrus of Heraclea, Orpheus of Croton, and one whose name is corrupt (written ἐπικόγκυλος). Many scholars (among them Ritschl) accept this account as probable. Yet it rests upon no better evidence than the other.

The effect of Wolf's *Prolegomena* was so overwhelming that, although a few protests were made at the time, the true Homeric controversy did not begin till after Wolf's death (1824). His speculations were thoroughly in harmony with the ideas and sentiment of the time, and his historical arguments, especially his long array of testimonies to the work of Peisistratus, were hardly challenged.

The first considerable antagonist of the Wolfian school was G. W. Nitzsch, whose writings cover the years 1828-1862, and deal with every side of the controversy. In the earlier part of his *Meletemata* (1830) he took up the question of written or unwritten literature, on which Wolf's whole argument turned, and showed that the art of writing must be anterior to Peisistratus. In the later part of the same series of discussions (1837), and in his chief work (*Die Sagenpoesie der Griechen*, 1852), he investigated the structure of the Homeric poems, and their relation to the other epics of the Trojan cycle. These epics had meanwhile been made the subject of a work which for exhaustive learning and delicacy of artistic perception has few rivals in the history of philology, the *Epic Cycle* of F. G. Welcker. The confusion which previous scholars had made between the ancient post-Homeric poets (Arctinus, Lesches, &c.) and the learned mythological writers (such as the "scriptor cyclicus" of Horace) was first cleared up by Welcker. Wolf had argued that if the cyclic writers had known the *Iliad* and *Odyssey* which we possess, they would have imitated the unity of structure which distinguishes these two poems. The result of Welcker's labours was to show that the Homeric poems had influenced both the form and the substance of epic poetry.

In this way there arose a conservative school who admitted more or less freely the absorption of pre-existing lays in the formation of the *Iliad* and *Odyssey*, and also the existence of considerable interpolations, but assigned the main work of formation to prehistoric times, and to the genius of a great poet. Whether the two epics were by the same author remained an open question; the tendency of this group of scholars was decidedly towards separation. Regarding the use of writing, too, they were not unanimous. K. O. Müller, for instance, maintained the view of Wolf on this point, while he strenuously combated the inference which Wolf drew from it.

The *Prolegomena* bore on the title-page the words "Volumen I."; but no second volume ever

appeared, nor was any attempt made by Wolf himself to carry his theory further. The first important steps in that direction were taken by Gottfried Hermann, chiefly in two dissertations, *De interpolationibus Homeri* (Leipzig, 1832), and *De iteratis Homeri* (Leipzig, 1840), called forth by the writings of Nitzsch. As the word "interpolation" implies, Hermann did not maintain the hypothesis of a congeries of independent "lays." Feeling the difficulty of supposing that all the ancient minstrels sang of the "wrath of Achilles" or the "return of Ulysses" (leaving out even the capture of Troy itself), he was led to assume that two poems of no great compass dealing with these two themes became so famous at an early period as to throw other parts of the Trojan story into the background, and were then enlarged by successive generations of rhapsodists. Some parts of the *Iliad*, moreover, seemed to him to be older than the poem on the wrath of Achilles; and thus in addition to the "Homeric" and "post-Homeric" matter he distinguished a "pre-Homeric" element.

The conjectures of Hermann, in which the Wolfian theory found a modified and tentative application, were presently thrown into the shade by the more trenchant method of Lachmann, who (in two papers read to the Berlin Academy in 1837 and 1841) sought to show that the *Iliad* was made up of sixteen independent "lays," with various enlargements and interpolations, all finally reduced to order by Peisistratus. The first book, for instance, consists of a lay on the anger of Achilles (1-347), and two continuations, the return of Chryseis (430-492) and the scenes in Olympus (348-429, 493-611). The second book forms a second lay, but several passages, among them the speech of Ulysses (278-332), are interpolated. In the third book the scenes in which Helen and Priam take part (including the making of the truce) are pronounced to be interpolations; and so on. Regarding the evidence on which these sweeping results are founded, opinions will vary. The degree of smoothness or consistency which is to be expected on the hypothesis of a single author will be determined by taste rather than argument. The dissection of the first book, for instance, turns partly on a chronological inaccuracy which might well escape the poet as well as his hearers. In examining such points we are apt to forget that the contradictions by which a story is shown to be untrue are quite different from those by which a confessedly untrue story would be shown to be the work of different authors.

Structure of the Iliad.—The subject of the Iliad, as the first line proclaims, is the "anger of Achilles." The manner in which this subject is worked out will appear from the following summary in which we distinguish (1) the plot, *i.e.* the story of the quarrel, (2) the main course of the war, which forms a sort of underplot, and (3) subordinate episodes.

I. Quarrel of Achilles with Agamemnon and the Greek army—Agamemnon, having been compelled to give up his prize Chryseis, takes Briseïs from Achilles—Thereupon Achilles appeals to his mother Thetis, who obtains from Zeus a promise that he will give victory to the Trojans until the Greeks pay due honour to her son—Meanwhile Achilles takes no part in the war.

II. Agamemnon is persuaded by a dream sent from Zeus to take the field with all his forces.

His attempt to test the temper of the army nearly leads to their return.

Catalogue of the army (probably a later addition).

Trojan muster—Trojan catalogue.

III. Meeting of the Armies—Paris challenges Menelaus—Truce made.

"Teichoscopy," Helen pointing out to Priam the Greek leaders.

The duel—Paris is saved by Aphrodite.

IV. Truce broken by Pandarus.

Advance of the armies—Battle.

V. Aristeia of Diomede—his combat with Aphrodite.

VI. —Meeting with Glaucus—Visit of Hector to the

(1-311) city, and offering of a peplus to Athena.

(312-529) Visit of Hector to Paris—to Andromache.

VII. Return of Hector and Paris to the field.

Duel of Ajax and Hector.

Truce for burial of dead.

The Greeks build a wall round their camp.

VIII. Battle—The Trojans encamp on the field.

IX. Agamemnon sends an embassy by night, offering Achilles restitution and full amends—Achilles refuses.

X. Doloneia—Night expedition of Odysseus and Diomede (in all probability added later).

XI. Aristeia of Agamemnon—he is wounded—Wounding of Diomede and Odysseus.

Achilles sends Antilochus to inquire about Machaon.

XII. Storming of the wall—the Trojans reach the ships.

XIII. Zeus ceases to watch the field—Poseidon secretly comes to the aid of the Greeks.

XIV. Sleep of Zeus, by the contrivance of Hera.

XV. Zeus awakened—Restores the advantage to the Trojans—Ajax alone defends

the ships.

XVI. Achilles is persuaded to allow Patroclus to take the field.
Patroclus drives back the Trojans—kills Sarpedon—is himself killed by Hector.

XVII. Battle for the body of Patroclus—Aristeia of Menelaus.

XVIII. News of the death of Patroclus is brought to Achilles—Thetis comes with the Nereids—promises to obtain new armour for him from Hephaestus.
The shield of Achilles described.

XIX. Reconciliation of Achilles—His grief and desire to avenge Patroclus.

XX. The gods come down to the plain—Combat of Achilles with Aeneas and Hector, who escape.

XXI. The Scamander is choked with slain—rises against Achilles, who is saved by Hephaestus.

XXII. Hector alone stands against Achilles—his flight round the walls—he is slain.

XXIII. Burial of Patroclus—Funeral games.

XXIV. Priam ransoms the body of Hector—his burial.

Such is the “action” (πρᾶξις) which in Aristotle’s opinion showed the superiority of Homer to all later epic poets. But the proof that his scheme was the work of a great poet does not depend merely upon the artistic unity which excited the wonder of Aristotle. A number of separate “lays” might conceivably be arranged and connected by a man of poetical taste in a manner that would satisfy all requirements. In such a case, however, the connecting passages would be slight and weak. Now, in the *Iliad* these passages are the finest and most characteristic. The element of connexion and unity is the story of the “wrath of Achilles”; and we have only to look at the books which give the story of the wrath to see how essential they are. Even if the ninth book is rejected (as Grote proposed), there remain the speeches of the first, sixteenth and nineteenth books. These speeches form the cardinal points in the action of the *Iliad*—the framework into which everything else is set; and they have also the best title to the name of Homer.

The further question, however, remains,—What shorter narrative piece fulfilling the conditions of an independent poem has Lachmann succeeded in disengaging from the existing *Iliad*? It must be admitted that when tried by this test his “lays” generally fail. The “quarrel of the chiefs,” the “muster of the army,” the “duel of Paris and Menelaus,” &c., are excellent beginnings, but have no satisfying conclusion. And the reason is not far to seek. The *Iliad* is not a history, nor is it a series of incidents in the history, of the siege. It turns entirely upon a single incident, occupying a few days only. The several episodes of the poem are not so many distinct stories, each with an interest of its own. They are only parts of a single main event. Consequently the type of epic poem which would be produced by an aggregation of shorter lays is not the type which we have in the *Iliad*. Rather the *Iliad* is itself a single lay which has grown with the growth of poetical art to the dimensions of an epic.

But the original nucleus and parts of the incidents may be the work of a single great poet, and yet other episodes may be of different authorship, wrought into the structure of the poem in later times. Various theories have been based on this supposition. Grote in particular held that the original poem, which he called the Achilleïs, did not include books ii.-vii., ix., x., xxiii., xxiv. Such a view may be defended somewhat as follows.

Of the books which relate the events during the absence of Achilles from the Greek ranks (ii.-xv.), the last five are directly related to the main action. They describe the successive steps by which the Greeks are driven back, first from the plain to the rampart, then to their ships. Moreover, three of the chief heroes, Agamemnon, Diomede and Ulysses, are wounded, and this circumstance, as Lachmann himself admitted, is steadily kept in mind throughout. It is otherwise with the earlier books (especially ii.-vii.). The chief incidents in that part of the poem —the panic rush to the ships, the duels of Paris and Menelaus, and of Hector and Ajax, the Aristeia of Diomede—stand in no relation to the mainspring of the poem, the promise made by Zeus to Thetis. It is true that in the thirteenth and fourteenth books the purpose of Zeus is thwarted for a time by other gods; but in books ii.-vii. it is not so much thwarted as ignored. Further, the events follow without sufficient connexion. The truce of the third book is broken by Pandarus, and Agamemnon passes along the Greek ranks with words of encouragement, but without a hint of the treachery just committed. The Aristeia of Diomede ends in the middle of the sixth book; he is uppermost in all thoughts down to ver. 311, but from this point, in the meetings of Hector with Helen and Andromache, and again in the seventh book when Hector challenges the Greek chiefs, his prowess is forgotten. Once more, some of the incidents seem to belong properly to the beginning of the war. The joy of Menelaus on seeing Paris, Priam’s ignorance of the Greek leaders, the speeches of Agamemnon in his review of the ranks (in book iv.), the building of the wall—all these are in place after the Greek landing, but hardly in the ninth year of the siege.

On the other hand, it may be said, the second book opens with a direct reference to the

events of the first, and the mention of Achilles in the speech of Thersites (ii. 239 sqq.) is sufficient to keep the main course of events in view. The Catalogue is connected with its place in the poem by the lines about Achilles (686-694). When Diomede is at the height of his Aristeia Helenus says (*Il.* vi. 99), “We did not so fear even Achilles.” And when in the third book Priam asks Helen about the Greek captains, or when in the seventh book nine champions come forward to contend with Hector, the want of the greatest hero of all is sufficiently felt. If these passages do not belong to the period of the wrath of Achilles, how are we to account for his conspicuous absence?

Further, the want of smoothness and unity which is visible in this part of the *Iliad* may be due to other causes than difference of date or authorship. A national poet such as the author of the *Iliad* cannot always choose or arrange his matter at his own will. He is bound by the traditions of his art, and by the feelings and expectations of his hearers. The poet who brought the exploits of Diomede into the *Iliad* doubtless had his reasons for doing so, which were equally strong whether he was the poet of the Achilleïs or a later Homerid or rhapsodist. And if some of the incidents (those of the third book in particular) seem to belong to the beginning of the war, it must be considered that poetically, and to the hearers of the *Iliad*, the war opens in the third book, and the incidents are of the kind that is required in such a place. The truce makes a pause which heightens the interest of the impending battle; the duel and the scene on the walls are effective in bringing some of the leading characters on the stage, and in making us acquainted with the previous history. The story of Paris and Helen especially, and the general position of affairs in Troy, is put before us in a singularly vivid manner. The book in short forms so good a *prologue* to the action of the war that we can hardly be wrong in attributing it to the genius which devised the rest of the *Iliad*.

The case against the remaining books is of a different kind. The ninth and tenth seem like two independent pictures of the night before the great battle of xi.-xvii. Either is enough to fill the space in Homer’s canvas; and the suspicion arises (as when two Platonic dialogues bear the same name) that if either had been genuine, the other would not have come into existence. If one of the two is to be rejected it must be the tenth, which is certainly the less Homeric. It relates a picturesque adventure, conceived in a vein more approaching that of comedy than any other part of the *Iliad*. Moreover, the language in several places exhibits traces of post-Homeric date. The ninth book, on the other hand, was rejected by Grote, chiefly on the grounds that the embassy to Achilles ought to have put an end to the quarrel, and that it is ignored in later passages, especially in the speeches of Achilles (xi. 609; xvi. 72, 85). His argument, 636
however, rests on an assumption which we are apt to bring with us to the reading of the *Iliad*, but which is not borne out by its language, viz. that there was some definite atonement demanded by Achilles, or due to him according to the custom and sentiment of the time. But in the *Iliad* the whole stress is laid on the anger of Achilles, which can only be satisfied by the defeat and extreme peril of the Greeks.[12] He is influenced by his own feeling, and by nothing else. Accordingly, in the ninth book, when they are still protected by the rampart (see 348 sqq.), he rejects gifts and fair words alike; in the sixteenth he is moved by the tears and entreaties of Patroclus, and the sight of the Greek ships on fire; in the nineteenth his anger is quenched in grief. But he makes no conditions, either in rejecting the offers of the embassy or in returning to the Greek army. And this conduct is the result, not only of his fierce and inexorable character, but also (as the silence of Homer shows) of the want of any general rules or principles, any code of morality or of honour, which would have required him to act in a different way.

Finally, Grote objected to the two last books that they prolong the action of the *Iliad* beyond the exigencies of a coherent scheme. Of the two, the twenty-third could more easily be spared. In language, and perhaps in style and manner, it is akin to the tenth; while the twenty-fourth is in the pathetic vein of the ninth, and like it serves to bring out new aspects of the character of Achilles.

> Dr E. Kammer has given some strong reasons for doubting the genuineness of the passage in book xx. describing the duel between Achilles and Aeneas (79-352). The incident is certainly very much out of keeping with the vehement action of that part of the poem, and especially with the moment when Achilles returns to the field, eager to meet Hector and avenge the death of his friend. The interpolation (if it is one) is probably due to local interests. It contains the well-known prophecy that the descendants of Aeneas are to rule over the Trojans,—pointing to the existence of an Aenead dynasty in the Troad. So, too, the legend of Anchises in the Hymn to Aphrodite is evidently local; and Aeneas becomes more prominent in the later epics, especially the *Cypria* and the Ἰλίου πέρσις of Arctinus.

Structure of the Odyssey.—In the *Odyssey*, as in the *Iliad*, the events related fall within a short space of time. The difficulty of adapting the long wanderings of Ulysses to a plan of this type is got over by the device—first met with in the *Odyssey*—of making the hero tell the story of his own adventures. In this way the action is made to begin almost immediately before the

actual return of Ulysses. Up to the time when he reaches Ithaca it moves on three distinct scenes: we follow the fortunes of Ulysses, of Telemachus on his voyage in the Peloponnesus, and of Penelope with the suitors. The art with which these threads are woven together was recognized by Wolf himself, who admitted the difficulty of applying his theory to the "admirabilis summa et compages" of the poem. Of the comparatively few attempts which have been made to dissect the *Odyssey*, the most moderate and attractive is that of Professor A. Kirchhoff of Berlin.[13]

> According to Kirchhoff, the *Odyssey* as we have it is the result of additions made to an original nucleus. There was first of all a "Return of Odysseus," relating chiefly the adventures with the Cyclops, Calypso and the Phaeacians; then a continuation, the scene of which lay in Ithaca, embracing the bulk of books xiii.-xxiii. The poem so formed was enlarged at some time between Ol. 30 and Ol. 50 by the stories of books x.-xii. (Circe, the Sirens, Scylla, &c.), and the adventures of Telemachus. Lastly, a few passages were interpolated in the time of Peisistratus.
>
> The proof that the scenes in Ithaca are by a later hand than the ancient "Return" is found chiefly in a contradiction discussed by Kirchhoff in his sixth dissertation (pp. 135 sqq., ed. 1869). Sometimes Ulysses is represented as aged and worn by toil, so that Penelope, for instance, cannot recognize him; sometimes he is really in the prime of heroic vigour, and his appearing as a beggarly old man is the work of Athena's wand. The first of these representations is evidently natural, considering the twenty eventful years that have passed; but the second, Kirchhoff holds, is the Ulysses of Calypso's island and the Phaeacian court. He concludes that the aged Ulysses belongs to the "continuation" (the change wrought by Athena's wand being a device to reconcile the two views), and hence that the continuation is the work of a different author.
>
> Ingenious as this is, there is really very slender ground for Kirchhoff's thesis. The passages in the second half of the *Odyssey* which describe the appearance of Ulysses do not give *two* well-marked representations of him. Sometimes Athena disguises him as a decrepit beggar, sometimes she bestows on him supernatural beauty and vigour. It must be admitted that we are not told exactly how long in each case the effect of these changes lasted. But neither answers to his natural appearance, or to the appearance which he is imagined to present in the earlier books. In the palace of Alcinous, for instance, it is noticed that he is vigorous but "marred by many ills" (*Od.* viii. 137); and this agrees with the scenes of recognition in the latter part of the poem.
>
> The arguments by which Kirchhoff seeks to prove that the stories of books x.-xii. are much later than those of book ix. are not more convincing. He points out some resemblances between these three books and the Argonautic fables, among them the circumstance that a fountain Artacia occurs in both. In the Argonautic story this fountain is placed in the neighbourhood of Cyzicus, and answers to an actual fountain known in historical times. Kirchhoff argues that the Artacia of the Argonautic story must have been taken from the real Artacia, and the Artacia of the *Odyssey* again from that of the Argonautic story. And as Cyzicus was settled from Miletus, he infers that both sets of stories must be comparatively late. It is more probable, surely, that the name Artacia occurred independently (as most geographical names are found to occur) in more than one place. Or it may be that the Artacia of the *Odyssey* suggested the name to the colonists of Cyzicus, whence it was adopted into the later versions of the Argonautic story. The further argument that the *Nostoi* recognized a son of Calypso by Ulysses but no son of Circe, consequently that Circe was unknown to the poet of the *Nostoi*, rests (in the first place) upon a conjectural alteration of a passage in Eustathius, and, moreover, has all the weakness of an argument from silence, in addition to the uncertainty arising from our very slight knowledge of the author whose silence is in question. Finally, when Kirchhoff finds traces in books x.-xii. of their having been originally told by the poet himself instead of being put in the mouth of his hero, we feel that inaccuracies of this kind are apt to creep in wherever a fictitious story is thrown into the form of an autobiography.
>
> Inquiries conducted with the refinement which characterizes those of Kirchhoff are always instructive, and his book contains very many just observations; but it is impossible to admit his main conclusions. And perhaps we may infer that no similar attempt can be more successful. It does not indeed follow that the *Odyssey* is free from interpolations. The Νεκυία of book xi. may be later (as Lauer maintained), or it may contain additions, which could easily be inserted in a description of the kind. And the last book is probably by a different hand, as the ancient critics believed. But the unity of the *Odyssey* as a whole is apparently beyond the reach of the existing weapons of criticism.

Chorizontes.—When we are satisfied that each of the great Homeric poems is either wholly or mainly the work of a single poet, a question remains which has been matter of controversy in ancient as well as modern times—Are they the work of the same poet? Two ancient grammarians, Xeno and Hellanicus, were known as the "separators" (οἱ χωρίζοντες); and Aristarchus appears to have written a treatise against their heresy. In modern times some of the greatest names have been on the side of the "Chorizontes."

If, as has been maintained in the preceding pages, the external evidence regarding Homer is of no value, the problem now before us may be stated in this form: Given two poems of which nothing is known except that they are of the same school of poetry, what is the probability that they are by the same author? We may find a fair parallel by imagining two plays drawn at hazard from the works of the great tragic writers. It is evident that the burden of proof would rest with those who held them to be by the same hand.

The arguments used in this discussion have been of very various calibre. The ancient Chorizontes observed that the messenger of Zeus is Iris in the *Iliad*, but Hermes in the *Odyssey*; that the wife of Hephaestus is one of the Charites in the *Iliad*, but Aphrodite in the *Odyssey*; that the heroes in the *Iliad* do not eat fish; that Crete has a hundred cities according to the *Iliad*, and only ninety according to the *Odyssey*; that προπάροιθε is used in the *Iliad* of place, in the *Odyssey* of time, &c. Modern scholars have added to the list, especially by making careful comparisons of the two poems in respect of vocabulary and grammatical forms. Nothing is more difficult than to assign the degree of weight to be given to such facts. The difference of subject between the two poems is so great that it leads to the most striking differences of detail, especially in the vocabulary. For instance, the word φόβος, which in Homer means “flight in battle” (not “fear”), occurs thirty-nine times in the *Iliad*, and only once in the *Odyssey*; but then there are no battles in the *Odyssey*. Again, the verb ῥήγνυμι, “to break,” occurs forty-eight times in the *Iliad*, and once in the *Odyssey*,—the reason being that it is constantly used of breaking the armour of an enemy, the gate of a city, the hostile ranks, &c. Once more, the word σκότος, “darkness,” occurs fourteen times in the *Iliad*, once in the *Odyssey*. But in every one of the fourteen places it is used of “darkness” coming over the sight of a fallen warrior. On the other side, if words such as ἀσάμινθος, “a bath,” χέρνιψ, “a basin for the hands,” λέσχη, “a place to meet and talk,” &c., are peculiar to the *Odyssey*, we have only to remember that the scene in the *Iliad* is hardly ever laid within any walls except those of a tent. These examples will show that mere statistics of the occurrence of words prove little, and that we must begin by looking to the subject and character of each poem. When we do so, we at once find ourselves in the presence of differences of the broadest kind. The *Iliad* is much more historical in tone and character. The scene of the poem is a real place, and the poet sings (as Ulysses says of Demodocus) as though he had been present himself, or had heard from one who had been. The supernatural element is confined to an interference of the gods, which to the common eye hardly disturbs the natural current of affairs. The *Odyssey*, on the contrary, is full of the magical and romantic—“speciosa miracula,” as Horace called them. Moreover, these marvels—which in their original form are doubtless as old as anything in the *Iliad*, since in fact they are part of the vast stock of popular tales (*Märchen*) diffused all over the world—are mixed up in the *Odyssey* with the heroes of the Trojan war. This has been especially noticed in the case of the story of Polyphemus, one that is found in many countries, and in versions which cannot all be derived from Homer. W. Grimm has pointed out that the behaviour of Ulysses in that story is senseless and foolhardy, utterly beneath the wise and much-enduring Ulysses of the Trojan war. The reason is simple; he is not the Ulysses of the Trojan war, but a being of the same world as Polyphemus himself—the world of giants and ogres. The question then is—How long must the name of Ulysses have been familiar in the legend (*Sage*) of Troy before it made its way into the tales of giants and ogres (*Märchen*), where the poet of the *Odyssey* found it?

Again, the Trojan legend has itself received some extension between the time of the *Iliad* and that of the *Odyssey*. The story of the Wooden Horse is not only unknown to the *Iliad*, but is of a kind which we can hardly imagine the poet of the *Iliad* admitting. The part taken by Neoptolemus seems also to be a later addition. The tendency to amplify and complete the story shows itself still more in the Cyclic poets. Between the *Iliad* and these poets the *Odyssey* often occupies an intermediate position.

This great and significant change in the treatment of the heroic legends is accompanied by numerous minor differences (such as the ancients remarked) in belief, in manners and institutions, and in language. These differences bear out the inference that the *Odyssey* is of a later age. The progress of reflection is especially shown in the higher ideas entertained regarding the gods. The turbulent Olympian court has almost disappeared. Zeus has acquired the character of a supreme moral ruler; and although Athena and Poseidon are adverse influences in the poem, the notion of a direct contest between them is scrupulously avoided. The advance of morality is shown in the more frequent use of terms such as “just” (δίκαιος), “piety” (ὁσίη), “insolence” (ὕβρις), “god-fearing” (θεουδής), “pure” (ἁγνός); and also in the plot of the story, which is distinctly a contest between right and wrong. In matters bearing upon the arts of life it is unsafe to press the silence of the *Iliad*. We may note, however, the difference between the house of Priam, surrounded by distinct dwellings for his many sons and daughters, and the houses of Ulysses and Alcinous, with many chambers under a single roof. The singer, too, who is so prominent a figure in the *Odyssey* can hardly be thought to be absent from the *Iliad* merely because the scene is laid in a camp.

Style of Homer.—A few words remain to be said on the style and general character of the Homeric poems, and on the comparisons which may be made between Homer and analogous poetry in other countries.

The cardinal qualities of the style of Homer have been pointed out once for all by Matthew Arnold. "The translator of Homer," he says, "should above all be penetrated by a sense of four qualities of his author—that he is eminently rapid; that he is eminently plain and direct, both in the evolution of his thought and in the expression of it, that is, both in his syntax and in his words; that he is eminently plain and direct in the substance of his thought, that is, in his matter and ideas; and, finally, that he is eminently noble" (*On Translating Homer*, p. 9).

The peculiar rapidity of Homer is due in great measure to his use of the hexameter verse. It is characteristic of early literature that the evolution of the thought—that is, the grammatical form of the sentence—is guided by the structure of the verse; and the correspondence which consequently obtains between the rhythm and the grammar—the thought being given out in lengths, as it were, and these again divided by tolerably uniform pauses—produces a swift flowing movement, such as is rarely found when the periods have been constructed without direct reference to the metre. That Homer possesses this rapidity without falling into the corresponding faults—that is, without becoming either "jerky" or monotonous—is perhaps the best proof of his unequalled poetical skill. The plainness and directness, both of thought and of expression, which characterize Homer were doubtless qualities of his age; but the author of the *Iliad* (like Voltaire, to whom Arnold happily compares him) must have possessed the national gift in a surpassing degree. The *Odyssey* is in this respect perceptibly below the level of the *Iliad*.

Rapidity or ease of movement, plainness of expression and plainness of thought, these are not the distinguishing qualities of the great epic poets—Virgil, Dante, Milton. On the contrary, they belong rather to the humbler epico-lyrical school for which Homer has been so often claimed. The proof that Homer does not belong to that school—that his poetry is not in any true sense "ballad-poetry"—is furnished by the higher artistic structure of his poems (already discussed), and as regards style by the fourth of the qualities distinguished by Arnold—the quality of *nobleness*. It is his noble and powerful style, sustained through every change of idea and subject, that finally separates Homer from all forms of "ballad-poetry" and "popular epic."[14]

But while we are on our guard against a once common error, we may recognize the historical connexion between the *Iliad* and *Odyssey* and the "ballad" literature which undoubtedly preceded them in Greece. It may even be admitted that the swift-flowing movement, and the simplicity of thought and style, which we admire in the *Iliad* are an inheritance from the earlier "lays"—the κλέα ἀνδρῶν such as Achilles and Patroclus sang to the lyre in their tent. Even the metre—the hexameter verse—may be assigned to them. But between these lays and Homer we must place the cultivation of epic poetry as an art.[15] The pre-Homeric lays doubtless furnished the elements of such a poetry—the alphabet, so to speak, of the art; but they must have been refined and transmuted before they formed poems like the *Iliad* and *Odyssey*.

A single example will illustrate this. In the scene on the walls of Troy, in the third book of the *Iliad*, after Helen has pointed out Agamemnon, Ulysses and Ajax in answer to Priam's 638
questions, she goes on unasked to name Idomeneus. Lachmann, whose mind is full of the ballad manner, fastens upon this as an irregularity. "The unskilful transition from Ajax to Idomeneus, about whom no question had been asked," he cannot attribute to the original poet of the lay (*Betrachtungen*, p. 15, ed. 1865). But, as was pointed out by A. Römer[16], this is exactly the variation which a *poet* would introduce to relieve the primitive *ballad-like* sameness of question and answer; and moreover it forms the transition to the lines about the Dioscuri by which the scene is so touchingly brought to a close.

Analogies.—The development of epic poetry (properly so called) out of the oral songs or ballads of a country is a process which in the nature of things can seldom be observed. It seems clear, however, that the hypothesis of epics such as the *Iliad* and *Odyssey* having been formed by putting together or even by working up shorter poems finds no support from analogy.

Narrative poetry of great interest is found in several countries (such as Spain and Servia), in which it has never attained to the epic stage. In Scandinavia, in Lithuania, in Russia, according to Gaston Paris (*Histoire poétique de Charlemagne*, p. 9), the national songs have been arrested in a form which may be called intermediate between contemporary poetry and the epic. The true epics are those of India, Persia, Greece, Germany, Britain and France. Most of these, however, fail to afford any useful points of comparison, either from their utter unlikeness to Homer, or because there is no evidence of the existence of anterior popular songs. The most instructive, perhaps the only instructive, parallel is to be found in the French

"chansons de geste," of which the *Chanson de Roland* is the earliest and best example. These poems are traced back with much probability to the 10th century. They are epic in character, and were recited by professional *jongleurs* (who may be compared to the ἀοιδοί of Homer). But as early as the 7th century we come upon traces of short lays (the so-called cantilènes) which were in the mouths of all and were sung in chorus. It has been held that the chansons de geste were formed by joining together "bunches" of these earlier cantilènes, and this was the view taken by Léon Gautier in the first edition of *Les Épopées françaises* (1865). In the second edition, of which the first volume appeared in 1878, he abandoned this theory. He believes that the epics were generally composed under the influence of earlier songs. "Our first epic poets," he says, "did not actually and materially patch together pre-existent cantilènes. They were only inspired by these popular songs; they only borrowed from them the traditional and legendary elements. In short, they took nothing from them but the ideas, the spirit, the life; they 'found' (ils ont trouvé) all the rest" (p. 80). But he admits that "some of the old poems may have been borrowed from tradition, without any intermediary" (*ibid.*); and when it is considered that the traces of the "cantilènes" are slight, and that the degree in which they inspired the later poetry must be a matter of impression rather than of proof, it does not surprise us to find other scholars (notably Paul Meyer) attaching less importance to them, or even doubting their existence.[17]

When Léon Gautier shows how history passes into legend, and legend again into romance, we are reminded of the difference noticed above between the *Iliad* and the *Odyssey*, and between Homer and the early Cyclic poems. And the peculiar degradation of Homeric characters which appears in some poets (especially Euripides) finds a parallel in the later chansons de geste.[18]

The comparison of Homer with the great literary epics calls for more discursive treatment than would be in place here. Some external differences have been already indicated. Like the French epics, Homeric poetry is indigenous, and is distinguished by this fact, and by the ease of movement and the simplicity which result from it, from poets such as Virgil, Dante and Milton. It is also distinguished from them by the comparative absence of underlying motives or sentiment. In Virgil's poetry a sense of the greatness of Rome and Italy is the leading motive of a passionate rhetoric, partly veiled by the "chosen delicacy" of his language. Dante and Milton are still more faithful exponents of the religion and politics of their time. Even the French epics are pervaded by the sentiment of fear and hatred of the Saracens. But in Homer the interest is purely dramatic. There is no strong antipathy of race or religion; the war turns on no political event; the capture of Troy lies outside the range of the *Iliad*. Even the heroes are not the chief national heroes of Greece. The interest lies wholly (so far as we can see) in the picture of human action and feeling.

BIBLIOGRAPHY.—A complete bibliography of Homer would fill volumes. The following list is intended to include those books only which are of first-rate importance.

The *editio princeps* of Homer, published at Florence in 1488, by Demetrius Chalcondylas, and the Aldine editions of 1504 and 1517, have still some value beyond that of curiosity. The chief modern critical editions are those of Wolf (Halle, 1794-1795; Leipzig, 1804-1807), Spitzner (Gotha, 1832-1836), Bekker (Berlin, 1843; Bonn, 1858), La Roche (*Odyssey*, 1867-1868; *Iliad*, 1873-1876, both at Leipzig); Ludwich (*Odyssey*, Leipzig, 1889-1891; *Iliad*, 2 vols., 1901 and 1907): W. Leaf (*Iliad*, London, 1886-1888; 2nd ed. 1900-1902); Merry and Riddell (*Odyssey* i.-xii., 2nd ed., Oxford, 1886); Monro (*Odyssey* xiii.-xxiv. with appendices, Oxford, 1901); Monro and Allen (*Iliad*), and Allen (*Odyssey*, 1908, Oxford). The commentaries of Barnes, Clarke and Ernesti are practically superseded; but Heyne's *Iliad* (Leipzig, 1802) and Nitzsch's commentary on the *Odyssey* (books i.-xii., Hanover, 1826-1840) are still useful. Nägelbach's *Anmerkungen zur Ilias* (A, B 1-483, Γ) is of great value, especially the third edition (by Autenrieth, Nuremberg, 1864). The unique *Scholia Veneta* on the *Iliad* were first made known by Villoison (*Homeri Ilias ad veteris codicis Veneti fidem recensita, Scholia in eam antiquissima ex eodem codice aliisque nunc primum edidit, cum Asteriscis, Obeliscis, aliisque signis criticis, Joh. Baptista Caspar d'Ansse de Villoison*, Venice, 1788); reprinted, with many additions from other MSS., by Bekker (*Scholia in Homeri Iliadem*, Berlin, 1825-1826). A new edition has been published by the Oxford Press (*Scholia Graeca in Homeri Iliadem*, ed. Gul. Dindorfius); six volumes have appeared (1875-1888), the last two edited by Professor E. Maass. The vast commentary of Eustathius was first printed at Rome in 1542; the last edition is that of Stallbaum (Leipzig, 1827). The Scholia on the *Odyssey* were published by Buttmann (Berlin, 1821), and with greater approach to completeness by W. Dindorf (Oxford, 1855). Although Wolf at once perceived the value of the Venetian Scholia on the *Iliad*, the first scholar who thoroughly explored them was C. Lehrs (*De Aristarchi studiis Homericis*, Königsberg, 1833; 2nd ed., Leipzig, 1865). Of the studies in the same field which have appeared since, the most important are: Aug. Nauck, *Aristophanis Byzantii fragmenta* (Halle, 1848); L. Friedländer, *Aristonici* περὶ σημείων Ἰλιαδος *reliquiae* (Göttingen, 1853); M. Schmidt, *Didymi Chalcenteri fragmenta* (Leipzig, 1854); L. Friedländer, *Nicanoris* περὶ Ἰλιακῆς στιγμῆς *reliquiae* (Berlin,

1857); Aug. Lentz, *Herodiani Technici reliquiae* (Leipzig, 1867); J. La Roche, *Die homerische Textkritik im Alterthum* (Leipzig, 1866) and *Homerische Untersuchungen* (Leipzig, 1869); Ad. Römer, *Die Werke der Aristarcheer im Cod. Venet. A.* (Munich, 1875); A. Ludwich, *Aristarch's Homerische Textkritik* (2 vols. Leipzig, 1884-1885); and *Die Homervulgata als vor-Alexandrinisch erwiesen* (Leipzig, 1898).

The literature of the "Homeric Question" begins practically with Wolf's *Prolegomena* (Halle, 1795). Of the earlier books Wood's *Essay on the Original Genius and Writings of Homer* is the most interesting. Wolf's views were skilfully popularized in W. Müller's *Homerische Vorschule* (2nd ed., Leipzig, 1836). G. Hermann's dissertations *De interpolationibus Homeri* (1832) and *De iteratis apuà Homerum* (1840) are reprinted in his *Opuscula*. Lachmann's two papers (*Betrachtungen über Homer's Ilias*) were edited together by M. Haupt (2nd ed., Berlin, 1865). Besides the somewhat voluminous writings of Nitzsch, and the discussions contained in the histories of Greek literature by K. O. Müller, Bernhardy, Ulrici and Th. Bergk, and in Grote's *History of Greece*, see Welcker, *Der epische Cyclus oder die homerischen Dichter* (Bonn, 1835-1849); on Proclus and the Cycle reference may also be made to Wilamowitz-Möllendorf p. 328 seq.; E. Bethe, *Rhein. Mus.* (1891), xxvi. p. 593 seq.; O. Immisch, *Festschrift Th. Gomperz dargebracht* (1902), p. 237 sq.; Lauer, *Geschichte der homerischen Poesie* (Berlin, 1851); Sengebusch, two dissertations prefixed to the two volumes of W. Dindorf's *Homer* in the Teubner series (1855-1856); Friedländer, *Die homerische Kritik von Wolf bis Grote* (Berlin, 1853); Nutzhorn, *Die Entstehungsweise der homerischen Gedichte, mit Vorwort von J. N. Madvig* (Leipzig, 1869); E. Kammer, *Zur homerischen Frage* (Königsberg, 1870); and *Die Einheit der Odyssee* (Leipzig, 1873); Ä. Kirchhoff, *Die Composition der Odyssee* (Berlin, 1869); Volkmann, *Geschichte und Kritik der Wolf'schen Prolegomena* (Leipzig, 1874); K. Sittl, *Die Wiederholungen in der Odyssee* (München, 1882); U. v. Wilamowitz-Möllendorf, *Homerische Untersuchungen* (Berlin, 1884); O. Seeck, *Die Quellen der Odyssee* (Berlin, 1887); F. Blass, *Die Interpolationen in der Odyssee* (Leipzig, 1905). The interest taken in the question by English students is sufficiently shown in the writings of W. E. Gladstone, F. A. Paley, Henry Hayman (in the Introduction to his *Odyssey*), P. Geddes, R. C. Jebb and A. Lang (see especially the latter's *Homer and his Age*, 1907).

The Homeric dialect must be studied in the books (such as those of G. Curtius) that deal with Greek on the comparative method. The best special work is the brief *Griechische Formenlehre* of H. L. Ahrens (Göttingen, 1852). Other important works are those of Aug. Fick: *Die homerische Odyssee in der ursprünglichen Sprachform wiederhergestelt* (Göttingen, 1883); *Die homerische Ilias* (*ibid.*, 1886); W. Schulze, *Quaestiones epicae* (Güterslohe, 1892). On Homeric syntax the chief book is B. Delbrück's *Syntactische Forschungen* (Halle, 1871-1879), especially vols. i. and iv.; on metre, &c., Hartel's *Homerische Studien* (i.-iii., Vienna); Knös, *De digammo Homerico quaestiones* (Upsala, 1872-1873-1878); Thumb, *Zur Geschichte des griech. Digamma, Indogermanische Forschungen* (1898), ix. 294 seq. The papers reprinted in Bekker's *Homerische Blätter* (Bonn, 1863-1872) and Cobet's *Miscellanea Crilica* (Leiden, 1876) are of the highest value. Hoffmann's *Quaestiones Homericae* (Clausthal, 1842) is a useful collection of facts. Buttmann's *Lexilogus*, as an example of method, is still worth study.

The antiquities of Homer—using the word in a wide sense—may be studied in the following books: Völcker, *Über homerische Geographie und Weltkunde* (Hanover, 1830); Nägelsbach's *Homerische Theologie* (2nd ed., Nuremberg, 1861); H. Brunn, *Die Kunst bei Homer* (Munich, 1868); W. W. Lloyd, *On the Homeric Design of the Shield of Achilles* (London, 1854); Buchholz, *Die homerischen Realien* (Leipzig, 1871-1873); W. Helbig, *Das homerische Epos aus den Denkmälern erläutert* (Leipzig, 1884; 2nd ed., *ibid.*, 1887); W. Reichel, *Über homerische Waffen* (Vienna, 1894); C. Robert, *Studien zur Ilias* (Berlin, 1901); W. Ridgeway, *The Early Age of Greece* (Cambridge, 1901); V. Bérard, *Les Phéniciens et l'Odyssée* (Paris, 1902-1903); C. Robert, "Topographische Probleme der Ilias," in *Hermes*, xlii., 1907, pp. 78-112.

Among other aids should be mentioned the *Index Homericus* of Seber (Oxford, 1780); Prendergast's *Concordance to the Iliad* (London, 1875); Dunbar's *id.* to the *Odyssey and Hymns* (Oxford, 1880); Frohwein, *Verbum Homericum*, (Leipzig, 1881); Gehring, *Index Homericus* (Leipzig, 1891); the *Lexicon Homericum*, edited by H. Ebeling (Leipzig, 1880-1885) and the facsimile of the cod. Ven. A (Sijthoff; Leiden, 1901), with an introduction by D. Comparetti.

(D. B. M.)

---

1 This article was thoroughly revised by Dr D. B. Monro before his death in 1905; a few points have since been added by Mr. T. W. Allen.

2 See a paper in the *Diss. Philol. Halenses*, ii. 97-219.

3 Compare the *Popular Rhymes of Scotland*, published by Robert Chambers.

4 Compare the branch of myrtle at an Athenian feast (Aristoph., *Nub.*, 1364).

5 The *Iliad* was also recited at the festival of the Brauronia, at Brauron in Attica (Hesych. *s.v.* βρανρωνίοις).

6 *Contemporary Review*, vol. xxiii. p. 218 ff.

7 The fact that the Phoenician Vau (ϝ) was retained in the Greek alphabets, and the vowel υ added, shows that when the alphabet was introduced the sound denoted by ϝ was still in full vigour. Otherwise ϝ would have been used for the vowel υ, just as the Phoenician consonant Yod became the vowel ι. But in the Ionic dialect the sound of ϝ died out soon after Homer's time, if indeed it was still pronounced then. It seems probable therefore that the introduction of the alphabet is not later than the composition of the Homeric poems.

8 See D. B. Monro's *Homer's Odyssey*, books xiii.-xxiv. (Oxford, 1901, p. 455 sqq.), and the abstract of his paper on the Homeric Dialect read to the Congress of Historical Sciences at Rome, 1903: *Atti del Congresso internazionale di scienze storiche*, ii. 152, 153, 1905, "Il Dialetto omerico."

9 See the chapter in Cobet's *Miscellanea critica*, pp. 225-239.

10 The existence of two groups of the Venetian Scholia was first noticed by Jacob La Roche, and they were first distinguished in the edition of W. Dindorf (Oxford, 1875). There is also a group of Scholia, chiefly exegetical, a collection of which was published by Villoison from a MS. Ven. 453 (s. xi.) in his edition of 1788, and has been again edited by W. Dindorf (Oxford, 1877). The most important collection of this group is contained in the *Codex Townleianus* (Burney 86 s. xi.) of the British Museum, edited by E. Maass, (Oxford, 1887-1888). The vast commentary of Eustathius (of the 12th century) marks a third stage in the progress of ancient Homeric learning.

11 *Prolegomena ad Homerum, sive de operum Homericorum prisca et genuina forma variisque mutationibus et probabili ratione emendandi.* scripsit Frid. Aug. Wolfius, volumen i. (1795).

12 On this point see a paper by Professor Packard in the *Trans. of the American Philological Association* (1876).

13 *Die Composition der Odyssee* (Berlin, 1869). A full discussion of this book is given by Dr E. Kammer, *Die Einheit der Odyssee* (Leipzig, 1873).

14 "As a poet Homer must be acknowledged to excel Shakespeare in the truth, the harmony, the sustained grandeur, the satisfying completeness of his images" (Shelley, *Essays*, &c., i. 51, ed. 1852).

15 "The old English balladist may stir Sir Philip Sidney's heart like a trumpet, and this is much; but Homer, but the few artists in the grand style, can do more—they can refine the raw natural man, they can transmute him" (*On Translating Homer*, p. 61).

16 *Die exegetischen Scholien der Ilias*, p. vii.

17 "On comprend que des chants populaires nés d'un événement éclatant, victoire ou défaite, puissent contribuer à former la tradition, à en arrêter les traits; ils peuvent aussi devenir le centre de légendes qui se forment pour les expliquer; et de la sorte leur substance au moins arrive au poëte épique qui l'introduit dans sa composition. Voilà ce qui a pu se produire pour de chants très-courts, dont il est d'ailleurs aussi difficile d'affirmer que de nier l'existence. Mais on peut expliquer la formation des chansons de geste par une autre hypothèse" (Meyer, *Recherches sur l'épopée française*, p. 65). "Ce qui a fait naître la théorie des chants 'lyrico-épiques' ou des cantilènes, c'est le système de Wolf sur les poëmes homériques, et de Lachmann sur les *Nibelungen*. Mais, au moins en ce qui concerne ce dernier poëme, le système est détruit.... On tire encore argument des romances espagnoles, qui, dit-on, sont des 'cantilènes' non encore arrivées à l'épopée.... Et c'est le malheur de cette théorie: faute de preuves directes, elle cherche des analogies au dehors: en Espagne, elle trouve des 'cantilènes,' mais pas d'épopée; en Allemagne, une épopée, mais pas de cantilènes!" (*Ibid.* p. 66).

18 A. Lang, *Contemporary Review*, vol. xvii., N.S., p. 588.

HOMER, WINSLOW (1836-1910), American painter, was born in Boston, U.S.A., on the 24th of February 1836. At the age of nineteen he was apprenticed to a lithographer. Two years later he opened a studio in Boston, and devoted much of his time to making drawings for wood-engravers. In 1859 he removed to New York, where he studied in the night-school of the National Academy of Design. During the American Civil War he was with the troops at the front, and contributed sketches to *Harper's Weekly*. The war also furnished him with the subjects for the first two pictures which he exhibited (1863), one of which was "Home, Sweet Home." His "Prisoners from the Front"—perhaps his most generally popular picture—was exhibited in New York in 1865, and also in Paris in 1867, where he was spending the year in study. Among his other paintings in oil are "Snap the Whip" (which was exhibited at the Philadelphia Centennial Exhibition of 1876, and, in company with "The Country Schoolroom," at the Paris Salon the following year), "Eating Water-melon," "The Cotton Pickers," "Visit from the Old Mistress, Sunday Morning," "The Life-Line" and "The Coming of the Gale." His genius, however, has perhaps shown better in his works in water-colour, among which are his marine studies painted at Gloucester, Mass., and his "Inside the Bar," "The Voice from the Cliffs"

(pictures of English fisherwomen), “Tynemouth,” “Wrecking of a Vessel” and “Lost on the Grand Banks.” His work, which principally consists of *genre* pictures, is characterized by strength, rugged directness and unmistakable freshness and originality, rather than by technical excellence, grace of line or beauty of colour. He was little affected by European influences. His types and scenes, apart from his few English pictures, are distinctly American—soldiers in blue, New England children, negroes in the land of cotton, Gloucester fishermen and stormy Atlantic seas. Besides being a member of the Society of Painters in Water-color, New York, he was elected in 1864 an associate and the following year a member of the National Academy of Design.

HOMESTEAD, a borough of Allegheny county, Pennsylvania, U.S.A., on the Monongahela river, 8 m. S.E. of Pittsburg. Pop. (1890) 7911; (1900) 12,554, of whom 3604 were foreign-born and 640 were negroes; (U.S. census, 1910) 18,713. It is served by the Pennsylvania and the Pittsburg & Lake Erie railways, and by the short Union Railroad, which connects with the Bessemer & Lake Erie and the Wabash railways. The borough has a Carnegie library and the C.M. Schwab Manual Training School. Partly in Homestead but chiefly in the adjoining borough of Munhall (and therefore not reported as in Homestead by the U.S. Census) is one of the largest plants in the United States for the manufacture of steel used in the construction of bridges and steel-frame buildings and of steel armour-plate, and this is its chief industry; among Homestead’s other manufactures are glass and fire-bricks. The water-works are owned and operated by the municipality. Homestead was first settled in 1871, and it was incorporated in 1880. In 1892 a labour strike lasting 143 days and one of the most serious in the history of the United States was carried on here by the National Amalgamated Association of Iron and Steel Workers of the United States against the Carnegie Steel Company. The arrival (on the 6th of July) of a force of about 200 Pinkerton detectives from New York and Chicago resulted in a fight in which about 10 men were killed, and to restore order two brigades of the state militia were called out. See Strikes and Lockouts.

HOMESTEAD AND EXEMPTION LAWS, laws (principally in the United States) designed primarily either to aid the head of a family to acquire title to a place of residence or to protect the owner against loss of that title through seizure for debt. These laws have all been enacted in America since about the middle of the 19th century, and owe their origin to the demand for a population of the right sort in a new country, to the conviction that the freeholder rather than the tenant is the natural supporter of popular government, to the effort to prevent insolvent debtors from becoming useless members of society, and to the belief that such laws encourage the stability of the family.

By the cessions of several of the older states, and by various treaties with foreign countries, public lands have been acquired for the United States in every state and territory of the Union except the original thirteen, and Maine, Vermont, Kentucky, Tennessee and Texas. For a time they were regarded chiefly as a source of revenue, but about 1820, as the need of revenue for the payment of the national debt decreased and the inhabitants of an increasing number of new states became eager to have the vacant lands within their bounds occupied, the demand that the public lands should be disposed of more in the interest of the settler became increasingly strong, and the homestead idea originated. Until the advent of railways, however, the older states of the North were opposed to promoting the development of the West in this manner, and soon afterwards the Southern representatives in Congress opposed the general homestead bills in the interests of slavery, so that except in isolated cases where settlers were desired to protect some frontier, as in Florida and Oregon, and to a limited extent in the case of the Pre-emption Act of 1841 (see below), the homestead principle was not applied by the national government until the Civil War had begun. A general homestead bill was passed by Congress in 1860, but this was vetoed by President James Buchanan; two years later, however, a similar bill became a law. The act of 1862 originally provided that any citizen of the United States, or applicant for citizenship, who was the head of a family, or twenty-one years of age, or, if younger, had served not less than fourteen days in the army or navy of the United States during an actual war, might apply for 160 acres or less of unappropriated public lands, and

might acquire title to this amount of land by residing upon and cultivating it for five years immediately following, and paying such fees as were necessary to cover the cost of administration; a homestead acquired in this manner was exempted from seizure for any debt contracted prior to the date of issuing the patent. A commutation clause of this act permitted title to be acquired after only six months of residence by paying $1.25 per acre, as provided in the Pre-emption Act of 1841. Act of 1872, amended in 1901, allows any soldier or seaman, who has served at least ninety days in the army or navy of the United States during the Civil War, the Spanish-American War or in the suppression of the insurrection in the Philippines, and was honourably discharged, to apply for a homestead, and permits the deduction of the time of such service, or, if discharged on account of wounds or other disability incurred in the line of duty, the full term of his enlistment, from the five years otherwise required for perfecting title, except that in any case he shall have resided upon and cultivated the land at least one year before the passing of title. Since 1866 mineral lands have been for the most part excluded from entry as homesteads.

In accordance with the provisions of the homestead law, 718,930 homesteads, containing 96,495,414 acres, were established in forty-two years, and besides this principal act, Congress has passed several minor ones of a like nature, that is, acts designed to benefit the actual settler who improves the land. Thus the Pre-emption Act of 1841 gave to any head of a family or any single person over twenty-one years of age, who was a citizen of the United States or had declared his intention to become one, permission to purchase not to exceed 160 acres of public lands after he had resided upon and improved the same for six months; the Timber-Culture Act of 1873 allowed title to 160 acres of public prairie-land to be given to any one who should plant upon it 40 acres of timber, and keep the same in good growing condition for ten years; and the Desert-Land Act of 1877 gave to any citizen of the United States, or to any person who had declared his intention to become one, the privilege of acquiring title to 640 acres of such public land as was not included in mineral or timber lands, and would not without irrigation produce an agricultural crop, by paying twenty-five cents an acre and creating for the tract an artificial water-supply. These several land acts, however, invited fraud to such an extent that in time they promoted the establishment of large land holdings by ranchmen and others quite as much as they encouraged settlement and cultivation, and so great was this evil that in 1891 the Timber-Culture and Pre-emption Acts were repealed, the total amount of land that could be acquired by any one person under the several land laws was limited to 320 acres, the Desert-Land Act was so amended as to require an expenditure of at least three dollars an acre for irrigation, and the original Homestead Act was so amended as to disqualify any person who was already proprietor of more than 160 acres in any state or Territory of the Union for acquiring any more land under its provisions; and in 1896 a residence of fourteen months was required before permitting commutation or the purchase of title. But even these measures were inadequate to prevent fraud. In 1894 Congress, in what is known as the Carey Act, donated to California, Oregon, Nevada, Washington, Idaho, Montana, Utah, Wyoming, Arizona, New Mexico and the Dakotas so much of 1,000,000 acres each of desert-lands as each should cause to be irrigated, reclaimed and occupied within ten years,[1] not less than 20 acres of each 160 acres to be cultivated by actual settlers; and in several of these states and territories irrigating companies have been formed and land offered to settlers in amounts not exceeding 160 acres to each, on terms requiring the settler to purchase ample and perpetual water-rights. In 1902, Congress appropriated the proceeds of the sales of public lands in these states and territories to form a reclamation fund to be used for the construction and maintenance of irrigation works, and lands reclaimed by this means are open to homestead entries, the entry-man being required to pay for the cost of reclamation in ten equal annual instalments without interest. When Texas was admitted to the Union the disposal of its public lands was reserved to the state, and under its laws every person who is the head of a family and without a homestead may acquire title to 160 acres of land by residing upon and improving it for three years; every unmarried man eighteen years of age or over may acquire title to 80 acres in the same way.

A short time before the National Homestead Act for aiding citizens to acquire homesteads went into operation, some of the state legislatures had passed homestead and exemption laws designed to protect homesteads or a certain amount of property against loss to the owners in case they should become insolvent debtors, and by the close of the century the legislature of nearly every state in the Union had passed a law of this nature. These laws vary greatly. In most states the exemption of a homestead or other property from liability for debts can be claimed only by the head of a family, but in Georgia it may be claimed by any aged or infirm person, by any trustee of a family of minor children, or by any person on whom any woman or girls are dependent for support; and in California, although the head of a family may claim exemption for a homestead valued at $5000, any other person may claim exemption for a homestead valued at $1000. In some states exemptions may be claimed either for a farm limited to 40, 80, 160 or 200 acres, or for a house and one or more lots, usually limited in size, in a town, village or city; in other states the homestead for which exemption may be claimed is

limited in value, and this value varies from $500 to $5000. With the homestead are usually included the appurtenances thereto, and the courts invariably interpret the law liberally; but many states also exempt a specified amount of personal property, including wearing apparel, furniture, provisions, tools, libraries and in some cases domestic animals and stock in trade. A few states exempt no homestead and only a small amount of personal property; Maryland, for example, exempts only $100 worth of property besides money payable in the nature of insurance, or for relief, in the event of sickness, injury or death. To some debts the exemption does not usually apply; the most common of these are taxes, purchase money, a debt secured by mortgage on the homestead and debts contracted in making improvements upon it; in Maryland the only exception is a judgment for breach of promise to marry or in case of seduction. If the homestead belongs to a married person, the consent of both husband and wife is usually required to mortgage it. Finally, some states require that the homestead for which exemption is to be claimed shall be previously entered upon record, others require only occupancy, and still others permit the homestead to be designated whenever a claim is presented.

Following the example of either the United States Congress or the state legislatures, the governments of several British colonial states and provinces have passed homestead laws. In Quebec every settler on public lands is allowed, after receiving a patent, an exemption of not to exceed 200 acres from that of his widow, of his, her or their children and descendants in the direct line. In Ontario an applicant for a homestead may have not to exceed 200 acres of unappropriated public land for farming purposes by building a house thereon, occupying it for five years, and bringing at least fifteen acres under cultivation; the exemption of such a homestead from liability to seizure for debts is, however, limited to twenty years from the date of application for the land, and does not extend even during that period to rates or taxes. Manitoba, British Columbia, Queensland, New South Wales, South Australia, West Australia and New Zealand also have liberal homestead and exemption laws.

See J. B. Sanborn, “Some Political Aspects of Homestead Legislation,” in *The American Historical Review* (1900); Edward Manson, “The Homestead Acts,” in the *Journal of the Society of Comparative Legislation* (London, 1899); S. D. Thompson, *A Treatise on Homesteads and Exemptions* (San Francisco, 1886); P. Bureau, *Le Homestead ou l’Insaisissabilité de la petite propriété foncière* (Paris, 1894), and L. Vacher, *Le Homestead aux États-Unis* (Paris, 1899).

(N. D. M.)

1 In 1901 it was provided that the ten years should date from the segregation of the lands from the public domain.

HOMEYER, KARL GUSTAV (1795-1874), German jurist, was born on the 13th of August 1795 at Wolgast in Pomerania. After studying law at the universities of Berlin, Göttingen and Heidelberg (1813-1817), he settled as a *Privatdocent*, in 1821, at the university of Berlin, where he became ordinary professor of law in 1827. His principal works are his edition of the *Sachsenspiegel* (in 3 vols., 1827, 3rd ed., 1861, containing also some other important sources of Saxon or Low German law), which is still unsurpassed in accuracy and sagacity of research, and his book on *Die Haus- und Hofmarken* (1870), in which he has given a history of the use of trade-marks among all the Teutonic nations of Europe, and which is full of important elucidations of the history of law and also contains valuable contributions to the history of art and civilization. In 1850 Homeyer was elected a member of the Berlin Academy of Sciences, in the *Transactions* of which he published various papers exhibiting profound learning (*Über die Heimat*, 1852; *Genealogie der Handschriften des Sachsenspiegels*, 1859; *Die Stadtbücher des Mittelalters*, 1860; *Der Dreissigste*, 1864, &c.). He died on the 20th of October 1874.

HOMICIDE (Lat. *homicidium*), the general and neutral term for the killing of one human being by another. The nature of the responsibility of the slayer to the state and to the relatives of the slain has been one of the chief concerns of all systems of law from the earliest times, and it has been variously considered from the points of view of the sanctity of human life, the interests of the sovereign, the injury to the family of the slain and the moral guilt, *i.e.* the

motives and intentions, of the slayer.

The earliest recorded laws (those of Khammurabi) do not contain any sweeping general provision as to the punishment of homicide. The death penalty is freely imposed but not for homicide. “If a man strike a gentleman’s daughter that she dies, his own daughter is to be put to death, if a poor man’s the slayer pays ½ mina.” In the Mosaic law the general command “Thou shalt not kill” of the Decalogue is in terms absolute. In primitive law homicide, however innocent, subjected the slayer to the lawful vengeance of the kindred of the slain, unless he could make some composition with him. This *lex talionis* (a life for a life) resulted: (1) in a course of private justice which still survives in the vendetta of Corsica and Albania, and the blood feuds arising out of “difficulties” in the southern and western parts of the United States; (2) in the recognition of sanctuaries and cities of refuge within which the avenger of blood might not penetrate to kill an innocent manslayer; and (3) in the system of wite, bote and wer, by which the life of every man had its assessed price payable to his chief and his next of kin.

It took long to induce the relatives of the slain to appreciate anything beyond the fact of the death of their kinsman or to discriminate between intentional and accidental homicide. By the laws of Khammurabi (206, 208) striking a man in a quarrel without deadly intent but with fatal effect was treated as a matter for compensation according to the rank of the slain. The Pentateuch discriminates between the man “who lieth in wait for” or “cometh presumptuously” on “his neighbour to slay him with guile” (Exodus xxi. 13, 14), and the man “who killeth his neighbour ignorantly whom he hated not in time past” (Deut. xix. 4). But even killing by misadventure exposed the slayer to the avenger of blood. “As a man goeth into the wood with his neighbour to hew wood, and his hand fetcheth a stroke with the axe to cut down a tree and the head slippeth from the helve and lighteth upon his neighbour that he die: he shall flee into one of these cities (of refuge) and live” (Deut. xix. 5).

Under the early laws of Teutonic and Celtic communities the inconveniences of the blood feud were gradually mitigated (see Criminal Law) by the system of wite and wer (or eric), but the blood feud continued long in Friesland and Lower Saxony, and in parts of Switzerland until the 16th century. In England under the Norman system homicide became a plea of the crown, and the rights of the kindred to private vengeance and to compensation were gradually superseded in favour of the right of the king to forfeitures where the homicide amounted to a crime (felony).

Though homicide was thus made a public offence and not a matter for private vengeance, it took long to discriminate between those forms of homicide which should and those which should not be punished.

The terms of act in English law used to describe *criminal* homicide are murder (*mord*, *meurtre*, *murdrum*), manslaughter and *felo de se* (or suicide by a person of sound mind).

The original meaning of the word “murder” seems to have been secret homicide,—“*Murdrum proprie dicitur mors alicujus occulta cujus interfector ignoratur*” (*Dialogus de Scaccario* i, x.); and Glanville says: *Duo sunt genera homicidii, unum est quod dicitur murdrum quod nullo vidente nullo sciente clam perpetratur, ita quod non assignatur clamor popularis* (hue and cry), *est et aliud homicidium quod diciter simplex homicidium*. After the Conquest, and for the protection of the ruling race, a fine (also called *murdrum*) was levied for the king on the hundred or other district in which a stranger was found dead, if the slayer was not brought to justice and the blood kin of the slain did not present Englishry, there being a presumption (in favour of the Exchequer) that the deceased was a Frenchman. After the assize of Clarendon (1166) the distinction between the killing of Normans and Englishmen gradually evaporated and the term murder came to acquire its present meaning of deliberate as distinct from secret homicide. In 1267 it was provided that the murder fine should not be levied in cases of death by “misadventure” (*per infortunium*).[1] But at that date and for long afterwards homicide in self-defence or by misadventure or even while of unsound mind involved at the least a forfeiture of goods, and required a pardon. These pardons, and restitution of the goods, became a matter of course, and the judges appear at a later date to have been in the habit of directing an acquittal in such cases. But it was not until 1828 that the innocence of excusable homicide was expressly declared. The rule is now expressed in s. 7 of the Offences against the Person Act 1861: “No punishment or forfeiture shall be incurred by any person who shall kill another by misfortune, or in his own defence, or in any other manner without felony.”

The further differentiation between different degrees of criminal homicide was marked by legislation of Henry VIII. (1531) taking away benefit of clergy in the case of “wilful murder with malice prepensed” (aforethought), and that phrase is still the essential element in the definition of “wilful murder,” which is committed “when a person of sound memory and discretion unlawfully killeth any reasonable creature or being and under the king’s peace with malice aforethought either express or implied” (3 Co. Inst. 47). The whole development of the

substantive law as to murder rests on judicial rulings as to the meaning of malice prepense coupled with the extrajudicial commentaries of Coke, Hale and Foster; for parliament, though often tempted by bills and codes, has never ventured on a legislative definition. Much discussion has ranged round the phrase “malice aforethought,” and it has undoubtedly been expanded by judicial decision so as to create what is described as “constructive” murder. According to the view of the criminal code commissioners of 1879 (*Parl. Pap.*, 1879, c. 23, 45, p. 23) the term “malice aforethought” is now a common name for all the following states of mind:—

1. An intent, preceding the act, to kill or do grievous bodily harm to the person or to any other person:
2. Knowledge that the act done is *likely* to produce such consequences, whether coupled with an intention to produce them or not:
3. An intent to commit any felony: or
4. An intent to resist an officer of police in the execution of his duty.

The third form of malice aforethought has been much controverted. When it was first 642
recognized as creating a liability for wilful murder almost all felonies were capital offences: but even at the end of the 17th century Lord Holt expressed a view that it should be limited to felonies involving violence or danger to life, *e.g.* assault with intent to rob, or setting fire to a dwelling-house. And Sir James Stephen’s opinion is that, to justify conviction of murder by an act done with intent to commit a felony, the act done must be one dangerous to life or known to be likely to cause death.

Starting with the definition above given, English law still retains so much of its medieval character as to presume all homicide to be “malicious, and therefore murder, unless it is either *justified* by the command or permission of the law, *excused* on the ground of accident or self-preservation, or *alleviated* into manslaughter by being the involuntary consequence of some act not strictly lawful or occasioned by some sudden and sufficiently violent provocation.” The truth of the facts alleged in justification, excuse or alleviation, is for the jury to determine: the question whether if true they support the plea for which they are put forward is for the court.

In the administration of the English criminal law as to homicide the consequences of too strict an adherence to the technical definitions of the offences are avoided (*a*) by the exercise of the jury of their powers to convict of manslaughter only even in cases where they are directed that the offence is murder or nothing; (*b*) by the report of the judge as to the particular circumstances of each case in which a conviction of murder has been followed by the statutory sentence of death; (*c*) by the examination of all the evidence in the case by the Home Office in order to enable the secretary of state to determine whether the prerogative of mercy should be exercised.

Homicide is justifiable and not criminal when the killing is done in the execution of the law. The most important case of justifiable homicide is the execution of a criminal in due course of public justice. This condition is most stringently interpreted. “To kill the greatest of malefactors deliberately, uncompelled, and extrajudicially is murder.... And further, if judgment of death be given by a judge not authorized by lawful commission, and execution is done accordingly, the judge is guilty of murder” (Stephen’s *Commentaries*, book vi. c. iv.). The execution must be carried out by the proper officer or his deputy: any person executing the sentence without such authority, were it the judge himself, would be guilty of murder. And the sentence must be strictly pursued: to execute a criminal by a kind of death other than that to which he has been judicially condemned is murder.

Homicide committed by an officer of justice in the course of carrying out his duty, as such, is also justifiable; *e.g.* where a felon resists a legal arrest and is killed in the effort to arrest him (see 2 Pollock and Maitland, 476); where officers in dispersing a riotous assemblage kill any of the mob, &c. (see Riot). In these cases the homicide must be shown to have been absolutely necessary. Again, homicide is justifiable if committed in the defence of person or property against forcible and heinous crime, such as murder, violent robbery, rape or burglary. In this connexion there has been much discussion as to whether the person attacked is under a duty to retreat: and in substance the justification depends on the continuous necessity of attack or defence In order to prevent the commission by the deceased of the crime threatened.

Homicide is excusable and not criminal at all when committed either by misadventure or in self-defence. In the former case the homicide is excused; where a man in the course of doing some lawful work, accidentally and without intention kills another, *e.g.* shooting at a mark and undesignedly hitting and killing a man. The act must be strictly lawful, and death by misadventure in unlawful sports is not a case of excusable homicide. Homicide in self-defence is excusable when the slayer is himself in immediate danger of death, and has done all he could

to avoid the assault. Accordingly, if he strikes and kills his assailant after the assault is over, this is not excusable homicide. But if the assault has been premeditated, as in the ease of a duel, the death of either antagonist has under English law always been held to be murder and not excusable homicide. The excuse of self-defence covers the case in which a person in defence of others whom it is his duty to protect—children, wife, master, &c.—kills an assailant. It has been considered doubtful whether the plea of self-defence is available to one who has himself provoked a fray, in the course of which he is so pressed by his antagonist that his only resource is to kill him.

In English law the term "manslaughter" is applied to those forms of homicide which though neither justifiable nor excusable are attended by alleviating circumstances which bring them short of wilful murder. The offence is not defined by statute, but only by judicial rulings. Its punishment is as a maximum penal servitude for life, and as a minimum a fine or recognizances to be of good behaviour. The quantum of punishment between the limits above stated is in the discretion of the court, and not, as under continental codes, with fixed minima; and the offence includes acts and omissions of very varying gravity, from acts which only by the charitable appreciation of a jury fall short of wilful murder, to acts or omissions which can only technically be described as criminal, *e.g.* where one of two persons engaged in poaching, by pure accident gets caught in a hedge so that his gun goes off and kills his fellow-poacher. This may be described as an extreme instance of "constructive crime."

There are two main forms of "manslaughter":—

1. "Voluntary" homicide under grave and sudden provocation or on a sudden quarrel in the heat of passion, without the slayer taking undue advantage or acting in an unusual manner. The substance of the alleviation of guilt lies in the absence of time for cool reflection or the formation of a premeditated design to kill. Under English law the provocation must be by acts and not by words or gestures, and must be serious and not trivial, and the killing must be immediately after provocation and while the slayer has lost his self-control in consequence of the provocation. The provocation need not be by assault or violence, and perhaps the best-recognized example is the slaying by a husband of a man found committing adultery with the slayer's wife. In the case of a sudden quarrel it does not matter who began or provoked the quarrel. This used to be called "chance medley."

2. "Involuntary" homicide as a result of great rashness or gross negligence in respect of matters involving danger to human life, *e.g.* in driving trains or vehicles, or in dealing with dangerous weapons, or in performing surgical operations, or in taking care of the helpless.

The innumerable modes in which criminal liability for killing others has been adjudged under the English definitions of murder and manslaughter cannot be here stated, and can only be studied by reference to the judicial decisions collected and discussed in *Russell on Crimes* and other English text-books, and in the valuable work by Mr J. D. Mayne on the criminal law of India, in which the English common law rulings are stated side by side with the terms and interpretations of the Indian penal code. Much labour has been expended by many jurists in efforts to create a scientific and acceptable classification of the various forms of unlawful homicide which shall properly define the cases which should be punishable by law and the appropriate punishment. Their efforts have resulted in the establishment in almost every state except the United Kingdom of statutory definitions of the crime, beginning with the French penal code and going down to the criminal code of Japan. In the case of England, as a result of the labours of Sir James Stephen, a code bill was submitted to parliament in 1878. In 1879 a draft code was prepared by Blackburn, Lush and Barry, and was presented to parliament. It was founded on and prepared with Sir J. Stephen, and is a revision of his digest of the criminal law.

After defining homicide and culpable homicide, the draft code (cl. 174) declares culpable homicide to be murder in the following cases: (*a*) if the offender means to cause the death of the person killed; (*b*) if the offender means to cause to the person killed any bodily injury which is known to the offender to be likely to cause death, and if the offender, whether he does or does not mean to cause death, is reckless whether death ensues or not; (*c*) if the offender means to cause death or such bodily injury as aforesaid to one person, so that if that person be killed the offender would be guilty of murder, and by accident or mistake the offender kills another person though he does not mean to hurt the person killed; (*d*) if the offender for any unlawful object does an act which he knows or ought to have known to be likely to cause death, and thereby kills any person, though he may have desired that his object should be effected without hurting any one.

Further (cl. 175), it is murder (whether the offender means or not death to ensue, or knows or not that death is likely to ensue) in the following cases:—"(*a*) if he means to inflict grievous bodily injury for the purpose of facilitating the commission of any of the offences hereinafter

mentioned, or the flight of the offender upon the commission or attempted commission thereof, and death ensues from his violence; (*b*) if he administers any stupefying thing for either of the purposes aforesaid and death ensues from the effects thereof; (*c*) if he by any means wilfully stops the breath of any person for either of the purposes aforesaid and death ensues from such stopping of the breath." The following are the offences referred to:—"high treason and other offences against the king's authority, piracy and offences deemed to be piracy, escape or rescue from prison or lawful custody, resisting lawful apprehension, murder, rape, forcible abduction, robbery, burglary, arson." Cl. 176 reduces culpable homicide to manslaughter if the person who causes death does so "in the heat of passion caused by sudden provocation"; and "any *wrongful act or insult* of such a nature as to be sufficient to deprive any ordinary person of the power of self-control may be provocation if the offender acts upon it on the sudden, and before there has been time for his passion to cool. Whether any particular wrongful act or insult amounts to provocation and whether the offender was deprived of self-control shall be questions of fact; but no one shall be deemed to give provocation by doing that which he had a legal right to do, or which the offender incited him to do in order to provide an excuse for killing him or doing grievous bodily harm to any person." Further, "an arrest shall not necessarily reduce the offence from murder to manslaughter because an arrest was illegal, but if the illegality was known to the offender it may be evidence of provocation"; (cl. 177) "culpable homicide not amounting to murder is manslaughter."

The definitions embodied in these clauses though not yet accepted by the British legislature, have in substance been embodied in the criminal codes of Canada (1892 ss. 227-230), New Zealand (1893, ss. 163-166), Queensland (1899, ss. 300-305), and Western Australia (1901, ss. 275-280).

From the point of view of civil as distinct from criminal responsibility homicide does not by the common law give any cause of action against the person causing the death of another in favour of the wife or blood relations of the deceased. In early law this was otherwise; and the wer or eric of the deceased came historically before the right of chief or state. But under English law the rights of relations, except by way of appeal for felony,[2] were swept aside in favour of the crown, on the principle that every homicide is presumed felonious (murder) unless the contrary is proved, and that in all cases of homicide not justifiable by law a forfeiture was incurred. The rights of the relatives were also defeated by application of the maxim "*actio personalis moritur cum personâ*" ("a personal action dies with the person") to all proceedings for injury to the person or to reputation. In Scotland the old theory was preserved in the law as to assythement.

In England the law was altered at the instance of Lord Campbell in 1846 (9 & 10 V. c. 93) so as to give a right of a claim by the husband, wife, parent or child of a person killed by a wrongful (or even criminal) act, neglect or default by another which would have given the deceased if he had survived a cause of action against the wrongdoer. The compensation payable is what the surviving relative has lost by the death, and under the Workmen's Compensation Act 1906 (in all cases to which it applies) the employer is liable even without negligence to compensate the dependants of an employee killed by an accident arising out of and in the course of the employment; and in such cases even if the death was due to serious and wilful misconduct by the employee, compensation is payable.

In the Indian penal code the definitions of murder are so drawn as to limit the offences to cases where it was actually intended to cause death or bodily injury by the acts or omissions of the slayer, and the definition of culpable homicide short of murder is so drawn as to exclude the forms of unintentional manslaughter due to neglect of duty, *e.g.* in the conduct of trains or ships or vehicles. This last omission was supplied in 1870. The Indian code does not treat as murder either duelling or helping Hindu widows to commit *suttee* (s. 301, exception 5). In most of the British possessions in Asia and in east Africa the Indian definitions of homicide have been adopted. In the rest of the colonies, except South Africa, the law of homicide depends on the English common law as modified by colonial codes or statutes. In South Africa it rests mainly on the Roman Dutch law.

Europe.—In European codes distinctions corresponding to those of the English law are drawn between premeditated and other forms of criminal homicide; but more elaborate distinctions are drawn between the degrees of deliberation or criminality manifested in the slaying, and the minimum or maximum penalty is varied accordingly.

In the French penal code voluntary homicide is called murder (*meurtre*, art. 295): but if committed with premeditation or lying in wait is styled *assassinat* (*guet-apens*) (296-298). Poisoning (even if the poison is not fatal), is specially punished, as is parricide (on the lines of the obsolete English offence of petty treason), and infanticide, *i.e.* the killing of newly-born infants. Assassination, poisoning and parricide are at present capital offences; but a bill to abolish the death sentence has been laid before the French parliament.

The German code distinguishes between voluntary homicide which is done with deliberation and such homicide committed without deliberation (ss. 211, 212), and provides for mitigation of punishment where the slaying was provoked without fault in the slayer by any wrongful act or serious insult upon the slayer or his relatives by the slain (213). Parricide and infanticide are specially punished (214, 215), as is killing another person at his express and earnest request (216)—an offence which would in England be murder—and it is a separate offence to cause the death of another, the penalty being increased if the offender was peculiarly bound by office, calling or trade to use a care which he did not use (222).

The Italian code punishes as homicide those who with intention to kill cause the death of another (364). The death penalty is not imposed, but scales of punishment are provided to deal with aggravated forms of the offence. Thus *ergastolo* (penal servitude for life) is the punishment in the case of homicide of ascendants and descendants, or with premeditation, or under the sole impulse of brutal ferocity or with gross cruelty (*gravi sevizie*), or by means of arson, inundation, drowning and certain other crimes, or to secure the gains or conceal the commission, or to secure immunity from the consequences, of another crime (366). Personal violence resulting in death inflicted without intention to kill is punishable *minore poenâ* (368), and it is criminal to cause the death of another by imprudence, negligence or lack of skill in an art or profession (*imperitia nella propria arte o professione*), or by non-observance of regulations, orders or instructions.

The Spanish code has like those of Italy and France special punishments for parricide (417) and for assassination, in which are included killing for reward or promise of reward or by inundation (418), and for aiding another to commit suicide (421). Both the Italian and the Spanish codes afford a special mitigation to infanticide committed to avoid dishonour to the mother of the infant or her family. 644

America.—The most notable difference between England and the United States in regard to the law on this subject is the recognition by state legislation of degrees in murder. English law treats all unlawful killing not reducible to manslaughter as of the same degree of guilt in law. American statutes seek to discriminate for purposes of punishment between the graver and the less culpable forms of murder. Thus an act of the legislature of Pennsylvania (22nd of April 1794) declares “all murder which shall be perpetrated by means of poison or by lying in wait or by any other kind of wilful, deliberate and premeditated killing, or which shall be committed in the perpetration of or attempt to perpetrate any arson, rape, robbery or burglary shall be deemed murder of the first degree; and all other kinds of murder shall be deemed murder of the second degree.” This legislation has been copied or adopted in many if not most of the other states. There are also statutory degrees of manslaughter in the legislation of some of the states. The differences of legislation, coupled with the power of the jury in some states to determine the sentence, and the limitations on the right of the judges to comment on the testimony adduced, lead to very great differences between the administration of the law as to homicide in the two countries.

AUTHORITIES.—Stephen, *Hist. Cr. Law, Digest Criminal Law*; *Russell on Crimes* (7th ed., 1909); Archbold, *Criminal Pleading* (23rd ed., 1905); Bishop, *American Criminal Law* (8th ed.); Pollock and Maitland, *Hist. English Law*; Pike, *History of Crime*.

(W. F. C.)

1 See Select Pleas of Crown, 1 (Selden Society Publ.); Pollock and Maitland, *Hist. Eng. Law*, ii. 458, 476, 478.

2 Appeals remained in the law till 1819, but were long before this disused. In the middle ages they were used as a means of getting compensation.

HOMILETICS (Gr. ὁμιλητικός, from ὁμιλεῖν, to assemble together), in theology the application of the general principles of rhetoric to the specific department of public preaching. It may be further defined as the science that treats of the analysis, classification, preparation, composition and delivery of sermons. The formation during recent years of such lectureships as the “Lyman Beecher” course at Yale University has resulted in increased attention being given to homiletics, and the published volumes of this series are the best contribution to the subject.

The older literature is cited exhaustively in W. G. Blaikie, *For the Work of the Ministry* (1873); and D. P. Kidder, *Treatise on Homiletics* (1864).

HOMILY, a simple religious address, less elaborate than a sermon, and confining itself to the practical exposition of some ethical topic or some passage of Scripture. The word ὁμιλία from ὁμιλεῖν (ὁμοῦ, εἴλω), meaning communion, intercourse, and especially interchange of thought and feeling by means of words (conversation), was early employed in classical Greek to denote the instruction which a philosopher gave to his pupils in familiar talk (Xenophon, *Memorabilia*, I. ii. 6. 15). This usage of the word was long preserved (Aelian, *Varia Historia*, iii. 19); and the ὁμιλήσας of Acts xx. 11 may safely be taken to assign not only a free and informal but also a didactic character to the apostle Paul's discourse in the upper chamber of Troas, when "he talked a long while, even till break of day." That the "talk" on that occasion partook of the nature of the "exposition" (דרשה) of Scripture, which, undertaken by a priest, elder or other competent person, had become a regular part of the service of the Jewish synagogue,[1] may also with much probability be assumed. The custom of delivering expositions or comments more or less extemporaneous on the lessons of the day at all events passed over soon and readily into the Christian Church, as may be gathered from the first *Apology* (c. 67) of Justin Martyr, where we read that, in connexion with the practice of reading portions from the collected writings of the prophets and from the memoirs of the apostles, it had by that time become usual for the presiding minister to deliver a discourse in which "he admonishes the people, stirring them up to an imitation of the good works which have been brought before their notice." This discourse, from its explanatory character, and from the easy conversational manner of its delivery, was for a long time called ὁμιλία rather than λόγος: it was regarded as part of the regular duty of the bishop, but he could devolve it, if he thought fit, on a presbyter or deacon, or even on a layman. An early and well-known instance of such delegation is that mentioned by Eusebius (*Hist. Eccl.* vi. 19) in the case of Origen (216 A.D.).[2] In course of time the exposition of the lesson for the day came more frequently to assume a more elaborate character, and to pass into the category of a λόγος or even φιλοσοφία or φιλοσόφημα; but when it did so the fact was as far as possible denoted by a change of name, the word ὁμιλία being reserved for the expository or exegetical lecture as distinguished from the pulpit oration or sermon.[3] While the church of the 3rd and 4th centuries could point to a brilliant succession of great preachers, whose discourses were wont to be taken down in shorthand and circulated among the Christian public as edifying reading, it does not appear that the supply of ordinary homiletical talent kept pace with the rapidity of church extension throughout the Roman empire. In the smaller and remoter communities it not uncommonly happened that the minister was totally unqualified to undertake the work of preaching; and though, as is curiously shown by the case of Rome (Sozomen, *Hist. Eccl.* vii. 19), the regular exposition of the appointed lessons was by no means regarded as part of the necessary business of a church, it was generally felt to be advisable that some provision should be made for the public instruction of congregations. Even in Jerome's time (*De Vir. Ill.* c. 115), accordingly, it had become usual to read, in the regular meetings of the churches which were not so fortunate as to possess a competent preacher, the written discourses of celebrated fathers; and at a considerably later period we have on record the canon of at least one provincial council (that of Vaux, probably the third, held in 529 A.D.), positively enjoining that if the presbyter through any infirmity is unable himself to preach, "homilies of the holy fathers" (homiliae sanctorum patrum) are to be read by the deacons. Thus the finally fixed meaning of the word homily as an ecclesiastical term came to be a written discourse (generally possessing the sanction of some great name) read in church by or for the officiating clergyman when from any cause he was unable to deliver a sermon of his own. As the standard of clerical education sank during the dark ages, the habit of using the sermons of others became almost universal. Among the authors whose works were found specially serviceable in this way may be mentioned the Venerable Bede, who is credited with no fewer than 140 homilies in the Basel and Cologne editions of his works, and who certainly was the author of many *Homiliae de Tempore* which were much in vogue during the 8th and following centuries. Prior to Charlemagne it is probable that several other collections of homilies had obtained considerable popularity, but in the time of that emperor these had suffered so many mutilations and corruptions that an authoritative revision was felt to be imperatively necessary. The result was the well-known *Homiliarium*, prepared by Paul Warnefrid, otherwise known as Paulus Diaconus (*q.v.*).[4] It consists of 176 homilies arranged in order for all the Sundays and festivals of the ecclesiastical year; and probably was completed before the year 780. Though written in Latin, its discourses were doubtless intended to be delivered in the vulgar tongue; the clergy, however, were often too indolent or too ignorant for this, although by more than one provincial council they were enjoined to exert themselves so that they might be able to do so.[5] Hence an important form of literary activity came to be the translation of the homilies approved by the church into the vernacular. Thus we find Alfred the Great translating the homilies of Bede; and in a similar manner arose Ælfric's Anglo-Saxon *Homilies* and the German *Homiliarium* of Ottfried of Weissenburg. Such *Homiliaria* as were in use in England down to the end of the 15th century were at the time of the Reformation eagerly sought for and destroyed, so that they are now extremely rare, and the few copies which have been preserved are generally in a mutilated or imperfect form.[6]

The *Books of Homilies* referred to in the 35th article of the Church of England originated at a convocation in 1542, at which it was agreed "to make certain homilies for stay of such errors as were then by ignorant preachers sparkled among the people." Certain homilies, accordingly, composed by dignitaries of the lower house, were in the following year produced by the prolocutor; and after some delay a volume was published in 1547 entitled *Certain sermons or homilies appointed by the King's Majesty to be declared and read by all parsons, vicars, or curates every Sunday in their churches where they have cure*. In 1563 a second *Book of Homilies* was submitted along with the 39 Articles to convocation; it was issued the same year under the title *The second Tome of Homilies of such matters as were promised and instituted in the former part of Homilies, set out by the authority of the Queen's Majesty, and to be read in every Parish Church agreeably*. Of the twelve homilies contained in the first book, four (the 1st, 2nd, 3rd and 4th) are probably to be attributed to Cranmer, and one (the 12th) possibly to Latimer; one (the 6th) is by Bonner; another (the 5th) is by John Harpsfield, archdeacon of London, and another (the 11th) by Thomas Becon, one of Cranmer's chaplains. The authorship of the others is unknown. The second book consists of twenty-one homilies, of which the 1st, 2nd, 3rd, 7th, 8th, 9th, 16th and 17th have been assigned to Jewel, the 4th to Grindal, the 5th and 6th to Pilkington and the 18th to Parker. See the critical edition by Griffiths, Oxford, 1869. The homilies are not now read publicly, though they are sometimes appealed to in controversies affecting the doctrines of the Anglican Church.

---

1 See Philo, *Quod omnis probus liber*, sec. 12 (ed. Mangey ii. 458; cf. ii. 630).

2 Sozomen (*Hist. Eccl.* vii. 19) mentions that in Alexandria in his day the bishop alone was in the custom of preaching; but this, he implies, was a very exceptional state of matters, dating only from the time of Arius.

3 To the more strictly exegetical lectures the names ἐξηγήσεις, ἐξηγήματα, ἐξηγητικά, ἐκθέσεις, were sometimes applied. But as no popular discourse delivered from the pulpit could ever be exclusively expository and as on the other hand every sermon professing to be based on Scripture required to be more or less "exegetical" and "textual," it would obviously be sometimes very hard to draw the line of distinction between ὁμιλία and λόγος. It would be difficult to define very precisely the difference in French between a "conférence" and a "sermon"; and the same difficulty seems to have been experienced in Greek by Photius, who says of the eloquent pulpit orations of Chrysostom, that they were ὁμιλίαι rather than λόγοι.

4 Manuscript copies are preserved at Heidelberg, Darmstadt, Frankfort, Giessen, Cassel and other places. It was first printed at Spires in 1482. In the Cologne edition of 1530 the title runs—*Homiliae seu mavis sermones sive conciones ad populum, praestantissimorum ecclesiae doctorum Hieronymi, Augustini, Ambrosii, Gregorii, Origenis, Chrysostomi, Bedae, &c., in hunc ordinem digestae per Alchuinum levitam, idque injungente ei Carolo M. Rom. Imp. cui a secretis fuit.* Though thus attributed here to Alcuin, who is known to have revised the Lectionary or *Comes Hieronymi*, the compilation of the *Homiliarium* is in the emperor's own commission entrusted to Paul, to whom it is assigned in the earlier printed editions also. A comparison of different editions shows that the contents increased with the ever-growing number of saints' days and festivals, new discourses by later preachers like Bernard being constantly added.

5 Neander, *Church History*, v. 174 (Eng. trans. of 1851).

6 An ancient English metrical homiliarium is preserved in the library of the university of Cambridge. Earlier versions of it have existed, and a portion of perhaps the earliest copy, dating from about the middle of the 13th century, was published in 1862 by Mr J. Small, librarian to the university of Edinburgh.

HOMOEOPATHY (from the Greek ὅμοιος, like, and πάθος, feeling). The distinctive system of therapeutics which bears the name of homoeopathy is based upon the law *similia similibus curentur*,[1] the originator of which was S. C. F. Hahnemann, a native of Meissen in Germany, who discovered his new principle while he was experimenting with cinchona bark in 1790, and announced it in 1796.[2] The essential tenets of homoeopathy—with which is contrasted the "allopathy" (ἄλλος, other) of the "orthodox" therapeutics—are that the cure of disease is effected by drugs that are capable of producing in a healthy individual symptoms similar to those of the disease to be treated, and that to ascertain the curative virtues of any drug it must be "proved" upon healthy persons—that is, taken by individuals of both sexes in a state of health in gradually increasing doses. The manifestations of drug action thus produced are carefully recorded, and this record of "drug-diseases," after being verified by repetition on many "provers," constitutes the distinguishing feature of the homoeopathic materia medica, which, while it embraces the sources, preparation and uses of drugs as known to the orthodox

pharmacopoeia, contains, in addition, the various “provings” obtained in the manner above described.

Besides the promulgation of the doctrine of similars, Hahnemann also enunciated a theory to account for the origin of all chronic diseases, which he asserted were derived either directly or remotely from psora (the itch), syphilis (venereal disease) or sycosis (fig-wart disease). This doctrine, although at first adopted by some of the enthusiastic followers of Hahnemann, was almost immediately discarded by very many who had a firm belief in his law of cure. In the light of advancing science such theories are entirely untenable, and it was unfortunate for the system of medicine which he founded that Hahnemann should have promulgated such an hypothesis. It served as a target for the shafts of ridicule showered upon the system by those who were its opponents, and even at the present time there still exists in the minds of many misinformed persons the conviction that homoeopathy is a system of medicine that bases the origin of all chronic disease on the itch or on syphilis or fig-warts.

Another peculiar feature of homoeopathy is its posology or theory of dose. It may be asserted that homoeopathic posology has nothing more to do with the original law of cure than the psora (itch) theory has, and that it was one of the later creations of Hahnemann’s mind. Most homoeopathists believe more or less in the action of minute doses of medicine, but it must not be considered as an integral part of the system. The dose is the corollary, not the principle. Yet in the minds of many, infinitesimal doses of medicine stand for homoeopathy itself, the real law of cure being completely put into the background. The question of dose has also divided the members of the homoeopathic school into bitter factions, and is therefore a matter for careful consideration. Many employ low potencies,[3] *i.e.* mother tinctures, first, second, sixth dilutions, &c., while others use hundred-thousandths and millionths.

Some homoeopathists of the present day still believe with Hahnemann that, even after the material medicinal particles of a drug have been subdivided to the fullest extent, the continuation of the dynamization or trituration or succussion develops a spiritual acurative agency, and that the higher the potency, the more subtle and more powerful is the curative action. Hahnemann says (*Organon*, 3rd American edition, p. 101), “It is only by means of the spiritual influence of a morbific agent that our spiritual vital power can be diseased, and in like manner only by the spiritual operation of medicine can health be restored.” This is absolutely denied by others. Thus there exist two schools among the adherents of homoeopathy. On the one hand there are the Hahnemannians, the “Purists” or “High Potency” men, who still profess to regard the *Organon* as their Bible, who believe in all the teachings of Hahnemann, who adhere in their prescriptions to the single dose, the single medicine, and the highest possible potency, and regard the doctrine of the spiritual dynamization acquired by trituration and succussion as indubitable. On the other side there are the “Rational” or “Low Potency” men, who believe in the universality of the law of cure, but think that it cannot always be applied, on account of an imperfect materia medica and a lack of knowledge on the part of the physician. They believe that in many cases of severe and acute pain palliatives are required, and that they are free to use all the adjuvants at present known to science for the relief of suffering humanity —massage, balneology, electricity, hygiene, &c. The American Institute of Homoeopathy, the national body of the United States, has adopted the following resolution and ordered it to be published conspicuously in each number of the *Transactions* of the society: “A homoeopathic physician is one who adds to his knowledge of medicine a special knowledge of homoeopathic therapeutics. All that pertains to the great field of medical learning is his by tradition, by inheritance, by right.”

It is claimed that the effect produced upon both the laity and the general profession of medicine by the introduction of homoeopathy was salutary in many ways. It diminished the quantity of medicine that was formerly considered necessary for the eradication of disease, and thus revealed the fact that the *vis medicatrix naturae* is often sufficient, with occasional and gentle assistance, to cure many diseases, especially those fevers that run a definite and regular course. Corroboration of the law *similia similibus curentur* is seen, according to homoeopathists, in the adoption of the serum therapy, which consists in the treatment of the most malignant diseases (diphtheria, lock-jaw, typhoid fever, tuberculosis, bubonic plague) by introducing into the system a modified form (similar) of those poisons that produce them in the healthy individual. Hahnemann undoubtedly deserves the credit of being the first to break decidedly with the old school of medical practice, in which, forgetful of the teachings of Hippocrates, nature was either overlooked or rudely opposed by wrong and ungentle methods. We can scarcely now estimate the force of character and of courage which was implied in his abandoning the common lines of medicine. More than this, he and his followers showed results in the treatment of disease which compared very favourably with the results of contemporary orthodox practice.

Homoeopathy has given prominence to the therapeutical side of medicine, and has done

much to stimulate the study of the physiological action of drugs. It has done service in directing more special attention to various powerful drugs, such as aconite, nux vomica, belladonna, and to the advantage of giving them in simpler forms than were common before the days of Hahnemann. But in the medical profession homoeopathy nevertheless remains under the stigma of being a dissenting sect. It has been publicly announced that if the homoeopathists would abolish the name “homoeopathy,” and remove it from their periodicals, colleges, hospitals, dispensaries and asylums, they would be received within the fold of the regular profession. These conditions have been accepted by a few homoeopathists who have become members of the most prominent medical association in the United States.

Homoeopathy as it exists to-day can, in the opinion of its adherents, stand by itself, and its progress for a century in face of prolonged and determined opposition appears to its upholders to be evidence of its truth. There are still, indeed, in both schools of medical thought, men who stand fast by their old principles. There are homoeopathists who can see nothing but evil in the practice of their brothers of the orthodox school, as there are allopathists who still regard homoeopathy as a humbug and a sham. There are, however, liberal-minded men in both schools, who look upon the adoption of any safe and efficient method of curing disease as the birthright of the true physician, and who allow every man to prescribe for his patients as his conscience may dictate, and, provided he be educated in all the collateral branches of medical science, are ready to exchange views for the good of suffering humanity.

Great Britain.—Homoeopathy is not rapidly extending in Great Britain, and its recognition has been slow. The first notice taken of the new system of therapeutics was by the Medical Society of London in 1826. In 1827 the physician of Prince Leopold of Saxe-Coburg, Dr F. H. F. Quin (1799-1878), who had previously studied homoeopathy in Germany and practised it in Italy, came to England, and it was through his efforts that the system was introduced. Three other physicians, Dr Belluomini, Dr Romani and Dr Tagliani, claimed priority, but careful research established Dr Quin’s title. Quin was a successful man professionally and socially, and brought upon himself in a short time the anathema of the Royal College of Physicians. In 1844 Dr William Henderson, professor of pathology in the university of Edinburgh, embraced the Hahnemannian system. A storm of opposition arose, and Professor J. Y. Simpson (the discoverer of chloroform anaesthesia) published a volume, with the alliterative title, *Homoeopathy, its Tenets and Tendencies, Theoretical, Theological, and Therapeutical*. This brochure was answered by Professor Henderson, the title of his book being *Homoeopathy Fairly Represented*. From 1827 to 1837 there were but a dozen practitioners of homoeopathy in London, but during 1837 to 1847 the number increased to between seventy and eighty. In 1857 there were upwards of two hundred practitioners in the kingdom, with thirty-three institutions in which the law of similars was used as a basis of practice. In 1867 the increase was not so rapid, the number being 261. A society was formed about this period for “the protection of homoeopathic practitioners and students,” which proved of great value in binding the sect together. In 1870 congresses were established, and annual meetings held, which have continued to the present time. In 1901 there were over three hundred homoeopathic physicians in the British Isles, of whom between seventy and eighty were in London alone. There were seventy-nine chemists, of whom seventeen were located in London, and eighty-two towns and cities in the country contained from one to ten homoeopathic practitioners each, together with many established chemists for dispensing homoeopathic medicines. The British Homoeopathic Society was founded by Quin in 1844, and has numerous members and fellows, besides corresponding members in all portions of the world, including Australia, India and Tasmania. The London Homoeopathic Hospital was founded in 1850, also largely through the efforts of Quin, and a few years afterwards moved to Great Ormond Street. During the cholera epidemic of 1854 the statistics of this hospital showed a mortality of 16.4%, against 51.8% of other metropolitan charities. The London Homoeopathic Hospital has a convalescent home under its management at Eastbourne. There are also dispensaries in Ealing and West Middlesex, Kensington, Notting Hill and Bayswater. Similar institutions are located in Bath, Birkenhead, Birmingham, Bootle, Bournemouth, Brighton, Bristol, Bromley, Cheltenham, Cheshire, Croydon, Dublin, Eastbourne, Edinburgh, Folkestone, Hastings and St Leonards, Ipswich, Leeds, Leicester, Liverpool, Newcastle, Northampton, Norwich, Oxford, Plymouth, Torquay, Tunbridge Wells, Weston-super-Mare. The homoeopathic journals include the *Homoeopathic World*, the *London Homoeopathic Hospital Reports*, the *Journal of the British Homoeopathic Society*, and the *British Homoeopathic Review*, the last being issued by the British Homoeopathic Association, which was founded in 1902 for the purpose of developing and extending homoeopathy in Great Britain. The *British Journal of Homoeopathy* was first published in 1843, and was edited by Drs Drysdale, Russell and Black. For many years it was the foremost homoeopathic journal in the world. Its motto was *In certis unitas, in dubiis libertas, in omnibus charitas*. One reason why homoeopathy has not advanced as rapidly in the British Isles as in America is said to be the discrimination exercised against it by the General Medical Council, and another is want of cohesion amongst the homoeopaths themselves.

United States.—Homoeopathy was introduced into the United States by Dr Hans Birch Gram, who was born in Boston. His father being Danish, Gram in his eighteenth year went to

Copenhagen, where he graduated in 1814. In 1823 he became acquainted with homoeopathy, and brought a knowledge of it to America in 1825 when he settled in New York. The first homoeopathic association was formed in 1833 in Philadelphia, the second in New York, 1834, and homoeopathy became known in the different states somewhat in the following order: New York, 1825; Pennsylvania, 1828; Louisiana, 1836; Connecticut, 1837; Massachusetts, 1837-1838; Maryland, 1837; Delaware, 1837; Kentucky, 1837; Vermont, 1838; Rhode Island, 1839; Ohio, 1839; New Jersey, 1840; Maine, 1840; New Hampshire, 1840; Michigan, 1841; Georgia, 1842; Wisconsin, 1842; Alabama, 1843; Illinois, 1843; Tennessee, 1844; Missouri, 1844; Texas, 1848; Minnesota, 1852; Nebraska, 1862; Colorado, 1863; Iowa, 1871. After 1871 the spread of the system was rapid throughout every state in the Union, and it is in the United States that homoeopathy principally flourishes. There are thousands of homoeopathic physicians, and their clients number several millions. It may be noted that departments of homoeopathy are connected with the universities of Boston, Michigan, Iowa, Minnesota and Kansas City.

Canada.—The early history of homoeopathy can be traced back nearly to 1850 in the province of Quebec. In the Dominion of Canada the various provinces control the licensing of physicians, excepting in Quebec, which is the only province having a separate homoeopathic board of examiners. This is under the control of the Montreal homoeopathic Association, and is known as the College of Homoeopathic Physicians and Surgeons of Montreal. Three examiners are annually appointed by the association. Successful candidates receive the diploma of the college, and are entitled to add to their degree the letters M.C.H.P.S. A certificate of successful examination is forwarded to the lieutenant-governor at Quebec, who, “if satisfied of the loyalty, integrity and good morals of the applicant, may grant him a license to practise surgery, physic and midwifery, or either of them, in the province of Quebec.” The word “loyalty” has been decided by the provincial secretary to mean a British subject. This is the only government medical license now issued in the British empire, the others being by provincial boards or colleges of physicians and surgeons. In 1894 there was no homoeopathic institution in the province; at present the Montreal Homoeopathic Hospital is in active operation. Two homoeopathic papers are published monthly—the *Homoeopathic Record* in Montreal, and the *Homoeopathic Messenger* in Toronto. In 1870, in the province of Ontario, the three schools, allopathic, homoeopathic and eclectic, united for examining purposes into one board called the medical council, seventeen members representing the old school and five the other two systems. Finally the eclectics were merged in the old school, the board appointing five of Hahnemann’s followers for examining purposes. Grace Hospital at Toronto (erected 1892) was begun as a dispensary in 1887.

Germany.—In 1810 Hahnemann published his *Organon*, which was the starting-point of homoeopathy in Germany. In 1811 an endeavour was made to found an institution in Leipzig in which practitioners might learn the new method of treatment theoretically and practically, but it was not a success, as the entire tide of professional opinion was against the system. In 1829, at the celebration of the fiftieth anniversary of Hahnemann’s doctorate, the German Central Society was organized, holding its first meeting in 1830. In the university hospital of Munich some experiments were made to test the efficacy of homoeopathic medicines, but these were not successful. In 1831 the government prohibited homoeopathists from dispensing their own medicines; this was a severe blow to the system. In 1834 there was a division among the homoeopathists themselves, which much retarded the progress of the school. A homoeopathic hospital was established about this time (January 1833) in Leipzig, but there was such constant wrangling among the physicians connected with it that its sphere of usefulness was curtailed, and it was finally converted into a dispensary. The Baden Homoeopathic Society was established in 1834. The homoeopathic hospital in Munich was established in 1836, but suffered a similar fate to that of Leipzig, and was converted into a dispensary. The rather equivocal success of these hospitals in Saxony and Bavaria was in direct contrast to the fate of two newly established hospitals in Austria, one in Vienna and the other in Linz, which were very successful, and aroused great interest both among physicians and laymen. During the political confusion of 1846 and 1849 there was complete stagnation of everything medical in Germany. But during all these years, though the public institutions were few, the literature on homoeopathic subjects became very extensive, and exercised a significant influence upon the system in all parts of the world. Hahnemann died in 1843, and on the 10th of August 1851 a bronze monument to him was unveiled at Leipzig. The Leipzig dispensary lived thirty-three years. From 1842 to 1874 there were treated in this institution 65,106 patients. In 1901 there were about 250 homoeopathic physicians in Germany; they appeared to be strongest at Berlin, in the province of Brandenburg, in Pomerania and Westphalia, Saxony, Hessen and in Württemberg.

Austria-Hungary.—Homoeopathy was introduced into Austria about 1817, and in 1819 its practice was forbidden by law. Shortly afterwards the physician attending the archduke John became a homoeopath. In 1825 the doctrine was introduced into Vienna. To test the efficacy of the system Francis I. ordered that experiments be made with homoeopathic medicines, and for this purpose a ward furnished with twelve beds was allotted. The results were satisfactory to the new system, and it made gigantic strides in Vienna. During the cholera epidemic of 1836 an increased impetus was given to the new school by the reported brilliant successes of the

treatment. Societies were founded and journals published. In 1846 a second hospital was founded. In 1850 a third hospital was opened, and clinical lectures upon the system were delivered. In 1873 the Society of Homoeopathic Physicians was formed. Between the years 1873 and 1893 homoeopathy declined. In 1901, in thirty-seven cities and towns there were to be found about fifty physicians and two hospitals, and it was estimated that about seventy-five more were scattered in Moravia, Bohemia, Tirol, Salzburg and the coast provinces. There is a professorship of homoeopathy at the University of Budapest, and homoeopathic clinics are held at the new Rochus Hospital in Üllöi Street, and also in the homoeopathic department of the Hospital Bethesda of the Reformed Community. The Elizabeth Hospital, exclusively homoeopathic, has existed for many years.

Russia.—The homoeopathic system was introduced into Russia in 1823. In 1825 great impetus was given to the new doctrine by the conversion of Dr Bigel, physician to the grand duke Constantine. In 1829 the grand duke ordered a series of experiments to be conducted to prove the truth or fallacy of homoeopathy, and they demonstrated the success of the new school. In 1841 a hospital was established in Moscow, and in 1849 similar institutions were founded in Nizhniy-Novgorod. Since then homoeopathy has been steadily practised, and has penetrated to the remotest parts of Russia. In 1881 the civil engineers proposed to commemorate the virtues of the emperor Alexander II. by the erection of a hospital; a committee for collecting funds was created, and 58,064 roubles were handed to the Charity Society of the followers of homoeopathy at St Petersburg for the erection and founding of a homoeopathic hospital. The foundation stone of the edifice was laid on 19th June 1893, the emperor Alexander III. giving 5000 roubles. The inauguration of a new dispensary and a pharmacy took place on the 19th of April 1898, and the hospital itself, intended originally for fifty beds, was opened on the 1st of November 1898. There are sixteen free beds, three of them being in the name of the emperor Nicholas, the empress Maria Feodorovna, and the emperor Alexander III. On the 28th of January 1899 an imperial edict was issued granting the rights of public service to the doctors of the hospital and dispensaries of the Charity Society, thus placing them on an equality with the doctors of the prevailing medical school.

France.—Homoeopathy was first introduced into France in 1830 by Count de Guidi, doctor of medicine, doctor of science, and inspector of the university, who practised in Lyons. About the same year Dr Antoine Petroz, widely known by his *Grand dictionnaire des sciences médicales*, began practising homoeopathy in Paris, and his establishment became the headquarters of the new system there. In 1835 Hahnemann himself came to the capital. In 1832 the homoeopathic method of treating disease was introduced into the Hospice de Choisy, and in 1842 into the hospital of Carentan. Tessier practised the new doctrine in his wards in the Hospital St Marguérite, and in the Children’s Hospital up to the year 1862, when he retired. The first homoeopathic society was established in 1832 (the Société Gallicain), Hahnemann becoming president in 1835; in 1845 the Société de Médecine Homéopathique was organized; and in 1860 the two were united for the better interests of the school. In 1901 there were at Paris three hospitals—the Hospital St Jacques with fifty-five beds, the Hahnemann Hospital with thirty-five beds, and the new Protestant Hospital for Children with twenty-five-beds. At Lyons there is the Hospital St Luc. The medical journals include *L’Art médical, La Revue homéopathique belge, Journal belge d’homéopathie, La Thérapeutique Intégrale, La Revue homéopathique française*. In the year 1900 the medical officers of the republic having supervision over the medical department of the International Exhibition officially recognized the members of the homoeopathic school, and arranged for the proper accommodation and reception of the International Congress of Homoeopathic Physicians held in June. On the 30th of that month, with appropriate ceremonies, the remains of Hahnemann were removed from the cemetery of Montmartre and deposited in Père-la-Chaise, and a monument bearing a suitable inscription was erected to the memory of the founder of homoeopathy.

Italy.—The Austrians when they entered Naples in 1821 brought homoeopathy into Italy, the general in command of the army being a devoted friend of Hahnemann. In 1828 Dr Count Sebastian de Guidi came from Lyons and assisted in spreading the doctrine. During the period from 1830 to 1860 many physicians practised homoeopathy, and the literature on the subject became extensive. A homoeopathic clinic was established and a ward opened in Trinity Hospital at Naples, and a homoeopathic physician was appointed to the count of Syracuse. During the severe cholera epidemics of 1854, 1855, 1865 the success of homoeopathic treatment of that disease was so marked under the care of Dr Rubini that the attention of the authorities was directed to the system. In 1860 the homoeopathic practice was introduced into the Spedale della Cesarea, and since that period homoeopathy has been recognized with more or less favour in most of the cities. The Italian Homoeopathic Institute is recognized by royal warrant as an established institution, and its regulations are approved by the government. In Turin the legal seat of the Homoeopathic Institute, there is a hospital under the management of the State Association. The homoeopathic medical press consists of the *Revista Omiopatica*, established in 1855, and *L’Omiopatico in Italia*, the organ of the Italian Homoeopathic Institute, which first appeared in 1884.

Spain.—Homoeopathy was introduced into Spain in 1829 by a physician to the Royal

Commission sent by the king of Naples to attend the marriage of Maria Christina with Don Ferdinand VII. Shortly after this, a merchant of Cadiz visited Hahnemann in Coethen, and was cured of a serious disorder; he returned to Spain with a supply of homoeopathic literature, and immediately sent a medical student to Leipzig to study the new system. In 1843 many cases of cholera were treated homoeopathically in Madrid. The civil war, which did not terminate until 1840, arrested all medical investigation in Spain, but in 1843 there still existed in Madrid five pharmacies and a number of homoeopathic physicians. About this time Dr Tosi Nuñez returned from an investigation of the new system with Hahnemann, and owing to his success in the treatment of disease was created one of the physicians of the bedchamber to the queen, who soon afterwards conferred upon him the title of marquis, with the grand crosses of the Charles III. and of the Civil Order of Beneficiencia. This recognition by high authority gave an impetus to homoeopathy which has continued ever since.

Denmark.—Homoeopathy was unknown in Denmark until the year 1821, when Hans Christian Lund, a medical practitioner, adopted it. Hahnemann, however, had been both before and after that time consulted by Danes, and consequently homoeopathic therapeutics was recognized in different parts of the country. Lund translated many of Hahnemann's works into Danish, as well as those of other eminent members of the new school.

(W. T. H.)

---

1 An interesting controversy has been carried on between the members of the homoeopathic school as to the proper construction of the Latin motto which constitutes its acknowledged basis. For many years the verb at the conclusion of the sentence was used in the indicative mood, *curantur*, thus making the sentence a positive one. After extended research it has been discovered that Hahnemann himself never employed the word *curantur* as descriptive of his law of cure, but always wrote *curentur*, which greatly modifies the meaning of the phrase. If the subjunctive mood be used, the motto reads, "Let similars be treated by similars," or "similars should be treated by similars." The reading *similia similibus curentur* was officially adopted as the correct reading of the sentence by the American Institute of Homoeopathy at its session held in Atlantic City, N.J., on the 20th of June 1899; and the words are so inscribed on the monument erected to the memory of Hahnemann and unveiled in Washington, D.C., on the 23rd of June 1900, and also are those carved upon the tomb of Hahnemann in Père-la-Chaise, Paris.

2 Some points of Hahnemann's system were borrowed from previous writers—as he himself, though imperfectly, admits. Not to mention others, he was anticipated by Hippocrates, and especially by Paracelsus (1495-1541). The identical words *similia similibus curantur* occur in the Geneva edition (1658) of the works of Paracelsus, as a marginal heading of one of the paragraphs; and in the "Fragmenta Medica," *Op. Omnia*, i. 168, 169, occurs the following passage:

Simile similis cura; non contrarium.

"Quisquis enim cum laude agere Medicum volet, is has nugas longe valere jubeat. Nec enim ullus unquam morbus calidus per frigida sanatus fuit, nec frigidus per calida. Simile autem suum simile frequenter curavit, scilicet Mercurius sulphur, et sulphur Mercurium; et sal ilia, velut et illa sal. Interdum quidem cum proprietate junctum frigidum sanavit calidum; sed id non factum est ratione frigidi, verum ratione naturae alterius, quam a primo illo omnino diversam facimus."

It is very remarkable that in Hahnemann's enumeration of authors who anticipated him in regard to the doctrine of *Similia*, he makes no mention of the views of Paracelsus, though the very words seem to be taken from the works of that physician. The other point in Hahnemann's doctrine—that medicines should be tried first on healthy persons—he admits to have been enunciated by Haller. Roughly it has been acted on by physicians in all ages, but certainly more systematically since Hahnemann's time. In the most characteristic feature of Hahnemann's practice—"the potentizing," "dynamizing," of medicinal substances—he appears to have been original.

3 Two methods of preparing medicines are recognized, one on the decimal, the other on the centesimal scale. The pure tinctures are denominated "mother tinctures," and represented by the Greek φ. To make a first decimal dilution or first decimal trituration, 10 drops of the mother tincture, or 10 grains of a crude substance, are mixed with 90 drops of alcohol, or 90 grains of *saccharum lactis* (sugar of milk) respectively. The liquid is thoroughly shaken, or the powder carefully triturated, and the bottles containing them marked 1 X, meaning first decimal dilution or trituration. To make the 2 X potency, 10 drops or 10 grains of this first dilution or trituration are mixed with 90 drops of pure alcohol, or 90 grains of milk sugar, and are succussed or triturated as above described, and marked 2 X dilution or trituration. This subdivision of particles may be continued to an indefinite degree. On the Hahnemannian or centesimal scale the medicines are prepared in the same manner, the difference being that 1 drop or grain is mixed with 99 drops or grains, to make the first centesimal, which is marked 1 c or 1 simply, and so on for the second and higher dilutions.

HOMONYM (Gr. ὁμώνομος, having the same name, from ὅμος, same, alike, and ὄνομα,

name), a term in philology for those words which differ in sense but are alike either in sound or spelling or both. Words alike only in spelling but not in sound, *e.g.* “bow,” are sometimes called *homographs*; and words alike only in sound but not in spelling, *e.g.* “meat,” “meet,” *homophones*. Skeat (*Etymol. Dict.*) gives a list of English homonyms.

HOMS, or Hums (anc. *Emesa* or *Emessa*, near the Hittite *Kadesh*), a town of Syria, on the right bank of the Orontes, and capital of a sanjak in the vilayet of Syria (Damascus). Pop. 30,000 (20,000 Moslem, 10,000 Christian). The importance of the place arises from its command of the great north road from Egypt, Palestine and Damascus by the Orontes valley. Invading armies from the south have often been opposed near Homs, from the time of Rameses II., who had to fight the battle of Kadesh, to that of Ibrahim Pasha, who broke the first line of Ottoman defence in 1831 by his victory there. Ancient Emesa, in the district of Apamea, was a very old Syrian city, devoted to the worship of Baal, the sun god, of whose great temple the emperor Heliogabalus was originally a priest (A.D. 218). As a centre of native influences it was overawed by the Seleucid foundation of Apamea; but it opposed the Roman advance. There Aurelian crushed, in A.D. 272, the Syrian national movement led by Zenobia. Caracalla made it a Roman colony, and later it became the Capital of a small province, *Phoenicia Libanesia* or *ad Libanum*. About 630 it was captured by the Moslem leader, Khalid ibn Walid, who is buried there. It now became the capital of a *jund*, or military district, which under the Omayyad Caliphs extended from Palmyra to the sea. Under the Arabs it was one of the largest cities in Syria, with walls and a strong citadel, which stood on a hill, occupying perhaps the site of the great sun temple. The ruins of this castle, blown up by Ibrahim Pasha, are still the most conspicuous feature of Homs, and contain many remains of ancient buildings. Its men were noted for their courage in war, and its women for their beauty. The climate was extolled for its excellence, and the land for its fertility. A succession of gardens bordered the Orontes, and the vineyards were remarkable for their abundant yield of grapes. When the place capitulated the great church of St John was divided between the Christians and Moslems, an arrangement which apparently lasted until the arrival of the Turks. At the end of the 11th century it fell into crusading hands, but was recovered by the Moslems under Saladin in 1187. Its decay probably dates from the invasion of the Mongols (1260), who fought two important battles with the Egyptians (1281 and 1299) in its vicinity. The construction of a carriage road to Tripoli led to a partial revival of prosperity and to an export of cereals and fruit, and this growth has, in turn, been accentuated by the railway, which now connects it with Aleppo and the Damascus-Beirut line. The district is well planted with mulberries and produces much silk, most of which is worked up on the spot.

(D. G. H.)

HO-NAN, a central province of China, bounded N. partly by the Hwang-ho (which it crosses to the west of Ho-nan Fu, forming an arm northwards between the provinces of Shan-si and Chih-li), on the W. by Shen-si, on the S. by Hu-peh, and on the E. by Ngan-hui. It occupies an area of 81,000 sq. m., with a population of about 22,100,000, and contains nine prefectural cities. Its capital is K’ai-fêng Fu. The prefecture of Hwai-k’ing, north of the Hwang-ho, consists of a fertile plain, “rendered park-like by numerous plantations of trees and shrubs, among which thick bosquets of bamboo contrast with the gloomy groves of cypress.” All kinds of cereals grow luxuriantly, and the general productiveness of the district is indicated by the extreme denseness of the population. The most noticeable feature in that portion of the province which is properly called Ho-nan is the Fu-niu Shan range, which runs east and west across this part of the province. Coal is found on the south of the Hwang-ho in the districts of Ho-nan Fu, the ancient capital, Lushan and Ju Chow. The chief products of the province are, however, agricultural, especially in the valley of the Tang-ho and Pai-ho, which is an extensive and densely populated plain running north and south from the Fu-niu Shan. Cotton is also grown extensively and forms the principal article of export, and a considerable quantity of wild silk is produced from the Fu-niu Shan. Three roads from the east and south unite at Ho-nan Fu, and one from the west. The southern road leads to Ju Chow, where it forks, one branch going to Shi-ki-chên, connecting the trade from Fan-cheng, Han-kow, and the Han river generally, and the other to Chow-kia-k’ow near the city of Ch’ên-chow Fu, at the confluence of the three

rivers which unite to form the Sha-ho; the second road runs parallel with the Hwang-ho to K'ai-fêng Fu; the third crosses the Hwang-ho at Mêngching Hien, and passes thence in a north-easterly direction to Hwai-k'ing Fu, Sew-wu Hien and Wei-hui Fu, at which place it joins the high road from Peking to Fan-cheng; and the western road follows the southern bank of the Hwang-ho for 250 m. to its great bend at the fortified pass known as the Tung-kwan, where it joins the great wagon road leading through Shan-si from Peking to Si-gan Fu. Ho-nan is now traversed north to south by the Peking-Hankow railway (completed 1905). The line crosses the Hwang-ho by Yung-tse and runs east of the Fu-niu Shan. Branch lines serve Ho-nan Fu and K'ai-fêng Fu.

HONAVAR, or Onore, a seaport of British India, in the North Kanara district of Bombay. Pop. (1901) 6929. It is mentioned as a place of trade as early as the 16th century, and is associated with two interesting incidents in Anglo-Indian history. In 1670, the English factors here had a bull-dog which unfortunately killed a sacred bull, in revenge for which they were all murdered, to the number of eighteen persons, by an enraged mob. In 1784 it was bravely defended for three months by Captain Torriano and a detachment of sepoys against the army of Tippoo Sultan.

HONDA, or San Bartolomeo de Honda, a town of the department of Tolima, Colombia, on the W. bank of the Magdalena river, 580 m. above its mouth. In 1906 Mr F. Loraine Petre 649
estimated the population at 7000. It is about 650 ft. above sea-level and stands at the entrance to a narrow valley formed by spurs of the Central Cordillera, through which a picturesque little stream, called the Guali, flows into the Magdalena. The town overlooks the rapids of the Magdalena, and is shut in closely by spurs of the Eastern and Central Cordilleras. The climate is hot and damp and the temperature frequently rises to 102° F. in the shade. Honda dates back to the beginning of the 17th century, and has been one of the important centres of traffic in South America for three hundred years. Within the city there is an iron bridge across the Guali, and there is a suspension bridge across the Magdalena at the head of the rapids. A railway 18 m. long connects with the landing place of La Dorada, or Las Yeguas, where the steamers of the lower Magdalena discharge and receive their cargoes (the old landing at Carocali nearer the rapids having been abandoned), and with Arrancaplumas, 1½ m. above, where navigation of the upper river begins. Up to 1908 the greater part of the traffic for Bogotá crossed the river at this point, and was carried on mule-back over the old *camino real*, which was at best only a rough bridlepath over which transportation to Bogotá (67 m. distant) was laborious and highly expensive; now the transshipment is made to smaller steamboats on the upper river for carriage to Girardot, 93 m. distant, from which place a railway runs to the Bogotá plateau. Honda was nearly destroyed by an earthquake in 1808.

HONDECOETER, MELCHIOR D' (*c.* 1636-1695), Dutch painter, was born at Utrecht, it is said, about 1636, and died at Amsterdam on the 3rd of April 1695. Old historians say that, being the grandson of Gillis and son of Gisbert d'Hondecoeter, as well as nephew of J. B. Weenix, he was brought up by the last two to the profession of painting. Of Weenix we know that he married one Josina d'Hondecoeter in 1638. Melchior was, therefore, related to Weenix, who certainly influenced his style. As to Gillis and Gisbert some points still remain obscure, and it is difficult to accept the statement that they stood towards each other in the relation of father and son, since both were registered as painters at Utrecht in 1637. Both it appears had practised art before coming to Utrecht, but where they resided or what they painted is uncertain. Unhappily pictures scarcely help us to clear up the mystery. In the Fürstenberg collection at Donaueschingen there is a "Concert of Birds" dated 1620, and signed with the monogram G. D. H.; and we may presume that G. D. H. is the man whose "Hen and Chickens in a Landscape" in the gallery of Rotterdam is inscribed "G. D. Hondecoeter, 1652"; but is the

first letter of the monogram to stand for Gillis or Gisbert? In the museums of Dresden and Cassel landscapes with sportsmen are catalogued under the name of Gabriel de Heusch (?), one of them dated 1529, and certified with the monogram G. D. H., challenging attention by resemblance to a canvas of the same class inscribed G. D. Hond. in the Berlin Museum. The question here is also whether G. means Gillis or Gisbert. Obviously there are two artists to consider, one of whom paints birds, the other landscapes and sportsmen. Perhaps the first is Gisbert, whose son Melchior also chose birds as his peculiar subject. Weenix too would naturally teach his nephew to study the feathered tribe. Melchior, however, began his career with a different speciality from that by which he is usually known. Mr de Stuers affirms that he produced sea-pieces. One of his earliest works is a “Tub with Fish,” dated 1655, in the gallery of Brunswick. But Melchior soon abandoned fish or fowl. He acquired celebrity as a painter of birds only, which he represented not exclusively, like Fyt, as the gamekeeper’s perquisite after a day’s shooting, or stock of a poulterer’s shop, but as living beings with passions, joys, fears and quarrels, to which naturalists will tell us that birds are subject. Without the brilliant tone and high finish of Fyt, his Dutch rival’s birds are full of action; and, as Bürger truly says, Hondecoeter displays the maternity of the hen with as much tenderness and feeling as Raphael the maternity of Madonnas. But Fyt was at home in depicting the coat of deer and dogs us well as plumage. Hondecoeter cultivates a narrower field, and seldom goes beyond a cock-fight or a display of mere bird life. Very few of his pictures are dated, though more are signed. Amongst the former we should note the “Jackdaw deprived of his Borrowed Plumes” (1671), at the Hague, of which Earl Cadogan has a variety; or “Game and Poultry” and “A Spaniel hunting a Partridge” (1672), in the gallery of Brussels; or “A Park with Poultry” (1686) at the Hermitage of St Petersburg. Hondecoeter, in great favour with the magnates of the Netherlands, became a member of the painters’ academy at the Hague in 1659. William III. employed him to paint his menagerie at Loo, and the picture, now at the Hague museum, shows that he could at a pinch overcome the difficulty of representing India’s cattle, elephants and gazelles. But he is better in homelier works, with which he adorned the royal chateaux of Bensberg and Oranienstein at different periods of his life (Hague and Amsterdam). In 1688 Hondecoeter took the freedom of the city of Amsterdam, where he resided till his death. His earliest works are more conscientious, lighter and more transparent than his later ones. At all times he is bold Of touch and sure of eye, giving the motion of birds with great spirit and accuracy. His masterpieces are at the Hague and at Amsterdam. But there are fine examples in private collections in England, and in the public galleries of Berlin, Caen, Carlsruhe, Cassel, Cologne, Copenhagen, Dresden, Dublin, Florence, Glasgow, Hanover, London, Lyons, Montpellier, Munich, Paris, Rotterdam, Rouen, St Petersburg, Stuttgart and Vienna.

HONDURAS, a republic of Central America, bounded on the N. by the Caribbean Sea, E. by Nicaragua, S. by Nicaragua, the Pacific Ocean and Salvador, and W. by Guatemala. (For map see Central America.) Pop. (1905) 500,136; area, about 46,500 sq. m. Honduras is said to owe its name, meaning in Spanish “depths,” to the difficulty experienced by its original Spanish explorers in finding anchorage off its shores; Cape Gracias à Dios (Cape “Thanks to God”) is the name bestowed, for analogous reasons, on its easternmost headland, which shelters a small harbour, now included in Nicaragua. Modern navigators are not confronted by the same difficulty; for, although the north coast is unbroken by any remarkable inlet except the Carataska Lagoon, a land-locked lake on the east, with a narrow entrance from the sea, there are many small bays and estuaries, such as those of Puerto Cortes, Omoa, Ulua, La Ceiba and Trujillo, which serve as harbours. The broad basin of the Caribbean Sea, bounded by Honduras, Guatemala and British Honduras, is known as the bay or gulf of Honduras. Several islets and the important group of the Bay Islands (*q.v.*) belong to the republic. On the Pacific the Hondurian littoral is short but of great commercial value; for it consists of a frontage of some 60 m. on the Bay of Fonseca (*q.v.*), one of the finest natural harbours in the world. The islands of Tigre, Sacate Grande and Gueguensi, in the bay, belong to Honduras.

The frontier which separates the republic from Nicaragua extends across the continent from E.N.E to W.S.W. It is defined by the river Segovia, Wanks or Coco, for about one-third of the distance; it then deflects across the watershed on the east and south of the river Choluteca, crosses the main Nicaraguan Cordillera (mountain chain) and follows the river Negro to the Bay of Fonseca. The line of separation from Salvador is irregularly drawn, first in a northerly and then in a westerly direction; beginning at the mouth of the river Goascoran, in the Bay of Fonseca, it ends 12 m. W. of San Francisco city. At this point begins the Guatemalan frontier, the largest section of which is delimited along the crests of the Sierra de Merendon. On the Caribbean seaboard the estuary of the Motagua forms the boundary between Honduras and

Guatemala.

Physical Features.—The general aspect of the country is mountainous; its southern half is traversed by a continuation of the main Nicaraguan Cordillera. The chain does not, in this republic, approach within 50 or 60 m. of the Pacific; nor does it throughout maintain its general character of an unbroken range, but sometimes turns back on itself, forming interior basins or valleys, within which are collected the headwaters of the streams that traverse the country in the direction of the Atlantic Ocean. Nevertheless, viewed from the Pacific, it presents the appearance of a great natural wall, with many volcanic peaks towering above it and with a lower range of mountains intervening between it and the sea. It would almost seem that at one time the Pacific broke at the foot of the great mountain barrier, and that the subordinate coast range was subsequently thrust up by volcanic forces. At one point the main range is interrupted by a great transverse valley or plain known as the plain of Comayagua, which has an extreme length of about 40 m., with a width of from 5 to 15 m. From this plain the valley of the river Humuya extends north to the Atlantic, and the valley of the Goascoran extends south to the Pacific. These three depressions collectively constitute a great transverse valley reaching from sea to sea, which was pointed out soon after the conquest as an appropriate course for inter-oceanic communication. The mountains of the northern half of Honduras are not volcanic in character and are inferior in altitude to those of the south, which sometimes exceed 10,000 ft. The relief of all the highlands of the Atlantic watershed is extremely varied; its culminating points are probably in the mountain mass about the sources of the Choluteca, Sulaco and Roman, and in the Sierra de Pija, near the coast. Farther eastward the different ranges are less clearly marked and the surface of the country resembles a plateau intersected by numerous watercourses.

The rivers of the Atlantic slope of Honduras are numerous and some of them of large size and navigable. The largest is the Ulua, with its tributary the Humuya. It rises in the plain of Comayagua and flows north to the Atlantic; it drains a wide expanse of territory, comprehending nearly one-third of the entire state, and probably discharges a greater amount of water into the sea than any other river of Central America, the Segovia excepted. It may be navigated by steamers of light draught for the greater part of its course. The Rio Roman or Aguan is a large stream falling into the Atlantic near Trujillo, with a total length of about 120 m. Its largest tributary is the Rio Mangualil, celebrated for its gold washings, and it may be ascended by boats of light draft for 80 m. Rio Tinto, Negro or Black River, called also Poyer or Poyas, is a considerable stream, navigable by small vessels for about 60 m. Some English settlements were made on its banks during the 18th century. The Patuca rises near the frontier of Nicaragua, and enters the Atlantic east of the Brus or Brewer lagoon. The Segovia is the longest river in Central America, rising within 50 m. of the Bay of Fonseca, and flowing into the Caribbean Sea at Cape Gracias à Dios (see NICARAGUA). Three considerable rivers flow into the Pacific—the Goascoran, Nacaome and Choluteca, the last named having a length of about 150 m. The Goascoran, which almost interlocks with the Humuya, in the plain of Comayagua, has a length of about 80 m. The lake of Yojoa or Taulébe is the only large inland lake in Honduras, and is about 25 m. in length, by 6 to 8 in breadth. Its surface is 2050 ft. above the sea. It has two outlets on the south, the rivers Jaitique and Sacapa, which unite about 15 m. from the lake; and it is drained on the north by the Rio Blanco, a narrow, deep stream falling into the Ulua. It has also a feeder on the north, in the form of a subterranean stream of beautiful clear water, which here comes to the surface. The Carataska or Caratasca lagoon is a shallow salt-water lake connected by a narrow channel with the Atlantic, and near the mouth of the Segovia. It contains several large sandy islands.

Honduras resembles the neighbouring countries in the general character of its geological formations, fauna and flora. Here, as in other Central American states, there are but two seasons, the wet, from May to November, and the dry, from November to May. On the moist lowlands of the Atlantic coast the climate is oppressive, but on the highlands of the interior it is delightful. At Tegucigalpa, on the uplands, a year's observations showed the maximum temperature to be 90° F. in May, and the minimum to be 50° F. in December, the range of variation during the whole year being within 40° F.

See also CENTRAL AMERICA: *Geology*, *Fauna*, *Flora*, *Climate*.

Inhabitants.—The inhabitants of Honduras are in many cases of the Indian or aboriginal type, and the European element is very small, although it shares in the social, political and economic preponderance of the Spanish-speaking half-castes (*Ladinos* or *Mestizos*), who are the most numerous section of the population. Throughout the country there are many interesting relics of the native civilization which was destroyed by the Spanish invaders in the 16th century. In the eastern portion of the state, between the Rio Roman, Cape Gracias à Dios, and the Segovia river, the country is almost exclusively occupied by native Indian tribes, known under the general names of Xicaques and Poyas. In many districts the Indians are known as Lencas, a generic name which includes several tribes akin to the Mayans of Guatemala. Portions of all of these tribes have accepted the Roman Catholic religion, and live in peaceful neighbourhood and good understanding with the white inhabitants. There are, however, considerable

numbers, probably about 90,000 in all, who live among the mountains and still conform closely to the aboriginal modes of life. They all cultivate the soil, and are good and industrious labourers. A small portion of the coast, above Cape Gracias, is occupied by the Sambos, a mixed race of Indians and negroes, which, however, is fast disappearing. Spreading along the entire north coast are the Caribs, a vigorous race, descendants of the Caribs of St Vincent, one of the Windward Islands. These, to the number of 5000, were deported in 1796 by the English and landed on the island of Roatan. They still retain their native language, although it tends to disappear and be replaced by Spanish and a bastard dialect of English; they are active, industrious and provident, forming the chief reliance of the mahogany cutters on the coast. A portion of them, who have a mixture of negro blood, are called the Black Caribs. They profess the Roman Catholic religion, but retain many of their native rites and superstitions. In the departments of Gracias, Comayagua and Choluteca are many purely Indian towns.

The aggregate population, according to an official estimate made in 1905, is 500,136, but a complete and satisfactory census cannot be taken throughout the country, since the ignorant masses of the people, and especially the Indians, avoid a census as in some way connected with military conscription or taxation. The bulk of the Spanish population exists on the Pacific slope of the continent, while on the Atlantic declivity the country is uninhabited or but sparsely occupied by Indian tribes, of which the number is wholly unknown. In 1905 there were fewer than 11 inhabitants per sq. m., but all the available data tend to show that the population increases rapidly, owing to the continuous excess of births over deaths. The first census, taken in 1791, gave the total population as only 95,500. There is little emigration or immigration.

Chief Towns.—The capital is Tegucigalpa (pop. 1905, about 35,000); other important towns are Jutigalpa (18,000), Comayagua (8000), and the seaports of Amapala (4000), Trujillo (4000), and Puerto Cortes (2500). These are described in separate articles. The towns of Nacaome, La Esperanza, Choluteca and Santa Rosa have upwards of 10,000 inhabitants.

Communications.—Means of communication are very defective. In 1905 the only railway in the country was that from Puerto Cortes to La Pimienta, a distance of 57 m. This is a section of the proposed inter-oceanic railway for which the external debt of the republic was incurred. For the completion of the line concessions, one after another, were granted, and expired or were revoked. Other railways are projected, including one along the Atlantic coast, an extension from La Pimienta to La Brea on the Pacific, and a line from Tegucigalpa to the port of San Lorenzo. The capital is connected with other towns by fairly well made roads, which, however, are not kept in good repair. In the interior generally, all travelling and transport are by mules and ox-carts over roads which defy description.

Honduras joined the Postal Union in 1879, The telegraph service is conducted by the government and is inefficient. Telephones are in use in Tegucigalpa and a few of the more important towns.

Commerce and Industry.—Although grants of land for mining and agricultural purposes are readily made by the state to companies and individual capitalists, the economic development of Honduras has been a very slow process, impeded as it has been by political disturbances and in modern times by national bankruptcy, heavy import and export duties, and the scarcity of both labour and capital. The natural wealth of the country is great and consists especially in its vegetable products. The mahogany and cedar of Honduras are unsurpassed, but reckless destruction of these and of other valuable cabinet-woods and dye-woods has much reduced the supply available for export. Rubber-planting, a comparatively modern industry, has proved successful, and tends to supplement the almost exhausted stock of wild rubber. Of still greater importance are the plantations of bananas, especially in the northern maritime province of Atlantida, where coco-nuts are also grown. Coffee, tobacco, sugar, oranges, lemons, maize and beans are produced in all parts, rice, cocoa, indigo and wheat over more limited areas. Cattle and pigs are bred extensively; cattle are exported to Cuba, and dairy-farming is carried on with success. Sheep-farming is almost an unknown industry. Turtle and fish are obtained in large quantities off the Atlantic seaboard. In its mineral resources Honduras ranks first among the states of Central America. Silver is worked by a British company, gold by an American company. Gold-washing was practised in a primitive manner even before the Spanish conquest, and in the 18th century immense quantities of gold and silver were obtained by the Spaniards from mines near Tegucigalpa. Opals, platinum, copper, lead, zinc, nickel, antimony, iron, lignite and coal have been found but the causes already enumerated have prevented the exploitation of any of these minerals on a large scale, and the total value of the ores exported was only £174,800 in 1904 and £239,426 in 1905. The total value of the exports in a normal year ranges from about £500,000 to £600,000, and that of the imports from £450,000 to £550,000. Apart from minerals the most valuable commodity exported is bananas (£209,263 in 1905); coco-nuts, timber, hides, deer-skins, feathers, coffee, sarsaparilla and rubber are items of minor importance. Nearly 90% of the exports are shipped to the United States, which also send to Honduras more than half of its imports. These chiefly consist of cotton goods, hardware and provisions. The manufacturing industries of Honduras include the plaiting of straw hats, cigar-

making, brick-making and the distillation of spirits.

Finance.—Owing to the greater variety of its products and the possession of a metallic currency, Honduras is less affected by fluctuations of exchange than the neighbouring republics, in which little except paper money circulates. The monetary unit is the silver *peso* or dollar of 100 cents, which weighs 25 grammes, .900 fine, and is worth about 1s. 8d.; the gold dollar is worth about 4s. The principal coins in circulation arc the 1-cent copper piece, 5, 10, 20, 25 and 50 cents, and 1 peso silver pieces, and 1, 5, 10 and 20 dollar gold pieces. The metric system of weights and measures, adopted officially on the 1st of April 1897, has not supplanted the older Spanish standards in general use. There is only one bank in the republic, the *Banco de Honduras*, with its head office at Tegucigalpa. Its bills are legal tender for all debts due to the state.

In July 1909 the foreign debt of Honduras, with arrears of interest, amounted to £22,470,510, of which more than £17,000,000 were for arrears of interest. The principal was borrowed between 1867 and 1870, chiefly for railway construction; but it was mainly devoted to other purposes and no interest has been paid since 1872. The republic is thus practically bankrupt. The revenue, derived chiefly from customs and from the spirit, gunpowder and tobacco monopolies reached an average of about £265,000 during the five years 1901-1905; the expenditure in normal years is about £250,000. The principal spending departments are those of war, finance, public works and education.

Constitution and Government.—The constitution of Honduras, promulgated in 1839 and frequently amended, was to a great extent recast in 1880. It was again remodelled in 1894, when a new charter was proclaimed. This instrument gives the legislative power to a congress of deputies elected for four years by popular vote, in the ratio of one member for every 10,000 inhabitants. Congress meets on the 1st of January and sits for sixty consecutive days. The executive is entrusted to the president, who is nominated and elected for four years by popular vote, and is re-eligible for a second but not for a third consecutive term. He is assisted by a council of ministers representing the departments of the interior, war, finance, public works, education and justice. For purposes of local administration the republic is divided into sixteen departments. The highest judicial power is vested in the Supreme Court, which consists of five popularly elected judges; there are also four Courts of Appeal, besides subordinate departmental and district tribunals. The active army consists of about 500 regular soldiers and 20,000 militia, recruited by conscription from all able-bodied males between the ages of twenty and thirty. Service in the reserve is obligatory for a further period of ten years.

Religion and Education.—Roman Catholicism is the creed of a very large majority of the population; but the constitution grants complete liberty to all religious communities, and no Church is supported by public funds or receives any other special privilege. Education is free, secular and compulsory for children between the ages of seven and fifteen. There are primary schools in every convenient centre, but the percentage of illiterates is high, especially among the Indians. The state maintains a central institute and a university at Tegucigalpa, a school of jurisprudence at Comayagua, and colleges for secondary education, with special schools for teachers, in each department. The annual cost of primary education is about £11,000.

History.—It was at Cape Honduras that Columbus first landed on the American continent in 1502, and took possession of the country on behalf of Spain. The first settlement was made in 1524 by order of Hernando Cortes, who had heard rumours of rich and populous empires in this region, and sent his lieutenant Christobal de Olid to found a Spanish colony. Olid endeavoured to establish an independent principality, and, in order to resume control of the settlers, Cortes was compelled to undertake the long and arduous march across the mountains of southern Mexico and Guatemala. In the spring of 1525 he reached the colony and founded the city which is now Puerto Cortes. He entrusted the administration to a new governor, whose successors were to be nominated by the king, and returned to Mexico in 1526. By 1539, when Honduras was incorporated in the captaincy-general of Guatemala, the mines of the province had proved to be the richest as yet discovered in the New World and several large cities had come into existence. The system under which Honduras was administered from 1539 to 1821, when it repudiated the authority of the Spanish crown, the effects of that system, the part subsequently played by Honduras in the protracted struggle for Central American unity, and the invasion by William Walker and his fellow-adventurers (1856-1860), are fully described under Central America.

War and revolution had stunted the economic growth of the country and retarded every attempt at social or political reform; its future was mortgaged by the assumption of an enormous burden of debt in 1869 and 1870. A renewal of war with Guatemala in 1871, and a revolution three years later in the interests of the ex-president Medina, brought about the intervention of the neighbouring states and the provisional appointment to the presidency of Marco Aurelio Soto, a nominee of Guatemala. This appointment proved successful and was confirmed by popular vote in 1877 and 1880, when a new constitution was issued and the seat

of government fixed at Tegucigalpa. Fresh outbreaks of civil war occurred frequently between 1883 and 1903; the republic was bankrupt and progress again at a standstill. In 1903 Manuel Bonilla, an able, popular and experienced general, gained the presidency and seemed likely to repeat the success of Soto in maintaining order. As his term of office drew to a close, and his re-election appeared certain, the supporters of rival candidates and some of his own dissatisfied adherents intrigued to secure the co-operation of Nicaragua for his overthrow. Bonilla welcomed the opportunity of consolidating his own position which a successful war would offer; José Santos Zelaya, the president of Nicaragua, was equally ambitious; and several alleged violations of territory had embittered popular feeling on both sides. The United States and Mexican governments endeavoured to secure a peaceful settlement without intervention, but failed. At the outbreak of hostilities in February 1907 the Hondurian forces were commanded by Bonilla in person and by General Sotero Barahona his minister of war. One of their chief subordinates was Lee Christmas, an adventurer from Memphis, Tennessee, who had previously been a locomotive-driver. Honduras received active support from his ally, Salvador, and was favoured by public opinion throughout Central America. But from the outset the Nicaraguans proved victorious, largely owing to their remarkable mobility. Their superior naval force enabled them to capture Puerto Cortes and La Ceiba, and to threaten other cities on the Caribbean coast; on land they were aided by a body of Hondurian rebels, who also established a provisional government. Zelaya captured Tegucigalpa after severe fighting, and besieged Bonilla in Amapala. Lee Christmas was killed. The surrender of Amapala on the 11th of April practically ended the war. Bonilla took refuge on board the United States cruiser “Chicago.” A noteworthy feature of the war was the attitude of the American naval officers, who landed marines, arranged the surrender of Amapala, and prevented Nicaragua prolonging hostilities. Honduras was now evacuated by the Nicaraguans and her provisional government was recognized by Zelaya. Miguel R. Davila was president in 1908 and 1909.

BIBLIOGRAPHY.—Official documents such as the annual presidential message and the reports of the ministries are published in Spanish at Tegucigalpa. Other periodical publications which throw much light on the movement of trade and politics are the British Foreign Office reports (London, annual), United States consular reports (Washington, monthly), bulletins of the Bureau of American Republics (Washington), and reports of the Council of the Corporation of Foreign Bondholders (London, annual). For a more comprehensive account of the country and its history, the works of K. Sapper, E. G. Squier, A. H. Keane and T. Child, cited under CENTRAL AMERICA, are important. See also E. Pelletier, *Honduras et ses ports: documents officiels sur le chemin-de-fer interocéanique* (Paris, 1869); E. G. Squier, *Honduras: Descriptive, Historical and Statistical* (London, 1870); C. Charles, *Honduras* (Chicago, 1890); *Handbook of Honduras*, published by the Bureau of American Republics (1892); T. R. Lombard, *The New Honduras* (New York, 1887); H. Jalhay, *La République de Honduras* (Antwerp, 1898); Perry, *Directorio nacional de Honduras* (New York, 1899); H. G. Bourgeois, *Breve noticia sobre Honduras* (Tegucigalpa, 1900).

HONE, NATHANIEL (1718-1784), British painter, was the son of a merchant at Dublin, and without any regular training acquired in his youth much skill as a portrait-painter. Early in his career he left Dublin for England and worked first in various provincial towns, but ultimately settled in London, where he soon made a considerable reputation. His oil-paintings were decidedly popular, but he gained his chief success by his miniatures and enamels, which he executed with masterly capacity. He became a member of the Incorporated Society of Artists and afterwards a foundation member of the Royal Academy; but he had several disagreements with his fellow-members of that institution, and on one occasion they rejected two of his pictures, one of which was regarded as a satire on Reynolds and the other on Angelica Kauffman. Most of his contributions to the Academy exhibitions were portraits. The quality of his work varied greatly, but the merit of his miniatures and enamels entitles him to a place among the ablest artists of the British school. He executed also a few mezzotint plates of reasonable importance, and some etchings. His portrait, painted by himself two years before his death, is in the possession of the Royal Academy.

HONE, WILLIAM (1780-1842), English writer and bookseller, was born at Bath on the 3rd

of June 1780. His father brought up his children with the sectarian narrowness that so frequently produces reaction. Hone received no systematic education, and was taught to read from the Bible only. His father having removed to London in 1783, he was in 1790 placed in an attorney's office. After two and a half years spent in the office of a solicitor at Chatham he returned to London to become clerk to a solicitor in Gray's Inn. But he disliked the law, and had already acquired a taste for free-thought and political agitation. Hone married in 1800, and started a book and print shop with a circulating Library in Lambeth Walk. He soon removed to St Martin's Churchyard, where he brought out his first publication, Shaw's *Gardener* (1806). It was at this time that he and his friend, John Bone, tried to realize a plan for the establishment of popular savings banks, and even had an interview on the subject with the president of the Board of Trade. This scheme, however, failed. Bone joined him next in a bookseller's business; but Hone's habits were not those of a tradesman, and bankruptcy was the result. He was in 1811 chosen by the booksellers as auctioneer to the trade, and had an office in Ivy Lane. Independent investigations carried on by him into the condition of lunatic asylums led again to business difficulties and failure, but he took a small lodging in the Old Bailey, keeping himself and his now large family by contributions to magazines and reviews. He hired a small shop, or rather box, in Fleet Street but this was on two separate nights broken into, and valuable books lent for show were stolen. In 1815 he started the *Traveller* newspaper, and endeavoured vainly to exculpate Eliza Fenning, a poor girl, apparently quite guiltless, who was executed on a charge of poisoning. From February 1 to October 25, 1817, he published the *Reformer's Register*, writing in it as the serious critic of the state abuses, which he soon after attacked in the famous political squibs and parodies, illustrated by George Cruikshank. In April 1817 three *ex-officio* informations were filed against him by the attorney-genera, Sir William Garrow. Three separate trials took place in the Guildhall before special juries on the 18th, 19th and 20th of December 1817. The first, for publishing Wilkes's *Catechism of a Ministerial Member* (1817), was before Mr Justice Abbot (afterwards Lord Tenterden); the second, for parodying the litany and libelling the prince regent, and the third, for publishing the *Sinecurist's Creed* (1817), a parody on the Athanasian creed, were before Lord Ellenborough (*q.v.*). The prosecution took the ground that the prints were calculated to injure public morals, and to bring the prayer-book and even religion itself into contempt. But there can be no doubt that the real motives of the prosecution were political; Hone had ridiculed the habits and exposed the corruption of the prince regent and of other persons in power. He went to the root of the matter when he wished the jury "to understand that, had he been a publisher of ministerial parodies, he would not then have been defending himself on the floor of that court." In spite of illness and exhaustion Hone displayed great courage and ability, speaking on each of the three days for about seven hours. Although his judges were biassed against him he was acquitted on each count, and the result was received with enthusiastic cheers by immense crowds within and without the court. Soon after the trials a subscription was begun which enabled Hone to get over the difficulties caused by his prosecution. Among Hone's most successful political satires were *The Political House that Jack built* (1819), *The Queen's Matrimonial Ladder* (1820), in favour of Queen Caroline, *The Man in the Moon* (1820), *The Political Showman* (1821), all illustrated by Cruikshank. Many of his squibs are directed against a certain "Dr Slop," a nickname given by him to Dr (afterwards Sir John) Stoddart, of *The Times*. In researches for his defence he had come upon some curious and at that time little trodden literary ground, and the results were shown by his publication in 1820 of his *Apocryphal New Testament*, and in 1823 of his *Ancient Mysteries Explained*. In 1826 he published the *Every-day Book*, in 1827-1828 the *Table-Book*, and in 1829 the *Year-Book*; all three were collections of curious information on manners, antiquities and various other subjects. These are the works by which Hone is best remembered. In preparing them he had the approval of Southey and the assistance of Charles Lamb, but pecuniarily they were not successful, and Hone was lodged in King's Bench prison for debt. Friends, however, again came to his assistance, and he was established in a coffee-house in Gracechurch Street; but this, like most of his enterprises, ended in failure. Hone's attitude of mind had gradually changed to that of extreme devoutness, and during the latter years of his life he frequently preached in Weigh House Chapel, Eastcheap. In 1830 he edited Strutt's *Sports and Pastimes*, and he contributed to the first number of the *Penny Magazine*. He was also for some years sub-editor of the *Patriot*. He died at Tottenham on the 6th of November 1842.

HONE (in O. Eng. *hán*, cognate with Swed. *hen*; the root appears in Skt. *çána*, *ço* to sharpen), a variety of finely siliceous stone employed for whetting or sharpening edge tools, and for abrading steel and other hard surfaces. Synonyms are honestone, whetstone, oilstone

and sharpening stone. Hones are generally prepared in the form of flat slabs or small pencils or rods, but some are made with the outline of the special instrument they are designed to sharpen. Their abrading action is due to the quartz or silica which is always present in predominating proportion, some kinds consisting of almost pure quartz, while in others the siliceous element is very intimately mixed with aluminous or calcareous matter, forming a uniform compact stone, the extremely fine siliceous particles of which impart a remarkably keen edge to the instruments for the sharpening of which they are applied. In some cases the presence of minute garnets or magnetite assists in the cutting action. Hones are used either dry, with water, or with oil, and generally the object to be sharpened is drawn with hand pressure backward and forward over the surface of the hone; but sometimes the stone is moved over the cutting edge.

The coarsest type of stone which can be included among hones is the bat or scythe stone, a porous fine-grained sandstone used for sharpening scythes and cutters of mowing machines, and for other like purposes. Next come the ragstones, which consist of quartzose mica-schist, and give a finer edge than any sandstone. Under the head of oilstones or hones proper the most famous and best-known qualities are the German razor hone, the Turkey oilstone, and the Arkansas stone. The German razor hone, used, as its name implies, chiefly for razors, is obtained from the slate mountains near Ratisbon, where it forms a yellow vein of from 1 to 18 in. in the blue slate. It is sawn into thin slabs, and these are cemented to slabs of slate which serve as a support. Turkey oilstone is a close-grained bluish stone containing from 70 to 75% of silica in a state of very fine division, intimately blended with about 20 to 25% of calcite. It is obtained only in small pieces, frequently flawed and not tough, so that the slabs must have a backing of slate or wood. It is one of the most valuable of all whetstones, abrading the hardest steel, and possessing sufficient compactness to resist the pressure required for sharpening gravers. The stone comes from the interior of Asia Minor, whence it is carried to Smyrna. Of Arkansas stones there are two varieties, both found in the same district, Garland and Saline counties, Arkansas, United States. The finer kind, known as Arkansas hone, is obtained in small pieces at the Hot Springs, and the second quality, distinguished as Washita stone, comes from Washita or Ouachita river. The hones yield on analysis 98% of silica, with small proportions of alumina, potash and soda, and mere traces of iron, lime, magnesia and fluorine. They are white in colour, extremely hard and keen in grit, and not easily worn down or broken. Geologically the materials are called novaculites, and are supposed to be metamorphosed sandstone silt, chert or limestone resulting from the permeation through the mass of heated alkaline siliceous waters. The finer kind is employed for fine cutting instruments, and also for polishing steel pivots of watch-wheels and similar minute work, the second and coarser quality being used for common tools. Both varieties are largely exported from the United States in the form of blocks, slips, pencils, rods and wheels. Other honestones are obtained in the United States from New York, New Hampshire, Vermont, Ohio (Deerlick stone) and Indiana (Hindostan or Orange stone). Among hones of less importance in general use may be noted the Charley Forest stone —or Whittle Hill honestone—a good substitute for Turkey oilstone; Water of Ayr stone, Scotch stone, or snake stone, a pale grey carboniferous shale hardened by igneous action, used for tools and for polishing marble and copper-plates; Idwal or Welsh oilstone, used for small articles; and cutlers' greenstone from Snowdon, very hard and close in texture, used for giving the last edge to lancets.

HONEY (Chin. *mē*; Sansk. *madhu*, mead, honey; cf. A.S. *medo*, *medu*, mead; Gr. μέλι, in which θ or δ is changed into λ; Lat. *mel*; Fr. *miel*; A.S. *hunig*; Ger. *Honig*),[1] a sweet viscid liquid, obtained by bees (see Bee, *Bee-keeping*) chiefly from the nectaries of flowers, *i.e.* those parts of flowers specially constructed for the elaboration of honey, and, after transportation to the hive in the proventriculus or crop of the insects, discharged by them into the cells prepared for its reception. Whether the nectar undergoes any alteration within the crop of the bee is a point on which authors have differed. Some wasps, *e.g. Myrapetra scutellaris*[2] and the genus *Nectarina*, collect honey. A honey-like fluid, which consists of a nearly pure solution of uncrystallizable sugar having the formula $C_6H_{14}O_7$ after drying in vacuo, and which is used by the Mexicans in the preparation of a beverage, is yielded by certain inactive individuals of *Myrmecocystus mexicanus*, Wesmael, the honey-ants or pouched ants (*hormigas mieleras* or *mochileras*) of Mexico.[3] The abdomen in these insects, owing to the distensibility of the membrane connecting its segments, becomes converted into a globular thin-walled sac by the accumulation within it of the nectar supplied to them by their working comrades (Wesmael, *Bull. de l'Acad. Roy. de Brux.* v. 766, 1838). By the Rev. H. C. M'Cook, who discovered the

insect in the Garden of the Gods, Colorado, the honey-bearers were found hanging by their feet, in groups of about thirty, to the roofs of special chambers in their underground nests, their large globular abdomens causing them to resemble “bunches of small Delaware grapes” (*Proc. Acad. Nat. Sci. Philad.*, 1879, p. 197). A bladder-like formation on the metathorax of another ant, *Crematogaster inflatus* (F. Smith, *Cat. of Hymenoptera*, pt. vi. pp. 136 and 200, pl. ix. fig. 1), which has a small circular orifice at each posterior lateral angle, appears to possess a function similar to that of the abdomen in the honey-ant.

It is a popular saying that where is the best honey there also is the best wool; and a pastoral district, since it affords a greater profusion of flowers, is superior for the production of honey to one under tillage.[4] Dry warm weather is that most favourable to the secretion of nectar by flowers. This they protect from rain by various internal structures, such as papillae, cushions of hairs and spurs, or by virtue of their position (in the raspberry, drooping), or the arrangement of their constituent parts. Dr A. W. Bennett (*How Flowers are Fertilized*, p. 31, 1873) has remarked that the perfume of flowers is generally derived from their nectar; the blossoms of some plants, however, as ivy and holly, though almost scentless, are highly nectariferous. The exudation of a honey-like or saccharine fluid, as has frequently been attested, is not a function exclusively of the flowers in all plants. A sweet material, the manna of pharmacy, *e.g.* is produced by the leaves and stems of a species of ash, *Fraxinus Ornus*; and honey-secreting glands are to be met with on the leaves, petioles, phyllodes, stipules (as in *Vicia sativa*), or bracteae (as in the *Maregraviaceae*) of a considerable number of different vegetable forms. The origin of the honey-yielding properties manifested specially by flowers among the several parts of plants has been carefully considered by Darwin, who regards the saccharine matter in nectar as a waste product of chemical changes in the sap, which, when it happened to be excreted within the envelopes of flowers, was utilized for the important object of cross-fertilization, and subsequently was much increased in quantity, and stored in various ways (see *Cross and Self Fertilization of Plants*, pp. 402 sq., 1876). It has been noted with respect to the nectar of the fuchsia that it is most abundant when the anthers are about to dehisce, and absent in the unexpanded flower.

> Pettigrew is of opinion that few bees go more than 2 m. from home in search of honey. The number of blossoms visited in order to meet the requirements of a single hive of bees must be very great; for it has been found by A. S. Wilson (“On the Nectar of Flowers,” *Brit. Assoc. Rep.*, 1878, p. 567) that 125 heads of common red clover, which is a plant comparatively abundant in nectar, yield but one gramme (15.432 grains) of sugar; and as each head contains about 60 florets, 7,500,000 distinct flower-tubes must on this estimate be exhausted for each kilogramme (2.204 lb) of sugar collected. Among the richer sources of honey are reckoned the apple, asparagus, asters, barberry, basswood (*Tilia americana*), and the European lime or linden (*T. europaea*), beans, bonesets (*Eupatorium*), borage, broom, buckwheat, catnip, or catmint (*Nepeta Cataria*), cherry, cleome, clover, cotton, crocus, currant, dandelion, eucalyptus, figwort (*Scrophularia*), furze, golden-rod (*Solidago*), gooseberry, hawthorn, heather, hepatica, horehound, hyacinth, lucerne, maple, mignonette, mint, motherwort (*Leonurus*), mustard, onion, peach, pear, poplar, quince, rape, raspberry, sage, silver maple, snapdragon, sour-wood (*Oxydendron arboreum*, D.C.), strawberry, sycamore, teasel, thyme, tulip-tree (more especially rich in pollen), turnip, violet and willows, and the “honey-dew” of the leaves of the whitethorn (Bonner), oak, linden, beech and some other trees.

Honey contains dextroglucose and laevoglucose (the former practically insoluble, the latter soluble in ⅛ pt. of cold strong alcohol), cane-sugar (according to some), mucilage, water, wax, essential oil, colouring bodies, a minute quantity of mineral matter and pollen. By a species of fermentation, the cane-sugar is said to be gradually transformed into inverted sugar (laevoglucose with dextroglucose). The pollen, as a source of nitrogen, is of importance to the bees feeding on the honey. It may be obtained for examination as a sediment from a mixture of honey and water. Other substances which have been discovered in honey are mannite (Guibourt), a free acid which precipitates the salts of silver and of lead, and is soluble in water and alcohol (Calloux), and an uncrystallizable sugar, nearly related to inverted sugar (Soubeiran, *Compt. Rend.* xxviii. 774-775, 1849). Brittany honey contains couvain, a ferment which determines its active decomposition (Wurtz, *Dict. de Chem.* ii. 430). In the honey of *Polybia apicipennis*, a wasp of tropical America, cane-sugar occurs in crystals of large size (Karsten, *Pogg. Ann.*, C. 550). Dr J. Campbell Brown (“On the Composition of Honey,” *Analyst* iii. 267, 1878) is doubtful as to the presence of cane-sugar in any one of nine samples, from various sources, examined by him. The following average percentage numbers are afforded by his analyses: laevulose, 36.45; dextrose, 36.57; mineral matter, .15; water expelled at 100° C., 18.5, and at a much higher temperature, with loss, 7.81: the wax, pollen and insoluble matter vary from a trace to 2.1%. The specific gravity of honey is about 1.41. The rotation of a polarized ray by a solution of 16.26 grammes of crude honey in 100 c.c. of water is generally from −3.2° to −5° at 60° F.; in the case of Greek honey it is nearly −5.5°. Almost all pure honey, when exposed for some time to light and cold, becomes more or less granular in

consistency. Any liquid portion can be readily separated by straining through linen. Honey sold out of the comb is commonly clarified by heating and skimmimg; but according to Bonner it is always best in its natural state. The *mel depuratum* of British pharmacy is prepared by heating honey in a water-bath, and straining through flannel previously moistened with warm water.

The term “virgin-honey” (A.-S., *hunigtear*) is applied to the honey of young bees which have never swarmed, or to that which flows spontaneously from honeycomb with or without the application of heat. The honey obtained from old hives, considered inferior to it in quality, is ordinarily darker, thicker and less pleasant in taste and odour. The yield of honey is less in proportion to weight in old than in young or virgin combs. The far-famed honey of Narbonne is white, very granular and highly aromatic; and still finer honey is that procured from the Corbières Mountains, 6 to 9 m. to the south-west. The honey of Gâtinais is usually white, and is less odorous and granulates less readily than that of Narbonne. Honey from white clover has a greenish-white, and that from heather a rich golden-yellow hue. What is made from honey-dew is dark in colour, and disagreeable to the palate, and does not candy like good honey. “We have seen aphide honey from sycamores,” says F. Cheshire (*Pract. Bee-keeping*, p. 74), “as deep in tone as walnut liquor, and where much of it is stored the value of the whole crop is practically nil.” The honey of the stingless bees (*Meliponia* and *Trigona*) of Brazil varies greatly in quality according to the species of flowers from which it is collected, some kinds being black and sour, and others excellent (F. Smith, *Trans. Ent. Soc.*, 3d ser., i. pt. vi., 1863). That of *Apis Peronii*, of India and Timor, is yellow, and of very agreeable flavour and is more liquid than the British sorts. *A. unicolor*, a bee indigenous to Madagascar, and naturalized in Mauritius and the island of Réunion, furnishes a thick and syrupy, peculiarly scented green honey, highly esteemed in Western India. A rose-coloured honey is stated (*Gard. Chron.*, 1870, p. 1698) to have been procured by artificial feeding. The fine aroma of Maltese honey is due to its collection from orange blossoms. Narbonne honey being harvested chiefly from Labiate plants, as rosemary, an imitation of it is sometimes prepared by flavouring ordinary honey with infusion of rosemary flowers.

> Adulterations of honey are starch, detectable by the microscope, and by its blue reaction with iodine, also wheaten flour, gelatin, chalk, gypsum, pipe-clay, added water, cane-sugar and common syrup, and the different varieties of manufactured glucose. Honey sophisticated with glucose containing copperas as an impurity is turned of an inky colour by liquids containing tannin, as tea. Elm leaves have been used in America for the flavouring of imitation honey. Stone jars should be employed in preference to common earthenware for the storage of honey, which acts upon the lead glaze of the latter.

Honey is mildly laxative in properties. Some few kinds are poisonous, as frequently the reddish honey stored by the Brazilian wasp *Nectarina* (*Polistes*, Latr.[5]) *Lecheguana*, Shuck., the effects of which have been vividly described by Aug. de Saint-Hilaire,[6] the spring honey of the wild bees of East Nepaul, said to be rendered noxious by collection from rhododendron flowers (Hooker, *Himalayan Journals*, i. 190, ed. 1855), and the honey of Trebizond, which from its source, the blossoms, it is stated, of *Azalea pontica* and *Rhododendron ponticum* (perhaps to be identified with Pliny’s *Aegolethron*), acquires the qualities of an irritant and intoxicant narcotic, as described by Xenophon (*Anab.* iv. 8). Pliny (*Nat. Hist.* xxi. 45) describes as noxious a livid-coloured honey found in Persia and Gaetulia. Honey obtained from *Kalmia latifolia*, L., the calico bush, mountain laurel or spoon-wood of the northern United States, and allied species, is reputed deleterious; also that of the sour-wood is by some good authorities considered to possess undeniable griping properties; and G. Bidie (*Madras Quart. Journ. Med. Sci.*, Oct, 1861, p. 399) mentions urtication, headache, extreme prostration and nausea, and intense thirst among the symptoms produced by a small quantity only of a honey from Coorg jungle. A South African species of *Euphorbia*, as was experienced by the missionary Moffat (*Miss. Lab.* p. 32, 1849), yields a poisonous honey. The nectar of certain flowers is asserted to cause even in bees a fatal kind of vertigo. As a demulcent and flavouring agent, honey is employed in the *oxymel*, *oxymel scillae*, *mel boracis*, *confectio piperis*, *conf. scammonii* and *conf. terebinthinae* of the *British Pharmacopoeia*. To the ancients honey was of very great importance as an article of diet, being almost their only available source of sugar. It was valued by them also for its medicinal virtues; and in recipes of the Saxon and later periods it is a common ingredient.[7] Of the eight kinds of honey mentioned by the great Indian surgical writer Susruta, four are not described by recent authors, viz. *argha* or wild honey, collected by a sort of yellow bee; *chhatra*, made by tawny or yellow wasps; *audálaka*, a bitter and acrid honey-like substance found in the nest of white ants; and *dála* or unprepared honey occurring on flowers. According to Hindu medical writers, honey when new is laxative, and when more than a year old astringent (U. C. Dutt, *Mat. Med. of the Hindus*, p. 277, 1877). Ceromel, formed by mixing at a gentle heat one part by weight of yellow wax with four of clarified honey, and straining, is used in India and other tropical countries as a mild stimulant for ulcers in the place of animal fats, which there rapidly become rancid and unfit for medicinal purposes. The *Koran*, in the chapter entitled “The Bee,” remarks with reference to bees and their honey: “There proceedeth

from their bellies a liquor of various colour, wherein is a medicine for men" (Sale's *Koran*, chap. xvi.). Pills prepared with honey as an excipient are said to remain unindurated, however long they may be kept (*Med. Times*, 1857, i. 269). Mead, of yore a favourite beverage in England (vol. iv. p. 264), is made by fermentation of the liquor obtained by boiling in water combs from which the honey has been drained. In the preparation of sack-mead, an ounce of hops is added to each gallon of the liquor, and after the fermentation a small quantity of brandy. Metheglin, or hydromel, is maufactured by fermenting with yeast a solution of honey flavoured with boiled hops (see Cooley, *Cyclop.*). A kind of mead is largely consumed in Abyssinia (vol. i. p. 64), where it is carried on journeys in large horns (Stern, *Wanderings*, p. 317, 1862). In Russia a drink termed *lipez* is made from the delicious honey of the linden. The *mulsum* of the ancient Romans consisted of honey, wine and water boiled together. The *clarre*, or *piment*, of Chaucer's time was wine mixed with honey and spices, and strained till clear; a similar drink was *bracket*, made with wort of ale instead of wine. L. Maurial (*L'Insectologie Agricole* for 1868, p. 206) reports unfavourably as to the use of honey for the production of alcohol; he recommends it, however, as superior to sugar for the thickening of liqueurs, and also as a means of sweetening imperfectly ripened vintages. It is occasionally employed for giving strength and flavour to ale. In ancient Egypt it was valued as an embalming material; and in the East, for the preservation of fruit, and the making of cakes, sweetmeats, and other articles of food, it is largely consumed. Grafts, seeds and birds' eggs, for transmission to great distances, are sometimes packed in honey. In India a mixture of honey and milk, or of equal parts of curds, honey and clarified butter (Sansk., *madhu-parka*), is a respectful offering to a guest, or to a bridegroom on his arrival at the door of the bride's father; and one of the purificatory ceremonies of the Hindus (Sansk., *madhu-prāsana*) is the placing of a little honey in the mouth of a newborn male infant. Honey is frequently alluded to by the writers of antiquity as food for children; it is not to this, however, as already mentioned, that Isa. vii. 15 refers. Cream or fresh butter together with honey, and with or without bread, is a favourite dish with the Arabs.

Among the observances at the Fandròana or New Year's Festival, in Madagascar, is the eating of mingled rice and honey by the queen and her guests; in the same country honey is placed in the sacred water of sprinkling used at the blessing of the children previous to circumcision (Sibree, *The Great African Is.* pp. 219, 314, 1880). Honey was frequently employed in the ancient religious ceremonies of the heathen, but was forbidden as a sacrifice in the Jewish ritual (Lev. ii. 11). With milk or water it was presented by the Greeks as a libation to the dead (*Odyss.* xi. 27; Eurip. *Orest.* 115). A honey-cake was the monthly food of the fabled serpent-guardian of the Acropolis (Herod, viii. 41). By the aborigines of Peru honey was offered to the sun.

The Hebrew word translated "honey" in the authorized version of the English Bible is *debash*, practically synonymous with which are *ja'ar* or *ja'arith had-debash* (1 Sam. xix. 25-27; cf. Cant. v. 1) and nopheth (Ps. xix. 10, &c.), rendered "honey-comb." *Debash* denotes bee-honey (as in Deut. xxxii. 13 and Jud. xiv. 8); the manna of trees, by some writers considered to have been the "wild honey" eaten by John the Baptist (Matt. iii. 4); the syrup of dates or the fruits themselves; and probably in some passages (as Gen. xliii. 11 and Ez. xxvii. 17) the syrupy boiled juice of the grape, resembling thin molasses, in use in Palestine, especially at Hebron, under the name of *dibs* (see Kitto, *Cyclop.*, and E. Robinson, *Bibl. Res.* ii. 81). Josephus (B.J., iv. 8, 3) speaks highly of a honey produced at Jericho, consisting of the expressed juice of the fruit of palm trees; and Herodotus (iv. 194) mentions a similar preparation made by the Gyzantians in North Africa, where it is still in use. The honey most esteemed by the ancients was that of Mount Hybla in Sicily, and of Mount Hymettus in Attica (iii. 59). Mahaffy (*Rambles in Greece*, p. 148, 2nd ed., 1878) describes the honey of Hymettus as by no means so good as the produce of other parts of Greece—not to say of the heather hills of Scotland and Ireland. That of Thebes, and more especially that of Corinth, which is made in the thymy hills towards Cleonae, he found much better (cf. xi. 88). Honey and wax, still largely obtained in Corsica (vi. 440), were in olden times the chief productions of the island. In England, in the 13th and 14th centuries, honey sold at from about 7d. to 1s. 2d. a gallon, and occasionally was disposed of by the swarm or hive, or *ruscha* (Rogers, *Hist. of Agric. and Prices in Eng.*, 1. 418). At Wrexham, Denbigh, Wales, two honey fairs are annually held, one on the Thursday next after the 1st of September, and the other—the more recently instituted and by far the larger—on the Thursday following the first Wednesday in October. In Hungary the amounts of honey and of wax are in favourable years respectively about 190,000 and 12,000 cwt., and in unfavourable years, as, *e.g.* 1874, about 12,000 and 3000 cwt. The hives there in 1870 numbered 617,407 (or 40 per 1000 of the population, against 45 in Austria). Of these 365,711 were in Hungary Proper, and 91,348 (87 per 1000 persons) in the Military Frontier (Keleti, *Übersicht der Bevölk. Ungarns*, 1871; Schwicker, *Statistik d. K. Ungarn*, 1877). In Poland the system of bee-keeping introduced by Dolinowski has been found to afford an average of 40 lb of honey and wax and two new swarms per hive, the common peasant's hive yielding, with two swarms, only 3 lb of honey and wax. In forests and places remote from villages in Podolia and parts of Volhynia, as many as 1000 hives

may be seen in one apiary. In the district of Ostrolenka, in the government of Plock, and in the woody region of Polesia, in Lithuania, a method is practised of rearing bees in excavated trunks of trees (Stanton, "On the Treatment of Bees in Poland," *Technologist*, vi. 45, 1866). When, in August, in the loftier valleys of Bormio, Italy, flowering ceases, the bees in their wooden hives are by means of spring-carts transported at night to lower regions, where they obtain from the buckwheat crops the inferior honey which serves them for winter consumption (*Ib.* p. 38).

In Palestine, "the land flowing with milk and honey"[8] (Ex. iii. 17; Numb. xiii. 27), wild bees are very numerous, especially in the wilderness of Judaea, and the selling of their produce, obtained from crevices in rocks, hollows in trees and elsewhere, is with many of the inhabitants a means of subsistence. Commenting on 1 Sam. xiv. 26, J. Roberts (*Oriental Illust.*) remarks that in the East "the forests literally flow with honey; large combs may be seen hanging on the trees, as you pass along, full of honey." In Galilee, and at Bethlehem and other places in Palestine, bee-keeping is extensively carried on. The hives are sun-burnt tubes of mud, about 4 ft. in length and 8 in. in diameter, and, with the exception of a small central aperture for the passage of the bees, closed at each end with mud. These are laid together in long rows, or piled pyramidally, and are protected from the sun by a covering of mud and of boughs. The honey is extracted, when the ends have been removed, by means of an iron hook. (See Tristram, *Nat. Hist. of the Bible*, pp. 322 sqq., 2nd ed., 1868). Apiculture in Turkey is in a very rude condition. The Bali-dagh, or "Honey Mount," in the plain of Troy, is so called on account of the numerous wild bees tenanting the caves in its precipitous rocks to the south. In various regions of Africa, as on the west, near the Gambia, bees abound. Cameron was informed by his guides that the large quantities of honey at the cliffs by the river Makanyazi were under the protection of an evil spirit, and not one of his men could be persuaded to gather any (*Across Africa*, i. 266). On the precipitous slopes of the Teesta valley, in India, the procuring of honey from the pendulous bees'-nests, which are sometimes large enough to be conspicuous features at a mile's distance, is the only means by which the idle poor raise their annual rent (Hooker, *Him. Journ.* ii. 41).

To reach the large combs of *Apis dorsata* and *A. testacea*, the natives of Timor, by whom both the honey and young bees are esteemed delicacies, ascend the trunks of lofty forest trees by the use of a loop of creeper. Protected from the myriads of angry insects by a small torch only, they detach the combs from the under surface of the branches, and lower them by slender cords to the ground (Wallace, *Journ. Linn. Soc., Zool.*, vol. xi.).

(F. H. B.)

---

1 The term honey in its various forms is peculiar to the Teutonic group of languages, and in the Gothic New Testament is wanting, the Greek word being there translated *melith*.

2 See A. White, in *Ann. and Mag. Nat. Hist.* vii. 315, pl. 4.

3 Wetherill (*Chem. Gaz.* xi. 72, 1853) calculates that the average weight of the honey is 8.2 times that of the body of the ant, or 0.3942 grammes.

4 Compare Isa. vii. 15, 22, where curdled milk (A.V. "butter") and honey as exclusive articles of diet are indicative of foreign invasion, which turns rich agricultural districts into pasture lands or uncultivated wastes.

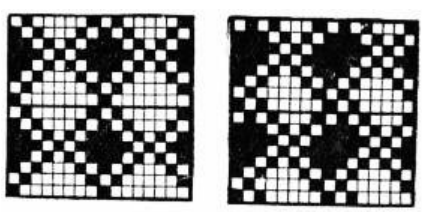
5 *Mémoires du Muséum*, xi. 313 (1824).

6 *Ib.* xii. 293, pl. xii. fig. B (1825). The honey, according to Lassaigne (*ib.* ix. 319), is almost entirely soluble in alcohol.

7 For a list of fifteen treatises concerning honey, dating from 1625 to 1868, see Waring, *Bibl. Therap.* ii. 559, New Syd. Soc. (1879). On sundry ancient uses for honey, see Beckmann, *Hist. of Invent.* i. 287 (1846).

8 In Sanskrit, *madhu-kulyā*, a stream of honey, is sometimes used to express an overflowing abundance of good things (Monier Williams, *Sansk.-Eng. Dict.*, p. 736, 1872).

HONEYCOMB, a cloth, so called because of the particular arrangement of the crossing of the warp and weft threads which form cells somewhat similar to those of the real honeycomb. They differ from the latter in that they are rectangular instead of hexagonal. The bottom of the cell is formed by those threads and picks which weave "plain," while the ascending sides of the figure are formed by the gradually increasing length of float of the warp and



weft yarns.

The figure shows two of the commonest designs which are used for these cloths, design A being what is often termed the “perfect honeycomb”; in the figure it will be seen that the highest number of successive white squares is seven, while the corresponding highest number of successive black squares is five. Two of each of these maximum floats form the top or highest edges of the cell, and the number of successive like squares decreases as the bottom of the cell is reached when the floats are one of black and one of white (see middle of design, &c.). The weave produces a reversible cloth, and it is extensively used for the embellishment of quilts and other fancy goods. It is also largely used in the manufacture of cotton and linen towels. B is, for certain purposes, a more suitable weave than A, but both are very largely used for the latter class of goods.

HONEY-EATER, or Honey-sucker, names applied by many writers in a very loose way to a large number of birds, some of which, perhaps, have no intimate affinity; here they are used in a more restricted sense for what, in the opinion of a good many recent authorities,[1] should really be deemed the family *Meliphagidae*—excluding therefrom the *Nectariniidae* or Sun-birds (*q.v.*) as well as the genera *Promerops* and *Zosterops* with whatever allies they may possess. Even with this restriction, the extent of the family must be regarded as very indefinite, owing to the absence of materials sufficient for arriving at a satisfactory conclusion, though the existence of such a family is probably indisputable. Making allowance, then, for the imperfect light in which they must at present be viewed, what are here called *Meliphagidae* include some of the most characteristic forms of the ornithology of the great Australian region—members of the family inhabiting almost every part of it, and a single species only, *Ptilotis limbata*, being said to occur outside its limits. They all possess, or are supposed to possess, a long protrusible 656
tongue with a brush-like tip, differing, it is believed, in structure from that found in any other bird—*Promerops* perhaps excepted—and capable of being formed into a suctorial tube, by means of which honey is absorbed from the nectary of flowers, though it would seem that insects attracted by the honey furnish the chief nourishment of many species, while others undoubtedly feed to a greater or less extent on fruits. The *Meliphagidae*, as now considered, are for the most part small birds, never exceeding the size of a missel thrush; and they have been divided into more than 20 genera, containing above 200 species, of which only a few can here be particularized. Most of these species have a very confined range, being found perhaps only on a single island or group of islands in the region, but there are a few which are more widely distributed—such as *Glycyphila rufifrons*, the white-throated[2] honey-eater, found over the greater part of Australia and Tasmania. In plumage they vary much. Most of the species of *Ptilotis* are characterized by a tuft of white, or in others of yellow, feathers springing from behind the ear. In the greater number of the genus *Myzomela*[3] the males are recognizable by a gorgeous display of crimson or scarlet, which has caused one species, *M. sanguinolenta*, to be known as the soldier-bird to Australian colonists; but in others no brilliant colour appears, and those of several genera have no special ornamentation, while some have a particularly plain appearance. One of the most curious forms is *Prosthemadera*—the tui or parson-bird of New Zealand, so called from the two tufts of white feathers which hang beneath its chin in great contrast to its dark silky plumage, and suggest a likeness to the bands worn by ministers of several religious denominations when officiating.[4] The bell-bird of the same island, *Anthornis melanura*—whose melody excited the admiration of Cook the morning after he had anchored in Queen Charlotte’s Sound—is another member of this family, and unfortunately seems to be fast becoming extinct. But it would be impossible here to enter much further into detail, though the wattle-birds, *Anthochaera*, of Australia have at least to be named. Mention, however, must be made of the friar-birds, *Tropidorhynchus*, of which nearly a score of species, five of them belonging to Australia, have been described. With their stout bills, mostly surmounted by an excrescence, they seem to be the most abnormal forms of the family, and most of them are besides remarkable for the baldness of some part at least of their head. They assemble in troops, sitting on dead trees, with a loud call, and are very pugnacious, frequently driving away hawks and crows. A. R. Wallace (*Malay Archipelago*, ii. 150-153) discovered the curious fact that two species of this genus—*T. bourensis* and *T. subcornutus*—respectively inhabiting the islands of Bouru and Ceram, were the object of natural “mimicry” on the part of two species of oriole of the genus *Mimeta*, *M. bourouensis* and *M. forsteni*, inhabiting the same islands, so as to be on a superficial examination identical in appearance—the honey-eater and the oriole of each island presenting exactly the same tints—the black patch of bare skin round the eyes of the former, for instance, being copied in the latter by a patch of black feathers, and even the protuberance on the beak of the *Tropidorhynchus* being imitated by a similar enlargement of

the beak of the *Mimeta*. The very reasonable explanation which Wallace offers is that the pugnacity of the former has led the smaller birds of prey to respect it, and it is therefore an advantage for the latter, being weaker and less courageous, to be mistaken for it.

(A. N.)

---

1 Among them especially A. R. Wallace, *Geogr. Distr. Animals*, ii 275.

2 The young of this species has the throat yellow.

3 W. A. Forbes published a careful monograph of this genus in the *Proceedings of the Zoological Society* for 1879, pp. 256-279.

4 This bird, according to Sir Walter Buller (*Birds of New Zealand*, p. 88), while uttering its wild notes, indulges in much gesticulation, which adds to the suggested resemblance. It has great power of mimicry, and is a favourite cage-bird both with the natives and colonists. On one occasion, says Buller, he had addressed a large meeting of Maories on a matter of considerable political importance, when "immediately on the conclusion of my speech, and before the old chief to whom my arguments were chiefly addressed had time to reply, a tui, whose netted cage hung to a rafter overhead, responded in a clear, emphatic way, 'Tito!' (false). The circumstance naturally caused much merriment among my audience, and quite upset the gravity of the venerable old chief, Nepia Taratoa. 'Friend,' said he, laughing, 'your arguments are very good; but my *mokai* is a very wise bird, and he is not yet convinced!'"

HONEY-GUIDE, a bird so called from its habit of pointing out to man and to the ratel (*Mellivora capensis*) the nests of bees. Stories to this effect have been often told, and may be found in the narratives of many African travellers, from Bruce to Livingstone. But Layard says (*B. South Africa*, p. 242) that the birds will not infrequently lead any one to a leopard or a snake, and will follow a dog with vociferations, though its noisy cry and antics unquestionably have in many cases the effect signified by its English name. If not its first discoverer, Sparrman, in 1777, was the first who described and figured this bird, which he met with in the Cape Colony (*Phil. Trans.*, lxvii. 42-47, pl. i.), giving it the name of *Culculus indicator*, its zygodactylous feet with the toes placed in pairs—two before and two behind—inducing the belief that it must be referred to that genus. Vicillot in 1816 elevated it to the rank of a genus, *Indicator*; but it was still considered to belong to the family *Cuculidae* (its asserted parasitical habits lending force to that belief) by all systematists except Blyth and Jerdon, until it was shown by Blanford (*Obs. Geol. and Zool. Abyssinia*, pp. 308, 309) and Sclater (*Ibis*, 1870, pp. 176-180) that it was more allied to the barbets, *Capitonidae*, and, in consequence, was then made the type of a distinct family, *Indicatoridae*. In the meanwhile other species had been discovered, some of them differing sufficiently to warrant Sundevall's foundation of a second genus, *Prodotiscus*, of the group. The honey-guides are small birds, the largest hardly exceeding a lark in size, and of plain plumage, with what appears to be a very sparrow-like bill. Bowdler Sharpe, in a revision of the family published in 1876 (*Orn. Miscellany*, i. 192-209), recognizes ten species of the genus *Indicator*, to which another was added by Dr Reichenow (*Journ. für Ornithologie*, 1877, p. 110), and two of *Prodotiscus*. Four species of the former, including *I. sparrmani*, which was the first made known, are found in South Africa, and one of the latter. The rest inhabit other parts of the same continent, except *I. archipelagicus*, which seems to be peculiar to Borneo, and *I. xanthonotus*, which occurs on the Himalayas from the borders of Afghanistan to Bhutan. The interrupted geographical distribution of this genus is a very curious fact, no species having been found in the Indian or Malayan peninsula to connect the outlying forms with those of Africa, which must be regarded as their metropolis.

(A. N.)

HONEY LOCUST, the popular name of a tree, *Gleditsia triacanthos*, a member of the natural order Leguminosae, and a native of the more eastern United States of North America. It reaches from 75 to 140 ft. in height with a trunk 2 or 3, or sometimes 5 or 6 ft. in diameter, and slender spreading branches which form a broad, flattish crown. The branchlets bear numerous simple or three-forked (whence the species-name *triacanthos*) sharp stiff spines, 3 to 4 in. long, at first red in colour, then chestnut brown; they are borne above the leaf-axils and represent undeveloped branchlets; sometimes they are borne also on the trunk and main

branches. The long-stalked leaves are 7 to 8 in. long with eight to fourteen pairs of narrowly oblong leaflets. The flowers, which are of two kinds, are borne in racemes in the leaf-axils; the staminate flowers in larger numbers. The brown pods are often 12 to 18 in. long, have thin, tough walls, and contain a quantity of pulp between the seeds; they contract spirally when drying. The tree was first cultivated in Europe towards the end of the 17th century by Bishop Compton in his garden at Fulham, near London, and is now extensively planted as an ornamental tree. The name of the genus commemorates Johann Gottlieb Gleditsch (1714-1786), a friend of Linnaeus, and the author of one of the earliest works on scientific forestry.

HONEYMOON, the first month after marriage. Lord Avebury in his *Origin of Civilization* suggests that the seclusion usually associated with this period is a survival of marriage by capture, and answers to the period during which the husband kept his wife in retirement, to prevent her from appealing to her relatives for release. Others suggest that as the moon commences to wane as soon as it is at its full, so does the mutual affection of the wedded pair, the “honeymoon” (with this derivation) not necessarily referring to any definite period of time.

HONEYSUCKLE (Mid. Eng., *honysocle*, *i.e.* any plant from which honey may be sucked,—cf. A.-S. *huni-suge*, privet; Ger. *Geissblatt*; Fr. *chèvrefeuille*), botanical name *Lonicera*, a genus of climbing, erect or prostrate shrubs, of the natural order *Caprifoliaceae*, so named after the 16th-century German botanist Adam Lonicer. The British species is *L. Periclymenum*, the woodbine; *L. Caprifolium* and *L. Xylosteum* are naturalized in a few counties in the south and east of England. Some of the garden varieties of the woodbine are very beautiful, and are held in high esteem for their delicious fragrance, even the wild plant, with its pale flowers, compensating for its sickly looks “with never-cloying odours.” The North American sub-evergreen *L. sempervirens*, with its fine heads of blossoms, commonly called the trumpet honeysuckle, the most handsome of all the cultivated honeysuckles, is a distinct and beautiful species producing both scarlet and yellow flowered varieties, and the Japanese *L. flexuosa* var. *aureoreticulata* is esteemed for its charmingly variegated leaves netted with golden yellow. The fly honeysuckle, *L. Xylosteum*, a hardy shrub of dwarfish, erect habit, and *L. tatarica*, of similar habit, both European, are amongst the oldest English garden shrubs, and bear axillary flowers of various colours, occurring two on a peduncle. There are numerous other species, many of them introduced to our gardens, and well worth cultivating in shrubberies or as climbers on walls and bowers, either for their beauty or the fragrance of their blossoms.

Honeysuckle.—(*a*) Flowering branch; (*b*) Flower, nat. size; (*c*) fruit, slightly reduced.

In the western counties of England, and generally by agriculturists, the name honeysuckle is applied to the meadow clover, *Trifolium pratense*. Another plant of the same family (Leguminosae) *Hedysarum coronarium*, a very handsome hardy biennial often seen in old-fashioned collections of garden plants, is commonly called the French honeysuckle. The name is moreover applied with various affixes to several other totally different plants. Thus white honeysuckle and false honeysuckle are names for the North American *Azalea viscosa*; Australian or heath honeysuckle is the Australian *Banksia serrata*, Jamaica honeysuckle, *Passiflora laurifolia*, dwarf honeysuckle the widely spread *Cornus suecica*, Virgin Mary’s honeysuckle the European *Pulmonaria officinalis*, while West Indian honeysuckle is *Tecoma*

capensis, and is also a name applied to *Desmodium*.

The wood of the fly honeysuckle is extremely hard, and the clear portions between the joints of the stems, when their pith has been removed, were stated by Linnaeus to be utilized in Sweden for making tobacco-pipes. The wood is also employed to make teeth for rakes; and, like that of *L. tatarica*, it is a favourite material for walking-sticks.

Honeysuckles (*Lonicera*) flourish in any ordinary garden soil, but are usually sadly neglected in regard to pruning. This should be done about March, cutting out some of the old wood, and shortening back some of the younger growths of the preceding year.

(J. Ws.)

HONFLEUR, a seaport of north-western France, in the department of Calvados, 57 m. N.E. of Caen by rail. Pop. (1906) 8735. The town is situated at the foot of a semicircle of hills, on the south shore of the Seine estuary, opposite Havre, with which it communicates by steamboat. Honfleur, with its dark narrow lanes and old houses, has the typical aspect of an old-fashioned seaport. The most noteworthy of its buildings is the church of St Catherine, constructed entirely of timber work, with the exception of the façade added in the 18th century, and consisting of two parallel naves, of which the more ancient is supposed to date from the end of the 15th century. Within the church are several antique statues and a painting by J. Jordaens —"Jesus in the Garden of Gethsemane." The church tower stands on the other side of a street. St Leonard's dates from the 17th century, with the exception of its fine ogival portal and rose-window belonging to the 16th, and its octagonal tower erected in the 18th. The ruins of a 16th-century castle known as the Lieutenance and several houses of the same period are also of antiquarian interest. The hôtel de ville contains a library and a museum. On the rising ground above the town is the chapel of Nôtre-Dame-de-Grâce, a shrine much resorted to by pilgrim sailors, which is said to have been founded in 1034 by Robert the Magnificent of Normandy and rebuilt in 1606. The town has a tribunal and a chamber of commerce and a communal college. The port, which is protected from the west winds by the height known as the Côte de Grâce, consists of the tidal harbour and four floating basins—The West basin, dating from the 17th century, and the Centre, East and Carnot basins. A reservoir affords the means of sluicing the channel and supplying the basins. The surface available for vessels is about 27 acres. Numerous fishing and coasting vessels frequent the harbour. In 1907 there entered 375 vessels, of 133,872 tons, more than half this tonnage being British. The exports go mainly to England and include poultry, butter, eggs, cheese, chocolate, vegetables, fruit, seeds and purple ore. There is regular communication by steamer with Southampton. Timber from Scandinavia, English coal and artificial manures form the bulk of the imports. There are important saw-mills, as well as shipbuilding yards, manufactories of chemical manures and iron foundries.

Honfleur dates from the 11th century and is thus four or five hundred years older than its rival Havre, by which it was supplanted during the 18th century. During the Hundred Years' War it was frequently taken and re-taken, the last occupation by the English ending in 1440. In 1562 the Protestant forces got possession of it only after a regular siege of the suburb of St Leonard; and though Henry IV. effected its capture in 1590 he had again to invest it in 1594 after all the rest of Normandy had submitted to his arms. In the earlier years of the 17th century Honfleur colonists founded Quebec, and Honfleur traders established factories in Java and Sumatra and a fishing establishment in Newfoundland.

HONG-KONG (properly HIANG-KIANG, the place of "sweet lagoons"), an important British island-possession, situated off the south-east coast of China, opposite the province of Kwang-tung, on the east side of the estuary of the Si-kiang, 38 m. E. of Macao and 75 S.E. of Canton, between 22° 9′ and 22° 1′ N., and 114° 5′ and 114° 18′ E. It is one of a small cluster named by the Portuguese "Ladrones" or Thieves, on account of the notorious habits of their old inhabitants. Extremely irregular in outline, it has an area of 29 sq. m., measuring 10½ m. in extreme length from N.E. to S.W., and varying in breadth from 2 to 5 m. A good military road about 22 m. long encircles the island. From the mainland it is separated by a narrow channel, which at Hong-Kong roads, between Victoria, the island capital), and Kowloon Point, is about 1

m. broad, and which narrows at Ly-ee-mun Pass to little over a ¼ m. The southern coast in particular is deeply indented; and there two bold peninsulas, extending for several miles into the sea, form two capacious natural harbours, namely, Deep Water Bay, with the village of Stanley to the east, and Tytam Bay, which has a safe, well-protected entrance showing a depth of 10 to 16 fathoms. An in-shore island on the west coast, called Aberdeen, or Taplishan, affords protection to the Shekpywan or Aberdeen harbour, an inlet provided with a granite graving dock, the caisson gate of which is 60 ft. wide, and the Hope dock, opened in 1867, with a length of 425 ft. and a depth of 24 ft. Opposite the same part of the coast, but nearly 2 m. distant, rises the largest of the surrounding islands, Lamma, whose conspicuous peak, Mount Stenhouse, attains a height of 1140 ft. and is a landmark for local navigation. On the northern shore of Hong-Kong there is a patent slip at East or Matheson Point, which is serviceable during the north-east monsoon, when sailing vessels frequently approach Victoria through the Ly-ee-mun Pass. The ordinary course for such vessels is from the westward, on which side they are sheltered by Green Island and Kellett Bank. There is good anchorage throughout the entire channel separating the island from the mainland, except in the Ly-ee-mun Pass, where the water is deep; the best anchorage is in Hong-Kong roads, in front of Victoria, where, over good holding ground, the depth is 5 to 9 fathoms. The inner anchorage of Victoria Bay, about ½ m. off shore and out of the strength of the tide, is 6 to 7 fathoms. Victoria, the seat of government and of trade, is the chief centre of population, but a tract on the mainland is covered with public buildings and villa residences. Practically an outlying suburb of Victoria, Kowloon or (Nine Dragons) is free from the extreme heat of the capital, being exposed to the south-west monsoon. Numerous villas have also been erected along the beautiful western coast of the island, while Stanley, in the south, is favoured as a watering-place.

The island is mountainous throughout, the low granite ridges, parted by bleak, tortuous valleys, leaving in some places a narrow strip of level coast-land, and in others overhanging the sea in lofty precipices. From the sea, and especially from the magnificent harbour which faces the capital, the general aspect of Hong-Kong is one of singular beauty. Inland the prospect is wild, dreary and monotonous. The hills have a painfully bare appearance from the want of trees. The streams, which are plentiful, are traced through the uplands and glens by a line of straggling brushwood and rank herbage. Nowhere is the eye relieved by the evidences of cultivation or fertility. The hills, which are mainly composed of granite, serpentine and syenite, rise in irregular masses to considerable heights, the loftiest point, Victoria Peak, reaching an altitude of 1825 ft. The Peak lies immediately to the south-west of the capital, in the extreme north-west corner of the island, and is used as a station for signalling the approach of vessels. Patches of land, chiefly around the coast, have been laid under rice, sweet potatoes and yams, but the island is hardly able to raise a home-supply of vegetables. The mango, lichen, pear and orange are indigenous, and several fruits and esculents have been introduced. One of the chief products is building-stone, which is quarried by the Chinese. The animals are few, comprising a land tortoise, the armadillo, a species of boa, several poisonous snakes and some woodcock. The public works suffer from the ravages of white ants. Water everywhere abounds, and is supplied to the shipping by means of tanks.

Mainland territory.

Under the Peking Treaty of 1860 the peninsula of Kowloon (about 5 m. in area) was added to Hong-Kong. The population is about 27,000. There are several docks and warehouses, and manufactures are being developed. Granite is quarried in the peninsula. An agreement was entered into in 1898 whereby China leased to Great Britain for ninety-nine years the territory behind Kowloon peninsula up to a line drawn from Mirs Bay to Deep Bay and the adjoining islands, including Lantao. The new district, which extends to 376 sq. m. in area, is mountainous, with extensive cultivated valleys of great fertility, and the coastline is deeply indented by bays. The alluvial soil of the valleys yields two crops of rice in the year. Sugar-cane, indigo, hemp, peanuts, potatoes of different varieties, yam, taro, beans, sesamum, pumpkins and vegetables of all kinds are also grown. The mineral resources are as yet unknown. The population is estimated at about 100,000. It consists of Puntis (or Cantonese), Hakkas (“strangers”) and Tankas. The Puntis are agricultural and inhabit the valleys, and they make excellent traders. The Hakkas are a hardy and frugal race, belonging mainly to the hill districts. The Tankas are the boat people or floating population. In the government of the new territory the existing organization is as far as possible utilized.

Victoria.

Hong-Kong or Victoria harbour constantly presents an animated appearance, as many as 240 guns having been fired as salutes in a single day. Its approaches are strongly fortified. The steaming distance from Singapore is 1520 m. Victoria, the capital, often spoken of as Hong-Kong (population over 166,000, of whom about 6000 are European or American), stretches for about 4 m. along the north coast. Its breadth varies from ½ m. in the central portions to 200 or 300 yds. in the eastern and western portions. The town is built in three layers. The “Praya” or esplanade, 50 ft. wide, is given up to shipping. The Praya reclamation scheme provided for the extension of the land frontage of 250

ft. and a depth of 20 ft. at all states of the tide. A further extension of the naval dockyard was begun in 1902, and a new commercial pier was opened in 1900. The main commercial street runs inland parallel with the Praya. Beyond the commercial portion, on each side, lie the Chinese quarters, wherein there is a closely packed population. In 1888, 1600 people were living in the space of a single acre, and over 100,000 were believed to be living within an area not exceeding ½ m.; and the overcrowding does not tend to diminish, for in one district, in 1900, it was estimated that there were at the rate of 640,000 persons on the sq. m. The average, however, for the whole of the city is 126 per acre, or 80,640 per sq. m. The second stratum of the town lies ten minutes' climb up the side of the island. Government house and other public buildings are in this quarter. There abound "beautifully laid out gardens, public and private, and solidly constructed roads, some of them bordered with bamboos and other delicately-fronded trees, and fringed with the luxuriant growth of semi-tropical vegetation." Finally, the third layer, known as "the Peak," and reached by a cable tramway, is dotted over with private houses and bungalows, the summer health resort of those who can afford them; here a new residence for the governor was begun in 1900. Excellent water is supplied to the town from the Pokfolum and Tytam reservoirs, the former containing 68 million gallons, the latter 390 millions.

Climate.—The temperature has a yearly range of from 45° to 99°, but it occasionally falls below 40°, and ice occurs on the Peak. In January 1893 ice was found at sea-level. The wet season begins in May, after showers in March and April, and continues until the beginning of August. During this period rain falls almost without intermission. The rainfall varies greatly, but the mean is about 90 in. In 1898 only 57.025 in. fell, while in 1897 there were 100.03 in.; in 1899, 72.7 in. and in 1900, 73.7 in. The damp is extremely penetrating. During the dry season the climate is healthy, but dysentery and intermittent fever are not uncommon. Bilious remittent fever occurs in the summer months, and smallpox prevails from November to March. The annual death-rate per 1000 for the whole population in 1902 was 21.70.

Population, &c.—The following table shows the increase of population:—

Year.	Europe and American Civil.	Chinese Civil.	Total (including Military and Naval Establishments and Indians, &c.).
1881	3,040	148,850	160,402
1891	4,195	208,383	221,441
1901	3,860	274,543	283,978
1906	12,174	306,130	326,961

Education is provided by a few government schools and by a large number receiving grants-in-aid. The foundation-stone of Hong-Kong University was laid in March 1910, the buildings being the gift of Sir Hormusjee Mody, a colonial broker. The Queen's College provides secondary education for boys. There are several hospitals, one of which is a government institution. The Hong-Kong savings bank has deposits amounting to about $1,100,000. There is a police force composed of Europeans, Indian Sikhs and Chinese; and a strong military garrison.

Industries.—Beyond the cultivation of vegetable gardens there is practically no agricultural industry in the colony. But although only 400 acres are cultivated on Hong-Kong island, and the same number of acres in Kowloon, there are 90,000 acres under cultivation in the new territory, of which over 7000 acres were in 1900 planted with sugar-cane. Granite quarries are worked. The chief industries are sugar-refining, the manufacture of cement, paper, bamboo and rattan ware, carving in wood and ivory, working in copper and iron, gold-beating and the production of gold, silver and sandal-wood ware, furniture making, umbrella and jinricksha making, and industries connected with kerosene oil and matches. The manufacture of cotton has been introduced. Ship and boat building, together with subsidiary industries, such as rope and sail making, appear less subject to periods of depression than other industries.

Trade.—Hong-Kong being a free port, there are no official figures as to the amount of trade; but the value of the exports and imports is estimated as about £50,000,000 in the year. Among the principal goods dealt with are tea, silk, opium, sugar, flax, salt, earthenware, oil, amber, cotton and cotton goods, sandal-wood, ivory, betel, vegetables, live stock and granite. There is an extensive Chinese passenger trade. The following are the figures of ships cleared and entered:—

Year.	Tonnage.	British.
1880	8,359,994	3,758,160
1890	13,676,293	6,994,919
1898	17,265,780	8,705,648

1902	19,709,451	8,945,976

The Chinese ships rank next to British ships in the amount of trade. German and Japanese ships follow next.

Finance.—The revenue and expenditure are given below:—

Year.	Revenue.	Expenditure.
1880	$1,069,948	$948,014
1890	1,995,220	1,915,350
1898	2,918,159	2,841,805
1902	4,901,073	4,752,444

The main sources of revenue are licences, rent of government property, the post-office and land sales. The light dues were reduced in 1898 from 2½ cents to 1 cent per ton. There is a public debt of about £340,000, borrowed for public works, which is being paid off by a sinking fund. The only legal tender is the Mexican dollar, and the British and Hong-Kong dollar, or other silver dollars of equivalent value duly authorized by the governor. There are small silver and copper coins, which are legal tenders for amounts not exceeding two dollars and one dollar respectively. There is also a large paper currency in the form of notes issued by the Chartered Bank of India, Australia and China, the Hong-Kong and Shanghai Banking Corporation and the National Bank of China, Limited. The foundation of new law courts was laid in 1900.

Administration.—Formerly an integral part of China, the island of Hong-Kong was first ceded to Great Britain in 1841, and the cession was confirmed by the treaty of Nanking in 1842, the charter bearing the date 5th of April 1843. The colony is administered by a governor, executive council and legislative council. The executive council consists of the holders of certain offices and of such other members as the crown may nominate. In 1890 there were nine members. The legislative council consists of the same officials and of six unofficial members. Of these, three are appointed by the governor (of whom one must be, and two at present are, members of the Chinese community); one is elected from the chamber of commerce, and one from the justices of the peace.

AUTHORITIES.—Sir G. W. des Vœux, *Report on Blue-book of 1888*; *A Handbook to Hong-Kong* (Hong-Kong, 1893); *The China Sea Directory* (vol. iii., 3rd ed., 1894); Henry Norman, *The Peoples and Politics of the Far East* (London, 1895); Sir E. Hertslet, *Treaties between Great Britain and China and China and Foreign Powers* (London, 1896); A. R. Colquhoun, *China in Transformation* (London, 1898); *Colonial Possessions Report*, No. 84; and other *Colonial Annual Reports*.

HONITON, a market town and municipal borough in the Honiton parliamentary division of Devonshire, England, pleasantly situated on rising ground on the left bank of the Otter, 16½ m. E.N.E. of Exeter by the London & South-Western railway. Pop. (1901) 3271. The town consists of one wide street, down which a stream of water runs, extending for about 1 m., and crossed at right angles by a lesser street. The restored church of St Michael, formerly a parish church, but standing on a hill about ½ m. from the town, was built by Courtenay, bishop of Exeter, about 1482. It retains a curiously carved screen, and the black marble tomb of Queen Elizabeth's physician, Marwood, who attained the age of 105. Allhallows Grammar School, founded in 1614, was enlarged in 1893; St Margaret's hospital, founded as a lazar-house in the 14th century, is converted into almshouses. Honiton is famous for its lace industry, established by refugees from Flanders under Queen Elizabeth. The delicate fabric made by hand on the pillow was long in demand; its sale was, however, greatly diminished by the competition of cheaper machine-made goods, and a school of lace-making was opened to promote its recovery. The town possesses breweries, tanneries, malthouses, flour-mills, saw-mills, brick and tile works, potteries and an iron foundry; its trade in butter is considerable. It is governed by a mayor, 6 aldermen and 18 councillors. Area, 3134 acres.

Honiton (*Honetona*, *Huneton*) is situated on the British Icknield Street, and was probably the site of an early settlement, but it does not appear in history before the Domesday Survey, when it was a considerable manor, held by Drew (Drogo) under the count of Mortain, who had succeeded Elmer the Saxon, with a subject population of 33, a flock of 80 sheep, a mill and 2 salt-workers. The borough was founded before 1217 by William de Vernon, earl of Devon, whose ancestor Richard de Redvers had received the manor from Henry I. In the 14th century

it passed to the Courtenays, and in 1698 Sir William Courtenay was confirmed in the right of holding court leet, view of frank-pledge and the nomination of a portreeve, these privileges having been surrendered to James II. The borough was represented by two members in parliament in 1300 and 1311, and then not again till 1640, from which date it returned two members until disfranchised by the act of 1868, the returning officer being the portreeve, who was also the chief magistrate of the borough until its incorporation by charter of 1846. In 1221 Falkes de Breauté, then custodian of the borough, rendered a palfrey for holding a three days' fair at the feast of All Saints, transferred in 1247 to the feast of St Margaret, and still held under that grant. A great market for corn and other produce is still held on Saturday by prescription. The wool manufacture flourished at Honiton in the reign of Henry VII., and it is said to have been the first town at which serges were made, but the industry entirely declined during the 19th century. The lace manufacture was introduced by Flemish refugees, and was flourishing in the reign of Charles I.

See *Victoria County History, Devonshire*; A. Farquharson, *History of Honiton* (Exeter, 1868).

HONNEF, a town and climatic health resort of Germany, beautifully situated on the right bank of the Rhine, at the foot of the Siebengebirge, 8 m. above Bonn by the railway Cologne-Königswinter-Horchheim. Pop. (1905) 6183. It has an Evangelical and a Roman Catholic church, a sanatorium for consumptives, and does a considerable trade in wine. The town is surrounded by vineyards and orchards, and has annually a large number of visitors. A mineral spring called the Drachenquelle is used both for drinking and bathing.

HONOLULU, a city, port of entry, and the capital of Hawaii, situated in the "city and county of Honolulu," on the S. coast of the island of Oahu, at the mouth of Nuuanu Valley, 2100 m. S.W. of San Francisco. Pop. (1890) 22,907; (1900) 39,306, of whom 24,746 were males, 14,560 were females; about 10,000 were Hawaiians, 15,000 Asiatics, and 5000 Portuguese; (1910) 52,183. Honolulu is served by the Oahu railway, by electric lines to the principal suburbs, and by steamship lines to San Francisco, Seattle, Vancouver, Manila, Salina Cruz (Mexico), Victoria, Sydney, and Chinese and Japanese ports. The business section and the older residence quarters occupy low ground, but many of the newer residences are built on the sides of neighbouring hills and mountains, of which there are several from 500 to 2000 ft. in height. The Punch Bowl (behind the city), a hill rising about 500 ft. above the sea, Diamond Head, a crater about 760 ft. in height, 4 m. to the S.E., and the Nuuanu Pali, a lofty and picturesque precipice 6 m. up the valley, are especially known for their commanding views. In front of the city is the small harbour, well protected from all winds except those from the S.; in and after 1892 the Hawaiian government deepened its entrance from 21 ft. to 30 ft. Six miles to the W. is the much more spacious Pearl Harbor (a U.S. Naval Station), the bar at the entrance of which was removed (1903) by the U.S. government. Pearl Harbor and the harbour of Honolulu are the only safe ports in the archipelago. The streets of Honolulu are wide, and are macadamized with crushed or broken lava. The business houses are mostly of brick or stone, and range from two to six storeys in height. About most of the residences there are many tropical trees, flowering shrubs and plants. Wood is the most common material of which the residences are built; a large portion of these residences are one-storey cottages; broad verandahs are common; and of the more pretentious residences the lanai, a semi-outdoor drawing-room with conservatories adjoining, is a notable feature. Throughout the city there is a marked absence of poverty and squalor. There are good hotels in the city and its suburbs. The government buildings are extensive and have a pleasing appearance; that of the executive, in a beautiful park, was formerly the royal palace and still contains many relics of royalty. Facing the judiciary building is an heroic statue in bronze of Kamehameha the Great. About 2 m. W. of the business centre of the city is the Bernice Pauahi Bishop Museum, a fine stone building on a commanding site, and containing a large collection of Hawaiian and Polynesian relics and curios, especially Hawaiian feather-work, and notable collections of fish and of Hawaiian land shells and birds. Four miles S.E. of the business centre, at the foot of Diamond Head, is Waikiki sea-beach, noted for its surf-riding, boating and bathing, and Kapiolani Park, a pleasure resort, near which is a famous aquarium of tropical fishes. Honolulu has other parks, a fine Botanical

Garden, created by the Bureau of Agriculture, several public squares, several hospitals, a maternity home, the Lunalilo Home for aged Hawaiians, an asylum for the insane, several schools of high rank both public and private—notably Oahu College on the E. edge of the city, first founded as a school for the children of missionaries in 1841; the Honolulu High School, founded in 1833 as the Oahu Charity School, to teach English to the half whites; the Royal School, which was founded in 1840 for the sons of chiefs; and the Normal School, housed in what was in 1906 the most expensive building on the island of Oahu—a library containing about 14,000 volumes and the collections of the Hawaiian Historical Society, a number of benevolent, literary, social and political societies, and an art league, and is the see of both an Anglican and a Roman Catholic bishop. In 1907 the Pacific Scientific Institution for the advancement of scientific knowledge of the Pacific, its islands and their people, was established here. Among the clubs of the city are the Pacific Club, founded in 1853 as the British Club; the Scottish Thistle Club (1891), of which Robert Louis Stevenson was a member; the Hawaii Yacht Club, and the Polo, Country and University Clubs. There are various journals and periodicals, five languages being represented. The chief industries are the manufacture of machinery (especially machinery for sugar-refineries) and carriages, rice-milling and ship-building. Honolulu's total exports for the fiscal year 1908 were valued at $42,238,455, and its imports at $19,985,724. There is a privately owned electric street car service in the city. The water-works and electric-lighting plant are owned and operated by the Territorial government, and to the plentiful water-supply is partly due the luxuriant vegetation of the city. Honolulu's safe harbour, discovered in 1794, made it a place of resort for vessels (especially whalers) and traders from the beginning of the 19th century. Kamehameha I. (the Great) lived here from 1803 until 1811. In 1816 was built a fort which stood until 1857. In 1820 the city became the principal residence of the sovereign and soon afterwards of foreign consuls, and thus practically the seat of government. In 1907 an act was passed by which the former county of Oahu, including the island of Oahu and the small islands adjacent, was made a municipal corporation under the name of the "city and county of Honolulu"; this act came into effect on the 1st of January 1909.

HONORIUS, the name of four popes and one antipope (Honorius II; *i.e.* 2 below).

1. Honorius I., pope from 625 to 638, was of a noble Roman family, his father Petronius having been consul. He was very active in carrying on the work of Gregory the Great, especially in England; Bede (*Hist. Eccl.* ii. 17) gives a letter of his to King Edwin of Northumbria, in which he admonishes him diligently to study Gregory's writings; and it was at Edwin's request that Honorius conferred the pallium on the bishops of Canterbury and York (ib. ii. 18). He also admonished the Irish for not following the custom of the Catholic Church in the celebration of Easter (*ib.* ii. 19), and commissioned Birinus to preach Christianity in Wessex (*ib.* iii. 7). It is, however, in connexion with the Monothelite heresy that Honorius is most remembered, his attitude in this matter having acquired fresh importance during the controversy raised by the promulgation of the dogma of papal infallibility in 1870. In his efforts to consolidate the papal power in Italy, Honorius had been hampered by the schism of "the three chapters" in Istria and Venetia, a schism that was ended by the deposition in 628 of the schismatic patriarch Fortunatus of Aquileia-Grado and the elevation of a Roman sub-deacon to the patriarchate. It is suggested that help rendered to him in this matter by the emperor Heraclius, or by the Greek exarch, may have inclined the pope to take the emperor's side in the Monothelite controversy, which broke out shortly afterwards in consequence of the formula proposed by the emperor with a view to reconciling the Monophysites and the Catholics. However that may be, he joined the patriarchs of Constantinople and Alexandria in supporting the doctrine of "one will" in Christ, and expounded this view forcibly, if somewhat obscurely, in two letters to the patriarch Sergius (Epist. 4 and 5 in Migne, *Patrologia. Ser. Lat.* lxxx. 470, 474). For this he was, more than forty years after his death (October 638), anathematized by name along with the Monothelite heretics by the council of Constantinople (First Trullan) in 681; and this condemnation was subsequently confirmed by more than one pope, particularly by Leo II. See Hefele, *Die Irrlehre des Honorius u. die vaticanische Lehre der Unfehlbarkeit* (1871), who, however, modified his view in his *Conciliengeschichte* (1877). Honorius I. was succeeded by Severinus.

See the articles by R. Zöpffel and G. Krüger in Herzog-Hauck, *Realencyklopädie* (ed. 1900), and by T. Grisar in Wetzer and Welte's *Kirchenlexikon* (Freiburg, 1889). In addition to the bibliographies there given see also U. Chevalier, *Répertoire des sources hist.*, &c., Bio-bibliographie, s. "Honorius I." (Paris, 1905).

(W. A. P.)

2. Honorius II. (d. 1072), antipope, was the name taken by Peter Cadalus, who was born at Verona and became bishop of Parma in 1046. After the death of Pope Nicholas II. in July 1061 he was chosen pope by some German and Lombard bishops at Basel in opposition to Alexander II., who had been elected by the party led by Hildebrand, afterwards Pope Gregory VII. Taking the name of Honorius II., Cadalus was thus the representative of those who were opposed to reforms in the Church. Early in 1062 he advanced towards Rome, and though his supporters defeated the forces of his rival outside the city, he soon returned to Parma to await the decision of the advisers of the young German king, Henry IV., whose mother Agnes had supported his election. About this time, however, Agnes was deprived of her power, and the chief authority in Germany passed to Anno, archbishop of Cologne, who was hostile to Cadalus. Under these circumstances the antipope again marched towards Rome in 1063 and entered the city, but was soon forced to take refuge in the castle of St Angelo. The ensuing war between the rival popes lasted for about a year, and then Cadalus left Rome as a fugitive. Refusing to attend a council held at Mantua in May 1064, he was deposed, and he died in 1072, without having abandoned his claim to the papal chair.

See the article on Honorius II. in Hauck's *Realencyklopädie*, Band viii. (Leipzig, 1900).

(A. W. H.*)

3. Honorius II. (Lamberto Scannabecchi), pope from the 15th of December 1124 to the 13th of February 1130, a native of Fagnano near Imola, of considerable learning and great religious zeal, successively archdeacon at Bologna, cardinal-priest of Sta Prassede under Urban II., cardinal-bishop of Ostia and Velletri under Paschal II., shared the exile of Gelasius II. in 661
France, and helped Calixtus II. to conclude the Concordat of Worms (1122), which settled the investiture contest. He owed his election in large measure to force employed by the Frangipani, but was consecrated with general consent on the 21st of December 1124. By means of a close alliance with that powerful family, he was enabled to maintain peace at Rome, and the death of Emperor Henry V. (1125) further strengthened the papal position. He recognized the Saxon Lothair III. as king of the Romans and later as emperor, and excommunicated his rival, Conrad of Hohenstaufen. He sanctioned the Praemonstratensian order and that of the Knights Templars. He excommunicated Count William of Normandy for marriage in prohibited degree; brought to an end, through the influence of Bernard of Clairvaux, the struggle with Louis VI. of France; and arranged with Henry I. for the reception of papal legates in England. He laid claim as feudal overlord to the Norman possessions in southern Italy (July 1127), and excommunicated the claimant, Duke Roger of Sicily, but was unable to prevent the foundation of the Neapolitan monarchy, for Duke Roger defeated the papal army and forced recognition in August 1128. Honorius appealed to Lothair for assistance, but died before it arrived. His successor was Innocent II.

The chief sources for the life of Honorius II. are his "Epistolae et Privilegia," in J. P. Migne, *Patrol. Lat.* vol. 166, and the *Vitae* of Cardinals Pandulf and Boso in J. M. Watterich, *Pontif. Roman. vitae*, vol. 2 (Leipzig, 1862); also "Codice diplomatico e bollario di Onorio II." in *Fr. Liverani opere*, vol. 4 (Macerata, 1859), and Jaffé-Wattenbach, *Regesta pontif. Roman*. (1885-1888).

See J. Langen, *Geschichte der römischen Kirche von Gregor VII. bis Innocenz III.* (Bonn, 1893); F. Gregorovius, *Rome in the Middle Ages*, vol. 4, trans. by Mrs G. W. Hamilton (London, 1896); H. H. Milman, *Latin Christianity*, vol. 4 (London, 1899); Fr. Liverani, "Lamberto da Fiagnano" in *Opere*, vol. 3 (Macerata, 1859); A. Wagner, *Die unteritalischen Normannen und das Papsttum 1086-1150* (Breslau, 1885); E. Bernheim, *Zur Geschichte des Wormser Concordats* (Göttingen, 1878); Volkmar, "Das Verhältnis Lothars III. zur Investiturfrage," in *Forschungen zur deutschen Geschichte*, vol. 26.

(C. H. Ha)

4. Honorius III. (Cencio Savelli), pope from the 18th of July 1216 to the 18th of March 1227, a highly-educated and pious Roman, successively canon of Sta Maria Maggiore, cardinal-deacon of Sta Lucia in Silice, vice-chancellor, chamberlain and cardinal-priest of Sti Giovanni e Paolo, was the successor of Innocent III. He made peace with Frederick II., in accordance with which the emperor was crowned with his wife Constance in St Peter's on the 22nd of November 1220, and swore to accord full liberty to the church and to undertake a crusade. Honorius was eager to carry out the decrees of the Lateran Council of 1215 against the Albigenses and to further the crusade proclaimed by his predecessor. He crowned Peter of Courtenay emperor of Byzantium in April 1217; espoused the cause of the young Henry III. of England against the barons; accepted the Isle of Man as a perpetual fief; arbitrated differences between Philip II. of France and James of Aragon; and made special ecclesiastical regulations for the Scandinavian countries. He sanctioned the Dominican order (22nd of November 1216), making St Dominic papal major-domo in 1218; approved the Franciscan order by bull of the 29th of November 1223; and authorized many of the tertiary orders. He maintained, on the whole, a tranquil rule

at Rome; but Frederick II.'s refusal to interrupt his reforms in Sicily in order to go on the crusade gave the pope much trouble. Honorius died in 1227, before the emperor had fulfilled his oath, and was succeeded by Gregory IX.

Honorius III. left many writings which have been collected and published by Abbé Horoy in the *Medii aevi bibliotheca patristica*, vols. i.-ii. (Paris, 1879-1883). Among them are five books of decretals, compiled about 1226; a continuation of the *Liber Pontificalis*; a life of Gregory VII; a coronation form; and a large number of sermons. His most important work is the *Liber censuum Romanae ecclesiae*, written in 1192 and containing a record of the income of the Roman Church and of its relations with secular authorities. The last named is admirably edited by P. Fabre in *Bibliothèque des écoles françaises d'Athènes et de Rome* (Paris, 1892). The letters of Honorius are in F. Liverani, *Spicilegium Liberianum* (1863). There are good *Regesta* in Latin and Italian, edited by P. Pressutti (Rome, 1888, &c.).

See J. Clausen, *Papst Honorius III.* (1895); P. T. Masetti, *I Pontefici Onorio III. ed Innocenzo IV. a fronte dell' Imperatore Federico II. net secolo XIII.* (1884); F. Gregorovius, *Rome in the Middle Ages*, vol. 5, trans. by Mrs G. W. Hamilton (London, 1900-1902); K. J. von Hefele, *Conciliengeschichte*, vol. 5, 2nd ed.; H. H. Milman, *Latin Christianity*, vol. 5 (London, 1899); T. Frantz, *Der grosse Kampf zwischen Kaisertum u. Papsttum zur Zeit des Hohenstaufen Friedrich II.* (Berlin, 1903); W. Norden, *Das Papsttum u. Byzanz* (Berlin, 1903); M. Tangl, *Die päpstlichen Kanzleiordungen von 1200-1500* (Innsbruck, 1894); Caillemer, *Le Pape Honorius III. et le droit civil* (Lyons, 1881); F. Vernet, *Études sur les sermons d'Honorius III.* (Lyons, 1888). There is an excellent article, with exhaustive bibliography, by H. Schulz in Hauck's *Realencyklopädie*, 3rd edition.

(C. H. Ha.)

5. Honorius IV. (Jacopo Savelli), pope from the 2nd of April 1285 to the 3rd of April 1287, a member of a prominent Roman family and grand-nephew of Honorius III., had studied at the university of Paris, been made cardinal-deacon of Sta Maria in Cosmedin, and succeeded Martin IV. Though aged and so crippled that he could not stand alone he displayed remarkable energy as pope. He maintained peace in the states of the Church and friendly relations with Rudolph of Habsburg, and his policy in the Sicilian question was more liberal than that of his predecessor. He showed special favours to the mendicant orders and formally sanctioned the Carmelites and Augustinian Eremites. He was the first pope to employ the great banking houses in northern Italy for the collection of papal dues. He died at Rome and was succeeded by Nicholas IV.

See M. Bouquet, *Recueil des historiens des Gaules et de la France*, new ed., vols. 20-22 (Paris, 1894), for the chief sources; A. Potthast, *Regesta pontif. Roman*, vol. 2 (Berlin, 1875); M. Prou, "Les registres d'Honorius IV." in *Bibliothèque des écoles françaises d Athènes et de Rome* (Paris, 1888); B. Pawlicki, *Papst Honorius IV.* (Münster, 1896); F. Gregorovius, *Rome in the Middle Ages*, vol. 5, trans. by Mrs G. W. Hamilton (London, 1900-1902).

(C. H. Ha.)

HONORIUS, FLAVIUS (384-423), son of Theodosius I., ascended the throne as "emperor of the West" in 395. The history of the first thirteen years of the reign of Honorius is inseparably connected with the name of Stilicho (*q.v.*), his guardian and father-in-law. During this period the revolt of the African prince Gildo was suppressed (398); Italy was successfully defended against Alaric, who was defeated at Pollentia (402) and Verona (403); and the barbarian hordes under the Goth Radagaisus were destroyed (406). After the downfall and murder of Stilicho (408), the result of palace intrigues, the emperor was under the control of incompetent favourites. In the same year Rome was besieged, and in 410, for the second time in its history, taken and sacked by Alaric, who for a short time set up the city prefect Attalus as a rival emperor, but soon deposed him as incapable. Alaric died in the same year, and in 412 Honorius concluded peace with his brother-in-law and successor, Ataulphus (Adolphus), who married the emperor's sister Placidia and removed with his troops to southern Gaul. A number of usurpers laid claim to the throne, the most important of whom was Constantine. In 409 Britain and Armorica declared their independence, which was confirmed by Honorius himself, and were thus practically lost to the empire. Honorius was one of the feeblest emperors who ever occupied the throne, and the dismemberment of the West was only temporarily averted by the efforts of Stilicho, and, later, of Constantius, a capable general who overthrew the usurpers and was rewarded with a share in the government. It was only as a supporter of the orthodox church and persecutor of the heathen that Honorius displayed any energy. In 399 the exercise of the pagan cult was prohibited, and the revenues of the temples, which were to be appropriated for the use of the public or pulled down, were confiscated to defray the expenses

of the army. Honorius was equally severe on heretics, such as the Donatists and Manichaeans. He is also to be credited with the abolition of the gladiatorial shows in 404 (although there is said to be evidence of their existence later), a reduction of the taxes, improvements in criminal law, and the reorganization of the *defensores civitatum*, municipal officers whose duty it was to defend the rights of the people and set forth their grievances. Honorius at first established his court at Milan, but, on the report of the invasion of Italy, fled to Ravenna, where he resided till his death on the 27th of August 423.

See Gibbon, *Decline and Fall*, chs. 28-33; J. B. Bury, *Later Roman Empire*, i. chs. 1-5, ii. chs. 4, 6; E. A. Freeman, "Tyrants of Britain, Gaul and Spain" in *Eng. Hist. Review* (January 1886); T. Hodgkin, *Italy and her Invaders* (Oxford, 1892), i. chs. 13, 15-18.

HONOUR (Lat. *honos* or *honor*, *honoris*; in English the word was spelled with or without the *u* indifferently until the 17th century, but during the 18th century it became fashionable to spell the word "honor"; Johnson's and Webster's Dictionaries stereotyped the English and American spellings respectively), a term which may be defined as respect, esteem or deference paid to, or received by, a person in consideration of his character, worth or position; also the state or condition of the person exciting the feeling or expression of such esteem; particularly a high personal character coupled with conduct in accordance with or controlled by a nice sense of what is right and true and due to the position so held. Further, the word is commonly used of the dignities, distinctions or titles, granted as a mark of such esteem or as a reward for services or merit, and quite generally of the credit or renown conferred by a person or thing on the country, town or particular society to which he or it belongs. The standard of conduct may be laid down not only by a scrupulous sense of what is due to lofty personal character but also by the conventional usages of society, hence it is that debts which cannot be legally enforced, such as gambling debts, are called "debts of honour." Similarly in the middle ages and later, courts, known as "courts of honour," sat to decide questions such as precedence, disputes as to coat armour &c. (see Chivalry); such courts, chiefly military, are found in countries where duelling has not fallen into desuetude (see Duel). In the British House of Lords, when the peers sit to try another peer on a criminal charge or at an impeachment, on the question being put whether the accused be guilty or not, each peer, rising in his place in turn, lays his right hand on his breast and returns his verdict "upon my honour." As a title of address, "his honour" or "your honour" is applied in the United States of America to all judges, in the United Kingdom only to county court judges; in university or other examinations, those who have won particular distinction, or have undergone with success an examination of a standard higher than that required for a "pass" degree, are said to have passed "with honours," or an "honours" examination or to have taken an "honours degree." In many games of cards the ace, king, queen and knave of trumps are the "honours."

Funeral or military honours are paid to a dead officer or soldier. The usual features of such a burial are as follows: the coffin is carried on a gun-carriage and attended by troops; it is covered by the national flag, on which rests the soldier's head-dress, sword or bayonet; if the deceased had been a mounted soldier, his charger follows with the boots reversed in the stirrups; three volleys are fired over the grave after committal, and "last post" or another call is sounded on the bugles or a roll on the drums is given.

A military force is said to be accorded "the honours of war" when, after a specially honourable defence, it has surrendered its post, and is permitted, by the terms of capitulation to march out with colours flying, bands playing, bayonets fixed, &c. and retaining possession of the field artillery, horses, arms and baggage. The force remains free to act as combatants for the remainder of the war, without waiting for exchange or being considered as prisoners. Usually some point is named to which the surrendering troops must be conveyed before recommencing hostilities; thus, during the Peninsular War, at the Convention of Cintra 1808, the French army under Junot was conveyed to France by British transports before being free to rejoin the combatant troops in the Peninsula. By far the most usual case of the granting of the "honours of war" is in connexion with the surrender of a fortress. Of historic examples may be mentioned the surrender of Lille by Marshal Boufflers to Prince Eugene in 1708, that of Huningen by General Joseph Barbanègre (1772-1830) to the Austrians in 1815, and that of Belfort by Colonel P. Denfert Rochereau to the Germans in 1871.

In English law the term "honour" is used of a seigniory of several manors held under one baron or lord paramount. The formation of such lordships dates back to the Anglo-Saxon period, when jurisdiction of sac and soc was frequently given in the case of a group of estates

lying close together. The system was encouraged by the Norman lords, as tending to strengthen the principles of feudal law, but the legislation of Henry II., which increased the power of the central administration, undoubtedly tended to discourage the creation of new honours. Frequently, they escheated to the crown, retaining their corporate existence and their jurisdictions; they then either remained in the possession of the king or were regranted, diminished in extent. Although an honour contained several manors, one court day was held for all, but the various manors retained their separate organizations, having their "quasi several and distinct courts."

HONOURABLE (Fr. *honorable*, from Lat. *honorabilis*, worthy of honour), a style or title of honour common to the United Kingdom, the British colonies and the United States of America. The terms *honorabilis* and *honorabilitas* were in use in the middle ages rather as a form of politeness than as a stereotyped style; and though Gibbon assimilates the late Roman title of *clarissimus* to "honourable," as applied to the lowest of the three grades of rank in the imperial hierarchy, the analogy was good even in his day only in so far as both styles were applicable to those who belonged to the less exalted ranks of the titled classes, for the title "honourable" was not definitely confined to certain classes until later. As a formal address it is found frequently in the *Paston Letters* (15th century), but used loosely and interchangeable with other styles; thus John, Viscount Beaumont, is addressed alternately as "my worshipful and reverent Lord" (ii. 88, ed. 1904) and as "my right honorabull Lord" (ii. 118), while John Paston, a plain esquire, is "my right honurabyll maister." More than two centuries later Selden, in his *Titles of Honor* (1672), does not include "honourable" among the courtesy titles given to the children of peers. The style was, in fact, used extremely loosely till well on into the 18th century. Thus we find in the registers of Westminster Abbey records of the burial (in 1710) of "The Hon. George Churchill, Esq.," who was only a son of Sir Winston Churchill, and of "The Hon. Sir William Godolphin," who had only been created a baronet; in 1717 was buried "The Hon. Colonel Henry Cornwall," who was only an esquire and the son of one; in 1743 a rear-admiral was buried as "The Hon. Sir John Jennings, Kt."; in 1746 "The Hon. Major-General Lowther," whose father was only a Dublin merchant; and finally, in 1747, "The Hon. Lieutenant-General Guest," who is said to have begun life as an hostler. From this time onwards the style of "honourable" tended to become more narrowly applied; but the whole matter is full of obscurity and contradictions. The baronets, for instance, allege that they were usually styled "the honourable" until the end of the 18th century, and in 1835 they petitioned for the style as a prefix to their names. The Heralds' College officially reported on the petition (31st of October 1835) that the evidence did not prove the right of baronets to the style, and that its use "has been no more warranted by authority than when the same style has been applied to Field Officers in the Army and others." They added that "the style of the Honourable is given to the *Judges* and to the *Barons of the Exchequer* with others because by the Decree of 10 James I., for settling the place and precedence of the Baronets, the Judges and Barons of the Exchequer were declared to have place and precedence before the younger sons of Viscounts and Barons." This seems to make the style a consequence of the precedence; yet from the examples above given it is clear that it was applied, *e.g.* in the case of field officers, where no question of precedence arose. It is not, indeed, until 1874 that we have any evidence of an authoritative limitation of the title. In this year the wives of lords of appeal, life peers, were granted style and precedence as baronesses; but it was provided that their children were not "to assume or use the prefix of Honourable, or to be entitled to the style, rank or precedence of the children of a Baron." In 1898, however, this was revoked, and it was ordained "that such children shall have and enjoy on all occasions the style and title enjoyed by the children of hereditary Barons together with the rank and precedence, &c." By these acts of the Crown the prefix of "honourable" would seem to have been restricted and stereotyped as a definite title of honour; yet in legal documents the sons of peers are still styled merely "esquire," with the addition of "commonly called, &c." This latter fact points to the time when the prefix "honourable" was a mark of deference paid by others rather than a style assumed by right, and relics of this doubtless survive in the United Kingdom in the conventions by which an "honourable" does not use the title on his visiting card and is not announced as such.

As to the actual use and social significance of the style, the practice in the United Kingdom differs considerably from that in the colonies or in the United States. In the United Kingdom marquesses are "most honourable"; earls, viscounts and barons "right honourable," a style also borne by all privy councillors, including the lord mayor of London and lord provost of Edinburgh during office. The title of "honourable" is in the United Kingdom, except by special licence of the Crown (*e.g.* in the case of retired colonial or Indian officials), mainly confined to

the sons and daughters of peers, and is the common style of the younger sons of earls and of the children of viscounts, barons and legal life peers. The eldest sons of dukes, marquesses and earls bear “by courtesy” their father’s second title, the younger sons of dukes and marquesses having the courtesy title Lord prefixed to their Christian name; while the daughters of dukes, marquesses and earls are styled Lady. The title of “honourable” is also given to all present or past maids of honour, and to the judges of the high court being lords justices or lords of appeal (who are “right honourable”). A county court judge is, however, “his honour.” The epithet is also applied to the House of Commons as a body and to individual members during debate (“the honourable member for X.”). Certain other corporate bodies have, by tradition or grant, the right to bear the style; *e.g.* the Honourable Irish Society, the Inns of Court (Honourable Society of the Inner Temple, &c.) and the Honourable Artillery Company; the East India Company also had the prefix “honourable.” The style may not be assumed by corporate bodies at will, as was proved, in the case of the Society of Baronets, whose original style of “Honourable” Society was dropped by command.

In the British colonies the title “honourable” is given to members of the executive and legislative bodies, to judges, &c., during their term of service. It is sometimes retained by royal licence after a certain number of years’ service.

In the United States of America the title is very widespread, being commonly given to any one who holds or has held any office of importance in state or nation, more particularly to members of Congress or of the state legislatures, judges, justices, and certain other judicial and executive officials. Popular amenity even sometimes extends the title to holders of quite humble government appointments, and consoles with it the defeated candidates for a post. See also the article Precedence.

HONTHEIM, JOHANN NIKOLAUS VON (1701-1790), German historian and theologian, was born on the 27th of January 1701 at Trier. He belonged to a noble family which had been for many generations connected with the court and diocese of the archbishop-electors, his father, Kaspar von Hontheim, being receiver-general of the archdiocese. At the age of twelve young Hontheim was given by his maternal uncle, Hugo Friedrich von Anethan, canon of the collegiate church of St Simeon (which at that time still occupied the Roman Porta Nigra at Trier), a prebend in his church, and on the 13th of May 1713 he received the tonsure. He was educated by the Jesuits at Trier and at the universities of Trier, Louvain and Leiden, taking his degree of doctor of laws at Trier in 1724. During the following years he travelled in various European countries, spending some time at the German College in Rome; in 1728 he was ordained priest and, formally admitted to the chapter of St Simeon in 1732, he became a professor at the university of Trier. In 1738 he went to Coblenz as official to the archbishop-elector. In this capacity he had plentiful opportunity of studying the effect of the interference of the Roman Curia in the internal affairs of the Empire, notably in the negotiations that preceded the elections of the emperors Charles VII. and Francis I. in which Hontheim took part as assistant to the electoral ambassador. It appears that it was the extreme claims of the papal nuncio on these occasions and his interference in the affairs of the electoral college that first suggested to Hontheim that critical examination of the basis of the papal pretensions, the results of which he afterwards published to the world under the pseudonym of “Febronius.” In 1747, broken down by overwork, he resigned his position as official and retired to St Simeon’s, of which he was elected dean in the following year. In May 1748 he was appointed by the archbishop-elector Francis George (von Schönborn) as his suffragan, being consecrated at Mainz, in February 1749, under the title of bishop of Myriophiri *in partibus*. The archbishop of Trier was practically a great secular prince, and upon Hontheim as suffragan and vicar-general fell the whole spiritual administration of the diocese; this work, in addition to that of pro-chancellor of the university, he carried on single-handed until 1778, when Jean Marie Cuohot d’Herbain was appointed his coadjutor. On the 21st of April 1779 he resigned the deanery of St Simeon’s on the ground of old age. He died on the 2nd of September 1790 at his chateau at Montquentin near Orval, an estate which he had purchased. He was buried at first in St Simeon’s; but the church was ruined by the French during the revolutionary wars and never restored, and in 1803 the body of Hontheim was transferred to that of St Gervasius.

As a historian Hontheim’s reputation rests on his contributions to the history of Trier. He had, during the period of his activity as official at Coblenz, found time to collect a vast mass of printed and MS. material which he afterwards embodied in three works on the history of Trier. Of these the *Historia Trevirensis diplomatica et pragmatica* was published in 3 vols. folio in

1750, the *Prodromus historiae Trevirensis* in 2 vols. in 1757. They give, besides a history of Trier and its constitution, a large number of documents and references to published authorities. A third work, the *Historiae scriptorum et monumentarum Trevirensis amplissima collectio*, remains in MS. at the city library of Trier. These books, the result of an enormous labour in collation and selection in very unfavourable circumstances, entitle Hontheim to the fame of a pioneer in modern historical methods. It is, however, as "Febronius" that Hontheim is best remembered. The character and effect of his book on "the state of the Church and the lawful power of the Roman pontiff" is described elsewhere (see FEBRONIANISM). The author of the book was known at Rome almost as soon as it was published; but it was not till some years afterwards (1778) that he was called on to retract. The terrors of the spiritual power were reinforced by a threat of the archbishop-elector to deprive not only him but all his relations of their offices, and Hontheim, after much wavering and correspondence, signed a submission which was accepted at Rome as satisfactory, though he still refused to admit, as demanded, *ut proinde merito monarchicum ecclesiae regimen a catholicis doctoribus appelletur*. The removal of the censure followed (1781) when Hontheim published at Frankfort what purported to be a proof that his submission had been made of his own free will (*Justini Febronii acti commentarius in suam retractationem*, &c.). This book, however, which carefully avoided all the most burning questions, rather tended to show—as indeed his correspondence proves—that Hontheim had not essentially shifted his standpoint. But Rome left him thenceforth in peace.

See Otto Mejer, *Febronius, Weihbischof Johann Nikolaus von Hontheim und sein Widerruf* (Tübingen, 1880), with many original letters. Of later date is the biography by F. X. Kraus in the *Allgemeine deutsche Biographie* (1881), which gives numerous references.

HONTHORST, GERARD VAN (1590-1656), Dutch painter of Utrecht, was brought up at the school of Bloemart, who exchanged the style of the Franckens for that of the pseudo-Italians at the beginning of the 16th century. Infected thus early with a mania which came to be very general in Holland, Honthorst went to Italy, where he copied the naturalism and eccentricities of Michelangelo da Caravaggio. Home again about 1614, after acquiring a considerable practice in Rome, he set up a school at Utrecht which flourished exceedingly; and he soon became so fashionable that Sir Dudley Carleton, then English envoy at the Hague, recommended his works to the earl of Arundel and Lord Dorchester. At the same time the queen of Bohemia, sister of Charles I. and electress palatine, being an exile in Holland, gave him her countenance and asked him to teach her children drawing; and Honthorst, thus approved and courted, became known to Charles I., who invited him to England. There he painted several portraits, and a vast allegory, now at Hampton Court, of Charles and his queen as Diana and Apollo in the clouds receiving the duke of Buckingham as Mercury and guardian of the king of Bohemia's children. Charles I., whose taste was flattered alike by the energy of Rubens and the elegance of Van Dyck, was thus first captivated by the fanciful mediocrity of Honthorst, who though a poor executant had luckily for himself caught, as Lord Arundel said, "much of the manner of Caravaggio's colouring, then so much esteemed at Rome." It was his habit to transmute every subject into a night scene, from the Nativity, for which there was warrant in the example of Correggio, to the penitence of the Magdalen, for which there was no warrant at all. But unhappily this caprice, though "sublime in Allegri and Rembrandt," was but a phantasm in the hands of Honthorst, whose prosaic pencil was not capable of more than vulgar utterances, and art gained little from the repetition of these quaint vagaries. Sandrart gave the measure of Honthorst's popularity at this period when he says that he had as many as twenty apprentices at one time, each of whom paid him a fee of 100 florins a year. In 1623 he was president of his gild at Utrecht. After that he went to England, returning to settle anew at Utrecht, where he married. His position amongst artists was acknowledged to be important, and in 1626 he received a visit from Rubens, whom he painted as the honest man sought for and found by Diogenes Honthorst. In his home at Utrecht Honthorst succeeded in preserving the support of the English monarch, for whom he finished in 1631 a large picture of the king and queen of Bohemia "and all their children." For Lord Dorchester about the same period he completed some illustrations of the *Odyssey*; for the king of Denmark he composed incidents of Danish history, of which one example remains in the gallery of Copenhagen. In the course of a large practice he had painted many likenesses—Charles I. and his queen, the duke of Buckingham, and the king and queen of Bohemia. He now became court painter to the princess of Orange, settled (1637) at the Hague, and painted in succession at the Castle of Ryswick and the House in the Wood. The time not consumed in producing pictures was devoted to portraits. Even now his works are very numerous, and amply represented in English and Continental galleries. His most attractive pieces are those in which he cultivates the style of Caravaggio,

those, namely, which represent taverns, with players, singers and eaters. He shows great skill in reproducing scenes illuminated by a single candle. But he seems to have studied too much in dark rooms, where the subtleties of flesh colour are lost in the dusky smoothness and uniform redness of tints procurable from farthing dips. Of great interest still, though rather sharp in outline and hard in modelling, are his portraits of the Duke of Buckingham and Family (Hampton Court), the King and Queen of Bohemia (Hanover and Combe Abbey), Mary de Medici (Amsterdam town-hall), 1628, the Stadtholders and their Wives (Amsterdam and Hague), Charles Louis and Rupert, Charles I.'s nephews (Louvre, St Petersburg, Combe Abbey and Willin), and Lord Craven (National Portrait Gallery). His early form may be judged by a Lute-player (1614) at the Louvre, the Martyrdom of St John in S. M. della Scala at Rome, or the Liberation of Peter in the Berlin Museum; his latest style is that of the House in the Wood (1648), where he appears to disadvantage by the side of Jordaens and others.

Honthorst was succeeded by his brother William, born at Utrecht in 1604, who died, it is said, in 1666. He lived chiefly in his native place, temporarily at Berlin. But he has left little behind except a portrait at Amsterdam, and likenesses in the Berlin Museum of William and Mary of England.

HOOCH, PIETER DE (1629-?1678), Dutch painter, was born in 1629, and died in Amsterdam probably shortly after 1677. He was a native of Rotterdam, and wandered early to Haarlem and the Hague. In 1654 we find him again at Rotterdam, where in that year he married a girl of Delft, Jannetje van der Burch. From 1655 to 1657 he was a member of the painter's gild of Delft, but after that date we have no traces of his doings until about 1668, when his presence is recorded in Amsterdam. His dated pictures prove that he was still alive in 1677, but his death followed probably soon after this year. De Hooch is one of the kindliest and most charming painters of homely subjects that Holland has produced. He seems to have been born at the same time and taught in the same school as van der Meer and Maes. All three are disciples of the school of Rembrandt. Houbraken mentions Nicolas Berchem as De Hooch's teacher. De Hooch only once painted a canvas of large size, and that unfortunately perished in a fire at Rotterdam in 1864. But his small pieces display perfect finish and dexterity of hand, combined with great power of discrimination. Though he sometimes paints open-air scenes, these are not his favourite subjects. He is most at home in interiors illuminated by different lights, with the radiance of the day, in different intensities, seen through doors and windows. He thus brings together the most delicate varieties of tone, and produces chords that vibrate with harmony. The themes which he illustrates are thoroughly suited to his purpose. Sometimes he chooses the drawing-room where dames and cavaliers dance, or dine, or sing; sometimes—mostly indeed—he prefers cottages or courtyards, where the housewives tend their children or superintend the labours of the cook. Satin and gold are as familiar to him as camlet and fur; and there is no article of furniture in a Dutch house of the middle class that he does not paint with pleasure. What distinguishes him most besides subtle suggestiveness is the serenity of his pictures. One of his most charming was the canvas formerly in the Ashburton collection, now burnt, where an old lady with a dish of apples walks with a child along a street bounded by a high wall, above which gables and a church steeple are seen, while the sun radiates joyfully over the whole. Fine in another way is the "Mug of Beer" in the Amsterdam Museum, an interior with a woman coming out of a pantry and giving a measure of beer to a little girl. The light flows in here from a small closed window; but through the door to the right we look into a drawing-room, and through the open sash of that room we see the open air. The three lights are managed with supreme cunning. Beautiful for its illumination again is the "Music Party," with its contending indoor and outdoor lights, a gem in the late A. Thieme collection at Leipzig. More subtly suggestive, in the museum of Berlin, is the "Mother seated near a Cradle." "A Card Party," dated 1658, at Buckingham Palace, is a good example of De Hooch's drawing-room scenes, counterpart as to date and value of a "Woman and Child" in the National Gallery, and the "Smoking Party," formerly in Lord Enfield's collection. Another very fine example is the "Interior" with two women, bought by Sir Julius Wernher. Other pictures later in the master's career are—the "Lady and Child in a Courtyard," of 1665, in the National Gallery, and the "Lady receiving a Letter," of 1670, in the Amsterdam Museum (Van der Hoop collection).

It is possible to bring together over 250 examples of De Hooch. There are three at St Petersburg, three in Buckingham Palace, three in the National Gallery, two in the Wallace Collection, six in the Amsterdam Museum, some in the Louvre and at Munich and Darmstadt; many others are in private galleries in England. For England was the first country to recognize

the merit of De Hooch who only began to be valued in Holland in the middle of the 18th century. A celebrated picture at Amsterdam, sold for 450 florins in 1765, fetched 4000 in 1817, and in 1876 the Berlin Museum gave £5400 for a De Hooch at the Schneider sale—"A Dutch Dwelling-room" (820 B).

See Hofstede de Groot's *Catalogue raisonné*, vol. i., London, 1907.

HOOD, JOHN BELL (1831-1879), American soldier, lieut.-general of the Confederate army, was born at Owingsville, Kentucky, in 1831, and graduated from West Point military academy in 1853. As an officer of the 2nd U.S. cavalry (Colonel Sidney Johnston) he saw service against Indians, and later he was cavalry instructor at West Point. He resigned from the U.S. service in 1861, and became a colonel in the Confederate army. He was soon promoted brigadier-general, and at the battle of Gaines's Mill, where he was wounded, won the brevet of major-general for his gallant conduct. With the famous, "Texas brigade" of the Army of Northern Virginia he served throughout the campaign of 1862. At Gettysburg he commanded one of the divisions of Longstreet's corps, receiving a wound which disabled his arm. With Longstreet he was transferred in the autumn of 1863 to the Army of Tennessee. At the battle of Chickamauga (September 19th, 20th) Hood was severely wounded again and his leg was amputated, but after six months he returned to duty undaunted. He remained with the Army of Tennessee as a corps commander, and when the general dissatisfaction with the Fabian policy of General J. E. Johnston brought about the removal of that officer, Hood was put in his place with the temporary rank of general. He had won a great reputation as a fighting general, and it was with the distinct understanding that battles were to be fought that he was placed at the head of the Army of Tennessee. But in spite of skill and courage he was uniformly unsuccessful in the battles around Atlanta. In the end he had to abandon the place, but he forthwith sought to attack Sherman in another direction, and finally invaded Tennessee. His march was pushed with the greatest energy, but he failed to draw the main body of the enemy after him, and, while Sherman with a picked force made his "March to the Sea," Thomas collected an army to oppose Hood. A severe battle was fought at Franklin on the 30th of November, and finally Hood was defeated and his army almost annihilated in the battle of Nashville. He was then relieved at his own request (January 23rd, 1865). After the war he was engaged in business in New Orleans, where he died of yellow fever on the 30th of August 1879. His experiences in the Civil War are narrated in his *Advance and Retreat* (New Orleans, 1880). Hood's reputation as a bold and energetic leader was well deserved, though his reckless vigour proved but a poor substitute for Johnston's careful husbanding of his strength at this declining stage of the Confederacy.

HOOD, SAMUEL HOOD, Viscount (1724-1816), British admiral, was the son of Samuel Hood, vicar of Butleigh in Somerset, and prebendary of Wells. He was born on the 12th of December 1724, and entered the navy on the 6th of May 1741. He served part of his time as midshipman with Rodney in the "Ludlow," and became lieutenant in 1746. He was fortunate in serving under active officers, and had opportunities of seeing service in the North Sea. In 1753 he was made commander of the "Jamaica" sloop, and served in her on the North American station. In 1756, while still on the North American station, he attained to post rank. In 1757, while in temporary command of the "Antelope" (50), he drove a French ship ashore in Audierne Bay, and captured two privateers. His zeal attracted the favourable notice of the Admiralty and he was appointed to a ship of his own. In 1759, when captain of the "Vestal" (32), he captured the French "Bellona" (32) after a sharp action. During the war his services were wholly in the Channel, and he was engaged under Rodney in 1759 in destroying the vessels collected by the French to serve as transports in the proposed invasion of England. In 1778 he accepted a command which in the ordinary course would have terminated his active career. He became commissioner of the dockyard at Portsmouth and governor of the Naval Academy. These posts were generally given to officers who were retiring from the sea. In 1780, on the occasion of the king's visit to Portsmouth, he was made a baronet. The circumstances of the time were not ordinary. Many admirals declined to serve under Lord Sandwich, and Rodney, who then commanded in the West Indies, had complained of want of proper support from his subordinates, whom he accused of disaffection. The Admiralty was naturally anxious to secure

the services of trustworthy flag officers, and having confidence in Hood promoted him rear-admiral out of the usual course on the 26th of September 1780, and sent him to the West Indies to act as second in command under Rodney, to whom he was personally known. He joined Rodney in January 1781, and remained in the West Indies or on the coast of North America till the close of the War of American Independence. The calculation that he would work harmoniously with Rodney was not altogether justified by the results. The correspondence of the two shows that they were far from being on cordial personal terms with one another, but Hood always discharged his duty punctually, and his capacity was so great, and so signally proved, that no question of removing him from the station ever arose. The unfortunate turn taken by the campaign of 1781 was largely due to Rodney's neglect of his advice. If he had been allowed to choose his own position there can be no doubt that he could have prevented the comte de Grasse (1722-1788) from reaching Fort Royal with the reinforcements from France in April (see RODNEY, LORD). When the fleet went on to the coast of North America during the hurricane months of 1781 he was sent to serve with Admiral Graves (1725?-1802) in the unsuccessful effort to relieve the army at Yorktown. But his subordinate rank gave him no chance to impart a greater measure of energy to the naval operations. When, however, he returned to the West Indies he was for a time in independent command owing to Rodney's absence in England for the sake of his health. The French admiral, the comte de Grasse, attacked the British islands of St Kitts and Nevis with a much superior force to the squadron under Hood's command. The attempt Hood made in January 1782 to save them from capture, with 22 ships to 29, was not successful, but the series of bold movements by which he first turned the French out of their anchorage at the Basse Terre of St Kitts, and then beat off the attacks of the enemy, were the most brilliant things done by any British admiral during the war. He was made an Irish peer for his share in the defeat of the comte de Grasse on the 9th and 12th of April near Dominica. During the peace he entered parliament as member for Westminster in the fiercely contested election of 1784, was promoted vice-admiral in 1787, and in July of 1788 was appointed to the Board of Admiralty under the second earl of Chatham. On the outbreak of the revolutionary war he was sent to the Mediterranean as commander-in-chief. His period of command, which lasted from May 1793 to October 1794, was very busy. In August he occupied Toulon on the invitation of the French royalists, and in co-operation with the Spaniards. In December of the same year the allies, who did not work harmoniously together, were driven out, mainly by the generalship of Napoleon. Hood now turned to the occupation of Corsica, which he had been invited to take in the name of the king of England by Paoli. The island was for a short time added to the dominions of George III., chiefly by the exertions of the fleet and the co-operation of Paoli. While the occupation of Corsica was being effected, the French at Toulon had so far recovered that they were able to send a fleet to sea. In June Hood sailed in the hope of bringing it to action. The plan which he laid to attack it in the Golfe Jouan in June may possibly have served to some extent as an inspiration, if not as a model, to Nelson for the battle of the Nile, but the wind was unfavourable, and the attack could not be carried out. In October he was recalled to England in consequence of some misunderstanding with the admiralty, or the ministry, which has never been explained. He had attained the rank of full admiral in April of 1794. He held no further command at sea, but in 1796 he was named governor of Greenwich Hospital, a post which he held till his death on the 27th of January 1816. A peerage of Great Britain was conferred on his wife as Baroness Hood of Catherington in 1795, and he was himself created Viscount Hood of Whitley in 1796. The titles descended to his son, Henry (1753-1836), the ancestor of the present Viscount Hood. There are several portraits of Lord Hood by Abbot in the Guildhall and in the National Portrait Gallery. He was also painted by Reynolds and Gainsborough.

There is no good life of Lord Hood, but a biographical notice of him by M'Arthur, his secretary during the Mediterranean command, is in the *Naval Chronicle*, vol. ii. Charnock's *Biogr. Nav.* vi., Ralfe, *Nav. Biog.* i., may also be consulted. His correspondence during his command in America has been published by the Navy Record Society. The history of his campaigns will be found in the historians of the wars in which he served: for the earlier years, Beatson's *Naval and Military Memoirs*; for the later, James's *Naval History*, vol. i., for the English side, and for the French, Troudes, *Batailles navales de la France*, ii. and iii., and Chevalier's *Histoire de la marine française pendant la guerre de l'indépendance américaine and Pendant la République*.

(D. H.)

HOOD, SIR SAMUEL (1762-1814), British vice-admiral, cousin of Lord Hood and of Lord Bridport, entered the Royal Navy in 1776. His first engagement was the battle off Ushant in

1778, and, soon afterwards transferred to the West Indies, he was present, under the command of his cousin Sir Samuel Hood, at all the actions which culminated in Rodney's victory of April 12th, 1782. After the peace, like many other British naval officers, he spent some time in France, and on his return to England was given the command of a sloop, from which he proceeded in succession to various frigates. In the "Juno" his gallant rescue of some shipwrecked seamen won him a vote of thanks and a sword of honour from the Jamaica assembly. Early in 1793 the "Juno" went to the Mediterranean under Lord Hood, and her captain distinguished himself by an audacious feat of coolness and seamanship in extricating his vessel from the harbour of Toulon, which he had entered in ignorance of Lord Hood's withdrawal. Soon afterwards he was put in command of a frigate squadron for the protection of Levantine commerce, and in 1797 he was given the "Zealous" (74), in which he was present at Nelson's unsuccessful attack on Santa Cruz. It was Captain Hood who conducted the negotiations which relieved the squadron from the consequences of its failure. The part played by the "Zealous" at the battle of the Nile was brilliant. Her first opponent she put out of action in twelve minutes, and, passing on, Hood immediately engaged other ships, the "Guerrier" being left powerless to fire a shot. When Nelson left the coast of Egypt, Hood commanded the blockading force off Alexandria and Rosetta. Later he rejoined Nelson on the coast of the two Sicilies, receiving for his services the order of St Ferdinand.

In the "Venerable" Hood was present at the action of Algesiras and the battle in the Straits of Gibraltar (1801). In the Straits his ship suffered heavily, losing 130 officers and men. A year later Captain Hood was employed in Trinidad as a commissioner, and, upon the death of the flag officer commanding the Leeward station, he succeeded him as Commodore. Island after island fell to him, and soon, outside Martinique, the French had scarcely a foothold in the West Indies. Amongst other measures taken by Hood may be mentioned the garrisoning of Diamond Rock, which he commissioned as a sloop-of-war to blockade the approaches of Martinique (see James, *Naval History*, iii, 245). For these successes he received, amongst other rewards, the K.B. In command next of the squadron blockading Rochefort, Sir Samuel Hood had a sharp fight, on 25th September 1805, with a small French squadron which was trying to escape. Amongst the few casualties on this occasion was the Commodore, who lost an arm. Promoted rear-admiral a few days after this action, Hood was in 1807 entrusted with the operations against Madeira, which he brought to a successful conclusion, and a year later went to the Baltic, with his flag in the "Centaur," to take part in the war between Russia and Sweden. In one of the actions of this war the "Centaur" and "Implacable," unsupported by the Swedish ships (which lay to leeward), cut out the Russian 80-gun ship "Sevolod" from the enemy's line and, after a desperate fight, forced her to strike. The king of Sweden rewarded the admiral with the Grand Cross of the Order of the Sword. Present in the roads of Corunna at the re-embarkation of the army of Sir John Moore, Hood thence returned to the Mediterranean, where for two years he commanded a division of the British fleet. In 1811 he became vice-admiral. In his last command, that of the East Indies station, he carried out many salutary reforms, especially in matters of discipline and victualling. He died at Madras, 24th December 1814. A lofty column was raised to his memory on a hill near Butleigh, Somersetshire, and in Butleigh Church is another memorial, with an inscription written by Southey.

See *Naval Chronicle*, xvii. 1 (the material was furnished by Hood himself; it does not go beyond 1806).

His elder brother, Captain Alexander Hood (1758-1798), entered the Royal Navy in 1767, and accompanied Captain Cook in his second voyage round the world. Under Howe and Rodney he distinguished himself in the West Indies, and at the victory of April 12th, 1782, he was in command of one of Rodney's frigates. Under Sir Samuel Hood he then proceeded to the Mona passage, where he captured the French corvette "Cérès." With the commander of his prize, the Baron de Peroy, Hood became very intimate, and during the peace he paid a long visit to France as his late prisoner's guest. In the early part of the Revolutionary war, ill health kept him at home, and it was not until 1797 that he went afloat again. His first experience was bitter; his ship, the "Mars," was unenviably prominent in the mutiny at Spithead. On April 21st, 1798, occurred the famous duel of the "Mars" with the "Hercule," fought in the dusk near the Bec du Raz. The two ships were of equal force, but the "Hercule" was newly commissioned, and after over an hour's fighting at close quarters she struck her flag, having lost over three hundred men. The captain of the "Mars" was mortally wounded early in the fight, and died as the sword of the French captain was being put in his hand. The latter, L'Heritier, also died of his wounds.

See *Naval Chronicle*, vi. 175; Ralfe, *Naval Biographies*, iv. 48; James, *Naval History*, and Chevalier, *Hist. de la marine française sous la première république*.

HOOD, THOMAS (1799-1845), British humorist and poet, the son of Thomas Hood, bookseller, was born in London on the 23rd of May 1799. “Next to being a citizen of the world,” writes Thomas Hood in his *Literary Reminiscences*, “it must be the best thing to be born a citizen of the world’s greatest city.” On the death of her husband in 1811 Mrs Hood removed to Islington, where Thomas Hood had a schoolmaster who appreciated his talents, and, as he says, “made him feel it impossible not to take an interest in learning while he seemed so interested in teaching.” Under the care of this “decayed dominie,” whom he has so affectionately recorded, he earned a few guineas—his first literary fee—by revising for the press a new edition of *Paul and Virginia*. Admitted soon after into the counting-house of a friend of his family, he “turned his stool into a Pegasus on three legs, every foot, of course, being a dactyl or a spondee”; but the uncongenial profession affected his health, which was never strong, and he was transferred to the care of his father’s relations at Dundee. There he led a healthy outdoor life, and also became a large and indiscriminate reader, and before long contributed humorous and poetical articles to the provincial newspapers and magazines. As a proof of the seriousness with which he regarded the literary vocation, it may be mentioned that he used to write out his poems in printed characters, believing that that process best enabled him to understand his own peculiarities and faults, and probably unconscious that Coleridge had recommended some such method of criticism when he said he thought “print settles it.” On his return to London in 1818 he applied himself assiduously to the art of engraving, in which he acquired a skill that in after years became a most valuable assistant to his literary labours, and enabled him to illustrate his various humours and fancies by a profusion of quaint devices, which not only repeated to the eye the impressions of the text, but, by suggesting amusing analogies and contrasts, added considerably to the sense and effect of the work.

In 1821 Mr John Scott, the editor of the *London Magazine*, was killed in a duel, and that 667
periodical passed into the hands of some friends of Hood, who proposed to make him sub-editor. His installation into this congenial post at once introduced him to the best literary society of the time; and in becoming the associate of Charles Lamb, Cary, de Quincey, Allan Cunningham, Proctor, Talfourd, Hartley Coleridge, the peasant-poet Clare and other contributors to the magazine, he gradually developed his own intellectual powers, and enjoyed that happy intercourse with superior minds for which his cordial and genial character was so well adapted, and which he has described in his best manner in several chapters of *Hood’s Own*. He had married in 1825, and *Odes and Addresses*—his first work—was written in conjunction with his brother-in-law Mr J. H. Reynolds, the friend of Keats. S. T. Coleridge wrote to Charles Lamb averring that the book must be his work. *The Plea of the Midsummer Fairies* (1827) and a dramatic romance, Lamia, published later, belong to this time. *The Plea of the Midsummer Fairies* was a volume of serious verse, in which Hood showed himself a by no means despicable follower of Keats. But he was known as a humorist, and the public, which had learned to expect jokes from him, rejected this little book almost entirely. There was much true poetry in the verse, and much sound sense and keen observation in the prose of these works; but the poetical feeling and lyrical facility of the one, and the more solid qualities of the other, seemed best employed when they were subservient to his rapid wit, and to the ingenious coruscations of his fancy. This impression was confirmed by the series of the *Comic Annual*, dating from 1830, a kind of publication at that time popular, which Hood undertook and continued, almost unassisted, for several years. Under that somewhat frivolous title he treated all the leading events of the day in a fine spirit of caricature, entirely free from grossness and vulgarity, without a trait of personal malice, and with an under-current of true sympathy and honest purpose that will preserve these papers, like the sketches of Hogarth, long after the events and manners they illustrate have passed from the minds of men. But just as the agreeable jester rose into the earnest satirist, one of the most striking peculiarities of his style became a more manifest defect. The attention of the reader was distracted, and his good taste annoyed, by the incessant use of puns, of which Hood had written in his own vindication:—

> “However critics may take offence,
> A double meaning has double sense.”

Now it is true that the critic must be unconscious of some of the subtlest charms and nicest delicacies of language who would exclude from humorous writing all those impressions and surprises which depend on the use of the diverse sense of words. The history, indeed, of many a word lies hid in its equivocal uses; and it in no way derogates from the dignity of the highest poetry to gain strength and variety from the ingenious application of the same sounds to different senses, any more than from the contrivances of rhythm or the accompaniment of imitative sounds. But when this habit becomes the characteristic of any wit, it is impossible to prevent it from degenerating into occasional buffoonery, and from supplying a cheap and ready resource, whenever the true vein of humour becomes thin or rare. Artists have been known to use the left hand in the hope of checking the fatal facility which practice had conferred on the

right; and if Hood had been able to place under some restraint the curious and complex machinery of words and syllables which his fancy was incessantly producing, his style would have been a great gainer, and much real earnestness of object, which now lies confused by the brilliant kaleidoscope of language, would have remained definite and clear. He was probably not unconscious of this danger; for, as he gained experience as a writer, his diction became more simple, and his ludicrous illustrations less frequent. In another annual called the *Gem* appeared the poem on the story of "Eugene Aram," which first manifested the full extent of that poetical vigour which seemed to advance just in proportion as his physical health declined. He started a magazine in his own name, for which he secured the assistance of many literary men of reputation and authority, but which was mainly sustained by his own intellectual activity. From a sick-bed, from which he never rose, he conducted this work with surprising energy, and there composed those poems, too few in number, but immortal in the English language, such as the "Song of the Shirt" (which appeared anonymously in the Christmas number of *Punch*, 1843), the "Bridge of Sighs" and the "Song of the Labourer," which seized the deep human interests of the time, and transported them from the ground of social philosophy into the loftier domain of the imagination. They are no clamorous expressions of anger at the discrepancies and contrasts of humanity, but plain, solemn pictures of conditions of life, which neither the politician nor the moralist can deny to exist, and which they are imperatively called upon to remedy. Woman, in her wasted life, in her hurried death, here stands appealing to the society that degrades her, with a combination of eloquence and poetry, of forms of art at once instantaneous and permanent, and with great metrical energy and variety.

Hood was associated with the *Athenaeum*, started in 1828 by J. Silk Buckingham, and he was a regular contributor for the rest of his life. Prolonged illness brought on straitened circumstances; and application was made to Sir Robert Peel to place Hood's name on the pension list with which the British state so moderately rewards the national services of literary men. This was done without delay, and the pension was continued to his wife and family after his death, which occurred on the 3rd of May 1845. Nine years after a monument, raised by public subscription, in the cemetery of Kensal Green, was inaugurated by Monckton Milnes (Lord Houghton) with a concourse of spectators that showed how well the memory of the poet stood the test of time. Artisans came from a great distance to view and honour the image of the popular writer whose best efforts had been dedicated to the cause and the sufferings of the workers of the world; and literary men of all opinions gathered round the grave of one of their brethren whose writings were at once the delight of every boy and the instruction of every man who read them. Happy the humorist whose works and life are an illustration of the great moral truth that the sense of humour is the just balance of all the faculties of man, the best security against the pride of knowledge and the conceits of the imagination, the strongest inducement to submit with a wise and pious patience to the vicissitudes of human existence. This was the lesson that Thomas Hood left behind him. (H.)

BIBLIOGRAPHY.—The list of Hood's separately published works is as follows: *Odes and Addresses to Great People* (1825); *Whims and Oddities* (two series, 1826 and 1827); *The Plea of the Midsummer Fairies, Hero and Leander, Lycus the Centaur and other Poems* (1827), his only collection of serious verse; *The Dream of Eugene Aram, the Murderer* (1831); *Tylney Hall*, a novel (3 vols., 1834); *The Comic Annual* (1830-1842); *Hood's Own; or, Laughter from Year to Year* (1838, second series, 1861); *Up the Rhine* (1840); *Hood's Magazine and Comic Miscellany* (1844-1848); *National Tales* (2 vols., 1837), a collection of short novelettes; *Whimsicalities* (1844), with illustrations from Leech's designs; and many contributions to contemporary periodicals.

The chief sources of his biography are: *Memorials of Thomas Hood, collected, arranged and edited by his daughter* (1860); his "Literary Reminiscences" in *Hood's Own*; Alexander Elliot, *Hood in Scotland* (1885). See also the memoir of Hood's friend C. W. Dilke, by his grandson Sir Charles Dilke, prefixed to *Papers of a Critic*; and M. H. Spielmann's *History of Punch*. There is an excellent edition of the *Poems of Thomas Hood* (2 vols., 1897), with a biographical introduction of great interest by Canon Alfred Ainger.

HOOD, TOM (1835-1874), English humorist, son of the poet Thomas Hood, was born at Lake House, Wanstead, Essex, on the 19th of January 1835. After attending University College School and Louth Grammar School he entered Pembroke College, Oxford, in 1853, where he passed all the examinations for the degree of B.A., but did not graduate. At Oxford he wrote his *Farewell to the Swallows* (1853) and *Pen and Pencil Pictures* (1857). He began to write for the

Liskeard Gazette in 1856, and edited that paper in 1858-1859. He then obtained a position in the War Office, which he filled for five years, leaving in 1865 to become editor of *Fun*, the comic paper, which became very popular under his direction. In 1867 he first issued *Tom Hood's Comic Annual*. In 1861 had appeared *The Daughters of King Daker, and other Poems*, after which he published in conjunction with his sister, Frances Freeling Broderip, a number of amusing books for children. His serious novels, of which *Captain Masters's Children* (1865) is the best, were not so successful. Hood drew with considerable facility, among his illustrations being those of several of his father's comic verses. In private life his geniality and sincere friendliness secured him the affection and esteem of a wide circle of acquaintance. He died on the 20th of November 1874.

A memoir by his sister, F. F. Broderip, is prefixed to the edition of his poems published in 1877.

HOOD OF AVALON, ARTHUR WILLIAM ACLAND HOOD, Baron (1824-1901), English admiral, born on the 14th of July 1824, was the younger son of Sir Alexander Hood of St Andries, Somerset, 2nd baronet, and grandson of Captain Alexander Hood, R.N., who, when in command of the "Mars," fell in action with the French 74-gun ship "Hercule," 21st of April 1798. At the age of twelve Hood entered the navy, and whilst still a boy saw active service on the north coast of Spain, and afterwards on the coast of Syria. After passing through the established course of gunnery on board the "Excellent" in 1844-1845, he went out to the Cape of Good Hope as gunnery mate of the "President," the flagship of Rear-Admiral Dacres, by whom, on the 9th of January 1846, he was promoted to be lieutenant. As gunnery lieutenant he continued in the "President" till 1849; and in the following year he was appointed to the "Arethusa" frigate, then commissioned for the Mediterranean by Captain Symonds, afterwards the well-known admiral of the fleet. The outbreak of the Russian war made the commission a very long one; and on the 27th of November 1854 Hood was promoted to be commander in recognition of his service with the naval brigade before Sebastopol. In 1855 he married Fanny Henrietta, daughter of Sir C. F. Maclean. In 1856 he commissioned the "Acorn" brig for the China station, and arrived in time to take part in the destruction of the junks in Fatshan creek on the 1st of June 1857, and in the capture of Canton in the following December, for which, in February 1858, he received a post-captain's commission. From 1862 to 1866 he commanded, the "Pylades" on the North American station, and was then appointed to the command of the "Excellent" and the government of the Royal Naval College at Portsmouth. This was essentially a gunnery appointment, and on the expiration of three years Hood was made Director of Naval Ordnance. He was thoroughly acquainted with the routine work of the office and the established armament of the navy, but he had not the power of adapting himself to the changes which were being called for, and still less of initiating them; so that during his period of office the armament of the ships remained sadly behind the general advance. In June 1874 he was appointed to the command of the "Monarch" in the Channel Fleet, from which he was relieved in March 1876 by his promotion to flag rank. From 1877 to 1879 he was a junior lord of the Admiralty, and from 1880 to 1882 he commanded the Channel Fleet, becoming vice-admiral on 23rd July 1880. In June 1885 he was appointed first sea lord of the Admiralty. The intense conservatism of his character, however, and his antagonistic attitude towards every change, regardless of whether it was necessary or not, had much to do with the alarming state of the navy towards 1889. In that year, on attaining the age of sixty-five, he was placed on the retired list and resigned his post at the Admiralty. After two years of continued ill-health, he died on the 15th of November 1901, and was buried at Butleigh on the 23rd. He had been promoted to the rank of admiral on the 18th of January 1886; was made K.C.B, in December 1885; G.C.B. in September 1889; and in February 1892 was raised to the peerage as Lord Hood of Avalon, but on his death the title became extinct.

(J. K. L.)

HOOD, a covering for the head. The word is in O. Eng. *hod*, cognate with Dutch *hoed* and Ger. *Hut*, hat, both masculine; "hood" and "hat" are distantly related; they may be connected with the feminine *hoed* or *Hut*, meaning charge, care, Eng. "heed." Some form of hood as a loose covering easily drawn on or off the head has formed a natural part of outdoor costume

both for men and women at all times and in all quarters of the globe where climatic conditions called for it. In the middle ages and later both men and women are found wearing it, but with men it tended to be superseded by the hat before it became merely an occasional and additional head-covering in time of bad weather or in particularly rigorous climates. For illustrations and examples of the hood as worn by men and women in medieval and later times see the article Costume; for the hood or cowl as part of the dress of a religious see Cowl, and as forming a distinctive mark of degree in academic costume see Robes. The word is applied to many objects resembling a hood in function or shape, such as a folding cover for a carriage to protect the occupants from rain or wind, the belled covering for the head of a hawk trained for falconry, the endmost planks in a ship's bottom at bow or stern, and, in botany and zoology, certain parts of a flower or of the neck of an animal which in arrangement of structure or of colour recall this article of dress.

In architecture a "hood-mould" is a projecting moulding carried outside the arch of a door or window; it is weathered underneath, and when continued horizontally is better known as a dripstone. The ends of the hood-mould are generally stopped on a corbel, plain or carved with heads in European churches, but in those of central Syria terminating in scrolls. Although in its origin the object of the projecting and weathered hood-mould was to protect the face of the wall below from rain, it gives more importance to, and emphasizes, the arch-moulds, so that it is often employed decoratively inside churches.

The suffix "-hood," like the cognate "-head," was originally a substantive meaning rank, status or quality, and was constantly used in combination with other substantives; cf. in O. Eng. *cild-hod*, child-hood; later it ceased to be used separately and became a mere suffix denoting condition added to adjectives; cf. "falsehood," as well as to substantives.

HOOFT, PIETER CORNELISSEN (1581-1647), Dutch poet and historian, was born at Amsterdam on the 16th of March 1581. His father was one of the leading citizens of Holland, both in politics and in the patronage of letters, and for some time burgomaster of Amsterdam. As early as 1598 the young man was made a member of the chamber of rhetoric *In Liefde bloeiende*, and produced before that body his tragedy of *Achilles and Polyxena*, not printed until 1614. In June 1598 he left Holland and proceeded to Paris, where on the 10th of April 1599 he saw the body of Gabrielle d'Estrées lying in state. He went a few months later to Venice, Florence and Rome, and in 1600 to Naples. During his Italian sojourn he made a deep and fruitful study of the best literature of Italy. In July 1600 he sent home to the *In Liefde bloeiende* a very fine letter in verse, expressing his aspirations for the development of Dutch poetry. He returned through Germany, and after an absence of three years and a half found himself in Amsterdam again on the 8th of May 1601. In 1602 he brought out his second tragedy, *Theseus and Ariadne*, printed at Amsterdam in 1614. In 1605 he completed his beautiful pastoral drama *Granida*, not published until 1615. He studied law and history at Leiden from 1606 to 1609, and in June of the latter year received from Prince Maurice of Orange the appointment of steward of Muiden, bailiff of Gooiland, and lord of Weesp, a joint office of great emolument. He occupied himself with repairing and adorning the decayed castle of Muiden, which was his residence during the remainder of his life. There he entertained the poet Vondel, the scholar Barlaeus,[1] Constantin Huygens, Vossius, Laurens Reael and others. Hooft had been a suitor for the hand of Anna Roemer Visscher, and after the death of Roemer Visscher both the sisters visited Muiden. Anna's sympathies were in time diverted to the school of Jacob Cats, but Marie Tesselschade maintained close ties with Hooft, who revised her translation of Tasso. In August 1610 he married Christina van Erp, an accomplished lady who died in 1623, and four years later he married Eleonora Hellemans. In 1612 Hooft produced his national tragedy of *Geeraerdt van Velzen* (pr. 1613), a story of the reign of Count Floris V. In 1614 was performed at Coster's academy Hooft's comedy of *Ware-nar*, an adaptation of the *Aulularia* of Plautus, first printed in 1617. In 1616 he wrote another tragedy, *Baeto, or the Origin of the Dutch*, not printed until 1626. It was in 1618 that he abandoned poetry for history, and in 1626 he published the first of his great prose works, the *History of Henry the Great* (Henry IV. of France). His next production was his *Miseries of the Princes of the House of Medici* (Amsterdam, 1638). In 1642 he published at Amsterdam a folio comprising the first twenty books of his *Dutch History*, embracing the period from 1555 to 1585, a magnificent performance, to the perfecting of which he had given fifteen years of labour. The seven concluding books were published posthumously in 1654. His idea of history was gained from Tacitus, whose works he translated. Hooft died on a visit to the Hague, whither he had gone to attend the funeral of Prince Frederick Henry, on the 21st of May 1647, and was buried in the

New Church at Amsterdam.

Hooft is one of the most brilliant figures that adorn Dutch literature at its best period. He was the first writer to introduce a modern and European tone into belles lettres, and the first to refresh the sources of native thought from the springs of antique and Renaissance poetry. His lyrics and his pastoral of *Granida* are strongly marked by the influence of Tasso and Sannazaro; his later tragedies belong more exactly to the familiar tone of his native country. But high as Hooft stands among the Dutch poets, he stands higher—he holds perhaps the highest place—among writers of Dutch prose. His historical style has won the warmest eulogy from so temperate a critic as Motley, and his letters are the most charming ever published in the Dutch language. After Vondel, he may on the whole be considered the most considerable author that Holland has produced.

Hooft's poetical and dramatic works were collected in two volumes (1871, 1875) by P. Leendertz. His letters were edited by B. Huydecoper (Leiden, 1738) and by van Vloten (Leiden, 4 vols., 1855). The best original account of Hooft is given by G. Bradt in his *Leven van P. C. Hooft* (1677), and his funeral address (1647), edited together by J. C. Matthes (Groningen, 1874). There is an account of the Muiden circle in Edmund Gosse's *Literatures of Northern Europe*. Many editions exist of his prose works.

1 Kaspar van Baerle (1584-1648), professor of rhetoric at Amsterdam, and famous as a Latin poet.

HOOGSTRATEN, SAMUEL DIRKSZ VAN, Dutch painter, was born, it is said, in 1627 at the Hague, and died at Dort on the 19th of October 1678. This artist, who was first a pupil of his father, lived at the Hague and at Dort till about 1640, when on the death of Dirk Hoogstraten he changed his residence to Amsterdam and entered the school of Rembrandt. A short time afterwards he started as a master and painter of portraits, set out on a round of travels which took him (1651) to Vienna, Rome and London, and finally retired to Dort, where he married in 1656, and held an appointment as "provost of the mint." Hoogstraten's works are scarce; but a sufficient number of them has been preserved to show that he strove to imitate different styles at different times. In a portrait dated 1645 in the Lichtenstein collection at Vienna he imitates Rembrandt; and he continues in this vein as late as 1653, when he produced that wonderful figure of a Jew looking out of a casement, which is one of the most characteristic examples of his manner in the Belvedere at Vienna. A view of the Vienna Hofburg, dated 1652, in the same gallery displays his skill as a painter of architecture, whilst in a piece at the Hague representing a Lady Reading a Letter as she crosses a Courtyard, or a Lady Consulting a Doctor, in the Van der Hoop Museum at Amsterdam, he imitates de Hooch. One of his latest works is a portrait of Mathys van den Brouck, dated 1670, in the gallery of Amsterdam. The scarcity of Hoogstraten's pictures is probably due to his versatility. Besides directing a mint, he devoted some time to literary labours, wrote a book on the theory of painting (1678) and composed sonnets and a tragedy. We are indebted to him for some of the familiar sayings of Rembrandt. He was an etcher too, and some of his plates are still preserved. His portrait, engraved by himself at the age of fifty, still exists.

HOOK, JAMES CLARKE (1819-1907), English painter, was born in London on the 21st of November 1819. His father, James Hook, a Northumbrian by descent, Judge Arbitrator of Sierra Leone, married the second daughter of Dr Adam Clarke, the commentator on the Bible, who gave to the painter his second name. Young Hook's first taste of the sea was on board the Berwick smacks which took him on his way to Wooler. He drew with rare facility, and determined to become an artist; and accordingly, without any supervision, he set to work for more than a year in the sculpture galleries of the British Museum. In 1836 he was admitted a student of the Royal Academy, where he worked for three years, and elsewhere learned a good deal of the scientific technique of painting from a nephew of Opie. His first picture, called "The Hard Task," was exhibited in 1837, and represented a girl helping her sister with a lesson. Unusual facility in portraiture and a desire to earn his own living took the student into Ireland to paint likenesses of the Waterford family and others; here he produced landscapes of the Vale of Avoca, and much developed his taste for pastoral art; later, he was similarly engaged in

Kent and Somersetshire. In 1842 his second exhibited work was a portrait of “Master J. Finch Smith”: in this year he gained silver medals at the Royal Academy, and in 1843 he was one of the competitors in the exhibition of cartoons in Westminster Hall, with a 10 by 7 ft. design of “Satan in Paradise.” In 1844 the Academy contained a picture of a kind with which his name was long associated, an illustration of the *Decameron*, called “Pamphilius relating his Story,” a meadow scene in bright light, with sumptuous ladies, richly clad, reclining on the grass. The British Institution, 1844 and 1845, set forth two of Hook’s idylls, subjects taken from Shakespeare and Burns, which, with the above, showed him to be cultivating those veins of romantic sentiment and the picturesque which were then in vogue, but in a characteristically fresh and vigorous manner. “The Song of Olden Times” (Royal Academy, 1845) marked the artist’s future path distinctly in most technical respects. It was in this year Hook won the Academy gold medal for an oil picture of “The Finding the Body of Harold.” The travelling studentship in painting was awarded to him for “Rizpah watching the Dead Sons of Saul” in 1846; and he went for three years to Italy, having married Miss Rosalie Burton before he left England. Hook passed through Paris, worked diligently for some time in the Louvre, traversed Switzerland, and, though he stayed only part of three years in Italy, gained much from studies of Titian, Tintoret, Carpaccio, Mansueti and other Venetians. Their influence thenceforth dominated the coloration of his pictures, and enabled him to apply the principles to which they had attained to the representation (as Bonington before him had done) of romantic subjects and to those English themes of the land and sea with which the name of the artist is inseparably associated. “A Dream of Ancient Venice” (R.A., 1848)—the first fruit of these Italian studies—“Bayard of Brescia” (R.A., 1849), “Venice” (B.I., 1849) and other works assured for Hook the Associateship of the Royal Academy in 1851. Soon afterwards an incomparable series of English subjects was begun, in many pastorals and fine brilliant idylls of the sea and rocks. “A Rest by the Wayside” and “A Few Minutes to Wait before Twelve o’clock” proved his title to appear, in 1854, as a new and original painter. After these came “A Signal on the Horizon” (1857), “A Widow’s Son going to Sea,” “The Ship-boy’s Letter,” “Children’s Children are the Crown of Old Men,” “A Coast-boy gathering Eggs,” a scene at Lundy; the perfect “Luff, Boy!” (1859), about which Ruskin broke into a dithyrambic chant, “The Brook,” “Stand Clear!” “O Well for the Fisherman’s Boy!” (1860), “Leaving Cornwall for the Whitby Fishing,” “Sea Urchins,” and a score more as fine as these. The artist was elected a full Academician on the 6th of March 1860, in the place of James Ward. He died on the 14th of April 1907.

See A. H. Palmer, “J. C. Hook, R.A.,” *Portfolio* (1888); F. G. Stephens, “J. C. Hook, Royal Academician: His Life and Work,” *Art Annual* (London, 1888); P. G. Hamerton, *Etching and Etchers* (London, 1877).

HOOK, THEODORE EDWARD (1788-1841), English author, was born in London on the 22nd of September 1788. He spent a year at Harrow, and subsequently matriculated at Oxford, but he never actually resided at the university. His father, James Hook (1746-1827), the composer of numerous popular songs, took great delight in exhibiting the boy’s extraordinary musical and metrical gifts, and the precocious Theodore became “the little pet lion of the green room.” At the age of sixteen, in conjunction with his father, he scored a dramatic success with *The Soldier’s Return*, a comic opera, and this he rapidly followed up with a series of over a dozen sparkling ventures, the instant popularity of which was hardly dependent on the inimitable acting of John Liston and Charles Mathews. But Hook gave himself up for some ten of the best years of his life to the pleasures of the town, winning a foremost place in the world of fashion by his matchless powers of improvisation and mimicry, and startling the public by the audacity of his practical jokes. His unique gift of improvising the words and the music of songs eventually charmed the prince Regent into a declaration that “something must be done for Hook.” The prince was as good as his word, and Hook, in spite of a total ignorance of accounts, was appointed accountant-general and treasurer of the Mauritius with a salary of £2000 a year. For five delightful years he was the life and soul of the island, but in 1817, a serious deficiency having been discovered in the treasury accounts, he was arrested and brought to England on a criminal charge. A sum of about £12,000 had been abstracted by a deputy official, and for this amount Hook was held responsible.

During the tardy scrutiny of the audit board he lived obscurely and maintained himself by writing for magazines and newspapers. In 1820 he launched the newspaper *John Bull*, the champion of high Toryism and the virulent detractor of Queen Caroline. Witty, incisive criticism and pitiless invective secured it a large circulation, and from this source alone Hook derived, for the first year at least, an income of £2000. He was, however, arrested for the

second time on account of his debt to the state, which he made no effort to defray. In a sponging-house, where he was confined for two years, he wrote the nine volumes of stories afterwards collected under the title of *Sayings and Doings* (1826-1829). In the remaining twenty-three years of his life he poured forth no fewer than thirty-eight volumes, besides numberless articles, squibs and sketches. His novels are not works of enduring interest, but they are saved from mediocrity by frequent passages of racy narrative and vivid portraiture. The best are *Maxwell* (1830), *Love and Pride* (1833), the autobiographic *Gilbert Gurney* (1836), *Jack Brag* (1837), *Gurney Married* (1838), and *Peregrine Bunce* (1842). Incessant work had already begun to tell on his health, when Hook returned to his old social habits, and a prolonged attempt to combine industry and dissipation resulted in the confession that he was "done up in purse, in mind and in body too at last." He died on the 24th of August 1841. His writings in great part are of a purely ephemeral character; and the greatest triumphs of the improvisatore may be said to have been writ in wine. Putting aside, however, his claim to literary greatness, Hook will be remembered as one of the most brilliant, genial and original figures of Georgian times.

See the Rev. R. H. D. Barham's *Life and Remains of Hook* (3rd ed., 1877); and an article by J. G. Lockhart in the *Quarterly Review* (May 1843).

HOOK, WALTER FARQUHAR (1798-1875), English divine, nephew of the witty Theodore, was born in London on the 13th of March 1798. Educated at Tiverton and Winchester, he graduated at Oxford (Christ Church) in 1821, and after holding an incumbency in Coventry, 1829-1837, and in Leeds, 1837-1859, was nominated dean of Chichester by Lord Derby. He received the degree of D.D. in 1837. His friendship towards the Tractarians exposed him to considerable persecution, but his simple manly character and zealous devotion to parochial work gained him the support of widely divergent classes. His stay in Leeds was marked by vigorous and far-reaching church extension, and his views on education were far in advance of his time. Among his many writings are *An Ecclesiastical Biography, containing the Lives of Ancient Fathers and Modern Divines* (8 vols., 1845-1852), *A Church Dictionary, The Means of Rendering more Effectual the Education of the People, The Cross of Christ* (1873), *The Church and its Ordinances* (sermons, 4 vols., 1876), and *Lives of the Archbishops of Canterbury* (12 vols., 1860-1876). He died on the 20th of October 1875.

See *Life and Letters of Dean Hook*, by his son-in-law, W. R. W. Stephens (2 vols., 1878).

HOOKAH (the English spelling of the Persian and Hindustani *huqqu*, an adaptation of the Arabic *huqqah*, a vase or casket, and by transference a pipe for smoking, probably derived from the Arabie *huqq*, a hollow place), a pipe with a long flexible tube attached to a large bowl containing water, often scented, and resting upon a tripod or stand. The smoke of the tobacco is made to pass through the water in the bowl, and is thus cooled before reaching the smoker. The *narghile* of India is in principle the same as that of the hookah; the word is derived from *nargil*, an Indian name for the coco-nut tree, as when the *narghile* was first made the water was placed in a coco-nut. This receptacle is now often made of porcelain, glass or metal. In the *hubble-bubble* the pipe is so contrived that the water in the bowl makes a bubbling noise while the pipe is being smoked. This pipe is common in India, Egypt and the East generally.

HOOKE, ROBERT (1635-1703), English experimental philosopher, was born on the 18th of July 1635 at Freshwater, in the Isle of Wight, where his father, John Hooke, was minister of the parish. After working for a short time with Sir Peter Lely, he went to Westminster school; and in 1653 he entered Christ Church, Oxford, as servitor. After 1655 he was employed and patronized by the Hon. Robert Boyle, who turned his skill to account in the construction of his air-pump. On the 12th of November 1662 he was appointed curator of experiments to the Royal

Society, of which he was elected a fellow in 1663, and filled the office during the remainder of his life. In 1664 Sir John Cutler instituted for his benefit a mechanical lectureship of £50 a year, and in the following year he was nominated professor of geometry in Gresham College, where he subsequently resided. After the Great Fire of 1666 he constructed a model for the rebuilding of this city, which was highly approved, although the design of Sir C. Wren was preferred. During the progress of the works, however, he acted as surveyor, and accumulated in that lucrative employment a sum of several thousand pounds, discovered after his death in an old iron chest, which had evidently lain unopened for above thirty years. He fulfilled the duties of secretary to the Royal Society during five years after the death of Henry Oldenburg in 1677, publishing in 1681-1682 the papers read before that body under the title of *Philosophical Collections*. A protracted controversy with Johann Hevelius, in which Hooke urged the advantages of telescopic over plain sights, brought him little but discredit. His reasons were good; but his offensive style of argument rendered them unpalatable and himself unpopular. Many circumstances concurred to embitter the latter years of his life. The death, in 1687, of his niece, Mrs Grace Hooke, who had lived with him for many years, caused him deep affliction; a law-suit with Sir John Cutler about his salary (decided, however, in his favour in 1696) occasioned him prolonged anxiety; and the repeated anticipation of his discoveries inspired him with a morbid jealousy. Marks of public respect were not indeed wanting to him. A degree of M.D. was conferred on him at Doctors' Commons in 1691, and the Royal Society made him, in 1696, a grant to enable him to complete his philosophical inventions. While engaged on this task he died, worn out with disease, on the 3rd of March 1703 in London, and was buried in St Helen's Church, Bishopsgate Street.

In personal appearance Hooke made but a sorry show. His figure was crooked, his limbs shrunken; his hair hung in dishevelled locks over his haggard countenance. His temper was irritable, his habits penurious and solitary. He was, however, blameless in morals and reverent in religion. His scientific achievements would probably have been more striking if they had been less varied. He originated much, but perfected little. His optical investigations led him to adopt in an imperfect form the undulatory theory of light, to anticipate the doctrine of interference, and to observe, independently of though subsequently to F. M. Grimaldi (1618-1663), the phenomenon of diffraction. He was the first to state clearly that the motions of the heavenly bodies must be regarded as a mechanical problem, and he approached in a remarkable manner the discovery of universal gravitation. He invented the wheel barometer, discussed the application of barometrical indications to meteorological forecasting, suggested a system of optical telegraphy, anticipated E. F. F. Chladni's experiment of strewing a vibrating bell with flour, investigated the nature of sound and the function of the air in respiration and combustion, and originated the idea of using the pendulum as a measure of gravity. He is credited with the invention of the anchor escapement for clocks, and also with the application of spiral springs to the balances of watches, together with the explanation of their action by the principle *Ut tensio sic vis* (1676).

His principal writings are *Micrographia* (1664); *Lectiones Cutlerianae* (1674-1679); and *Posthumous Works*, containing a sketch of his "Philosophical Algebra," published by R. Waller in 1705.

HOOKER, JOSEPH (1814-1879), American general, was born in Hadley, Massachusetts, on the 13th of November 1814. He was educated at the military academy at West Point (1833-1837), and on graduating entered the 1st U.S. Artillery. In the war with Mexico (1846-48) he served as a staff officer, and rose by successive brevets for meritorious services to the rank of lieutenant-colonel. In 1853 he left the service and bought a large farm near Sonoma, Cal., which he managed successfully till 1858, when he was made superintendent of military roads in Oregon. Upon the opening of hostilities in the Civil War of 1861-65, he sacrificed his fine estate and offered his sword to the Federal Government. He was commissioned brigadier-general of volunteers on the 17th of May 1861 and major-general on the 5th of May 1862. The engagement of Williamsburg (May 5th) brought him and his subordinate Hancock into prominence, and Hooker received the soubriquet of "Fighting Joe." He was engaged at the battle of Fair Oaks, and did splendid service to the Union army during the "Seven Days." In the campaign of Northern Virginia, under General Pope (August 1862), he led his division with fiery energy at Bristoe Station, Manassas and Chantilly. In the Maryland campaign (September) he was at the head of the I. corps, Army of the Potomac, forced the defile of South Mountain and opened the way for the advance of the army. The I. corps opened the great battle of the Antietam, and sustained a sanguinary fight with the Confederates under Stonewall

Jackson. Hooker himself was severely wounded. He was commissioned brigadier-general in the United States army on the 20th of September 1862, and in the battle of Fredericksburg (*q.v.*), under Burnside, he commanded the centre grand division (III. and V. corps). He had protested against the useless slaughter of his men on that disastrous field, and when Burnside resigned the command Hooker succeeded him. The new leader effected a much-needed re-organization in the army, which had fought many battles without success. In this task, as in subordinate commands in battle, Hooker was excelled by few. But his grave defects as a commander-in-chief were soon to be obvious. By a well-planned and well-executed flanking movement, he placed himself on the enemy's flank, but at the decisive moment he checked the advance of his troops. Lee turned upon him, Jackson surprised and destroyed a whole army corps, and the battle of Chancellorsville (see WILDERNESS), in which Hooker was himself disabled, ended in a retreat to the old position. Yet Hooker had not entirely forfeited the confidence of his men, to whom he was still "Fighting Joe." The second advance of Lee into Union territory, which led to the battle of Gettysburg, was strenuously resisted by Hooker, who would have inflicted a heavy blow on Lee's scattered forces had he not been condemned to inaction by orders from Washington. Even then Hooker followed the Confederates a day only behind them, until, finding himself distrusted and forbidden to control the movements of troops within the sphere of operations, he resigned the command on the eve of the battle (June 28, 1863). Faults of temper and an excessive sense of responsibility made his continued occupation of the command impossible, but when after a signal defeat Rosecrans was besieged in Chattanooga, and Grant with all the forces of the West was hurried to the rescue, two corps of the Army of the Potomac were sent over by rail, and Hooker, who was at least one of the finest fighting generals of the service, went with them in command. He fought and won the "Battle above the Clouds" on Lookout Mountain which cleared the way for the crowning victory of the army of the Cumberland on Missionary Ridge (see CHATTANOOGA). And in command of the same corps (consolidated as the XX. corps) he took part in all the battles and combats of the Atlanta campaign of 1864. When General McPherson was killed before Atlanta, the command of Grant's old Army of the Tennessee fell vacant. Hooker, who, though only a corps commander, was senior to the other army commanders, Thomas and Schofield, was normally entitled to receive it, but General Sherman feared to commit a whole army to the guidance of a man of Hooker's peculiar temperament, and the place was given to Howard. Hooker thereupon left the army. He was commissioned brevet-major-general in the United States army on the 13th of March 1865, and retired from active service with the full rank of major-general on the 15th of October 1868, in consequence of a paralytic seizure. The last years of his life were passed in the neighbourhood of New York. He died at Garden City, Long Island, on the 31st of October 1879.

HOOKER, SIR JOSEPH DALTON (1817-), English botanist and traveller, second son of the famous botanist Sir W. J. Hooker, was born on the 30th of June 1817, at Halesworth, Suffolk. He was educated at Glasgow University, and almost immediately after taking his M.D. degree there in 1839 joined Sir James Ross's Antarctic expedition, receiving a commission as assistant-surgeon on the "Erebus." The botanical fruits of the three years he thus spent in the Southern Seas were the *Flora Antarctica*, *Flora Novae Zelandiae* and *Flora Tasmanica*, which he published on his return. His next expedition was to the northern frontiers of India (1847-1851), and the expenses in this case also were partially defrayed by the government. The party had its full share of adventure. Hooker and his friend Dr Campbell were detained in prison for some time by the raja of Sikkim, but nevertheless they were able to bring back important results, both geographical and botanical. Their survey of hitherto unexplored regions was published by the Calcutta Trigonometrical Survey Office, and their botanical observations formed the basis of elaborate works on the rhododendrons of the Sikkim Himalaya and on the flora of India. Among other journeys undertaken by Hooker may be mentioned those to Palestine (1860), Morocco (1871), and the United States (1877), all yielding valuable scientific information. In the midst of all this travelling in foreign countries he quickly built up for himself a high scientific reputation at home. In 1855 he was appointed assistant-director of Kew Gardens, and in 1865 he succeeded his father as full director, holding the post for twenty years. At the early age of thirty he was elected a fellow of the Royal Society, and in 1873 he was chosen its president; he received three of its medals—a Royal in 1854, the Copley in 1887 and the Darwin in 1892. He acted as president of the British Association at its Norwich meeting of 1868, when his address was remarkable for its championship of Darwinian theories. Of Darwin, indeed, he was an early friend and supporter: it was he who, with Lyell, first induced Darwin to make his views public, and the author of *The Origin of Species* has recorded

his indebtedness to Hooker's wide knowledge and balanced judgment. Sir Joseph Hooker is the author of numerous scientific papers and monographs, and his larger books include, in addition to those already mentioned, a standard *Student's Flora of the British Isles* and a monumental work, the *Genera plantarum*, based on the collections at Kew, in which he had the assistance of Bentham. On the publication of the last part of his *Flora of British India* in 1897 he was created G.C.S.I., of which order he had been made a knight commander twenty years before; and twenty years later, on attaining the age of ninety, he was awarded the Order of Merit.

HOOKER, RICHARD (1553-1600), English writer, author of the *Laws of Ecclesiastical Polity*, son of Richard Vowell or Hooker, was born at Heavitree, near the city of Exeter, about the end of 1553 or beginning of 1554. Vowell was the original name of the family, but was gradually dropped, and in the 15th century its members were known as Vowell *alias* Hooker. At school, not only his facility in mastering his tasks, but his intellectual inquisitiveness and his fine moral qualities, attracted the special notice of his teacher, who strongly recommended his parents to educate him for the church. Though well connected, they were, however, somewhat straitened in their worldly circumstances, and Hooker was indebted for admission to the university to his uncle, John Hooker *alias* Vowell, chamberlain of Exeter, and in his day a man of some literary repute, who induced Bishop Jewel to become his patron and to bestow on him a clerk's place in Corpus Christi College, Oxford. To this Hooker was admitted in 1568. Bishop Jewel died in September 1571, but Dr William Cole, president of the college, from the strong interest he felt in the young man, on account at once of his character and his abilities, spontaneously offered to take the bishop's place as his patron; and shortly afterwards Hooker, by his own labours as a tutor, became independent of gratuitous aid. Two of his pupils, and these his favourite ones, were Edwin Sandys, afterwards author of *Europae speculum*, and George Cranmer, grand-nephew of the archbishop. Hooker's reputation as a tutor soon became very high, for he had employed his five years at the university to such good purpose as not only to have acquired great proficiency in the learned languages, but to have joined to this a wide and varied culture which had delivered him from the bondage of learned pedantry; in addition to which he is said to have possessed a remarkable talent for communicating knowledge in a clear and interesting manner, and to have exercised a special influence over his pupils' intellectual and moral tendencies. In December 1573 he was elected scholar of his college; in July 1577 he proceeded to M.A., and in September of the same year he was admitted a fellow. In 1579 he was appointed by the chancellor of the university to read the public Hebrew lecture, a duty which he continued to discharge till he left Oxford. Not long after his admission into holy orders, about 1581, he was appointed to preach at St Paul's Cross; and, according to Walton, he was so kindly entertained by Mrs Churchman, who kept the Shunamite's house where the preachers were boarded, that he permitted her to choose him a wife, "promising upon a fair summons to return to London and accept of her choice." The lady selected by her was "her daughter Joan," who, says the same authority, "found him neither beauty nor portion; and for her conditions they were too like that wife's which is by Solomon compared to a dripping house." It is probable that Walton has exaggerated the simplicity and passiveness of Hooker in the matter, but though, as Keble observes with justice, his writings betray uncommon shrewdness and quickness of observation, as well as a vein of keenest humour, it would appear that either gratitude or some other impulse had on this occasion led his judgment astray. After his marriage he was, about the end of 1584, presented to the living of Drayton Beauchamp in Buckinghamshire. In the following year he received a visit from his two pupils, Edwin Sandys and George Cranmer, who found him with the *Odes* of Horace in his hand, tending the sheep while the servant was at dinner, after which, when they on the return of the servant accompanied him to his house, "Richard was called to rock the cradle." Finding him so engrossed by worldly and domestic cares, "they stayed but till the next morning," and, greatly grieved at his narrow circumstances and unhappy domestic condition, "left him to the company of his wife Joan."

The visit had, however, results of the highest moment, not only in regard to the career of Hooker, but in regard to English literature and English philosophical thought. Sandys prevailed on his father, the archbishop of York, to recommend Hooker for presentation to the mastership of the Temple, and Hooker, though his "wish was rather to gain a better country living," having agreed after some hesitation to become a candidate, the patent conferring upon him the mastership was granted on the 17th of March 1584/5. The rival candidate was Walter Travers, a Presbyterian and evening lecturer in the same church. Being continued in the lectureship after the appointment of Hooker, Travers was in the habit of attempting a refutation in the evening of what Hooker had spoken in the morning, Hooker again replying on the following

Sunday; so it was said “the forenoon sermon spake Canterbury, the afternoon Geneva.” On account of the keen feeling displayed by the partisans of both, Archbishop Whitgift deemed it prudent to prohibit the preaching of Travers, whereupon he presented a petition to the council to have the prohibition recalled. Hooker published an *Answer to the Petition of Mr Travers*, and also printed several sermons bearing on special points of the controversy; but, feeling strongly the unsatisfactory nature of such an isolated and fragmentary discussion of separate points, he resolved to compose an elaborate and exhaustive treatise, exhibiting the fundamental principles by which the question in dispute must be decided. It is probable that the work was begun in the latter half of 1586, and he had made considerable progress with it before, with a view to its completion, he petitioned Whitgift to be removed to a country parsonage, in order that, as he said, “I may keep myself in peace and privacy, and behold God’s blessing spring out of my mother earth, and eat my own bread without oppositions.” His desire was granted in 1591 by a presentation to the rectory of Boscombe near Salisbury. There he completed the volume containing the first four of the proposed *Eight Books of the Laws of Ecclesiastical Polity*. It was entered at Stationers’ Hall on the 9th of March 1592, but was not published till 1593 or 1594. In July 1595 he was promoted by the crown to the rectory of Bishopsbourne near Canterbury, where he lived to see the completion of the fifth book in 1597. In the passage from London to Gravesend some time in 1600 he caught a severe cold from which he never recovered; but, notwithstanding great weakness and constant suffering, he “was solicitous in his study,” his one desire being “to live to finish the three remaining books of *Polity*.” His death took place on the 2nd of November of the same year. A volume professing to contain the sixth and eighth books of the *Polity* was published at London in 1648, but the bulk of the sixth book, as has been shown by Keble, is an entire deviation from the subject on which Hooker proposed to treat, and doubtless the genuine copy, known to have been completed, has been lost. The seventh book, which was published in a new edition of the work by Gauden in 1662, and the eighth book, may be regarded as in substance the composition of Hooker; but, as, in addition to wanting his final revision, they have been very unskilfully edited, if they have not been manipulated for theological purposes, their statements in regard to doubtful matters must be received with due reserve, and no reliance can be placed on their testimony where their meaning contradicts that of other portions of the *Polity*.

The conception of Hooker in his later years, which we form from the various accessible sources, is that of a person of low stature and not immediately impressive appearance, much bent by the influence of sedentary and meditative habits, of quiet and retiring manners, and discoloured in complexion and worn and marked in feature from the hard mental toil which he had expended on his great work. There seems, however, exaggeration in Walton’s statement as to the meanness of his dress; and Walton certainly misreads his character when he portrays him as a kind of ascetic mystic. Though he was unworldly and simple in his desires, and engrossed in the purpose to which he had devoted his life—the “completion of the *Polity*”—his writings indicate that he possessed a cheerful and healthy disposition, and that he was capable of discovering enjoyment in everyday pleasures, and of appreciating human life and character in a wide variety of aspects. He seems to have had a special delight in outward nature—as he expressed it, he loved “to see God’s blessing spring out of his mother earth”; and he spent much of his spare time in visiting his parishioners, his deference towards them, if excessive, being yet mingled with a grave dignity which rendered unwarrantable liberties impossible. As a preacher, though singularly devoid of the qualities which win the applause of the multitude, he always excited the interest of the more intelligent, the breadth and finely balanced wisdom of his thoughts and the fascination of his composition greatly modifying the impression produced by his weak voice and ineffective manner. Partly, doubtless, on account of his dim-sightedness, he never removed his eye from his manuscript, and, according to Fuller, “he may be said to have made good music with his fiddle and stick alone, having neither pronunciation nor gesture to grace his matter.”

> To accede without explanation to the claim put forth for the *Ecclesiastical Polity* of Hooker, that it marks an epoch in English prose literature and English thought, would both be to do some injustice to writers previous to him, and, if not to overestimate his influence, to misinterpret its character. By no means can his excursions in English prose be regarded as chiefly those of a pioneer; and not only is his intellectual position inferior to that of Shakespeare, Spenser and Bacon,[1] who alone can be properly reckoned as the master spirits of the age, but in reality what effect he may have had upon the thought of his contemporaries was soon disregarded and swept out of sight in the hand-to-hand struggle with Puritanism, and his influence, so far from being immediate and confined to one particular era, has since the reaction against Puritanism been slowly and imperceptibly permeating and colouring English thought. His work is, however, the earliest in English prose with enough of the preserving salt of excellence to adapt it to the mental palate of modern readers. Attempts more elaborate than those of the old chroniclers had been made two centuries previously to employ English prose both for narrative and for discussion; and, a few years before him, Roger Ascham, Sir Thomas More, Latimer, Sir Philip Sidney, the compilers of the prayer book, and various translators of

the Bible, had in widely different departments of literature brought to light many samples of the rich wealth of expression that was latent in the language; but Hooker's is the first independent work in English prose of notable power and genius, and the vigour and grasp of its thought are not more remarkable than the felicity of its literary style. Its more usual and obvious excellences are clearness of expression, notwithstanding occasionally complicated methods; great aptness and conciseness in the formation of individual clauses, and such a fine sense of proportion and rhythm in their arrangement as almost conceals the difficulties of syntax by which he was hampered; finished simplicity, notwithstanding a stateliness too uniform and unbroken; a nice discrimination in the choice of words and phrases, so as both to portray the exact shade of his meaning, and to express each of his thoughts with that degree of emphasis appropriate to its place in his composition. In regard to qualities more relating to the matter than the manner we may note the subtle and partly hidden humour; the strong enthusiasm underlying that seemingly calm and passionless exposition of principles which continually led him away from the minutiae of temporary disputes, and has earned for him the somewhat misleading epithet of "judicious;" the solidity of learning, not ostentatiously displayed, but indicated in the character and variety of his illustrations and his comprehensive mastery of all that relates to his subject; the breadth of his conceptions, and the sweep and ease of his movements in the highest regions of thought; the fine poetical descriptions occasionally introduced, in which his eloquence attains a grave, rich and massive harmony that compares not unfavourably with the finest prose of Milton. His manner is, of course, defective in the flexibility and variety characteristic of the best models of English prose literature after the language had been enriched and perfected by long use, and his sentences, constructed too much according to Latin usages, are often tautological and too protracted into long concatenations of clauses; but if, when regarded superficially, his style presents in some respects a stiff and antiquated aspect, it yet possesses an original and innate charm that has retained its freshness after the lapse of nearly three centuries.

The direct interest in the *Ecclesiastical Polity* is now philosophical and political rather than theological, for what theological importance it possessed was rather in regard to the spirit and method in which theology should be discussed than in regard to the decision of strictly theological points. Hooker bases his reasoning on principles which he discovered in Augustine and Thomas Aquinas, but the intellectual atmosphere of his age was different from that which surrounded them; he was acted upon by new and more various impulses enabling him to imbibe more thoroughly the spirit of Greek thought which was the source of their inspiration, and thus to reach a higher and freer region than scholasticism, and in a sense to inaugurate modern philosophy in England. It may be admitted that his principles are only partially and in some degree capriciously wrought out—that if he is not under the dominion of intellectual tendencies leading to opposite results there are occasional blanks and gaps in his argument where he seems sometimes to be groping after a meaning which he cannot fully grasp; but he is often charged with obscurity simply because readers of various theological schools, beholding in his principles what seem the outline and justification of their own ideas, are disappointed when they find that these outlines instead of acquiring as they narrowly examine them the full and definite form of their anticipations, widen out into a region beyond their notions and sympathies, and therefore from their point of view enveloped in mist and shade. It is the exposition of philosophical principles in the first and second books of the *Polity*, and not the application of these principles in the remaining books that gives the work its standard place in English literature. It was intended to be an answer to the attacks of the Presbyterians on the Episcopalian polity and customs, but no attempt is made directly to oust Presbyterianism from the place it then held in the Church of England. The work must rather be regarded as a remonstrance against the narrow ground chosen by the Presbyterians for their basis of attack, Hooker's exact position being that "a necessity of polity and regiment may be held in all churches without holding any form to be necessary."

The general purpose of his reasoning is to vindicate Episcopacy from objections that had been urged against it, but he attains a result which has other and wider consequences than this. The fundamental principle on which he bases his reasoning is the unity and all-embracing character of law—law "whose seat," he beautifully says, "is the bosom of God, whose voice the harmony of the world." Law—as operative in nature, as regulating each man's individual character and actions, as seen in the formations of societies and governments—is equally a manifestation and development of the divine order according to which God Himself acts, is the expression in various forms of the divine reason. He makes a distinction between natural and positive laws, the one being eternal and immutable, the other varying according to external necessity and expediency; and he includes all the forms of government under laws that are positive and therefore alterable according to circumstances. Their application is to be determined by reason, reason enlightened and strengthened by every variety of knowledge, discipline and experience. The leading feature in his system is the high place assigned to reason, for, though affirming that certain truths necessary to salvation could be made known only by special divine revelation, he yet elevates reason into the criterion by which these truths are to be judged, and the standard to determine what in revelation is temporal and what eternal. "It is not the word of God itself," he says, "which doth or possibly can assure us that

we do well to think it His word." At the same time he saves himself from the dangers of abstract and rash theorizing by a deep and absolute regard for facts, the diligent and accurate study of which he makes of the first importance to the proper use of reason. "The general and perpetual voice of men is," he says, "as the sentence of God Himself. For that which all men have at all times learned, nature herself must needs have taught; and, God being the author of nature, her voice is but His instrument." Applying his principles to man individually, the foundation of morality is, according to Hooker, immutable, and rests "on that law which God from the beginning hath set Himself to do all things by"; this law is to be discovered by reason; and the perfection which reason teaches us to strive after is stated, with characteristic breadth of conception and regard to the facts of human nature, to be "a triple perfection: first a sensual, consisting in those things which very life itself requireth, either as necessary supplements, or as beauties or ornaments thereof; then an intellectual, consisting in those things which none underneath man is either capable of or acquainted with; lastly, a spiritual or divine, consisting in those things whereunto we tend by supernatural means here, but cannot here attain unto them." Applying his principles to man as a member of a community, he assigns practically the same origin and sanctions to ecclesiastical as to civil government. His theory of government forms the basis of the *Treatise on Civil Government* by Locke, although Locke developed the theory in a way that Hooker would not have sanctioned. The force and justification of government Hooker derives from public approbation, either given directly by the parties immediately concerned, or indirectly through inheritance from their ancestors. "Sith men," he says, "naturally have no full and perfect power to command whole politic multitudes of men, therefore utterly without our consent we could in such sort be at no man's commandment living. And to be commanded we do consent, when that society whereof we are part hath at any time before consented, without revoking the same after, by the like universal agreement." His theory as he stated it is in various of its aspects and applications liable to objection; but taken as a whole it is the first philosophical statement of the principles which, though disregarded in the succeeding age, have since regulated political progress in England and gradually modified its constitution. One of the corollaries of his principles is his theory of the relation of church and state, according to which, with the qualifications implied in his theory of government, he asserts the royal supremacy in matters of religion, and identifies the church and commonwealth as but different aspects of the same government.

BIBLIOGRAPHY.—A life of Hooker by Dr Gauden was published in his edition of Hooker's works (London, 1662). To correct the errors in this life Walton wrote another, which was published in the 2nd edition of Hooker's works in 1666. The standard modern edition of Hooker's works is that by Keble, which first appeared in 1836, and has since been several times reprinted (1888 edition, revised by Dean Church and Bishop Paget). The first book of the *Laws of Ecclesiastical Polity* was edited for the Clarendon Press by Dean R. W. Church (1868-1876).

(T. F. H.)

1 If Bacon was the author of *The Christian Paradoxes*, his philosophical standpoint in reference to religion was not only less advanced than that of Hooker, but in a sense directly opposed to it.

HOOKER, THOMAS (1586-1647), New England theologian, was born, probably on the 7th of July 1586, at Marfield, in the parish of Tilton, County of Leicester, England. He graduated B.A. in 1608 and M.A. in 1611 at Emmanuel College, Cambridge, the intellectual centre of Puritanism, remained there as a fellow for a few years, and then preached in the parish of Esher in Surrey. About 1626 he became lecturer to the church of St Mary at Chelmsford, Essex, delivering on market days and Sunday afternoons evangelical addresses which were notable for their moral fervour. In 1629 Archbishop Laud took measures to suppress church lectureships, which were an innovation of Puritanism. Hooker was placed under bond and retired to Little Baddow, 4 m. from Chelmsford. In 1630 he was cited to appear before the Court of High Commission, but he forfeited his bond and fled to Holland, whence in 1633 he emigrated to the Colony of Massachusetts Bay in America, and became pastor at Newtowne (now Cambridge), Mass., of a company of Puritans who had arrived from England in the previous year and in expectation of his joining them were called "Mr Hooker's Company." Hooker seems to have been a leader in the formation of that sentiment of discontent with the Massachusetts government which resulted in the founding of Connecticut. He publicly criticized the limitation of suffrage to church members, and, according to a contemporary historian, William Hubbard (*General History of New England*), "after Mr Hooker's coming over it was observed that many of the freemen grew to be very jealous of their liberties." He was a leader of the emigrants who in 1636 founded Hartford, Connecticut. In a sermon before the Connecticut General Court of 1638, he declared that "the choice of public magistrates belongs

unto the people by God's own allowance" and that "they who have the power to appoint officers and magistrates, it is in their power, also, to set the bounds and limitations of the power and place unto which they call them." Though this theory was in advance of the age, Hooker had no idea of the separation of church and state—"the privilege of election, which belongs to the people," he said, must be exercised "according to the blessed will and law of God." He also defended the right of magistrates to convene synods, and in the Fundamental Orders of Connecticut (1639), which he probably framed, the union of church and state is presupposed. Hooker was pastor of the Hartford church until his death on the 7th of July 1647. He was active in the negotiations which preceded the formation of the New England Confederation in 1643. In the same year he attended the meeting of Puritan ministers at Boston, whose object was to defend Congregationalism, and he wrote a *Survey of the Summe of Church Discipline* (1648) in justification of the New England church system. His other works deal chiefly with the experimental phases of religion, especially the experience precedent to conversion. In *The Soule's Humiliation* (1637), he assigns as a test of conversion a willingness of the convert to be damned if that be God's will, thus anticipating the doctrine of Samuel Hopkins in the following century.

See George L. Walker's *Thomas Hooker* (New York, 1891); the appendix of which contains a bibliography of Hooker's published works.

HOOKER, SIR WILLIAM JACKSON (1785-1865), English botanist, was born at Norwich on the 6th of July 1785. His father, Joseph Hooker of Exeter, a member of the same family as the celebrated Richard Hooker, devoted much of his time to the study of German literature and the cultivation of curious plants. The son was educated at the high school of Norwich, on leaving which his independent means enabled him to travel and to take up as a recreation the study of natural history, especially ornithology and entomology. He subsequently confined his attention to botany, on the recommendation of Sir James E. Smith, whom he had consulted respecting a rare moss. His first botanical expedition was made in Iceland, in the summer of 1809, at the suggestion of Sir Joseph Banks; but the natural history specimens which he collected, with his notes and drawings, were lost on the homeward voyage through the burning of the ship, and the young botanist himself had a narrow escape with his life. A good memory, however, aided him to publish an account of the island, and of its inhabitants and flora (*Tour in Iceland*, 1809), privately circulated in 1811, and reprinted in 1813. In 1810-1811 he made extensive preparations, and sacrifices which proved financially serious, with a view to accompany Sir R. Brownrigg to Ceylon, but the disturbed state of the island led to the abandonment of the projected expedition. In 1814 he spent nine months in botanizing excursions in France, Switzerland and northern Italy, and in the following year he married the eldest daughter of Mr Dawson Turner, banker, of Yarmouth. Settling at Halesworth, Suffolk, he devoted himself to the formation of his herbarium, which became of world-wide renown among botanists. In 1816 appeared the *British Jungermanniae*, his first scientific work, which was succeeded by a new edition of William Curtis's *Flora Londinensis*, for which he wrote the descriptions (1817-1828); by a description of the *Plantae cryptogamicae* of A. von Humboldt and A. Bonpland; by the *Muscologia Britannica*, a very complete account of the mosses of Great Britain and Ireland, prepared in conjunction with Dr T. Taylor (1818); and by his *Musci exotici* (2 vols., 1818-1820), devoted to new foreign mosses and other cryptogamic plants. In 1820 he accepted the regius professorship of botany in Glasgow University where he soon became popular as a lecturer, his style being both clear and ready. The following year he brought out the *Flora Scotica*, in which the natural method of arrangement of British plants was given with the artificial. Subsequently he prepared or edited many works, the more important being the following:—

Botanical Illustrations (1822); *Exotic Flora*, indicating such of the specimens as are deserving cultivation (3 vols., 1822-1827); *Account of Sabine's Arctic Plants* (1824); *Catalogue of Plants in the Glasgow Botanic Garden* (1825); the *Botany of Parry's Third Voyage* (1826); *The Botanical Magazine* (38 vols., 1827-1865); *Icones Filicum*, in concert with Dr R. K. Greville (2 vols., 1829-1831); *British Flora*, of which several editions appeared, undertaken with Dr G. A. W. Arnott, &c. (1830); *British Flora Cryptogamia* (1833); *Characters of Genera from the British Flora* (1830); *Flora Boreali-Americana* (2 vols., 1840), being the botany of British North America collected in Sir J. Franklin's voyage; *The Journal of Botany* (4 vols., 1830-1842); *Companion to the Botanical Magazine* (2 vols., 1835-1836); *Icones plantarum* (10 vols., 1837-1854); the *Botany of Beechey's Voyage to the Pacific and Behring's Straits* (with Dr Arnott, 1841); the *Genera Filicum* (1842), from the original coloured drawings of F. Bauer, with additions and descriptive letterpress; *The London Journal of Botany* (7 vols., 1842-1848); *Notes on the Botany of the Antarctic Voyage of the Erebus and Terror* (1843); *Species filicum* (5 vols., 1846-1864),

the standard work on this subject; *A Century of Orchideae* (1846); *Journal of Botany and Kew Garden Miscellany* (9 vols., 1849-1857); *Niger Flora* (1849); *Victoria Regia* (1851); *Museums of Economic Botany at Kew* (1855); *Filices exoticae* (1857-1859); *The British Ferns* (1861-1862); *A Century of Ferns* (1854); *A Second Century of Ferns* (1860-1861).

It was mainly by Hooker's exertions that botanists were appointed to the government expeditions. While his works were in progress his herbarium received large and valuable additions from all parts of the globe, and his position as a botanist was thus vastly improved. He was made a knight of Hanover in 1836 and in 1841 he was appointed director of the Royal Botanical Gardens at Kew, on the resignation of W. T. Aiton. Under his direction the gardens expanded from 11 to 75 acres, with an arboretum of 270 acres, many new glass-houses were erected, and a museum of economic botany was established. He was engaged on the *Synopsis filicum* with J. G. Baker when he was attacked by a throat disease then epidemic at Kew, where he died on the 12th of August 1865.

HOOLE, JOHN (1727-1803), English translator and dramatist, son of a watchmaker and machinist, Samuel Hoole, was born at Moorfields, London, in December 1727. He was educated at a private school at Hoddesdon, Hertfordshire, kept by James Bennet, who edited Ascham's English works. At the age of seventeen he became a clerk in the accountants' department of the East India House, and before 1767 became one of the auditors of Indian accounts. His leisure hours he devoted to the study of Latin and especially Italian, and began writing translations of the chief works of the Italian poets. He published translations of the *Jerusalem Delivered* of Tasso in 1763, the *Orlando Furioso* of Ariosto in 1773-1783, the *Dramas* of Metastasio in 1767, and *Rinaldo*, an early work of Tasso, in 1792. Among his plays are: *Cyrus* (1768), *Timanthes* (1770) and *Cleonice, Princess of Bithynia* (1775), none of which achieved success. The verses of Hoole were praised by Johnson, with whom he was on terms of intimacy, but, though correct, smooth and flowing, they cannot be commended for any other merit. His translation of the *Orlando Furioso* was superseded by the version (1823-1831) of W. S. Rose. Hoole was also the friend of the Quaker poet John Scott of Amwell (1730-1783), whose life he wrote; it was prefixed to Scott's *Critical Essays* (1785). In 1773 he was promoted to be chief auditor of Indian accounts, an office which he resigned in 1785. In 1786 he retired to the parsonage of Abinger, Surrey; and afterwards lived at Tenterden, Kent, dying at Dorking on the 2nd of April 1803.

See *Anecdotes of the Life of the late Mr John Hoole*, by his surviving brother, Samuel Hoole (London, 1803). Some of his plays are reprinted in J. Bell's *British Theatre* (1797).

HOOLIGAN, the generally accepted modern term for a young street ruffian or rowdy. It seems to have been first applied to the young street ruffians of the South-East of London about 1890, but though popular in the district, did not attract general attention till later, when authentic information of its origin was lost, but it appears that the most probable source was a comic song which was popular in the lower-class music-hall in the late 'eighties or early 'nineties, which described the doings of a rowdy family named Hooligan (*i.e.* Irish Houlihan). A comic character with the same name also appears to have been the central figure in a series of adventures running through an obscure English comic paper of about the same date, and also in a similar New York paper, where his confrère in the adventures is a German named Schneider (see *Notes and Queries*, 9th series, vol. ii. pp. 227 and 316, 1898, and 10th series, vol. vii. p. 115, 1901). In other countries the "hooligan" finds his counterpart. The Parisian *Apache*, so self-styled after the North American Indian tribe, is a much more dangerous character; mere rowdyism, the characteristic of the English "hooligan," is replaced by murder, robbery and outrage. An equally dangerous class of young street ruffian is the "hoodlum" of the United States of America; this term arose in San Francisco in 1870, and thence spread. Many fanciful origins of the name have been given, for some of which see *Manchester* (*N.H.*) *Notes and Queries*, September 1883 (cited in the *New English Dictionary*). The "plug-ugly" of Baltimore is another name for the same class. More familiar is the Australian "larrikin," which apparently came into use about 1870 in Melbourne. The story that the word represents an Irish policeman's pronunciation of "larking" is a mere invention. It is probably only an adaptation of

the Irish “Larry,” short for Lawrence. Others suggest that it is a corruption of the slang *Leary Kinchen*, *i.e.* knowing, wide-awake child.

HOOPER, JOHN (d. 1555), bishop of Gloucester and Worcester and martyr, was born in Somerset about the end of the 15th century and graduated B.A. at Oxford in 1519. He is said to have then entered the Cistercian monastery at Gloucester; but in 1538 a John Hooper appears among the names of the Black friars at Gloucester and also among the White friars at Bristol who surrendered their houses to the king. A John Hooper was likewise canon of Wormesley priory in Herefordshire; but identification of any of these with the future bishop is doubtful. The *Greyfriars’ Chronicle* says that Hooper was “sometime a white monk”; and in the sentence pronounced against him by Gardiner he is described as “*olim monachus de Cliva Ordinis Cisterciensis*,” *i.e.* of the Cistercian house at Cleeve in Somerset. On the other hand, at his deprivation he was not accused, like the other married bishops who had been monks or friars, of infidelity to the vow of chastity; and his own letters to Bullinger are curiously reticent on this part of his history. He there speaks of himself as being the only son and heir of his father and as fearing to be deprived of his inheritance if he adopted the reformed religion. Before 1546 he had secured employment in the household of Sir Thomas Arundell, a man of influential connexions. Hooper speaks of himself at this period as being “a courtier and living too much of a court life in the palace of our king.” But he chanced upon some of Zwingli’s works and Bullinger’s commentaries on St Paul’s epistles; and after some molestation in England and some correspondence with Bullinger on the lawfulness of complying against his conscience with the established religion, he determined to secure what property he could and take refuge on the continent. He had an adventurous journey, being twice imprisoned, driven about for three months on the sea, and reaching Strassburg in the midst of the Schmalkaldic war. There he married Anne de Tserclaes, and later on he proceeded by way of Basle to Zürich, where his Zwinglian convictions were confirmed by constant intercourse with Zwingli’s successor, Bullinger.

It was not until May 1549, after he had published various works at Zürich, that Hooper again arrived in England. He at once became the principal champion of Swiss Protestantism against the Lutherans as well as the Catholics, and was appointed chaplain to Protector Somerset. Somerset’s fall in the following October endangered Hooper’s position, and for a time he was in hourly dread of imprisonment and martyrdom, more especially as he had taken a prominent part against Gardiner and Bonner, whose restoration to their sees was now anticipated. Warwick, afterwards duke of Northumberland, however, overcame the reactionaries in the Council, and early in 1550 the Reformation resumed its course. Hooper became Warwick’s chaplain, and after a course of Lent lectures before the king he was offered the bishopric of Gloucester. This led to a prolonged controversy; Hooper had already denounced the “Aaronic vestments” and the oath by the saints prescribed in the new Ordinal; and he refused to be consecrated according to its rites. Cranmer, Ridley, Bucer and others urged him to submit in vain; confinement to his house by order of the Council proved equally ineffectual; and it was not until he had spent some weeks in the Fleet prison that the “father of nonconformity” consented to conform, and Hooper submitted to consecration with the legal ceremonies (March 8, 1551).

Once seated in his bishopric Hooper set about his episcopal duties with exemplary vigour. His visitation of his diocese (printed in *English Hist. Rev.* Jan. 1904, pp. 98-121) revealed a condition of almost incredible ignorance among his clergy. Fewer than half could say the Ten Commandments; some could not even repeat the Lord’s Prayer in English. Hooper did his best in the time at his disposal; but in less than a year the bishopric of Gloucester was reduced to an archdeaconry and added to Worcester, of which Hooper was made bishop in succession to Nicholas Heath (*q.v.*). He was opposed to Northumberland’s plot for the exclusion of Mary from the throne; but this did not save him from speedy imprisonment. He was sent to the Fleet on the 1st of September 1553 on a doubtful charge of debt to the queen; but the real cause was his stanchness to a religion which was still by law established. Edward VI.’s legislation was, however, repealed in the following month, and in March 1554 Hooper was deprived of his bishopric as a married man. There was still no statute by which he could be condemned to the stake, but Hooper was kept in prison; and the revival of the heresy acts in December 1554 was swiftly followed by execution. On the 29th of January 1555, Hooper, Rogers, Rowland Taylor and others were condemned by Gardiner and degraded by Bonner. Hooper was sent down to suffer at Gloucester, where he was burnt on the 9th of February, meeting his fate with steadfast courage and unshaken conviction.

Hooper was the first of the bishops to suffer because his Zwinglian views placed him further beyond the pale than Cranmer, Ridley and Latimer. He represented the extreme reforming party in England. While he expressed dissatisfaction with some of Calvin's earlier writings, he approved of the *Consensus Tigurinus* negotiated in 1549 between the Zwinglians and Calvinists of Switzerland; and it was this form of religion that he laboured to spread in England against the wishes of Cranmer, Ridley, Bucer, Peter Martyr and other more conservative theologians. He would have reduced episcopacy to narrow limits; and his views had considerable influence on the Puritans of Elizabeth's reign, when many editions of Hooper's various works were published.

Two volumes of Hooper's writings are included in the Parker Society's publications and another edition appeared at Oxford in 1855. See also Gough's General Index to Parker Soc. Publ.; Strype's *Works* (General Index); Foxe's *Acts and Monuments*, ed. Townsend; *Acts of the Privy Council; Cal. State Papers*, "Domestic" Series; Nichols's *Lit. Remains of Edward VI.*; Burner, Collier, Dixon, Froude and Gairdner's histories; Pollard's *Cranmer; Dict. Nat. Biogr.*

(A. F. P.)

HOOPOE (Fr. *Huppe*, Lat. *Upupa*, Gr. ἔποψ—all names bestowed apparently from its cry), a bird long celebrated in literature, and conspicuous by its variegated plumage and its large erectile crest,[1] the *Upupa epops* of naturalists, which is the type of the very peculiar family *Upupidae*, placed by Huxley in his group *Coccygomorphae*, but considered by Dr Murie (*Ibis*, 1873, p. 208) to deserve separate rank as *Epopomorphae*. This species has an exceedingly wide range in the Old World, being a regular summer-visitant to the whole of Europe, in some parts of which it is abundant, as well as to Siberia, mostly retiring southwards in autumn to winter in equatorial Africa and India, though it would seem to be resident throughout the year in north-eastern Africa and in China. Its power of wing ordinarily seems to be feeble; but it is capable of very extended flight, as is testified by its wandering habits (for it occasionally makes its appearance in places very far removed from its usual haunts), and also by the fact that when pursued by a falcon it will rapidly mount to an extreme height and frequently effect its escape from the enemy. About the size of a thrush, with a long, pointed and slightly arched bill, its head and neck are of a golden-buff—the former adorned by the crest already mentioned, which begins to rise from the forehead and consists of broad feathers, gradually increasing in length, tipped with black and having a subterminal bar of yellowish-white. The upper part of the back is of a vinous-grey, and the scapulars and flight-feathers are black, broadly barred with white tinged in the former with buff. The tail is black with a white chevron, marking off about the distal third part of its length. The legs and feet are as well adapted for running or walking as for perching, and the scutellations are continued round the whole of the tarsi. Chiefly on account of this character, which is also possessed by the larks, Sundevall (*Tentamen*, pp. 53-55) united the *Upupidae* and *Alaudidae* in the same "cohors" *Holaspideae*. Comparative anatomy, however, forbids its being taken to signify any real affinity between these groups, and the resemblance on this point, which is by no means so striking as that displayed by the form of the bill and the coloration in certain larks (of the genus *Certhilauda*, for instance), must be ascribed to analogy merely.

Hoopoe.

Pleasing as is the appearance of the hoopoe as it fearlessly parades its showy plumage, some of its habits are much the reverse. All observers agree in stating that it delights to find its food among filth of the most abominable description, and this especially in its winter-quarters. But where it breeds, its nest, usually in the hole of a tree or of a wall, is not only partly composed of the foulest material, but its condition becomes worse as incubation proceeds, for the hen scarcely ever leaves her eggs, being assiduously fed by the cock as she sits; and when the young are hatched, their faeces are not removed by their parents,[2] as is the case with most birds, but are discharged in the immediate neighbourhood of the nest, the unsanitary condition of which can readily be imagined. Worms, grubs, and insects generally form the hoopoes' food, and upon it they get so fat in autumn that they are esteemed a delicate morsel in some of the countries of southern Europe, and especially by the Christian population of Constantinople.[3]

Not a year passes but the hoopoe makes its appearance in some part or other of the British Islands, most often in spring, and if unmolested would doubtless stop to breed in them, and a few instances are known in which it has done so. But its remarkable plumage always attracts attention, and it is generally shot down so soon as it is seen, and before it has time to begin a nest. Eight or nine so-called species of the genus have been described, but of them the existence of five only has been recognized by Sharpe and Dresser (*Birds of Europe*, pt. vii.). Besides the *Upupa epops* above treated, these are *U. indica*, resident in India and Ceylon; *U. longirostris*, which seems to be the form of the Indo-Chinese countries; *U. marginata*, peculiar to Madagascar; and *U. africana* or *U. minor* of some writers, which inhabits South Africa to the Zambesi on the east and Benguela on the west coast. In habits and appearance they all resemble the best-known and most widely-spread species.[4]

(A. N.)

---

1 Hence the secondary meaning of the French word *huppe*—a crest or tuft (cf. Littré, *Dict. français*, i. 2067).

2 This indeed is denied by Naumann, but by him alone, and the statement in the text is confirmed by many eye-witnesses.

3 Under the name of *Dukipath*, in the authorized version of the Bible translated "lapwing" (Lev. xi. 19, Deut. xiv. 18), the hoopoe was accounted unclean by the Jewish law. Arabs have a great reverence for the bird, imparting to it marvellous medicinal and other qualities, and making use of its head in all their charms (cf. Tristram, *Nat. Hist. of the Bible*, pp. 208, 209).

4 The genera *Rhinopomastus* and *Irrisor* are generally placed in the Family *Upupidae*, but Dr Murie, after an exhaustive examination of their osteology, regards them as forming a group of equal value.

HOORN, a seaport in the province of North Holland, Holland, on a bay of the Zuider Zee called the Hoornerhop, and a junction station 23½ m. by rail N. by E. of Amsterdam, on the railway to Enkhuizen, with which it is also connected by steam tramway. Pop. (1900) 10,647.

Hoorn is distinguished by its old-world air and the beauty and interest of its numerous gabled houses of the 16th and 17th centuries. Many of these are decorated with inscriptions and bas-reliefs, some of which commemorate the battle on the Zuider Zee in 1573, in which the Beggars defeated the Spaniards under Count Bossu. Walks and gardens now surround the town in the place of the old city walls, but a few towers and gateways adorned with various old coats of arms are still standing. The fine Gothic bastion tower overlooking the harbour was built in 1532; the East gate not later than 1578. Among the public buildings of special interest are the picturesque St John's hospital (1563), now used for military purposes; the old mint; the hospital for aged men and women (beginning of 17th century); the weigh-house (1609); the town hall, in which the states of West Friesland formerly met; and the old court-house, which dates from the beginning of the 17th century, though parts of it are older, containing a modern museum and some early portraits. There are also various charitable and educational institutions, Protestant and Roman Catholic churches and a synagogue. The extensive foreign commerce which Hoorn carried on in the 16th and 17th centuries has almost entirely vanished, but there is still a considerable trade with other parts of the Netherlands, especially in cheese and cattle. The chief industries include gold and silver work, and there are also tobacco factories, saw-mills and some small boat-building yards, a considerable number of vessels being engaged in the Zuider Zee fisheries.

Hoorn, latinized as *Horna* or *Hornum*, has existed at least from the first part of the 14th century, as it is mentioned in a document of the year 1311, five years earlier than the date usually assigned for its foundation. In 1356 it received municipal privileges from Count William V. of Holland, and in 1426 it was surrounded with walls. It was at Hoorn in 1416 that the first great net was made for the herring fishery, an industry which long proved an abundant source of wealth to the town. During the 15th century Hoorn shared in the troubles occasioned by the different contending factions; in 1569 the Spanish forces entered the town; but in 1572 it cast in its lot with the states of the Netherlands. In the 16th century it was a commercial centre, important for its trade, fisheries and breweries. A company of commerce and navigation was formed at Hoorn in 1720, and the admiralty offices and storehouses remained here until their removal to Medemblik in 1795. The English under Sir Ralph Abercromby took possession of the town in 1799, and in 1811 it suffered severely from the French. Among the celebrities of Hoorn are William Schouten, who discovered in 1616 the passage round Cape Horn, or Hoorn, as he named it in honour of his birthplace; Abel Janszoon Tasman, whose fame is associated with Tasmania; and Jan Pietersz Coen, governor-general of the Dutch East Indies.

HOOSICK FALLS, a village of Rensselaer county, New York, U.S.A., in the township of Hoosick, 27 m. N.E. of Troy, on the Hoosick river. Pop. of the village (1890) 7014; (1900) 5671, of whom 1092 were foreign-born; (1905) 5251; (1910) 5532; of the township (1900) 8631; (1910) 8315. Hoosick Falls is served by the Boston & Maine Railroad, and is connected by electric railway with Bennington, Vermont, about 8 m. E. The falls of the Hoosick river furnish water-power for the manufacture of agricultural machinery by the Walter A. Wood Mowing and Reaping Machine Co., which dates from 1866, the business having been started in 1852 by Walter Abbott Wood (1815-1892), who was a Republican representative in Congress in 1879-1883. Other manufactures are knit goods, shirts and collars and paper-making machinery. Hoosick Falls was settled about 1688 by Dutch settlers—settlers from Connecticut and Massachusetts came after 1763—and it was first incorporated in 1827. Three miles N.E. of the village, at Walloomsac, in the township of Hoosick, the battle of Bennington was fought, on the 16th of August 1777.

HOP (Ger. *Hopfen*, Fr. *houblon*), *Humulus Lupulus*, L., an herbaceous twining plant, belonging to the natural order Cannabinaceae, which is by some botanists included in the larger group called Urticaceae by Endlicher. It is of common occurrence in hedges and thickets in the southern counties of England, but is believed not to be native in Scotland. On the European continent it is distributed from Greece to Scandinavia, and extends through the Caucasus and Central Asia to the Altai Mountains. It is common, but doubtfully indigenous, in the northern and western states of North America, and has been introduced into Brazil,

Australia and the Himalayas.

It is a perennial plant, producing annually several long twining roughish striated stems, which twist from left to right, are often 15 to 20 ft. long and climb freely over hedges and bushes. The roughness of stem and leaves is due to lines of strong hooked hairs, which help the plant to cling to its support. The leaves are stalked, opposite, 3-5 lobed, and coarsely serrate, and bear a general resemblance to those of the vine, but are, as well as the whole plant, rough to the touch; the upper leaves are sometimes scarcely divided, or quite entire. The stipules are between the leaf-stalks, each consisting of two lateral ones united, or rarely with the tips free. The male and female flowers are produced on distinct plants. The male inflorescence (fig. 1, A) forms a panicle; the flowers consist of a small greenish five-parted perianth (*a*) enclosing five stamens, whose anthers (*b*) open by terminal slits. The female inflorescence (fig. 1, B) is less conspicuous in the young state. The catkin or strobile consists of a number of small acute bracts, with two sessile ovaries at their base, each subtended by a rounded bractlet (*c*). Both the bracts and bractlets enlarge greatly during the development of the ovary, and form, when fully grown, the membranous scales of the strobile (fig. 2, *a*); they are known as “petals” by hop-growers. The bracts can then only be distinguished from the bractlets by being rather more acute and more strongly veined. The perianth (fig. 1, *d*) is short, cup-shaped, undivided and closely applied to the ovary, which it ultimately encloses. In the young strobile the two purple hairy styles (*e*) of each ovary project beyond the bracts. The ovary contains a single ovule (fig. 1. *f*) which becomes in the fruit an exalbuminous seed, containing a spirally-coiled embryo (fig. 2, *b*). The light dusty pollen is carried by the wind from the male to the female flowers.

FIG. 1.—Male (A) and Female (B) Inflorescence of the Hop.

The ovary and the base of the bracts are covered with a yellowish powder, consisting of minute sessile grains, called lupulin or lupulinic glands. These glands (fig. 2, *c*) are from $\frac{1}{260}$ to $\frac{1}{140}$ in. in diameter, like flattened subovate little saucers in shape, and attached to a short pedicel. The upper or hemispherical portion bears a delicate continuous membrane, the cuticle, which becomes raised by the secretion beneath it of the yellowish lupulin. The stalk is not perceptible in the gland as found in commerce. When fresh the gland is seen to be filled with a yellowish or dark brown liquid; this on drying contracts in bulk and forms a central mass. It is to these lupulinic glands that the medicinal properties of the hop are chiefly due. By careful sifting about 1 oz. may be obtained from 1 ℔ of hops, but the East Kent variety is said to yield more than the Sussex hops.

In hop gardens a few male plants, usually three or four to an acre, are sometimes planted, that number being deemed sufficient to fertilize the female flowers. The blossoms are produced in August, and the strobiles are fit for gathering from the beginning of September to

the middle of October, according to the weather.

FIG. 2.—Fruit of Hop.

The cultivation of hops for use in the manufacture of beer dates from an early period. In the 8th and 9th centuries hop gardens, called “humularia” or “humuleta,” existed in France and Germany. Until the 16th century, however, hops appear to have been grown in a very fitful manner, and to a limited extent, generally only for private consumption; but after the beginning of the 17th century the cultivation increased rapidly. The plant was introduced into England from Flanders in 1525; and in America its cultivation was encouraged by legislative enactments in 1657. Formerly several plants were used as well as hops to season ale, hence the name “alehoof” for *Nepeta Glechoma*, and “alecost” for *Balsamita vulgaris*. The sweet gale, *Myrica Gale*, and the sage, *Salvia officinalis*, were also similarly employed. Various hop substitutes, in the form of powder, have been offered in commerce of late years, most of which appear to have quassia as a chief ingredient. The young tender tops of the hop are in Belgium cut off in spring and eaten like asparagus, and are forced from December to February.

Medical Use.—The principal constituents of the strobiles are *lupulin*, one of the few liquid alkaloids; *lupulinic acid*, a bitter crystalline body, soluble in ether, which is without any other pharmacological action than that common to bitter substances; *Valerol*, a volatile oil which in old hops undergoes a change to the malodorous body valerianic acid; resin; trimethylamine; a peculiar modification of tannin known as *humulotannic acid*; and a sesqui-terpene. The British pharmacopoeia contains two preparations of the strobiles,—an infusion (dose, 1-2 oz.) and a tincture (dose, ½-1 drachm). The glands obtained from the strobiles are known in pharmacy as lupulin, a name which tends to confusion with that of the alkaloid. They occur in commerce as a bright yellow-brown powder, seen under a lens to consist of minute glandular particles. The dose of this so-called lupulin is 2-5 grains. From it there is prepared the Tinctura Lupulinae of the United States pharmacopoeia, which is given in doses of 10-60 minims. Furthermore, there are prepared hop pillows, designed to procure sleep; but these act, when at all, mainly by suggestion. The pharmacological action of hops is determined first by the volatile oil they contain, which has the actions of its class. Similarly the lupulinic acid may act as a bitter tonic. The preparations of hops, when taken internally, are frequently hypnotic, though unfortunately different specimens vary considerably in composition, none of the preparations being standardized. It is by no means certain whether the hypnotic action of hops is due to the alkaloid lupulin or possibly to the volatile oil which they contain. Medical practice, however, is acquainted with many more trustworthy and equally safe hypnotics. The bitter acid of hops may

endow beer containing it with a certain value in cases of impaired gastric digestion, and to the hypnotic principle of hops may partly be ascribed—as well as to the alcohol—the soporific action of beer in the case of some individuals.

Hop Production in England[1]

The cultivation of hops in the British Isles is restricted to England, where it is practically confined to half-a-dozen counties—four in the south-eastern and two in the west-midland districts. In 1901 the English crop was reported by the Board of Agriculture to occupy 51,127 acres. The official returns as to acreage do not extend back beyond 1868, in which year the total area was reported to be 64,488 acres. The largest area recorded since then was 71,789 acres in 1878; the smallest was 44,938 acres in 1907. The extent to which the areas of hops in the chief hop-growing counties vary from year to year is sufficiently indicated in Table I., which shows the annual acreages over a period of thirteen years, 1895 to 1907. The proportions in which the acres of hops are distributed amongst the counties concerned vary but little year by year, and as a rule over 60% belongs to Kent.

Table I.—*Hop Areas of England 1895 to 1907. Acres.*

	Kent.	Hereford.	Sussex.	Worcester.	Hants.	Surrey.
1895	35,018	7553	7489	4024	2875	1783
1896	33,300	6895	5908	3800	2494	1623
1897	31,661	6542	5174	3591	2306	1416
1898	30,941	6651	4829	3567	2263	1313
1899	31,988	7227	4949	3788	2319	1388
1900	31,514	7287	4823	3964	2231	1300
1901	31,242	7497	4800	4029	2133	1232
1902	29,649	6915	4541	3779	2003	969
1903	29,933	6851	4454	3697	1920	901
1904	29,841	6767	4474	3752	1900	877
1905	30,655	6851	4647	3807	1978	843
1906	29,296	6481	4379	3672	1939	777
1907	28,169	6143	4243	3622	1842	744

Less than 200 acres in all are annually grown in the other hop-growing counties of England, these being Shropshire, Gloucestershire and Suffolk.

The average yield per acre in cwt. in the six counties during the decade 1897 to 1906 was as follows:—

Table II.

Kent.	Hereford.	Sussex.	Worcester.	Hants.	Surrey.
9.31	7.14	9.41	7.79	8.78	7.23

Table III. shows the average acreage, yield and total home produce of England during the decades 1888-1897 and 1898-1907.

Table III.

Periods.	Average Annual Acreage.	Average Annual Yield per acre (cwt.).	Average Annual Home Produce (cwt.).
1888-1897	56,370	7.76	438,215
1898-1907	48,841	8.84	434,567

The wide fluctuations in the home production of hops are worthy of note, as they exercise a powerful influence upon market prices. The largest crop between 1885, the first year in which figures relating to production were collected, and 1907 was that of 776,144 cwt. in 1886, and the smallest that of 281,291 cwt. in 1888, the former being more than 2½ times the size of the latter. The crop of 1899, estimated at 661,373 cwt., was so large that prices receded to an extent such as to leave no margin of profit to the great body of growers, whilst some planters were able to market the crop only at a loss. The calculated annual average yields per acre over the years 1885 to 1907 ranged between 12.76 cwt. in 1899 and 4.81 cwt. in 1888. No other

staple crop of British agriculture undergoes such wide fluctuations in yield as are here indicated, the size of the crop produced bearing no relation to the acreage under cultivation. For example, the 71,327 acres in 1885 produced only 509,170 cwt., whereas the 51,843 acres in 1899 produced 661,373 cwt.—19,484 acres less under crop yielded 152,203 cwt. more produce.

Comparing the quantities of home-grown hops with those of imported hops, of the total available for consumption about 70% on the average is home produce and about 30% is imported produce. The imports, however, do not vary so much as the home produce. Table IV. shows the average quantity of imports to and exports (home-grown) from Great Britain during the decades 1877-1886, 1887-1896 and 1897-1906.

TABLE IV.

Periods.	Annual Average Imports (cwt.).	Annual Average Exports (cwt.).
1877-1886	215,219	10,805
1887-1896	194,966	9,437
1897-1906	186,362	14,808

The highest and lowest imports were 266,952 cwt. in 1885 and 145,122 cwt. in 1887, the latter in the year following the biggest home-grown crop on record. On a series of years the largest proportion of imports is from the United States.

During the twenty-five years 1881-1905 the annual values of the hops imported into England fluctuated between the wide limits of £2,962,631 in 1882 and £427,753 in 1887. In five other years besides 1882 the value exceeded a million sterling. The annual average value over the whole period was £921,000, whilst the annual average import was 194,000 cwt., consequently the average value per cwt. was nearly £4, 15s., which is approximately the same as that of the exported product. The quantities and values of the imported hops that are again exported are almost insignificant.

HOP PRODUCTION IN THE UNITED STATES

The distribution of the area of hop-cultivation in the United States showed great changes during the last decades of the 19th and the first decade of the 20th century. During the earlier portion of that period New York was the chief hop-growing state of the Union, but toward the end of it a great extension of hop-growing took place on the Pacific coast (in the states of Oregon, California and Washington), where the richness of the soil and mildness of the climate are favourable to the bines.

The average annual produce of hops in the United States from 1900 to 1906 was 423,471 cwt.; of this quantity 80% was raised in the three states of the Pacific coast, where the yield per acre is much larger than in New York. In the latter state the yield does not appear to exceed 5 or 6 cwt. per acre, whereas in Oregon it is 9 or 10 cwt., and in Washington and California from 12 to 14 cwt. The average annual export (chiefly to Great Britain) in the years from 1899 to 1905 was 108,400 cwt.; the average import (chiefly from Germany) is about 50,000 cwt.

HOP CULTIVATION

As the county of Kent has always taken the lead in hop-growing in England, and as it includes about two-thirds of the hop acreage of the British Isles, the recent developments in hop cultivation cannot be better studied than in that county. They were well summarized by Mr Charles Whitehead in his sketch of the agriculture of Kent,[2] wherein he states that the hop grounds—or hop gardens, as they are called in Kent—of poor character and least suitable for hop production have been gradually grubbed since 1894, on account of large crops, the importation of hops and low prices. At the beginning of the 19th century there were 290 parishes in Kent in which hops were cultivated. A century later, out of the 413 parishes in the county, as many as 331 included hop plantations. The hops grown in Kent are classified in the markets as “East Kents,” “Bastard East Kents,” “Mid Kents” and “Wealds,” according to the district of the county in which they are produced. The relative values of these four divisions follow in the same order, East Kents making the highest and Wealds the lowest rates. These divisions agree in the main with those defined by geological formations. Thus, “East Kents” are grown upon the Chalk, and especially on the outcrop of the soils of the London Tertiaries upon

the Chalk. “Bastard East Kents” are produced on alluvial soil and soils formed by admixtures of loam, clay-loams, chalk, marl and clay from the Gault, Greensand and Chalk formations. “Mid Kents” are derived principally from the Greensand soils and outcrops of the London Tertiaries in the upper part of the district. “Wealds” come from soils on the Weald Clay, Hastings Sand and Tunbridge Wells Sand. As each “pocket” of hops must be marked with the owner’s name and the parish in which they were grown, buyers of hops can, without much trouble, ascertain from which of the four divisions hops come, especially if they have the map of the hop-growing parishes of England, which gives the name of each parish. There has been a considerable rearrangement of the hop plantations in Kent within recent years. Common varieties as Colegate’s, Jones’s, Grapes and Prolifics have been grubbed, and Goldings, Bramlings and other choice kinds planted in their places. The variety known as Fuggle’s, a heavy-cropping though slightly coarse hop, has been much planted in the Weald of Kent, and in parts of Mid Kent where the soil is suitable. In very old hop gardens, where there has been no change of plant for fifty or even one hundred years in some instances, except from the gradual process of filling up the places of plants that have died, there has been replanting with better varieties and varieties ripening in more convenient succession; and, generally speaking, the plantations have been levelled up in this respect to suit the demand for bright hops of fine quality. A recent classification[3] of the varieties of English hops arranges them in three groups: (1) early varieties (*e.g.* Prolific, Bramling, Amos’s Early Bird); (2) mid-season or main-crop varieties (*e.g.* Farnham Whitebine, Fuggle’s, Old Jones’s, Golding); (3) late varieties (*e.g.* Grapes, Colgate’s).

The cost of cultivating and preparing the produce of an acre of hop land tends to increase, on account of the advancing rates of wages, the intense cultivation more and more essential, and the necessity of freeing the plants from the persistent attacks of insects and fungi. In 1893 Mr Whitehead estimated the average annual cost of an acre of hop land to be £35, 10s., the following being the items:—

Manure (winter and summer)	£6	10	0
Digging	0	19	0
Dressing (or cutting)	0	6	0
Poling, tying, earthing, ladder-tying, stringing, lewing	2	3	0
Shimming, nidgeting, digging round and hoeing hills	3	0	0
Stacking, stripping, making; bines, &c.	0	17	0
Annual renewal of poles	2	10	0
Expense of picking, drying, packing, carriage, sampling, selling, &c., on average crop of, say, 7 cwt. per acre	10	5	0
Rent, rates, taxes, repairs of oast and tacks, interest on capital	6	0	0
Sulphuring	1	0	0
Washing (often two, three or four times)	2	0	0
Total	£35	10	0

Seven years later the average cost per acre in Kent had risen to quite £37.

The hops in Kent are usually planted in October or November, the plants being 6 ft. apart each way, thus giving 1210 hills or plant-centres per acre. Some planters still grow potatoes or mangels between the rows the first year, as the plants do not bear much until the second year; but this is considered to be a mistake, as it encourages wire-worm and exhausts the ground. Many planters pole hop plants the first year with a single short pole, and stretch coco-nut-fibre string from pole to pole, and grow many hops in the first season. Much of the hop land is ploughed between the rows, as labour is scarce, and the spaces between are dug afterwards. It is far better to dig hop land if possible, the tool used being the Kent spud. The cost of digging an acre ranges from 18s. to 21s. Hop land is ploughed or dug between November and March. After this the plants are “dressed,” which means that all the old bine ends are cut off with a sharp curved hop-knife, and the plant centres kept level with the ground.

Manuring.—Manure is applied in the winter, and dug or ploughed in. London manure from stables is used to an enormous extent. It comes by barge or rail, and is brought from the wharves and stations by traction engines; it costs from 7s. 6d. to 9s. per load. Rags, fur waste, sprats, wool waste and shoddy are also put on in the winter. In the summer, rape dust, guano, nitrate of soda and various patent hop manures are chopped in with the Canterbury hoe. Fish guano or desiccated fish is largely used; it is very stimulating and more lasting than some of the other forcing manures.

The recent investigations into the subject of hop-manuring made by Dr Bernard Dyer and Mr F. W. E. Shrivell, at Golden Green, near Tonbridge, Kent, are of interest. In the 1901 report[4] it was stated that the object in view was to ascertain how far nitrate of soda, in the presence of an abundant supply of phosphates and potash, is capable of being advantageously used as a source of nitrogenous food for hops. An idea long persisted among hop-growers that nitrate of soda was an unsafe manure for hops, being likely to produce rank growth of bine at the

expense of quality and even quantity of hops. During recent years, however, owing very largely to the results of these experiments, and of corresponding experiments based upon these, which have been carried out abroad, hop farmers have much more freely availed themselves of the aid of this useful manure; and there is little doubt that the distrust of nitrate of soda as a hop manure which has existed in the past has been largely due to the fact that nitrate of soda, like many other nitrogenous manures, has often been misused (1) by being applied without a sufficient quantity of phosphates and potash, or (2) by being applied too abundantly, or (3) by being applied too late in the season, with the result of unduly delaying the ripening period. On most of the experimental plots nitrate of soda (in conjunction with phosphates and potash) has been used as the sole source of nitrogen; but it is, of course, not be to supposed that any hop-grower would use year after year, as is the case on some of the plots, nothing but phosphates, potash and nitrate of soda. Miscellaneous feeding is probably good for plants as well as for animals, and there is a large variety of nitrogenous manures at the disposal of the hop-farmer, to say nothing of what, in its place, is one of the most valuable of all manures, namely, home-made dung. These experiments were begun in 1894 with a new garden of young Fuggle's hops. A series of experimental plots was marked out, each plot being one-sixth of an acre in area. The plots run parallel with one another, there being four rows of hills in each. The climate of the district is very dry.

Weight of Kiln-dried Fuggle's Hops per Acre.

Plot.	Annual Manuring per Acre.	1896	1897	1898	1899	1900	Average of 5 Years.
		Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
A	Phosphates and potash	13½	7½	8¼	20¼	8	11½
B	Phosphates, potash and 2 cwt. nitrate of soda	16½	9¼	10¼	22¼	9¾	13½
C	Phosphates, potash and 4 cwt. nitrate of soda	16½	12	12½	23	11	15
D	Phosphates, potash and 6 cwt. nitrate of soda	15¼	13	13	22½	10½	14¾
E	Phosphates, potash and 8 cwt. nitrate of soda	15	13½	15¼	23½	11	15½
F	Phosphates, potash and 10 cwt. nitrate of soda	15	13	15	24½	10½	15¾
X	30 loads (about 15 tons) London dung	13	8	9¾	24½	10¾	13¾

The table given above shows the annual yield of hops per acre on each plot, and also the average for each plot over the five years 1896-1900.

The general results seem to show that the purchase of town dung for hops is not economical, unless under specially favourable terms as to cost of conveyance, and that it should certainly not be relied upon as a sufficient manure. Home-made dung is in quite a different position, as not only is it richer, but it costs nothing for railway carriage. As a source of nitrogenous manure, purchased dung is on the whole too expensive. There is a large variety of other nitrogenous manures in the market besides nitrate of soda, such, for instance as Peruvian and Damaraland guano, sulphate of ammonia, fish guano, dried blood, rape dust, furriers' refuse, horn shavings, hoof parings, wool dust, shoddy, &c. All of these may in turn be used for helping to maintain a stock of nitrogen in the soil; and the degree to which manures of this kind have been recently applied in any hop garden will influence the grower in deciding as to the quantity of nitrate of soda he should use in conjunction with them, and also to some extent in fixing the date of its application.

Dressings of 8 or 10 cwt. of nitrate of soda per acre, such as are applied annually to plots E and F, would be larger than would be put on where the land has been already dressed with dung or with other nitrogenous manures; and even, in the circumstances under notice, although these plots have on the average beaten the others in weight, the hops in some seasons have been distinctly coarser than those more moderately manured—though in the dry season of 1899 the most heavily dressed plot gave actually the best quality as well as the greatest quantity of produce.

With regard to the application of nitrate of soda in case the season should turn out to be wet, present experience indicates that, on a soil otherwise liberally manured, 4 cwt. of nitrate of soda per acre applied not too late, would be a thoroughly safe dressing. In the case of neither dung nor any other nitrogenous fertilizers having been recently applied, there seems no reason for supposing that, even in a wet season, 6 cwt. of nitrate of soda per acre applied early would be otherwise than a safe dressing, considering both quantity and quality of produce. In conjunction with dung, or with the early use of other nitrogenous manures, such as fish, guano, rape dust, &c. it would probably be wise not to exceed 4 cwt. of nitrate of soda per acre.

As to the date of application, April or May is the latest time at which nitrate of soda should, in most circumstances, be applied, and probably April is preferable to May. The quantity used should be applied in separate dressings of not more than 2 cwt. per acre each, put on at

intervals of a month. Where the quantity of nitrate of soda used is large, and constitutes the whole of the nitrogenous manure employed, the first dressing may, on fairly deep and retentive soils, be given as early as January; or, if the quantity used is smaller, say in February; while February will, in most cases, probably be early enough for the first dressing in the case of lighter soils. The condition of the soil and the degree and distribution of rainfall during both the previous autumn and the winter, as well as in the spring itself, produce such varying conditions that it is almost impossible to frame general rules.

The commonly accepted notion that nitrate of soda is a manure which should be reserved for use during the later period of the growth of the bine appears to be erroneous. The summer months, when the growth of the bine is most active, are the months in which natural nitrification is going on in the soil, converting soil nitrogen and the nitrogen of dung, guano, fish, rape dust, shoddy or other fertilizers into nitrates, and placing this nitrogen at the disposal of the plants; and it appears reasonable, therefore, to suppose that nitrate of soda will be most useful to the hops at the earlier stages of their growth, before the products of that nitrification become abundant. This would especially be so in a season immediately following a wet autumn and winter, which have the effect of washing away into the drains the residual nitrates not utilized by the previous crop.

The necessity, whether dung is used or not, and whatever form of nitrogenous manure is employed, of also supplying the hops with an abundance of phosphates, cannot be too strongly urged. The use of phosphates for hops was long neglected by hop-planters, and even now there are many growers who do not realize the full importance of heavy phosphatic manuring. On soils containing an abundance of lime no better or cheaper phosphatic manure can be used than ordinary superphosphate, of which as much as 10 cwt. per acre may be applied without the slightest fear of harm. But if the soil is not decidedly calcareous—that is to say, if it does not effervesce when it is stirred up with some diluted hydrochloric (muriatic) acid—bone dust, phosphatic guano or basic slag should be used as a source of phosphates, at the rate of not less than 10 cwt. per acre. On medium soils, which, without being distinctly calcareous, nevertheless contain a just appreciable quantity of carbonate of lime, it is probably a good plan to use the latter class of manures, alternately with superphosphate, year and year about; but it is wise policy to use phosphates *in some form or other* every year in every hop garden. They are inexpensive, and without them neither dung, nitrate of soda, ammonia salts nor organic manures can be expected to produce both a full vigorous growth of bine and at the same time a well-matured crop of full-weighted, well-conditioned hops.

The use of potash salts, on most soils, is probably not needed when good dung is freely used; but where this is not the case it is safer in most seasons and on most soils to give a dressing of potash salts. On some soils their aid should on no account be dispensed with.

Experiments in hop-manuring have also been conducted in connexion with the South-Eastern Agricultural College, Wye, Kent. The main results have been to demonstrate the necessity of a liberal supply of phosphates, if the full benefit is to be reaped from applications of nitrogenous manure.

Tying, Poling and Picking.—Tying the bines to the poles or strings is essentially women's work. It was formerly always piecework, each woman taking so many acres to tie, but it is found better to pay the women 1s. 8d. to 2s. per day, that they may all work together, and tie the plants in those grounds where they want tying at once. The new modes of poling and training hop plants have also altered the conditions of tying.

Many improvements have been made in the methods of poling and training hops. Formerly two or three poles were placed to each hop-hill or plant-centre in the spring, and removed in the winter, and this was the only mode of training. Recently systems of training on wires and strings fastened to permanent upright poles have been introduced. One arrangement of wires and strings much adopted consists of stout posts set at the end of every row of hop-hills and fastened with stays to keep them in place. At intervals in each row a thick pole is fixed. From post to post in the rows a wire is stretched at a height of ½ ft. from the ground, another about 6 ft. from the ground, and another along the tops of the posts, so that there are three wires. Hooks are clipped on these wires at regular intervals, and coco-nut-fibre strings are threaded on them and fastened from wire to wire, and from post to post, to receive the hop bines. The string is threaded on the hooks continuously, and is put on those of the top wire with a machine called a stringer. There are several methods of training hops with posts or stout poles, wire and string, whose first cost varies from £20 to £40 per acre. The system is cheaper in the long run than that of taking down the poles every year, and the wind does not blow down the poles or injure the hops by banging the poles together. In another method, extensively made use of in Kent and Sussex, stout posts are placed at the ends of each row of plants, and, at intervals where requisite, wires are fastened from top to top only of these posts, whilst coco-nut-fibre strings are fixed by pegs to the ground, close to each hop-stock, whence they radiate upwards for attachment to the wires stretching between the tops of the posts. This method is more simple and less expensive than the system first described, its cost being from £24 to £28

per acre. In this case the plants require to be well “lewed,” or sheltered, as the strings being so light are blown about by the wind. These methods are being largely adopted, and, together with the practice of putting coco-nut-fibre strings from pole to pole in grounds poled in the old-fashioned manner, are important improvements in hop culture, which have tended to increase the production of hops. Where the old system of poling with two or three poles is still adhered to they are always creosoted, most growers having tanks for the purpose; and, in the new methods of poling, the posts and poles are creosoted, dipped or kyanized.

At Wye College, Kent, different systems of planting and training have been tried, the alleys varying in width from 10 ft. down to 5 ft., and the distance between the hills varying quite as widely, so that the number of hills to the acre has ranged from 1210 down to 660. The biggest crop was secured on the plot where hills were 8 ft. apart each way. As a rule, indeed, a wide alley and abundant space between the plants, thus allowing the hops plenty of air and light, produced the best results, besides effecting some saving in the cost of cultivation, as there were only 660 or 680 hills per acre. Of the various methods of training, the umbrella system gave the biggest crop in each of the three years, 1899, 1900, 1901; and it seemed to be the best method, except in seasons when washing was required early, in which case the plants were not so readily cleared of vermin.

Much attention is required to keep the bines in their places on the poles, strings or wire, during the summer. This gives employment to many women, for whose service in this and fruit-picking there is considerable demand, and a woman has no trouble in earning from 1s. 6d. to 1s. 10d. per day from April till September at pleasant and not very arduous labour. The hop-picking follows, and at this women sometimes get 4s. and even 5s. per day. This is the real Kent harvest, which formerly lasted a month or five weeks. Now it rarely extends beyond eighteen days, as it is important to secure the hops before the weather and the aphides, which almost invariably swarm within the bracts of the cones, discolour them and spoil their sale, as brewers insist upon having bright, “coloury” hops. Picking is better done than was formerly the case. The hops are picked more singly, and with comparatively few leaves, and the pickers are of a somewhat better type than the rough hordes who formerly went into Kent for “hopping.” Kent planters engage their pickers beforehand, and write to them, arranging the numbers required and the date of picking. Many families go into Kent for pea- and fruit-picking and remain for hop-picking. Without this great immigration of persons, variously estimated at between 45,000 and 65,000, the crops of hops could not be picked; and fruit-farmers also would be unable to get their soft fruit gathered in time without the help of immigrant hands. The fruit-growers and hop-planters of Kent have greatly improved the accommodation for these immigrants.

Concerning the general question as to the advisability or otherwise of cutting the hop bine at the time of picking, A.D. Hall has ascertained experimentally that if the bine is cut close to the ground at a time when the whole plant is unripe there are removed in the bine and leaves considerable quantities of nitrogen, potash and phosphoric acid which would have returned to the roots if the bine had not been cut until ripe. The plant, therefore, would retain a substantial store of these constituents for the following year’s growth if the bine were left. Chemical analyses have shown that about 30 lb. of nitrogen per acre may be saved by allowing the bines to remain uncut, this representing practically one-third of the total amount of nitrogen in the hops, leaf and bine together. There are also from 25 lb. to 30 lb. of potash in the growth, of which nine-tenths would return to the roots, with about half the phosphoric acid and a very small proportion of the lime. It has been demonstrated that by the practice of cutting the bines when the hops are picked the succeeding crop is lessened to the extent of about one-tenth. As to stripping off the leaves and lower branches of the plant, it was found that this operation once reduced the crop 10% and once 20%, but that in the year 1899 it did not affect the crop at all. The inference appears to be that when there is a good crop it is not reduced by stripping, but that when there is less vigour in the plant it suffers the more. Hence, it would seem advisable to study the plant itself in connexion with this matter, and to strip a little later, or somewhat less, than usual when the bine is not healthy.

Drying.—After being picked, the hops are taken in pokes—long sacks holding ten bushels—to the oasts to be dried. The oasts are circular or square kilns, or groups of kilns, wherein the green hops are laid upon floors covered with horsehair, under which are enclosed or open stoves or furnaces. The heat from these is evenly distributed among the hops above by draughts below and round them. This is the usual simple arrangement, but patent processes are adopted here and there, though they are by no means general. The hops are from nine to ten hours drying, after which they are taken off the kiln and allowed to cool somewhat, and are then packed tightly into “pockets” 6 ft. long and 2 ft. wide, weighing 1½ cwt., by means of a hop-pressing machine, which has cogs and wheels worked by hand. Of late years more care has been bestowed by some of the leading growers upon the drying of hops, so as to preserve their qualities and volatile essences, and to meet the altered requirements of brewers, who must

have bright, well-managed hops for the production of light clear beers for quick draught. The use, for example, of exhaust fans, recently introduced, greatly facilitates drying by drawing a large volume of air through the hops; and as the temperature may at the same time be kept low, the risk of getting overfired samples is considerably reduced, though not entirely obviated. The adoption of the roller floor is another great advance in the process of hop-drying, for this, used in conjunction with a raised platform for the men to stand on when turning, prevents any damage from the feet of the workmen, and reduces the loss of resin to a minimum. The best results are obtained when exhaust fans and the roller floor are associated together. In such cases the roller floor, which empties its load automatically, pours the hop cones into the receiving sheets in usually as whole and unbroken a condition as that in which they went on to the kiln.

Pests of the Hop Crop.—In recent years the difficulties attendant upon hop cultivation have been aggravated, and the expenses increased, by regularly recurring attacks of aphis blight—due to the insect *Aphis* (*Phorodon*) *humuli*—which render it necessary to spray or syringe every hop plant, every branch and leaf, with insecticidal solutions three or four times, and sometimes more often, in each season. Quassia and soft-soap solutions are usually employed; they contain from 4 ℔ to 8 ℔ of soft soap, and the extract of from 8 ℔ to 10 ℔ of quassia chips to 100 gallons of water. The soft soap serves as a vehicle to retain the bitterness of the quassia upon the bines and leaves, making them repulsive to the aphides, which are thus starved out. Another pest, the red spider, *Tetranychus telarius*—really one of the "spinning mites"—is most destructive in very hot summers. Congregating on the under surfaces of the leaves, the red spiders exhaust the sap and cause the leaves to fall, producing the effect known in Germany as "fire-blast." The hop-wash of soft soap and quassia, so effective against aphis attack, is of little avail in the case of red spider. Some success, however, has attended the use of a solution containing 8 ℔ to 10 ℔ of soft soap to 100 gallons of water, with three pints of paraffin added. It is necessary to apply the washes with great force, in order to break through the webs with which the spiders protect themselves. Hop-washing is done by means of large garden engines worked by hand, but more frequently with horse engines. Resort is sometimes had to steam engines, which force the spraying solution along pipes laid between the rows of hops.

Mould or mildew is frequently the source of much loss to hop-planters. It is due to the action of the fungus *Podosphaera castagnei*, and the mischief is more especially that done to the cones. The only trustworthy remedy is sulphur, employed usually in the form of flowers of sulphur, from 40 ℔ to 60 ℔ per acre being applied at each sulphuring. The powder is distributed by means of a machine drawn by a horse between the rows. The sulphur is fed from a hopper into a blast-pipe, whence it is driven by a fan actuated by the travelling wheels, and falls as a dense, wide-spreading cloud upon the hop-bines. The first sulphuring takes place when the plants are fairly up the poles, and is repeated three or four weeks later; and even again if indications of mildew are present. It may be added that sulphur is also successfully employed in the form of an alkaline sulphide, such as solution of "liver of sulphur," a variety of potassium sulphide.

(W. Fr.)

1 See *Report from the Select Committee on the Hop Industry* (London, 1908).

2 *Jour. Roy. Agric. Soc.*, 1899.

3 J. Percival, "The Hop and its English Varieties," *Jour. Roy. Agric. Soc.*, 1901.

4 *Six Years' Experiments on Hop Manuring* (London, 1901).

HOPE, ANTHONY, the pen-name of Anthony Hope Hawkins (1863-), British novelist, who was born on the 9th of February 1863, the second son of the Rev. E. C. Hawkins, Vicar of St Bride's, Fleet Street, London. He was educated at Marlborough and Balliol College, Oxford, where he was president of the Union Society, and graduated with first classes in Moderations and Final Schools. He was called to the bar at the Middle Temple in 1877. He soon began contributing stories and sketches to the *St James's Gazette*, and in 1890 published his first novel, *A Man of Mark*. This was followed by *Father Stafford* (1891), *Mr Witt's Widow* (1892), *Change of Air* and *Sport Royal and Other Stories* (1893). By this time he had attracted by his vivacious talent the attention of editors and readers; but it was not till the following year that he attained a great popular success with the publication (May 1894) of *The Prisoner of Zenda*. This was followed a few weeks later by *The Dolly Dialogues* (previously published in separate instalments in the *Westminster Gazette*). Both books became parents of a numerous progeny. *The Prisoner of Zenda*, owing something to the *Prince Otto* of R. L. Stevenson, established a

fashion for what was christened, after its fictitious locality, “Ruritanian romance”; while the *Dolly Dialogues*, inspired possibly by “Gyp” and other French dialogue writers, was the forerunner of a whole school of epigrammatic drawing-room comedy. *The Prisoner of Zenda*, with Mr Alexander as “Rupert Rassendyll,” enjoyed a further success in a dramatized form at the St James’s Theatre, which did still more to popularize the author’s fame. In 1894 also appeared *The God in the Car*, a novel suggested by the ambiguous influence on English society of Cecil Rhodes’s career; and *Half a Hero*, a complementary study of Australian politics. The same year saw further the publication of *The Indiscretion of the Duchess*, in the style of the *Dolly Dialogues*, and of another collection of stories named (after the first) *The Secret of Wardale Court*. In 1895 Mr Hawkins published *Count Antonio*, and contributed to *Dialogues of the Day*, edited by Mr Oswald Crawfurd. *Comedies of Courtship* and *The Heart of the Princess Osra* followed in 1896; *Phroso* in 1897; *Simon Dale* and *Rupert of Hentzau* (sequel of the *Prisoner of Zenda*) 1898; and *The King’s Mirror*, a Ruritanian romance with an infusion of serious psychological interest, 1899. The author was advancing from his light comedy and gallant romantic inventions to the graver kind of fiction of which *The God in the Car* had been an earlier essay. *Quisante*, published in 1900, was a study of English society face to face with a political genius of an alien type. *Tristram of Blent* (1901) embodied an ethical study of family pride. *The Intrusions of Peggy* reflected the effects on society of recent financial fashions. In 1904 he published *Double Harness*, and in 1905 *A Servant of the Public*, two novels of modern society, containing somewhat cynical pictures of the condition of marriage. With increasing gravity the novelist sacrificed some of the charm of his earlier irresponsible gaiety and buoyancy; but his art retained its wit and urbanity while it gained in grip of the social conditions of contemporary life. He wrote two plays, *The Adventure of Lady Ursula* (1898) and *Pilkerton’s Peerage* (1902), and his later novels include *The Great Miss Driver* (1908) and *Second String* (1909). Mr Hawkins’s attractive and cultured style and command of plot give him a high place among the modern writers of English fiction. In 1903 he married Miss Elizabeth Somerville Sheldon of New York.

HOPE, THOMAS (*c.* 1770-1831), English art-collector, and author of *Anastasius*, born in London about 1770, was the eldest son of John Hope of Amsterdam, and was descended from a branch of an old Scottish family who for several generations were extensive merchants in London and Amsterdam. About the age of eighteen he started on a tour through various parts of Europe, Asia and Africa, where he interested himself especially in architecture and sculpture, making a large collection of the principal objects which attracted his attention. On his return to London about 1796 he purchased a house in Duchess Street, Cavendish Square, which he fitted up in a very elaborate style, from drawings made by himself. In 1807 he published sketches of his furniture, accompanied by letterpress, in a folio volume, entitled *Household Furniture and Interior Decoration*, which had considerable influence in effecting a change in the upholstery and interior decoration of houses, notwithstanding that Byron had referred scornfully to him as “House-furnisher withal, one Thomas hight.” Hope’s furniture designs were in that pseudo-classical manner which is generally called “English Empire.” It was sometimes extravagant, and often heavy, but was much more restrained than the wilder and later flights of Sheraton in this style. At the best, however, it was a not very inspiring mixture of Egyptian and Roman motives. In 1809 he published the *Costumes of the Ancients*, and in 1812 *Designs of Modern Costumes*, works which display a large amount of antiquarian research. He was also, as his father had been—the elder Hope’s country house near Haarlem was crowded with fine pictures—a munificent patron of the highest forms of art, and both at his London house and his country seat at Deepdene near Dorking he formed large collections of paintings, sculpture and antiques. Deepdene in his day became a famous resort of men of letters as well as of people of fashion, and among the luxuries suggested by his fine taste was a miniature library in several languages in each bedroom. Thorvaldsen, the Danish sculptor, was indebted to him for the early recognition of his talents, and he also gave frequent employment to Chantrey and Flaxman—it was to his order that the latter illustrated Dante. In 1819 he published anonymously his novel *Anastasius, or Memoirs of a Modern Greek, written at the close of the 18th century*, a work which, chiefly on account of the novel character of its subject, caused a great sensation. It was at first generally attributed to Lord Byron, who told Lady Blessington that he wept bitterly on reading it because he had not written it and Hope had. But, though remarkable for the acquaintance it displays with Eastern life, and distinguished by considerable imaginative vigour and much graphic and picturesque description, its paradoxes are not so striking as those of Lord Byron; and, notwithstanding some eloquent and forcible passages, the only reason which warranted its ascription to him was the general type of

character to which its hero belonged. Hope died on the 3rd of February 1831. He was the author of two works published posthumously—the *Origin and Prospects of Man* (1831), in which his speculations diverged widely from the usual orthodox opinions, and an *Historical Essay on Architecture* (1835), an elaborate description of the architecture of the middle ages, illustrated by drawings made by himself in Italy and Germany. He is commonly known in literature as “Anastasius” Hope. He married (1806) Louisa de la Poer Beresford, daughter of Lord Decies, archbishop of Tuam.

HOPEDALE, a township of Worcester county, Massachusetts, U.S.A.; pop. (1905; state census) 2048; (1910) 2188. It is served by the Milford & Uxbridge (electric) street railway, and (for freight) by the Grafton & Upton railway. The town lies in the “dale” between Milford and Mendon, and is cut from N.W. to S.E. by the Mill river, which furnishes good water power at its falls. The principal manufactures are textiles, boots and shoes, and, of most importance, cotton machinery. The great cotton machinery factories here are owned by the Draper Company. Hopedale has a public park on the site of the Ballou homestead, with a bronze statue of Adin Ballou; a memorial church erected by George A. and Eben S. Draper; the Bancroft Memorial Library, given by Joseph B. Bancroft in memory of his wife; and a marble drinking fountain with statuary by Waldo Story, the gift of Susan Preston Draper, General W. F. Draper’s wife. The village is remarkable for the comfortable cottages of the workers.

The history of Hopedale centres round the Rev. Adin Ballou (1803-1890), a distant relative of Hosea Ballou;[1] he left, in succession, the ministry of the Christian Connexion (1823) and that of the Universalist Church (1831), because of his restorationist views. In 1831 he became pastor of an independent church in Mendon. An ardent exponent of temperance, the anti-slavery movement, woman’s rights, the peace cause and Christian non-resistance (even through the Civil War), and of “Practical Christian Socialism,” it was in the interests of the last cause that he founded Hopedale, or “Fraternal Community No. 1,” in Milford, in April 1842, the first compact of the community having been drawn up in January 1841. Thirty persons joined with him, and lived in a single house on a poor farm of 258 acres, purchased in June 1841. Ballou was for several years the president of the community, which was run on the plan that all should have an equal voice as to the use of property, in spite of the fact that there was individual holding of property. The community, however, owned the instruments of production, with the single exception of the important patent rights held by Ebenezer D. Draper. The result was bickerings between those who were joint stockholders and those whose only profit came from their manual labour. In a short time the control of the community came into the hands of its richest members, E. D. Draper and his brother, George Draper (1817-1887), who owned three-fourths of the joint stock. In 1856 there was a total deficit of about $12,000. The Draper brothers bought up the joint stock of the community at par and paid its debts, and the community soon ceased to exist save as a religious society. After George Draper’s death the control of the mills passed to his sons. These included General William Franklin Draper (1842-1910), a Republican representative in Congress in 1892-1897 and U.S. ambassador to Italy in 1897-1900, and Eben Sumner Draper (b. 1858), lieutenant-governor of Massachusetts in 1906-1908 and governor in 1909-1911. In 1867 the community was merged with Hopedale parish, a Unitarian organization. Hopedale was separated from Milford and incorporated as a township in 1886.

See Adin Ballou’s *History of Milford* (Boston, 1882), his *History of the Hopedale Community*, edited by William S. Heywood (Lowell, 1897), his *Biography* by the same editor (Lowell, 1896) and his *Practical and Christian Socialism* (Hopedale, 1854); George L. Carey, “Adin Ballou and the Hopedale Community” (in the *New World*, vol. vii., 1898); Lewis G. Wilson, “Hopedale and Its Founder” (in *The New England Magazine*, vol. x., 1891); and William F. Draper, *Recollections of a Varied Career* (Boston, 1908).

1 Adin Ballou wrote *An Elaborate History and Genealogy of the Ballous in America* (Providence, R.I., 1888).

HOPE-SCOTT, JAMES ROBERT (1812-1873), English barrister and Tractarian, was born

on the 15th of July 1812, at Great Marlow, Berkshire, the third Son of Sir Alexander Hope, and grandson of the second earl of Hopetoun. He was educated at Eton and Oxford, where he was a contemporary and friend of Gladstone and J. H. Newman, and in 1838 was called to the bar. Between 1840 and 1843 he helped to found Trinity College, Glenalmond. He was one of the leaders of the Tractarian movement and entirely in Newman's confidence. In 1851 he was received with Manning into the Roman Catholic church. At this time he was making a very large income at the Parliamentary bar. He only commenced serious practice in this branch of his profession in 1843, but by the end of 1845 he stood at the head of it and in 1849 was made a Queen's Counsel. In 1847 he married Miss Lockhart, granddaughter of Sir Walter Scott, and on her coming into possession of Abbotsford six years later, assumed the surname of Hope-Scott. He retired from the bar in 1870 and died on the 29th of April 1873.

HOPFEN, HANS VON (1835-1904), German poet and novelist, was born on the 3rd of January 1835, at Munich. He studied law, and in 1858, having shown marked poetical promise, he was received into the circle of young poets whom King Maximilian II. had gathered round him, and thereafter devoted himself to literature. In 1862 he made his debut as an author, with *Lieder und Balladen*, which were published in the *Münchener Dichterbuch*, edited by E. Geibel. After travelling in Italy (1862), France (1863) and Austria (1864), he was appointed, in 1865, general secretary of the "Schillerstiftung," and in this capacity settled at Vienna. The following year, however, he removed to Berlin, in a suburb of which, Lichterfelde, he died on the 19th of November 1904. Of Hopfen's lyric poems, *Gedichte* (4th ed., Berlin, 1883), many are of considerable talent and originality; but it is as a novelist that he is best known. The novels *Peregretta* (1864); *Verdorben zu Paris* (1868, new ed. 1892); *Arge Sitten* (1869); *Der graue Freund* (1874, 2nd ed., 1876); and *Verfehlte Liebe* (1876, 2nd ed., 1879) are attractive, while of his shorter stories *Tiroler Geschichten* (1884-1885) command most favour.

An autobiographical sketch of Hopfen is contained in K. E. Franzos, *Geschichte des Erstlingswerkes* (1904).

HOPI, or Moki (*Moquis*), a tribe of North American Indians of Shoshonean stock. They are Pueblo or town-building Indians and occupy seven villages on three lofty plateaus of northern Arizona. The first accounts of them date from the expedition of Francisco Vasquez de Coronado in 1540. With the town-building Indians of New Mexico they were then subdued. They shared in the successful revolt of 1542, but again suffered defeat in 1586. In 1680, however, they made a successful revolt against the Spaniards. They weave very fine blankets, make baskets and are expert potters and wood-carvers. Their houses are built of stone set in mortar. Their ceremonies are of an elaborate nature, and in the famous "snake-dance" the performers carry live rattlesnakes in their mouths. They number some 1600. (See also Pueblo Indians.)

For Hopi festivals, see *21st Ann. Report Bureau of Amer. Ethnology* (1899-1900).

HÖPKEN, ANDERS JOHAN, Count von (1712-1789), Swedish statesman, was the son of Daniel Niklas Höpken, one of Arvid Horn's most determined opponents and a founder of the Hat party. When in 1738 the Hats came into power the younger Höpken obtained a seat in the secret committee of the diet, and during the Finnish war of 1741-42 was one of the two commissioners appointed to negotiate with Russia. During the diet of 1746-1747 Höpken's influence was of the greatest importance. It was chiefly through his efforts that the estates issued a "national declaration" protesting against the arrogant attitude of the Russian ambassador, who attempted to dominate the crown prince Adolphus Frederick and the government. This spirited policy restored the waning prestige of the Hat party and firmly established their anti-Muscovite system. In 1746 Höpken was created a senator. In 1751 he succeeded Gustaf Tessin as prime minister, and controlled the foreign policy of Sweden for the

next nine years. On the outbreak of the Seven Years' War, he contracted an armed neutrality treaty with Denmark (1756); but in the following year acceded to the league against Frederick II. of Prussia. During the crisis of 1760-1762, when the Hats were at last compelled to give an account of their stewardship, Höpken was sacrificed to party exigencies and retired from the senate as well as from the premiership. On the 22nd of June 1762, however, he was created a count. After the revolution of 1772 he re-entered the senate at the particular request of Gustavus III., but no longer exercised any political influence. His caustic criticism of many of the royal measures, moreover, gave great offence, and in 1780 he retired into private life. Höpken was a distinguished author. The noble style of his biographies and orations has earned for him the title of the Swedish Tacitus. He helped to found the *Vetenskaps Akademi*, and when Gustavus III. in 1786 established the Swedish Academy, he gave Höpken the first place in it.

See L. G. de Geer, *Minne af Grefve A. J. von Höpken* (Stockholm, 1882); Carl Silfverstolpe, *Grefve Höpkens Skrifter* (Stockholm, 1890-1893).

(R. N. B.)

HOPKINS, EDWARD WASHBURN (1857-), American Sanskrit scholar, was born in Northampton, Massachusetts, on the 8th of September 1857. He graduated at Columbia University in 1878, studied at Leipzig, where he received the degree of Ph.D. in 1881, was an instructor at Columbia in 1881-1885, and professor at Bryn Mawr in 1885-1895, and became professor of Sanskrit and comparative philology in Yale University in 1895. He became secretary of the American Oriental Society and editor of its *Journal*, to which he contributed many valuable papers, especially on numerical and temporal categories in early Sanskrit literature. He wrote *Caste in Ancient India* (1881); *Manu's Lawbook* (1884); *Religions of India* (1895); *The Great Epic of India* (1901); and *India Old and New* (1901).

HOPKINS, ESEK (1718-1802), the first admiral of the United States navy, was born at Scituate, Rhode Island, in 1718. He belonged to one of the most prominent Puritan families of New England. At the age of twenty he went to sea, and rapidly came to the front as a good sailor and skilful trader. Marrying, three years later, into a prosperous family of Newport, and thus increasing his influence in Rhode Island, he became commodore of a fleet of seventeen merchantmen, the movements of which he directed with skill and energy. In war as well as peace, Hopkins was establishing his reputation as one of the leading colonial seamen, for as captain of a privateer he made more than one brilliant and successful venture during the Seven Years' War. In the interval between voyages, moreover, he was engaged in Rhode Island politics, and rendered efficient support to his brother Stephen against the Ward faction. At the outbreak of the War of Independence, Hopkins was appointed brigadier-general by Rhode Island, was commissioned, December 1775, by the Continental Congress, commander-in-chief of the navy, and in January 1776 hoisted his flag as admiral of the eight converted merchantmen which then constituted the navy of the United States. His first cruise resulted in a great acquisition of material of war and an indecisive fight with H.M.S. "Glasgow." At first this created great enthusiasm, but criticism soon made itself heard. Hopkins and two of his captains were tried for breach of orders, and, though ably defended by John Adams, were censured by Congress. The commands, nevertheless, were not interfered with, and a prize was soon afterwards named after the admiral by their orders. But the difficulties and mutual distrust continually increased, and in 1777 Congress summarily dismissed Hopkins from his command, on the complaint of some of his officers. Before the order arrived, the admiral had detected the conspiracy against him, and had had the ringleaders tried and degraded by court-martial. But the Congress followed up its order by dismissing him from the navy. For the rest of his life he lived in Rhode Island, playing a prominent part in state politics, and he died at Providence in 1802.

See Edward Field, *Life of Esek Hopkins* (Providence, 1898); also an article by R. Grieve in the *New England Magazine* of November 1897.

HOPKINS, MARK (1802-1887), American educationist, great-nephew of the theologian Samuel Hopkins, was born in Stockbridge, Massachusetts, on the 4th of February 1802. He graduated in 1824 at Williams College, where he was a tutor in 1825-1827, and where in 1830, after having graduated in the previous year at the Berkshire Medical College at Pittsfield, he became professor of Moral Philosophy and Rhetoric. In 1833 he was licensed to preach in Congregational churches. He was president of Williams College from 1836 until 1872. He was one of the ablest and most successful of the old type of college president. His volume of lectures on *Evidences of Christianity* (1846) was long a favourite text-book. Of his other writings, the chief were *Lectures on Moral Science* (1862), *The Law of Love and Love as a Law* (1869), *An Outline Study of Man* (1873), *The Scriptural Idea of Man* (1883), and *Teachings and Counsels* (1884). Dr Hopkins took a lifelong interest in Christian missions, and from 1857 until his death was president of the American Board of Commissioners for Foreign Missions (the American Congregational Mission Board). He died at Williamstown, on the 17th of June 1887. His son, Henry Hopkins (1837-1908), was also from 1903 till his death president of Williams College.

See Franklin Carter's *Mark Hopkins* (Boston, 1892), in the "American Religious Leaders" series, and Leverett W. Spring's *Mark Hopkins, Teacher* (New York, 1888), being No. 4, vol. i., of the "Monographs of the Industrial Educational Association."

Mark Hopkins's brother, Albert Hopkins (1807-1872), was long associated with him at Williams College, where he graduated in 1826 and was successively a tutor (1827-1829), professor of mathematics and natural philosophy (1829-1838), professor of natural philosophy and astronomy (1838-1868) and professor of astronomy (1868-1872). In 1835 he organized and conducted a Natural History Expedition to Nova Scotia, said to have been the first expedition of the kind sent out from any American college, and in 1837, at his suggestion and under his direction, was built at Williams College an astronomical observatory, said to have been the first in the United States built at a college exclusively for purposes of instruction. He died at Williamstown on the 24th of May 1872.

See Albert C. Sewall's *Life of Professor Albert Hopkins* (1879).

HOPKINS, SAMUEL (1721-1803), American theologian, from whom the Hopkinsian theology takes its name, was born at Waterbury, Connecticut, on the 17th of September 1721. He graduated at Yale College in 1741; studied divinity at Northampton, Massachusetts, with Jonathan Edwards; was licensed to preach in 1742, and in December 1743 was ordained pastor of the church in the North Parish of Sheffield, or Housatonick (now Great Barrington), Massachusetts, at that time a small settlement of only thirty families. There he laboured—preaching, studying and writing—until 1769, for part of the time (1751-1758) in intimate association with his old teacher, Edwards, whose call to Stockbridge he had been instrumental in procuring. His theological views having met with much opposition, however, he was finally dismissed from the pastorate on the pretext of want of funds for his support. From April 1770 until his death on the 20th of December 1803, he was the pastor of the First Church in Newport, Rhode Island, though during 1776-1780, while Newport was occupied by the British, he preached at Newburyport, Mass., and at Canterbury and Stamford, Conn. In 1799 he had an attack of paralysis, from which he never wholly recovered. Hopkins's theological views have had a powerful influence in America. Personally he was remarkable for force and energy of character, and for the utter fearlessness with which he followed premises to their conclusions. In vigour of intellect and in strength and purity of moral tone he was hardly inferior to Edwards himself. Though he was originally a slave-holder, to him belongs the honour of having been the first among the Congregational ministers of New England to denounce slavery both by voice and pen; and to his persistent though bitterly opposed efforts are probably chiefly to be attributed the law of 1774, which forbade the importation of negro slaves into Rhode Island, as also that of 1784, which declared that all children of slaves born in Rhode Island after the following March should be free. His training school for negro missionaries to Africa was broken up by the confusion of the American War of Independence. Among his publications are a valuable *Life and Character of Jonathan Edwards* (1799), and numerous pamphlets, addresses and sermons, including *A Dialogue concerning the Slavery of the Africans, showing it to be the Duty and Interest of the American States to emancipate all their African Slaves* (1776), and *A Discourse upon the Slave Trade and the History of the Africans* (1793). His distinctive theological tenets are to be found in his important work, *A System of Doctrines Contained in Divine Revelation, Explained and Defended* (1793), which has had an influence hardly inferior to that exercised by the writings of Edwards himself. They may be summed up as follows: God

so rules the universe as to produce its highest happiness, considered as a whole. Since God's sovereignty is absolute, sin must be, by divine permission, a means by which this happiness of the whole is secured, though that this is its consequence, renders it no less heinous in the sinner. Virtue consists in preference for the good of the whole to any private advantage; hence the really virtuous man must willingly accept any disposition of himself that God may deem wise—a doctrine often called "willingness to be damned." All have natural power to choose the right, and are therefore responsible for their acts; but all men lack inclination to choose the right unless the existing "bias" of their wills is transformed by the power of God from self-seeking into an effective inclination towards virtue. Hence preaching should demand instant submission to God and disinterested goodwill, and should teach the worthlessness of all religious acts or dispositions which are less than these, while recognizing that God can grant or withhold the regenerative change at his pleasure.

The best edition of Hopkins's *Works* is that published in three volumes at Boston in 1852, containing an excellent biographical sketch by Professor Edwards A. Park. In 1854 was published separately Hopkins's *Treatise on the Millennium*, which originally appeared in his *System of Doctrines* and in which he deduced from prophecies in *Daniel* and *Revelation* that the millennium would come "not far from the end of the twentieth century." See also Stephen West's *Sketches of the Life of the Late Reverend Samuel Hopkins* (Hartford, Conn., 1805), Franklin B. Dexter's *Biographical Sketches of the Graduates of Yale College* and Williston Walker's *Ten New England Leaders* (New York, 1901).

(W. Wr.)

HOPKINS, WILLIAM (1793-1866), English mathematician and geologist, was born at Kingston-on-Soar, in Nottinghamshire, on the 2nd of February 1793. In his youth he learned practical agriculture in Norfolk and afterwards took an extensive farm in Suffolk. In this he was unsuccessful. At the age of thirty he entered St Peter's College, Cambridge, taking his degree of B.A. in 1827 as seventh wrangler and M.A. in 1830. In 1833 he published *Elements of Trigonometry*. He was distinguished for his mathematical knowledge, and became eminently successful as a private tutor, many of his pupils attaining high distinction. About 1833, through meeting Sedgwick at Barmouth and joining him in several excursions, he became intensely interested in geology. Thereafter, in papers published by the Cambridge Philosophical Society and the Geological Society of London, he entered largely into mathematical inquiries connected with geology, dealing with the effects which an elevatory force acting from below would produce on a portion of the earth's crust, in fissures, faults, &c. In this way he discussed the elevation and denudation of the Lake district, the Wealden area, and the Bas Boulonnais. He wrote also on the motion of glaciers and the transport of erratic blocks. So ably had he grappled with many difficult problems that in 1850 the Wollaston medal was awarded to him by the Geological Society of London; and in the following year he was elected president. In his second address (1853) he criticized Élie de Beaumont's theory of the elevation of mountain-chains and showed the imperfect evidence on which it rested. He brought before the Geological Society in 1851 an important paper *On the Causes which may have produced changes in the Earth's superficial Temperature*. He was president of the British Association for 1853. His later researches included observations on the conductivity of various substances for heat, and on the effect of pressure on the temperature of fusion of different bodies. He died at Cambridge on the 13th of October 1866.

Obituary by W. W. Smyth, in *Quart. Journ. Geol. Soc.* (1867), p. xxix.

HOPKINSON, FRANCIS (1737-1791), American author and statesman, one of the signers of the Declaration of Independence, was born in Philadelphia, Pennsylvania, on the 2nd of October 1737. He was a son of Thomas Hopkinson (1709-1751), a prominent lawyer of Philadelphia, one of the first trustees of the College of Philadelphia, now the University of Pennsylvania, and first president of the American Philosophical Society. Francis was the first student to enter the College of Philadelphia. from which he received his bachelor's degree in 1757 and his master's degree in 1760. He then studied law in the office in Philadelphia of Benjamin Chew, and was admitted to the bar in 1761. Removing after 1768 to Bordentown, New Jersey, he became a member of the council of that colony in 1774. On the approach of the

War of Independence he identified himself with the patriot or whig element in the colony, and in 1776 and 1777 he was a delegate to the Continental Congress. He served on the committee appointed to frame the Articles of Confederation, executed, with John Nixon (1733-1808) and John Wharton, the “business of the navy” under the direction of the marine committee, and acted for a time as treasurer of the Continental loan office. From 1779 to 1789 he was judge of the court of admiralty in Pennsylvania, and from 1790 until his death was United States district judge for that state. He was famous for his versatility, and besides being a distinguished lawyer, jurist and political leader, was “a mathematician, a chemist, a physicist, a mechanician, an inventor, a musician and a composer of music, a man of literary knowledge and practice, a writer of airy and dainty songs, a clever artist with pencil and brush and a humorist of unmistakeable power” (Tyler, *Literary History of the American Revolution*). It is as a writer, however, that he will be remembered. He ranks as one of the three leading satirists on the patriot side during the War of Independence. His ballad, *The Battle of the Kegs* (1778), was long exceedingly popular. To alarm the British force at Philadelphia the Americans floated kegs charged with gunpowder down the Delaware river towards that city, and the British, alarmed for the safety of their shipping, fired with cannon and small arms at everything they saw floating in the river. Hopkinson’s ballad is an imaginative expansion of the actual facts. To the cause of the revolution this ballad, says Professor Tyler, “was perhaps worth as much just then as the winning of a considerable battle.” Hopkinson’s principal writings are *The Pretty Story* (1774), *A Prophecy* (1776) and *The Political Catechism* (1777). Among his songs may be mentioned *The Treaty* and *The New Roof, a Song for Federal Mechanics*; and the best known of his satirical pieces are *Typographical Method of conducting a Quarrel*, *Essay on White Washing* and *Modern Learning*. His *Miscellaneous Essays and Occasional Writings* were published at Philadelphia in 3 vols., 1792.

His son, Joseph Hopkinson (1770-1842), graduated at the University of Pennsylvania in 1786, studied law, and was a Federalist member of the national House of Representatives in 1815-1819, Federal judge of the Eastern District of Pennsylvania from 1828 until his death, and a member of the state constitutional convention of 1837. He is better known, however, as the author of the patriotic anthem “Hail Columbia” (1798).

HOPKINSON, JOHN (1849-1898), English engineer and physicist, was born in Manchester on the 27th of July 1849. Before he was sixteen he attended lectures at Owens College, and at eighteen he gained a mathematical scholarship at Trinity College, Cambridge, where he graduated in 1871 as senior wrangler and first Smith’s prizeman, having previously taken the degree of D.Sc. at London University and won a Whitworth scholarship. Although elected a fellow and tutor of his college, he stayed up at Cambridge only for a very short time, preferring to learn practical engineering as a pupil in the works in which his father was a partner. But there his stay was equally short, for in 1872 he undertook the duties of engineering manager in the glass manufactories of Messrs Chance Brothers and Company at Birmingham. Six years later he removed to London, and while continuing to act as scientific adviser to Messrs Chance, established a most successful practice as a consulting engineer. His work was mainly, though not exclusively, electrical, and his services were in great demand as an expert witness in patent cases. In 1890 he was appointed director of the Siemens laboratory at King’s College, London, with the title of professor of electrical engineering. His death occurred prematurely on the 27th of August 1898, when he was killed, together with one son and two daughters, by an accident the nature of which was never precisely ascertained, while climbing the Petite Dent de Veisivi, above Evolena. Dr Hopkinson presented a rare combination of practical with theoretical ability, and his achievements in pure scientific research are not less intrinsically notable than the skill with which he applied their results to the solution of concrete engineering problems. His original work is contained in more than sixty papers, all written with a complete mastery both of style and of subject-matter. His name is best known in connexion with electricity and magnetism. On the one hand he worked out the general theory of the magnetic circuit in the dynamo (in conjunction with his brother Edward), and the theory of alternating currents, and conducted a long series of observations on the phenomena attending magnetization in iron, nickel and the curious alloys of the two which can exist both in a magnetic and non-magnetic state at the same temperature. On the other hand, by the application of the principles he thus elucidated he furthered to an immense extent the employment of electricity for the purposes of daily life. As regards the generation of electric energy, by pointing out defects of design in the dynamo as it existed about 1878, and showing how important improvements were to be effected in its construction, he was largely instrumental in converting it from a clumsy and wasteful appliance into one of the most

efficient known to the engineer. Again, as regards the distribution of the current, he took a leading part in the development of the three-wire system and the closed-circuit transformer, while electric traction had to thank him for the series-parallel method of working motors. During his residence in Birmingham, Messrs Chance being makers of glass for use in lighthouse lamps, his attention was naturally turned to problems of lighthouse illumination, and he was able to devise improvements in both the catoptric and dioptric methods for concentrating and directing the beam. He was a strong advocate of the group-flashing system as a means of differentiating lights, and invented an arrangement for carrying it into effect optically, his plan being first adopted for the catoptric light of the *Royal Sovereign* lightship, in the English Channel off Beachy Head. Moreover, his association with glass manufacture led him to study the refractive indices of different kinds of glass; he further undertook abstruse researches on electrostatic capacity, the phenomena of the residual charge, and other problems arising out of Clerk Maxwell's electro-magnetic theory.

His original papers were collected and published, with a memoir by his son, in 1901.

HOPKINSVILLE, a city and the county-seat of Christian county, Kentucky, U.S.A., about 150 m. S.W. of Louisville. Pop. (1890) 5833; (1900) 7280 (3243 negroes); (1910) 9419. The city is served by the Illinois Central and the Louisville & Nashville railways. It is the seat of Bethel Female College (Baptist, founded 1854), of South Kentucky College (Christian; co-educational; chartered 1849) and of the Western Kentucky Asylum for the Insane. The city's chief interest is in the tobacco industry; it has also considerable trade in other agricultural products and in coal; and its manufactures include carriages and wagons, bricks, lime, flour and dressed lumber. When Christian county was formed from Logan county in 1797, Hopkinsville, formerly called Elizabethtown, became the county-seat, and was renamed in honour of Samuel Hopkins (*c.* 1750-1819), an officer of the Continental Army in the War of Independence, a pioneer settler in Kentucky, and a representative in Congress from Kentucky in 1813-1815. In 1798 Hopkinsville was incorporated.

HOPPNER, JOHN (1758-1810), English portrait-painter, was born, it is said, on the 4th of April 1758 at Whitechapel. His father was of German extraction, and his mother was one of the German attendants at the royal palace. Hoppner was consequently brought early under the notice and received the patronage of George III., whose regard for him gave rise to unfounded scandal. As a boy he was a chorister at the royal chapel, but showing strong inclination for art, he in 1775 entered as a student at the Royal Academy. In 1778 he took a silver medal for drawing from the life, and in 1782 the Academy's highest award, the gold medal for historical painting, his subject being King Lear. He first exhibited at the Royal Academy in 1780. His earliest love was for landscape, but necessity obliged him to turn to the more lucrative business of portrait-painting. At once successful, he had, throughout life, the most fashionable and wealthy sitters, and was the greatest rival of the growing attraction of Lawrence. Ideal subjects were very rarely attempted by Hoppner, though a "Sleeping Venus," "Belisarius," "Jupiter and Io," a "Bacchante" and "Cupid and Psyche" are mentioned among his works. The prince of Wales especially patronized him, and many of his finest portraits are in the state apartments at St James's Palace, the best perhaps being those of the prince, the duke and duchess of York, of Lord Rodney and of Lord Nelson. Among his other sitters were Sir Walter Scott, Wellington, Frere and Sir George Beaumont. Competent judges have deemed his most successful works to be his portraits of women and children. A *Series of Portraits of Ladies* was published by him in 1803, and a volume of translations of Eastern tales into English verse in 1805. The verse is of but mediocre quality. In his later years Hoppner suffered from a chronic disease of the liver; he died on the 23rd of January 1810. He was confessedly an imitator of Reynolds. When first painted, his works were much admired for the brilliancy and harmony of their colouring, but the injury due to destructive mediums and lapse of time which many of them suffered caused a great depreciation in his reputation. The appearance, however, of some of his pictures in good condition has shown that his fame as a brilliant colourist was well founded. His drawing is faulty, but his touch has qualities of breadth and freedom that give to his paintings a faint reflection of the charm of Reynolds. Hoppner was a man of great social

power, and had the knowledge and accomplishments of a man of the world.

The best account of Hoppner's life and paintings is the exhaustive work by William McKay and W. Roberts (1909).

HOP-SCOTCH ("scotch," to score), an old English children's game in which a small object, like a flat stone, is kicked by the player, while hopping, from one division to another of an oblong space marked upon the ground and divided into a number of divisions, usually 10 or 12. These divisions are numbered, and the stone must rest successively in each. Should it rest upon a line or go out of the division aimed for, the player loses. In order to win a player must drive the stone into each division and back to the starting-point.

HOPTON, RALPH HOPTON, BARON (1598-1652), Royalist commander in the English Civil War, was the son of Robert Hopton of Witham, Somerset. He appears to have been educated at Lincoln College, Oxford, and to have served in the army of the Elector Palatine in the early campaigns of the Thirty Years' War, and in 1624 he was lieutenant-colonel of a regiment raised in England to serve in Mansfeld's army. Charles I., at his coronation, made Hopton a Knight of the Bath. In the political troubles which preceded the outbreak of the Civil War, Hopton, as member of parliament successively for Bath, Somerset and Wells, at first opposed the royal policy, but after Stratford's attainder (for which he voted) he gradually became an ardent supporter of Charles, and at the beginning of the Great Rebellion (*q.v.*) he was made lieutenant-general under the marquess of Hertford in the west. His first achievement was the rallying of Cornwall to the royal cause, his next to carry the war from that county into Devonshire. In May 1643 he won the brilliant victory of Stratton, in June he overran Devonshire, and on the 5th of July he inflicted a severe defeat on Sir William Waller at Lansdown. In the last action he was severely wounded by the explosion of a powder-wagon and he was soon after shut up in Devizes by Waller, where he defended himself until relieved by the victory of Roundway Down on the 13th of July. He was soon afterwards created Baron Hopton of Stratton. But his successes in the west were cut short by the defeat of Cheriton or Alresford in March 1644. After this he served in the western campaign under Charles's own command, and towards the end of the war, after Lord Goring had left England, he succeeded to the command of the royal army, which his predecessor had allowed to waste away in indiscipline. It was no longer possible to stem the tide of the parliament's victory, and Hopton, defeated in his last stand at Torrington on the 16th of February 1646, surrendered to Fairfax. Subsequently he accompanied the prince of Wales in his attempts to prolong the war in the Scilly and Channel Islands. But his downright loyalty was incompatible with the spirit of concession and compromise which prevailed in the prince's council in 1640-1650, and he withdrew from active participation in the cause of royalism. He died, still in exile, at Bruges in September 1652. The peerage became extinct at his death. The king, Prince Charles and the governing circle appreciated the merits of their faithful lieutenant less than did his enemies Waller and Fairfax, the former of whom wrote, "hostility itself cannot violate my friendship to your person," while the latter spoke of him as "one whom we honour and esteem above any other of your party."

HOR, MOUNT (הור), the scene in the Bible of Aaron's death, situated "in the edge of the land of Edom" (Num. xxxiii. 37). Since the time of Josephus it has been identified with the *Jebel Nebi Ḥarūn* ("Mountain of the Prophet Aaron"), a twin-peaked mountain 4780 ft. above the sea-level (6072 ft. above the Dead Sea) in the Edomite Mountains on the east side of the Jordan-Arabah valley. On the summit is a shrine said to cover the grave of Aaron. Some modern investigators dissent from this identification: H. Clay Trumbull prefers the Jebel Madāra, a peak north-west of 'Ain Kadis. Another Mount Hor is mentioned in Num. xxxiv. 7, 8, as on the

northern boundary of the prospective conquests of the Israelites. It is perhaps to be identified with Hermon. It has been doubtfully suggested that for *Hor* we should here read *Hadrach*, the name of a northern country near Damascus, mentioned only once in the Bible (Zech. ix. 1).

(R. A. S. M.)

HORACE [Quintus Horatius Flaccus] (65-8 B.C.), the famous Roman poet, was born on the 8th of December 65 B.C. at Venusia, on the borders of Lucania and Apulia (*Sat.* ii. 1. 34). The town, originally a colony of veterans, appears to have long maintained its military traditions, and Horace was early imbued with a profound respect for the indomitable valour and industry of the Italian soldier. It would seem, however, that the poet was not brought up in the town itself, at least he did not attend the town school (*Sat.* i. 6. 72) and was much in the neighbouring country, of which, though he was but a child when he left it, he retained always a vivid and affectionate memory. The mountains near and far, the little villages on the hillsides, the woods, the roaring Aufidus, the mossy spring of Bandusia, after which he named another spring on his Sabine farm—these scenes were always dear to him and are frequently mentioned in his poetry (*e.g. Carm.* iii. 4 and 30, iv. 9). We may thus trace some of the germs of his poetical inspiration, as well as of his moral sympathies, to the early years which he spent near Venusia. But the most important moral influence of his youth was the training and example of his father, of whose worth, affectionate solicitude and homely wisdom Horace has given a most pleasing and life-like picture (*Sat.* i. 6. 70, &c.). He was a freedman by position; and it is supposed that he had been originally a slave of the town of Venusia, and on his emancipation had received the gentile name of Horatius from the Horatian tribe in which the inhabitants of Venusia were enrolled. After his emancipation he acquired by the occupation of “coactor” (a collector of the payments made at public auctions, or, according to another interpretation, a collector of taxes) sufficient means to enable him to buy a small farm, to make sufficient provision for the future of his son (*Sat.* i. 4. 108), and to take him to Rome to give him the advantage of the best education there. To his care Horace attributes, not only the intellectual training which enabled him in later life to take his place among the best men of Rome, but also his immunity from the baser forms of moral evil (*Sat.* i. 6. 68. &c.). To his practical teaching he attributes also his tendency to moralize and to observe character (*Sat.* i. 4. 105, &c.)—the tendency which enabled him to become the most truthful painter of social life and manners which the ancient world produced.

In one of his latest writings (*Epist.* ii. 2. 42, &c.) Horace gives a further account of his education; but we hear no more of his father, nor is there any allusion in his writings to the existence of any other member of his family or any other relative. After the ordinary grammatical and literary training at Rome, he went (45 B.C.) to Athens, the most famous school of philosophy, as Rhodes was of oratory; and he describes himself while there as “searching after truth among the groves of Academus” as well as advancing in literary accomplishment. His pleasant residence there was interrupted by the breaking out of the civil war. Following the example of his young associates, he attached himself to the cause of Brutus, whom he seems to have accompanied to Asia, probably as a member of his staff; and he served at the battle of Philippi in the post of military tribune. He shared in the rout which followed the battle, and henceforth, though he was not less firm in his conviction that some causes were worth fighting for and dying for, he had but a poor opinion of his own soldierly qualities. 688

He returned to Rome shortly after the battle, stripped of his property, which formed part of the land confiscated for the benefit of the soldiers of Octavianus and Antony. It may have been at this time that he encountered the danger of shipwreck, which he mentions among the perils from which his life had been protected by supernatural aid (*Carm.* iii. 4. 28). He procured in some way the post of a clerkship in the quaestor’s office, and about three years after the battle of Philippi, he was introduced by Virgil and Varius to Maecenas. This was the turning-point of his fortunes. He owed his friendship with the greatest of literary patrons to his personal merits rather than to his poetic fame; for he was on intimate terms with Maecenas before the first book of the *Satires* (his first published work) appeared. He tells us in one of his *Satires* (i. 10. 31) that his earliest ambition was to write Greek verses. In giving this direction to his ambition, he was probably influenced by his admiration of the old iambic and lyrical poets whom he has made the models of his own *Epodes* and *Odes*. His common sense as well as his national feeling fortunately saved him from becoming a second-rate Greek versifier in an age when poetic inspiration had passed from Greece to Italy, and the living language of Rome was a more fitting vehicle for the new feelings and interests of men than the echoes of the old Ionian or Aeolian melodies. His earliest Latin compositions were, as he tells us, written under the instigation of

poverty; and they alone betray any trace of the bitterness of spirit which the defeat of his hopes and the hardships which he had to encounter on his first return to Rome may have temporarily produced on him. Some of the *Epodes*, of the nature of personal and licentious lampoons, and the second *Satire* of book i., in which there is some trace of an angry republican feeling, belong to these early compositions. But by the time the first book of *Satires* was completed and published (35 B.C.) his temper had recovered its natural serenity, and, though he had not yet attained to the height of his fortunes, his personal position was one of comfort and security, and his intimate relation with the leading men in literature and social rank was firmly established.

About a year after the publication of this first book of *Satires* Maecenas presented him with a farm among the Sabine hills, near the modern Tivoli. This secured him pecuniary independence; it satisfied the love of nature which had been implanted in him during the early years spent on the Venusian farm; and it afforded him a welcome escape from the distractions of city life and the dangers of a Roman autumn. Many passages in the *Satires*, *Odes* and *Epistles* express the happiness and pride with which the thought of his own valley filled him, and the interest which he took in the simple and homely ways of his country neighbours. The inspiration of the *Satires* came from the heart of Rome; the feeling of many of the *Odes* comes direct from the Sabine hills; and even the meditative spirit of the later *Epistles* tells of the leisure and peace of quiet days spent among books, or in the open air, at a distance from “the smoke, wealth and tumult” of the great metropolis.

The second book of *Satires* was published in 29 B.C.; the *Epodes* (spoken of by himself as *iambi*) apparently about a year earlier, though many of them are, as regards the date of their composition, to be ranked among the earliest extant writings of Horace. In one of his *Epistles* (i. 19. 25) he rests his first claim to originality on his having introduced into Latium the metres and spirit of Archilochus of Paros. He may have naturalized some special form of metre employed by that poet, and it may be (as Th. Plüsz has suggested) that we should see in the *Epodes* a tone of mockery and parody. But his personal lampoons are the least successful of his works; while those *Epodes* which treat of other subjects in a poetical spirit are inferior in metrical effect, and in truth and freshness of feeling, both to the lighter lyrics of Catullus and to his own later and more carefully meditated *Odes*. The *Epodes*, if they are serious at all, are chiefly interesting as a record of the personal feelings of Horace during the years which immediately followed his return to Rome, and as a prelude to the higher art and inspiration of the first three books of the *Odes*, which were published together about the end of 24 or the beginning of 23 B.C.[1] The composition of these *Odes* extended over several years, but all the most important among them belong to the years between the battle of Actium and 24 B.C. His lyrical poetry is thus, not, like that of Catullus, the ardent utterance of his youth, but the mature and finished workmanship of his manhood. The state of public affairs was more favourable than it had been since the outbreak of the civil war between Caesar and Pompey for the appearance of lyrical poetry. Peace, order and national unity had been secured by the triumph of Augustus, and the enthusiasm in favour of the new government had not yet been chilled by experience of its repressing influence. The poet’s circumstances were, at the same time, most favourable for the exercise of his lyrical gift during these years. He lived partly at Rome, partly at his Sabine farm, varying his residence occasionally by visits to Tibur, Praeneste or Baiae. His intimacy with Maecenas was strengthened and he had become the familiar friend of the great minister. He was treated with distinction by Augustus, and by the foremost men in Roman society. He complains occasionally that the pleasures of his youth are passing from him, but he does so in the spirit of a temperate Epicurean, who found new enjoyments in life as the zest for the old enjoyments decayed, and who considered the wisdom and meditative spirit—“the philosophic mind that years had brought”—an ample compensation for the extinct fires of his youth.

About four years after the publication of the three books of *Odes*, the first book of the *Epistles* appeared, introduced, as his *Epodes*, *Satires* and *Odes* had been, by a special address to Maecenas. From these *Epistles*, as compared with the *Satires*, we gather that he had gradually adopted a more retired and meditative life, and had become fonder of the country and of study, and that, while owing allegiance to no school or sect of philosophy, he was framing for himself a scheme of life, was endeavouring to conform to it, and was bent on inculcating it on others. He maintained his old friendships, and continued to form new intimacies, especially with younger men engaged in public affairs or animated by literary ambition. After the death of Virgil he was recognized as pre-eminently the greatest living poet, and was accordingly called upon by Augustus to compose the sacred hymn for the celebration of the secular games in 17 B.C. About four years later he published the fourth book of *Odes* (about 13 B.C.) having been called upon to do so by the emperor, in order that the victories of his stepsons Drusus and Tiberius over the Rhaeti and Vindelici might be worthily celebrated. He lived about five years longer, and during these years published the second book of *Epistles*,

and the *Epistle to the Pisos*, more generally known as the "*Ars poetica*." These later *Epistles* are mainly devoted to literary criticism, with the especial object of vindicating the poetic claims of his own age over those of the age of Ennius and the other early poets of Rome. He might have been expected, as a great critic and lawgiver on literature, to have exercised a beneficial influence on the future poetry of his country, and to have applied as much wisdom to the theory of his own art as to that of a right life. But his critical *Epistles* are chiefly devoted to a controversial attack on the older writers and to the exposition of the laws of dramatic poetry, on which his own powers had never been exercised, and for which either the genius or circumstances of the Romans were unsuited. The same subordination of imagination and enthusiasm to good sense and sober judgment characterizes his opinions on poetry as on morals.

He died somewhat suddenly on the 17th of November of the year 8 B.C. He left Augustus to see after his affairs, and was buried on the Esquiline Hill, near Maecenas.

Horace is one of the few writers, ancient or modern, who have written a great deal about themselves without laying themselves open to the charge of weakness or egotism. His chief claim to literary originality is not that on which he himself rested his hopes of immortality—that of being the first to adapt certain lyrical metres to the Latin tongue—but rather that of being the first of those whose works have reached us who establishes a personal relation with his reader, speaks to him as a familiar friend, gives him good advice, tells him the story of his life, and shares with him his private tastes and pleasures—and all this without any loss of self-respect, any want of modesty or breach of good manners, and in a style so lively and natural that each new generation of readers might fancy that he was addressing them personally and speaking to them on subjects of every day modern interest. In his self-portraiture, far from wishing to make himself out better or greater than he was, he seems to write under the influence of an ironical restraint which checks him in the utterance of his highest moral teaching and of his poetical enthusiasm. He affords us some indications of his personal appearance, as where he speaks of the "nigros angusta fronte capillos" of his youth, and describes himself after he had completed his forty-fourth December as of small stature, prematurely grey and fond of basking in the sun (*Epist.* i. 20. 24).

In his later years his health became weaker or more uncertain, and this caused a considerable change in his habits, tastes and places of residence. It inclined him more to a life of retirement and simplicity, and also it stimulated his tendency to self-introspection and self-culture. In his more vigorous years, when he lived much in Roman society, he claims to have acted in all his relations to others in accordance with the standard recognized among men of honour in every age, to have been charitably indulgent to the weakness of his friends, and to have been exempt from petty jealousies and the spirit of detraction. If ever he deviates from his ordinary vein of irony and quiet sense into earnest indignation, it is in denouncing conduct involving treachery or malice in the relations of friends (*Sat.* i. 4. 81, &c.).

He claims to be and evidently aims at being independent of fortune, superior to luxury, exempt both from the sordid cares of avarice and the coarser forms of profligacy. At the same time he makes a frank confession of indolence and of occasional failure in the pursuit of his ideal self-mastery. He admits his irascibility, his love of pleasure, his sensitiveness to opinion, and some touch of vanity or at least of gratified ambition arising out of the favour which through all his life he had enjoyed from those much above him in social station (*Epist.* i. 20. 23). Yet there appears no trace of any unworthy deference in Horace's feelings towards the great. Even towards Augustus he maintained his attitude of independence, by declining the office of private secretary which the emperor wished to force upon him; and he did so with such tact as neither to give offence nor to forfeit the regard of his superior. His feeling towards Maecenas is more like that of Pope towards Bolingbroke than that which a client in ancient or modern times entertains towards his patron. He felt pride in his protection and in the intellectual sympathy which united him with one whose personal qualities had enabled him to play so prominent and beneficent a part in public affairs. Their friendship was slowly formed, but when once established continued unshaken through their lives.

There is indeed nothing more remarkable in Horace than the independence, or rather the self-dependence, of his character. The enjoyment which he drew from his Sabine farm consisted partly in the refreshment to his spirit from the familiar beauty of the place, partly in the "otia liberrima" from the claims of business and society which it afforded him. His love poems, when compared with those of Catullus, Tibullus and Propertius, show that he never, in his mature years at least, allowed his peace of mind to be at the mercy of any one. They are the expressions of a fine and subtle and often a humorous observation rather than of ardent feeling. There is perhaps a touch of pathos in his reference in the *Odes* to the early death of Cinara, but the epithet he applies to her in the *Epistles*,

"Quem scis immunem Cinarae placuisse rapaci,"

shows that the pain of thinking of her could not have been very heartfelt. Even when the *Odes* addressed to real or imaginary beauties are most genuine in feeling, they are more the artistic rekindling of extinct fires than the utterance of recent passion. In his friendships he had not the self-forgetful devotion which is the most attractive side of the character of Catullus; but he studied how to gain and keep the regard of those whose society he valued, and he repaid this regard by a fine courtesy and by a delicate appreciation of their higher gifts and qualities, whether proved in literature, or war, or affairs of state or the ordinary dealings of men. He enjoyed the great world, and it treated him well; but he resolutely maintained his personal independence and the equipoise of his feelings and judgment. If it is thought that in attributing a divine function to Augustus he has gone beyond the bounds of a sincere and temperate admiration, a comparison of the *Odes* in which this occurs with the first *Epistle* of the second book shows that he certainly recognized in the emperor a great and successful administrator and that his language is to be regarded rather as the artistic expression of the prevailing national sentiment than as the tribute of an insincere adulation.

The aim of Horace's philosophy was to "be master of oneself," to retain the "mens aequa" in all circumstances, to use the gifts of fortune while they remained, and to be prepared to part with them with equanimity; to make the most of life, and to contemplate its inevitable end without anxiety. Self-reliance and resignation are the lessons which he constantly inculcates. His philosophy is thus a mode of practical Epicureanism combined with other elements which have more affinity with Stoicism. In his early life he professed his adherence to the former system, and several expressions in his first published work show the influences of the study of Lucretius. At the time when the first book of the *Epistles* was published he professes to assume the position of an eclectic rather than that of an adherent of either school (*Epist.* i. 1. 13-19). We note in the passage here referred to, as in other passages, that he mentions Aristippus of Cyrene, rather than Epicurus himself, as the master under whose influence he from time to time insensibly lapsed. Yet the dominant tone of his teaching is that of a refined Epicureanism, not so elevated or purely contemplative as that preached by Lucretius, but yet more within the reach of a society which, though luxurious and pleasure-loving, had not yet become thoroughly frivolous and enervated. His advice is to subdue all violent emotion of fear or desire; to estimate all things calmly—"nil admirari"; to choose the mean between a high and low estate; and to find one's happiness in plain living rather than in luxurious indulgence. Still there was in Horace a robuster fibre, inherited from the old Italian race, which moved him to value the dignity and nobleness of life more highly than its ease and enjoyment. In some of the stronger utterances of his *Odes*, where he expresses sympathy with the manlier qualities of character, we recognize the resistent attitude of Stoicism rather than the passive acquiescence of Epicureanism. The concluding stanzas of the address to Lollius (*Ode* iv. 9) exhibit the Epicurean and Stoical view of life so combined as to be more worthy of human dignity than the genial worldly wisdom of the former school, more in harmony with human experience than the formal precepts of the latter.

It is interesting to trace the growth of Horace in elevation of sentiment and serious conviction from his first ridicule of the paradoxes of Stoicism in the two books of the *Satires* to the appeal which he makes in some of the *Odes* of the third book to the strongest Roman instincts of fortitude and self-sacrifice. A similar modification of his religious and political attitude may be noticed between his early declaration of Epicurean unbelief and the sympathy which he shows with the religious reaction fostered by Augustus; and again between the Epicurean indifference to national affairs and the strong support which he gives to the national policy of the emperor in the first six *Odes* of the third book, and in the fifth and fifteenth of the fourth book. In his whole religious attitude he seems to stand midway between the consistent denial of Lucretius and Virgil's pious endeavour to reconcile ancient faith with the conclusions of philosophy. His introduction into some of his *Odes* of the gods of mythology must be regarded as merely artistic or symbolical. Yet in some cases we recognize the expression of a natural piety, thankful for the blessing bestowed on purity and simplicity of life, and acknowledging a higher and more majestic law governing nations through their voluntary obedience. On the other hand, his allusions to a future life, as in the "domus exilis Plutonia," and the "furvae regna Proserpinae," are shadowy and artificial. The image of death is constantly obtruded in his poems to enhance the sense of present enjoyment. In the true spirit of paganism he associates all thoughts of love and wine, of the meeting of friends, or of the changes of the seasons with the recollection of the transitoriness of our pleasures—

"Nos, ubi decidimus
Quo pius Aeneas, quo dives Tullus et Ancus,
Pulvis et umbra sumus."

Horace is so much of a moralist in all his writings that, in order to enter into the spirit both of his familiar and of his lyrical poetry, it is essential to realize what were his views of life and the influences under which they were formed. He is, though in a different sense from Lucretius,

eminently a philosophical and reflective poet. He is also, like all the other poets of the Augustan age, a poet in whose composition culture and criticism were as conspicuous elements as spontaneous inspiration. In the judgment he passes on the older poetry of Rome and on that of his contemporaries, he seems to attach more importance to the critical and artistic than to the creative and inventive functions of genius. It is on the labour and judgment with which he has cultivated his gift that he rests his hopes of fame. The whole poetry of the Augustan age was based on the works of older poets, Roman as well as Greek. Its aim was to perfect the more immature workmanship of the former, and to adapt the forms, manners and metres of the latter to subjects of immediate and national interest. As Virgil performed for his generation the same kind of office which Ennius performed for an older generation, so Horace in his *Satires*, and to a more limited extent in his *Epistles*, brought to perfection for the amusement and instruction of his contemporaries the rude but vigorous designs of Lucilius.

It was the example of Lucilius which induced Horace to commit all his private thoughts, feelings and experience “to his books as to trusty companions,” and also to comment freely on the characters and lives of other men. Many of the subjects of particular satires of Horace were immediately suggested by those treated by Lucilius. Thus the “Journey to Brundusium” (*Sat.* i. 5) reproduced the outlines of Lucilius’s “Journey to the Sicilian Straits.” The discourse of Ofella on luxury (*Sat.* ii. 2) was founded on a similar discourse of Laelius on gluttony, and the “Banquet of Nasidienus” (*Sat.* ii. 8) may have been suggested by the description by the older poet of a rustic entertainment. There was more of moral censure and personal aggressiveness in the satire of the older poet. The ironical temper of Horace induced him to treat the follies of society in the spirit of a humorist and man of the world, rather than to assail vice with the severity of a censor; and the greater urbanity of his age or of his disposition restrained in him the direct personality of satire. The names introduced by him to mark types of character such as Nomentanus, Maenius, Pantolabus, &c., are reproduced from the writings of the older poet. Horace also followed Lucilius in the variety of forms which his satire assumes, and especially in the frequent adoption of the form of dialogue, derived from the “dramatic medley” which was the original character of the Roman *Satura*. This form suited the spirit in which Horace regarded the world, and also the dramatic quality of his genius, just as the direct denunciation and elaborate painting of character suited the “saeva indignatio” and the oratorical genius of Juvenal.

Horace’s satire is accordingly to a great extent a reproduction in form, manner, substance and tone of the satire of Lucilius; or rather it is a casting in the mould of Lucilius of his own observation and experience. But a comparison of the fragments of Lucilius with the finished compositions of Horace brings out in the strongest light the artistic originality and skill of the latter poet in his management of metre and style. Nothing can be rougher and harsher than the hexameters of Lucilius, or cruder than his expression. In his management of the more natural trochaic metre, he has shown much greater ease and simplicity. It is one great triumph of Horace’s genius that he was the first and indeed the only Latin writer who could bend the stately hexameter to the uses of natural and easy, and at the same time terse and happy, conversational style. Catullus, in his hendecasyllabics, had shown the vivacity with which that light and graceful metre could be employed in telling some short story or describing some trivial situation dramatically. But no one before Horace had succeeded in applying the metre of heroic verse to the uses of common life. But he had one great native model in the mastery of a terse, refined, ironical and natural conversational style, Terence; and the *Satires* show, not only in allusions to incidents and personages, but in many happy turns of expression very frequent traces of Horace’s familiarity with the works of the Roman Menander.

The *Epistles* are more original in form, more philosophic in spirit, more finished and charming in style than the *Satires*. The form of composition may have been suggested by that of some of the satires of Lucilius, which were composed as letters to his personal friends. But letter-writing in prose, and occasionally also in verse, had been common among the Romans from the time of the siege of Corinth; and a practice originating in the wants and convenience of friends temporarily separated from one another by the public service was ultimately cultivated as a literary accomplishment. It was a happy idea of Horace to adopt this form for his didactic writings on life and literature. It suited him as an eclectic and not a systematic thinker, and as a friendly counsellor rather than a formal teacher of his age. It suited his circumstances in the latter years of his life, when his tastes inclined him more to retirement and study, while he yet wished to retain his hold on society and to extend his relations with younger men who were rising into eminence. It suited the class who cared for literature—a limited circle of educated men, intimate with one another, and sharing the same tastes and pursuits. While giving expression to lessons applicable to all men, he in this way seems to address each reader individually, with the urbanity of a friend rather than the solemnity of a preacher. In spirit the *Epistles* are more ethical and meditative than the *Satires*. Like the *Odes* they exhibit the twofold aspects of his philosophy, that of temperate Epicureanism and that of more serious and elevated conviction. In the actual maxims which he lays down, in his apparent belief in the efficacy of addressing philosophical texts to the mind, he exemplifies the triteness and limitation of all Roman thought. But the spirit and sentiment of his practical philosophy is quite genuine and original. The individuality of the great Roman moralists, such as Lucretius and

Horace, appears not in any difference in the results at which they have arrived, but in the difference of spirit with which they regard the spectacle of human life. In reading Lucretius we are impressed by his earnestness, his pathos, his elevation of feeling; in Horace we are charmed by the serenity of his temper and the flavour of a delicate and subtle wisdom. We note also in the *Epistles* the presence of a more philosophic spirit, not only in the expression of his personal convictions and aims, but also in his comments on society. In the *Satires* he paints the outward effects of the passions of the age. He shows us prominent types of character—the miser, the parasite, the legacy-hunter, the parvenu, &c., but he does not try to trace these different manifestations of life to their source. In the *Epistles* he finds the secret spring of the social vices of the age in the desire, as marked in other times as in those of Horace, to become rich too fast, and in the tendency to value men according to their wealth, and to sacrifice the ends of life to a superfluous care for the means of living. The cause of all this aimless restlessness and unreasonable desire is summed up in the words “Strenua nos exercet inertia.”

In his *Satires* and *Epistles* Horace shows himself a genuine moralist, a subtle observer and true painter of life, and an admirable writer. But for both of these works he himself disclaims the title of poetry. He rests his claims as a poet on his *Odes*. They reveal an entirely different aspect of his genius, his spirit and his culture. He is one among the few great writers of the world who have attained high excellence in two widely separated provinces of literature. Through all his life he was probably conscious of the “ingeni benigna vena,” which in his youth made him the sympathetic student and imitator of the older lyrical poetry of Greece, and directed his latest efforts to poetic criticism. But it was in the years that intervened between the publication of his *Satires* and *Epistles* that his lyrical genius asserted itself as his predominant faculty. At that time he had outlived the coarser pleasures and risen above the harassing cares of his earlier career; a fresh source of happiness and inspiration had been opened up to him in his beautiful Sabine retreat; he had become not only reconciled to the rule of Augustus, but a thoroughly convinced and, so far as his temperament admitted to enthusiasm, an enthusiastic believer in its beneficence. But it was only after much labour that his original vein of genius obtained a free and abundant outlet. He lays no claim to the “profuse strains of unpremeditated art,” with which other great lyrical poets of ancient and modern times have charmed the world. His first efforts were apparently imitative, and were directed to the attainment of perfect mastery over form, metre and rhythm. The first nine *Odes* of the first book are experiments in different kinds of metre. They and all the other metres employed by him are based on those employed by the older poets of Greece—Alcaeus, Sappho, Archilochus, Alcman, &c. He has built the structure of his lighter *Odes* also on their model, while in some of those in which the matter is more weighty, as in that in which he calls on Calliope “to dictate a long continuous strain,” he has endeavoured to reproduce something of the intricate movement, the abrupt transitions, the interpenetration of narrative and reflection, which characterize the art of Pindar. He frequently reproduces the language and some of the thoughts of his masters, but he gives them new application, or stamps them with the impress of his own experience. He brought the metres which he has employed to such perfection that the art perished with him. A great proof of his mastery over rhythm is the skill with which he has varied his metres according to the sentiment which he wishes to express. Thus his great metre, the Alcaic, has a character of stateliness and majesty in addition to the energy and impetus originally imparted to it by Alcaeus. The Sapphic metre he employs with a peculiar lightness and vivacity which harmonize admirably with his gayer moods.

Again in regard to his diction, if Horace has learned his subtlety and moderation from his Greek masters, he has tempered those qualities with the masculine characteristics of his race. No writer is more Roman in the stateliness and dignity, the terseness, occasionally even in the sobriety and bare literalness, of his diction.

While it is mainly owing to the extreme care which Horace gave to form, rhythm and diction that his own prophecy

“Usque ego postera
Crescam laude recens”

has been so amply fulfilled, yet no greater injustice could be done to him than to rank him either as poet or critic with those who consider form everything in literature. With Horace the mastery over the vehicle of expression was merely an essential preliminary to making a worthy and serious use of that vehicle. The poet, from Horace’s point of view, was intended not merely to give refined pleasure to a few, but above all things, to be “utilis urbi.” Yet he is saved, in his practice, from the abuse of this theory by his admirable sense, his ironical humour, his intolerance of pretension and pedantry. Opinions will differ as to whether he or Catullus is to be regarded as the greater lyrical poet. Those who assign the palm to Horace will do so, certainly not because they recognize in him richer or equally rich gifts of feeling, conception and expression, but because the subjects to which his art has been devoted have a fuller, more varied, more mature and permanent interest for the world.

Authorities.—For the life of Horace the chief authorities are his own works and a short

ancient biography which is attributed to Suetonius. The *apparatus criticus* is most fully described in O. Keller's preface to vol. i. of the 2nd ed. (1899) of Keller and Holder's recension of Horace's works. This edition also gives by far the largest collection of variants and emendations to the text and of the *testimonia* of ancient writers.

What might have proved the most important manuscript of Horace, the so-called *vetustissimus Blandinius*, is now lost, and we know it only from the account of J. Cruquius who saw it in 1565. The relations of the extant MSS. to each other and the presumed archetype present an intricate problem; and Keller's solution has not proved generally acceptable. See a *résumé* of the controversy *Horazkritik seit 1880* by J. Bick (Leipzig, 1906) and F. Vollmer in *Philologus*. Supp. x. 2, pp. 261-322. Many MSS. of Horace contain ancient scholia which are copied or taken with abridgment from the commentaries of Porphyrio, who lived about A.D. 200, and Helenius Aero, a still earlier grammarian. These scholia also have been collected and edited—the Porphyrio scholia by A. Holder (1902) and the "Acronian" (or pseudo-Acronian) by O. Keller (1902-1904). R. Bentley's epoch-making edition (1711) has been reprinted with an index by Zangemeister (1869). Of the modern commentaries the most useful are those of J. C. Orelli (4th ed., revised by O. Hirschfelder and J. Mewes, 1886-1890, with *index verborum*), and of A. Kiessling (revised by R. Heinze, *Odes*, 1901, 1908, *Satires*, 1906, *Epistles*, 1898). The best complete English commentary is that of E. C. Wickham (2 vols., 1874-1896). Other editions with English notes are those of T. E. Page (*Odes*, 1883), A. Palmer (*Satires*, 1883), A. S. Wilkins (*Epistles*, 1885), J. Gow (*Odes* and *Epodes*, 1896, *Satires*, i., 1901), P. Shorey (*Odes* and *Epodes*, 1898, Boston, U.S.A.). L. Müller's elaborate edition of the *Odes* and *Epodes* was published posthumously (1900). Of the critical editions Keller and Holder's still holds the field: to this Keller's *Epilegomena zu Horaz* (1879) is a necessary adjunct. F. Vollmer's text (1907) uses Keller's materials on a new principle. Of illustrated editions H. H. Milman's (1867) and C. W. King's (1869, with text revised by H. A. J. Munro) deserve mention. The best verse translation is that of J. Conington lately reprinted with the Latin text from the recension in Postgate's new *Corpus poetarum*. For further information see Teuffel's *Geschichte der römischen Litteratur* (Eng. trans. by G. C. Warr), §§ 234-240, and M. Schanz's excellent account in his *Geschichte der römischen Litteratur*, vol. ii. §§ 251-266.

(W. Y. S.; J. G*.)

---

1 The date is determined by the poem on the death of Quintilius Varus (who died 24 B.C.), and by the reference in *Ode* i. 12 to the young Marcellus (died in autumn 23 B.C.) as still alive. Cf. Wickham's Introduction to the *Odes*.

HORAE (Lat. *hora*, hour), the Hours, in Greek mythology Ὧραι, originally the personification of a series of natural phenomena. In the *Iliad* (v. 749) they are the custodians of the gates of Olympus, which they open or shut by scattering or condensing the clouds; that is, they are weather goddesses, who send down or withhold the fertilizing dews and rain. In the *Odyssey*, where they are represented as bringing round the seasons in regular order, they are an abstraction rather than a concrete personification. The brief notice in Hesiod (*Theog.* 901), where they are called the children of Zeus and Themis, who superintend the operations of agriculture, indicates by the names assigned to them (Eunomia, Dikē, Eirenē, *i.e.* Good Order, Justice, Peace) the extension of their functions as goddesses of order from nature to the events of human life, and at the same time invests them with moral attributes. Like the Moerae (Fates), they regulate the destinies of man, watch over the newly born, secure good laws and the administration of justice. The selection of three as their number has been supposed to refer to the most ancient division of the year into spring, summer and winter, but it is probably only another instance of the Greek liking for that particular number or its multiples in such connexions (three Moerae, Charites, Gorgons, nine Muses). Order and regularity being indispensable conditions of beauty, it was easy to conceive of the Horae as the goddesses of youthful bloom and grace, inseparably associated with the idea of springtime. As such they are companions of the Nymphs and Graces, with whom they are often confounded, and of other superior deities connected with the spring growth of vegetation (Demeter, Dionysus). At Athens they were two (or three) in number: Thallo and Carpo, the goddesses of the flowers of spring and of the fruits of summer, to whom Auxo, the goddess of the growth of plants, may be added, although some authorities make her only one of the Graces. In honour of the Horae a yearly festival (Horaea) was celebrated, at which protection was sought against the scorching heat and drought, and offerings were made of boiled meat as less insipid and more nutritious than roast. In later mythology, under Alexandrian influence, the Horae become the four seasons, daughters of Helios and Selene, each represented with the conventional attributes. Subsequently, when the day was divided into twelve equal parts, each of them took the name

of Hora. Ovid (*Metam.* ii. 26) describes them as placed at equal intervals on the throne of Phoebus, with whom are also associated the four seasons. Nonnus (5th century A.D.) in the *Dionysiaca* also unites the twelve Horae as representing the day and the four Horae as the seasons in the palace of Helios.

See C. Lehrs, *Populäre Aufsätze* (1856); J. H. Krause, *Die Musen, Grazien, Horen, und Nymphen* (1871); and the articles in Daremberg and Saglio's *Dictionnaire des antiquités*, J. A. Hild; and in Roscher's *Lexikon der Mythologie*, W. Rapp.

HORAPOLLON, of Phaenebythis in the nome of Panopolis in Egypt, Greek grammarian, flourished in the 4th century A.D. during the reign of Theodosius I. According to Suidas, he wrote commentaries on Sophocles, Alcaeus and Homer, and a work (Τεμενικά) on places consecrated to the gods. Photius (cod. 279), who calls him a dramatist as well as a grammarian, ascribes to him a history of the foundation and antiquities of Alexandria (unless this is by an Egyptian of the same name, who lived In the reign of Zeno, 474-491). Under the name of Horapollon two books on *Hieroglyphics* are extant, which profess to be a translation from an Egyptian original into Greek by a certain Philippus, of whom nothing is known. The inferior Greek of the translation, and the character of the additions in the second book point to its being of late date; some have even assigned it to the 15th century. Though a very large proportion of the statements seem absurd and cannot be accounted for by anything known in the latest and most fanciful usage, yet there is ample evidence in both the books, in individual cases, that the tradition of the values of the hieroglyphic signs was not yet extinct in the days of their author.

Bibliography.—Editions by C. Leemans (1835) and A. T. Cory (1840) with English translation and notes; see also G. Rathgeber in Ersch and Gruber's *Allgemeine Encyclopädie*; H. Schäfer, *Zeitschrift für ägyptische Sprache* (1905), p. 72.

HORATII and **CURIATII**, in Roman legend, two sets of three brothers born at one birth on the same day—the former Roman, the latter Alban—the mothers being twin sisters. During the war between Rome and Alba Longa it was agreed that the issue should depend on a combat between the two families. Two of the Horatii were soon slain; the third brother feigned flight, and when the Curiatii, who were all wounded, pursued him without concert he slew them one by one. When he entered Rome in triumph, his sister recognized a cloak which he was wearing as a trophy as one she had herself made for her lover, one of the Curiatii. She thereupon invoked a curse upon her brother, who slew her on the spot. Horatius was condemned to be scourged to death, but on his appealing to the people his life was spared (Livy i. 25, 26; Dion. Halic. iii. 13-22). Monuments of the tragic story were shown by the Romans in the time of Livy (the altar of Janus Curiatius near the *sororium tigillum*, the "sister's beam," or yoke under which Horatius had to pass; and the altar of Juno Sororia). The legend was probably invented to account for the origin of the *provocatio* (right of appeal to the people), while at the same time it points to the close connexion and final struggle for supremacy between the older city on the mountain and the younger city on the plain. Their relationship and origin from three tribes are symbolically represented by the twin sisters and the two sets of three brothers.

For a critical examination of the story, see Schwegler, *Römische Geschichte*, bk. xii. 11. 14; Sir G. Cornewall Lewis, *Credibility of Early Roman History*, ch. xi. 15; W. Ihne, *Hist. of Rome*, i.; E. Pais, *Storia di Roma*, i. ch. 3 (1898), and *Ancient Legends of Roman History* (Eng. trans., 1906), where the story is connected with the ceremonies performed in honour of Jupiter Tigillus and Juno Sororia; C. Pascal, *Fatti e legende di Roma antica* (Florence, 1903); O. Gilbert, *Geschichte und Topographie der Stadt Rom im Altertum* (1883-1885).

HORATIUS COCLES, a legendary hero of ancient Rome. With two companions he defended

the Sublician bridge against Lars Porsena and the whole army of the Etruscans, while the Romans cut down the bridge behind. Then Horatius threw himself into the Tiber and swam in safety to the shore. A statue was erected in his honour in the temple of Vulcan, and he received as much land as he could plough round in a single day. According to another version, Horatius alone defended the bridge, and was drowned in the Tiber.

There is an obvious resemblance between the legend of Horatius Codes and that of the Horatii and Curiatii. In both cases three Romans come forward as the champions of Rome at a critical moment of her fortunes, and only one successfully holds his ground. In the one case, the locality is the land frontier, in the other, the boundary stream of Roman territory. E. Pais finds the origin of the story in the worship of Vulcan, and identifies Cocles (the “one-eyed”) with one of the Cyclopes, who in mythology were connected with Hephaestus, and later with Vulcan. He concludes that the supposed statue of Cocles was really that of Vulcan, who, as one of the most ancient Roman divinities and, in fact, the protecting deity of the state, would naturally be confounded with the hero who saved it by holding the bridge against the invaders. He suggests that the legend arose from some religious ceremony, possibly the practice of throwing the stuffed figures called Argei into the Tiber from the Pons Sublicius on the ides of May. The conspicuous part played in Roman history by members of the Horatian family, who were connected with the worship of Jupiter Vulcanus, will explain the attribution of the name Horatius to Vulcan-Cocles.

See Livy ii. 10; Dion. Halic. v. 23-25; Polybius vi. 55; Plutarch, *Poplicola*, 16. For a critical examination of the legend, see Schwegler, *Römische Geschichte*, bk. xxi. 18; W. Ihne, *History of Rome*, i.; E. Pais, *Storia di Roma*, i. ch. 4 (1898), and *Ancient Legends of Roman History* (Eng. trans., 1906).

HORDE, a manufacturing town of Germany, in the Prussian province of Westphalia, is 2 m. S.E. from Dortmund on the railway to Soest. Pop. (1905) 28,461. It has a Roman Catholic and an Evangelical church, a synagogue and an old castle dating from about 1300. There are large smelting-works, foundries, puddling-works, rolling-mills and manufactures of iron and plated wares. In the neighbourhood there are large iron and coal mines. A tramway connects the town with Dortmund.

HOREB, the ancient seat of Yahweh, the tribal god of the Kenites, adopted by His covenant by Israel. This is the name preferred by the Elohistic writer (E) whose work is interwoven into the Old Testament narrative, and he is followed by the Deuteronomist school (D). The Yahwistic writer (J), on the other hand, prefers to call the mountain Sinai (*q.v.*), and so do the priestly writers (P). This latter form became the more usual. There is no ground for distinguishing between Horeb as the range and Sinai as the single mountain, or between Horeb and Sinai as respectively the N. and S. parts of the range.

HOREHOUND (O. Eng. *harhune*, Ger. *Andorn*, Fr. *marrube*). Common or white horehound, *Marrubium vulgare*, of the natural order *Labiatae*, is a perennial herb with a short stout rootstock, and thick stems, about 1 ft. in height, which, as well as their numerous branches, are coated with a white or hoary felt—whence the popular name of the plant. The leaves have long petioles, and are roundish or rhombic-ovate, with a bluntly toothed margin, much wrinkled, white and woolly below and pale green and downy above; the flowers are sessile, in dense whorls or clusters, small and dull-white, with a 10-toothed calyx and the upper

lobe of the corolla long and bifid. The plant occurs in Europe, North Africa and West Asia to North-West India, and has been naturalized in parts of America. In Britain, where it is found generally on sandy or dry chalky ground, it is far from common. White horehound contains a volatile oil, resin, a crystallizable bitter principle termed *marrubiin* and other substances, and has a not unpleasant aromatic odour, and a persistent bitter taste. Formerly it was official in British pharmacopoeias; and the infusion, syrup or confection of horehound has long been in popular repute for the treatment of a host of dissimilar affections. Black horehound, *Ballota nigra*, is a hairy perennial herb, belonging to the same order, of foetid odour, is 2 to 3 ft. in height, and has stalked, roundish-ovate, toothed leaves and numerous flowers, in dense axillary clusters, with a green or purplish calyx, and a pale red-purple corolla. It occurs in Europe, North Africa and West Asia, and in Britain south of the Forth and Clyde, and has been introduced into North America.

Horehound.

HORGEN, a small town in the Swiss canton of Zürich, situated on the left or west shore of the Lake of Zürich, and by rail 10½ m. S.E. of the town of Zürich. Pop. (1900) 6883, mostly German-speaking and Protestants. It possesses many industrial establishments of various kinds, and is a centre of the Zürich silk manufacture. It came in 1406 into the possession of Zürich, with which it communicates by means of steamers on the lake, as well as by rail.

HORIZON (Gr. ὁρίζων, dividing), the apparent circle around which the sky and earth seem to meet. At sea this circle is well defined, the line being called the sea horizon, which divides the visible surface of the ocean from the sky. In astronomy the horizon is that great circle of the sphere the plane of which is at right angles to the direction of the plumb line. Sometimes a distinction is made between the rational and the apparent horizon, the former being the horizon as determined by a plane through the centre of the earth, parallel to that through the station of an observer. But on the celestial sphere the great circles of these two planes are coincident, so that this distinction is not necessary (see Astronomy: *Spherical*). The *Dip* of the horizon at sea is the angular depression of the apparent sea horizon, or circle bounding the visible ocean, below the apparent celestial horizon as above defined. It is due to the rotundity of the earth, and the height of the observer's eye above the water. The dip of the horizon and its distance in sea-miles when the height of the observer's eye above the sea-level is h feet, are approximately given by the formulae: Dip = $0'.97\sqrt{h}$; Distance = $1^{m}\cdot17\sqrt{h}$. The difference between the coefficients 0.97 and 1.17 arises from the refraction of the ray, but for which they would be equal.

HORMAYR, JOSEPH, Baron von (1782-1848), German statesman and historian, was born at Innsbruck on the 20th of January 1782. After studying law in his native town, and attaining the rank of captain in the Tirolese Landwehr, the young man, who had the advantage of being the grandson of Joseph von Hormayr (1705-1778), chancellor of Tirol, obtained a post in the foreign office at Vienna (1801), from which he rose in 1803 to be court secretary and, being a near friend of the Archduke John, director of the secret archives of the state and court for thirteen months. In 1803 he married Therese Anderler von Hohenwald. During the insurrection of 1809, by which the Tirolese sought to throw off the Bavarian supremacy confirmed by the treaty of Pressburg, Hormayr was the mainstay of the Austrian party, and assumed the

administration of everything (especially the composition of proclamations and pamphlets); but, returning home without the prestige of success, he fell, in spite of the help of the Archduke John, into disfavour both with the emperor Francis I. and with Prince Metternich, and at length, when in 1813 he tried to stir up a new insurrection in Tirol, he was arrested and imprisoned at Munkatt. In 1816 some amends were made to him by his appointment as imperial historiographer; but so little was he satisfied with the general policy and conduct of the Austrian court that in 1828 he accepted an invitation of King Louis I. to the Bavarian capital, where he became ministerial councillor in the department of foreign affairs. In 1832 he was appointed Bavarian minister-resident at Hanover, and from 1837 to 1846 he held the same position at Bremen. Together with Count Johann Friedrich von der Decken (1769-1840) he founded the Historical Society of Lower Saxony (Historischer Verein für Niedersachsen). The last two years of his life were spent at Munich as superintendent of the national archives. He died on the 5th of October 1848.

Hormayr's literary activity was closely conditioned by the circumstances of his political career and by the fact that Johannes von Müller (d. 1611) was his teacher: while his access to original documents gave value to his treatment of the past, his record or criticism of contemporary events received authority and interest from his personal experience. But his history of the Tirolese rebellion is far from being impartial; for he always liked to put himself into the first place, and the merits of Andreas Hofer and of other leaders are not sufficiently acknowledged. In his later writings he appears as a keen opponent of the policy of the court of Vienna.

The following are among Hormayr's more important works: *Geschichte des Grafen von Andechs* (1796); *Lexikon für Reisenden in Tirol* (1796); *Kritisch-diplomatische Beiträge zur Geschichte Tirols im Mittelalter* (2 vols., Innsbruck, 1802-1803, new ed., 1805); *Gesch. der gefürst. Grafschaft Tirol* (2 vols., Tübingen, 1806-1808); *Österreichischer Plutarch*, 20 vols., collection of portraits and biographies of the most celebrated administrators, commanders and statesmen of Austria (Vienna, 1807); an edition of Beauchamp's *Histoire de la guerre en Vendée* (1809); *Geschichte Hofers* (1817, 2nd ed., 2 vols., 1845) and other pamphlets; *Archiv für Gesch., Stat., Lit. und Kunst* (20 vols., 1809-1828); *Allgemeine Geschichte der neuesten Zeit vom Tod Friedricks des Grossen bis zum zweiten Pariser Frieden* (3 vols., Vienna, 1814-1819, 2nd ed., 1891); *Wien, seine Gesch. und Denkwürdigkeiten* (5 vols., Vienna, 1823-1824); together with *Fragmente über Deutschland, in Sonderheit Bayerns Welthandel; Lebensbilder aus dem Befreiungskriege* (3 vols., Jena, 1841-1844, 2nd ed., 1845); *Die goldene Chronik von Hohenschwangau* (Munich, 1842); *Anemonen aus dem Tagebuch eines alten Pilgersmanns* (4 vols., Jena, 1845-1847). Together with Mednyanski (1784-1844) he founded the *Taschenbuch für die Vaterland. Gesch.* (Vienna, 1811-1848).

See T. H. Merdau, *Biographische Züge aus dem Leben deutscher Männer* (Leipzig, 1815); Gräffer, *Österreichische National-Encyclopädie*, ii. (1835); *Taschenbuch für vaterländische Geschichte* (1836 and 1847); *Neuer Nekrolog der Deutschen* (1848); *Blätter für literarische Unterhaltung* (1849); Wurzbach, *Österreichisches biographisches Lexikon*, ix. (1863); K. Th. von Heigel in the *Allgemeine deutsche Biographie* (1881) and F. X. Wegele, *Geschichte der deutschen Historiographie* (Munich and Leipzig, 1885); F. v. Krones, *Aus Österreichs stillen und bewegten Jahren 1810-1815*; *Biographie und Briefe an Erzhz. Johann* (Innsbruck, 1892); Hirn, *Tiroler Aufstand* (1909).

(J. Hn.)

HORMISDAS, pope from 514 to 523 in succession to Symmachus, was a native of Campania. He is known as having succeeded in obtaining the reunion of the Eastern and Western Churches, which had been separated since the excommunication of Acacius in 484. After two unsuccessful attempts under the emperor Anastasius I., Hormisdas had no difficulty in coming to an understanding in 518 with his successor Justin. Legates were despatched to Constantinople; the memorial of the schismatic patriarchs was condemned; and union was resumed with the Holy See.

Details of this transaction have come down to us in the *Collectio Avellana* (*Corpus script. eccl. Vindobon.*, vol. xxv., Nos. 105-203; cf. Andreas Thiel, *Epp. Rom. Pont.* i. 741 seq.).

HORMIZD, or Hormizdas, the name of five kings of the Sassanid dynasty (see Persia: *Ancient History*). The name is another form of Ahuramazda or Ormuzd (Ormazd), which under the Sassanids became a common personal name and was borne not only by many generals and officials of their time (it therefore occurs very often on Persian seals), but even by the pope of Rome noticed above. It is strictly an abbreviation of Hormuzd-dad, "given by Ormuzd," which form is preserved by Agathias iv. 24-25 as name of King Hormizd I. and II. (Ὁρμισδάτης).

1. Hormizd I. (272-273) was the son of Shapur I., under whom he was governor of Khorasan, and appears in his wars against Rome (Trebellius Pollio, *Trig. Tyr.* 2, where Nöldeke has corrected the name Odomastes into Oromastes, *i.e.* Hormizd). In the Persian tradition of the history of Ardashir I., preserved in a Pahlavi text (Nöldeke, *Geschichte des Artachsir I. Pāpakān*), he is made the son of a daughter of Mithrak, a Persian dynast, whose family Ardashir had extirpated because the magians had predicted that from his blood would come the restorer of the empire of Iran. Only this daughter is preserved by a peasant; Shapur sees her and makes her his wife, and her son Hormizd is afterwards recognized and acknowledged by Ardashir. In this legend, which has been partially preserved also in Tabari, the great conquests of Shapur are transferred to Hormizd. In reality he reigned only one year and ten days.

2. Hormizd II., son of Narseh, reigned for seven years five months, 302-309. Of his reign nothing is known. After his death his son Adarnases was killed by the grandees after a very short reign, as he showed a cruel disposition; another son, Hormizd, was kept a prisoner, and the throne reserved for the child with which a concubine of Hormizd II. was pregnant and which received the name Shapur II. Hormizd escaped from prison by the help of his wife in 323, and found refuge at the court of Constantine the Great (Zosim. ii. 27; John of Antioch, fr. 178; Zonar. 13.5), In 363 Hormizd served in the army of Julian against Persia; his son, with the same name, became consul in 366 (Ammian. Marc. 26. 8. 12).

3. Hormizd III., son of Yazdegerd I., succeeded his father in 457. He had continually to fight with his brothers and with the Ephthalites in Bactria, and was killed by Peroz in 459.

4. Hormizd IV., son of Chosroes I., reigned 578-590. He seems to have been imperious and violent, but not without some kindness of heart. Some very characteristic stories are told of him by Ṭabari (Nöldeke, *Geschichte d. Perser und Araber unter den Sasaniden*, 264 ff.). His father's sympathies had been with the nobles and the priests. Hormizd protected the common people and introduced a severe discipline in his army and court. When the priests demanded a persecution of the Christians, he declined on the ground that the throne and the government could only be safe if it gained the goodwill of both concurring religions. The consequence was that he raised a strong opposition in the ruling classes, which led to many executions and confiscations. When he came to the throne he killed his brothers, according to the oriental fashion. From his father he had inherited a war against the Byzantine empire and against the Turks in the east, and negotiations of peace had just begun with the emperor Tiberius, but Hormizd haughtily declined to cede anything of the conquests of his father. Therefore the accounts given of him by the Byzantine authors, Theophylact, Simocatta (iii. 16 ff.), Menander Protector and John of Ephesus (vi. 22), who give a full account of these negotiations, are far from favourable. In 588 his general, Bahram Chobin, defeated the Turks, but in the next year was beaten by the Romans; and when the king superseded him he rebelled with his army. This was the signal for a general insurrection. The magnates deposed and blinded Hormizd and proclaimed his son Chosroes II. king. In the war which now followed between Bahram Chobin and Chosroes II. Hormizd was killed by some partisans of his son (590).

5. Hormizd V. was one of the many pretenders who rose after the murder of Chosroes II. (628). He maintained himself about two years (631, 632) in the district of Nisibis.

(Ed. M.)

HORMUZ (*Hurmuz*, *Ormuz*, *Ormus*), a famous city on the shores of the Persian Gulf, which occupied more than one position in the course of history, and has now long practically ceased to exist. The earliest mention of the name occurs in the voyage of Nearchus (325 b.c.). When that admiral beached his fleet at the mouth of the river Anamis on the shore of Harmozia, a coast district of Carmania, he found the country to be kindly, rich in every product except the olive. The Anamis appears to be the river now known as the Minab, discharging into the Persian Gulf near the entrance of the latter. The name Hormuz is derived by some from that of the Persian god Hormuzd (Ormazd), but it is more likely that the original etymology was connected with *khurma*, "a date"; for the meaning of Moghistan the modern name of the

territory Harmozia is “the region of date-palms.” The foundation of the city of Hormuz in this territory is ascribed by one Persian writer to the Sassanian Ardashir Babegan (*c.* 230 A.D.). But it must have existed at an earlier date, for Ptolemy takes note of Ἄρμονζα πόλις (vi. 8).

Hormuz is mentioned by Idrisi, who wrote *c.* 1150, under the title of Hormuz-al-sāhilīah, “Hormuz of the shore” (to distinguish it from inland cities of the same name then existing), as a large and well-built city, the chief mart of Kirman. Siraf and Kish (Ḳais), farther up the gulf, had preceded it as ports of trade with India, but in the 13th century Hormuz had become the chief seat of this traffic. It was at this time the seat also of a petty dynasty of kings, of which there is a history by one of their number (Turan Shah); an abstract of it is given by the Jesuit Teixeira. According to this history the founder of the dynasty was Shah Mohammed Dirhem-Kub (“the Drachma-coiner”), an Arab chief who crossed the gulf and established himself here. The date is not given, but it must have been before 1100 A.D., as Ruḳnuddīn Mahmūd, who succeeded in 1246, was the twelfth of the line. These princes appear to have been at times in dependence necessarily on the atabegs of Fars and on the princes of Kirman. About the year 1300 Hormuz was so severely and repeatedly harassed by raids of Tatar horsemen that the king and his people abandoned their city on the mainland and transferred themselves to the island of Jerun (Organa of Nearchus), about 12 m. westward and 4 m. from the nearest shore.

The site of the continental or ancient Hormuz was first traced in modern times by Colonel (Sir Lewis) Pelly when resident at Bushire. It stands in the present district of Minab, several miles from the sea, and on a creek which communicates with the Minab river, but is partially silted up and not now accessible for vessels. There remain traces of a long wharf and extensive ruins. The new city occupied a triangular plain forming the northern part of the island, the southern wall, as its remains still show, being about 2 m. in extent from east to west. A suburb with a wharf or pier, called Turan Bagh (garden of Turan) after one of the kings, a name now corrupted to Trumpak, stood about 3 m. from the town to the south-east.

Odoric gives the earliest notice we have of the new city (*c.* 1320). He calls it Ormes, a city strongly fortified and abounding in costly wares, situated on an island 5 m. distant from the main, having no trees and no fresh water, unhealthy and (as all evidence confirms) incredibly hot. Some years later it was visited more than once by Ibn Batuta, who seems to speak of the old city as likewise still standing. The new Hormuz, called also Jerun (*i.e.* still retaining the original name of the island), was a great and fine city rising out of the sea, and serving as a mart for all the products of India, which were distributed hence over all Persia. The hills on the island were of rock-salt, from which vases and pedestals for lamps were carved. Near the gate of the chief mosque stood an enormous skull, apparently that of a sperm-whale. The king at this time was Kutbuddīn Tahamtan, and the traveller gives a curious description of him, seated on the throne, in patched and dirty raiment, holding a rosary of enormous pearls, procured from the Bahrein fisheries, which at one time or another belonged, with other islands in the gulf and on the Oman shores from Rās-el-had (C. Rosalgat of the Portuguese) on the ocean round to Julfar on the gulf, to the princes of Hormuz. Abdurazzāk, the envoy of Shah Rukh on his way to the Hindu court of Vijayanagar, was in Hormuz in 1442, and speaks of it as a mart which had no equal, frequented by the merchants of all the countries of Asia, among which he enumerates China, Java, Bengal, Tenasserim, Shahr-ī-nao (*i.e.* Siam) and the Maldives. Nikitin, the Russian (*c.* 1470), gives a similar account; he calls it “a vast emporium of all the world.”

In September 1507 the king of Hormuz, after for some time hearing of the terrible foe who was carrying fire and sword along the shores of Arabia, saw the squadron of Alphonso d’Albuquerque appear before his city, an appearance speedily followed by extravagant demands, by refusal of these from the ministers of the young king, and by deeds of matchless daring and cruelty on the part of the Portuguese, which speedily broke down resistance. The king acknowledged himself tributary to Portugal, and gave leave to the Portuguese to build a castle, which was at once commenced on the northern part of the island, commanding the city and the anchorage on both sides. But the mutinous conduct and desertion of several of Albuquerque’s captains compelled him suddenly to abandon the enterprise; and it was not till 1514, after the great leader had captured Goa and Malacca, and had for five years been viceroy, that he returned to Hormuz (or Ormuz, as the Portuguese called it), and without encountering resistance to a name now so terrible, laid his grasp again on the island and completed his castle. For more than a century Hormuz remained practically in the dominions of Portugal, though the hereditary prince, paying from his revenues a tribute to Portugal (in lieu of which eventually the latter took the whole of the customs collections), continued to be the instrument of government. The position of things during the Portuguese rule may be understood from the description of Cesare de’ Federici, a Venetian merchant who was at Hormuz about 1565. After speaking of the great trade in spices, drugs, silk and silk stuffs, and pearls of Bahrein, and in horses for export to India, he says the king was a Moor (*i.e.* Mahommedan), chosen by and subordinate to the Portuguese. “At the election of the king I was there and saw the ceremonies that they use.... The old king being dead, the captain of the

Portugals chooseth another of the blood-royal, and makes this election in the castle with great ceremony. And when he is elected the captain sweareth him to be true ... to the K. of Portugal as his lord and governor, and then he giveth him the sceptre regal. After this ... with great pomp ... he is brought into the royal palace in the city. The king keeps a good train and hath sufficient revenues, ... because the captain of the castle doth maintain and defend his right ... he is honoured as a king, yet he cannot ride abroad with his train, without the consent of the captain first had" (in Hakluyt).[1]

The rise of the English trade and factories in the Indian seas in the beginning of the 17th century led to constant jealousies and broils with the Portuguese, and the successful efforts of the English company to open traffic with Persia especially embittered their rivals, to whom the possession of Hormuz had long given a monopoly of that trade. The officers of Shāh Abbās, who looked with a covetous and resentful eye on the Portuguese occupation of such a position, were strongly desirous of the aid of English ships in attacking Hormuz. During 1620 and 1621 the ships of Portugal and of the English company had more than once come to action in the Indian seas, and in November of the latter year the council at Surat had resolved on what was practically maritime war with the Portuguese flag. There was hardly a step between this and the decision come to in the following month to join with "the duke of Shirāz" (Imām Kūlī Khān, the governor of Fars) in the desired expedition against Hormuz. There was some pretext of being forced into the alliance by a Persian threat to lay embargo on the English goods at Jashk; but this seems to have been only brought forward by the English agents when, at a later date, their proceedings were called in question. The English crews were at first unwilling to take part in what they justly said was "no merchandizing business, nor were they engaged for the like," but they were persuaded, and five English vessels aided, first, in the attack of Kishm, where (at the east end of the large island so called) the Portuguese had lately built a fort,[2] and afterwards in that of Hormuz itself. The latter siege was opened on the 18th of February 1622, and continued to the 1st of May, when the Portuguese, after a gallant defence of ten weeks, surrendered. It is to be recollected that Portugal was at this time subject to the crown of Spain, with which England was at peace; indeed, it was but a year later that the prince of Wales went on his wooing adventure to the Spanish court. The irritation there was naturally great, though it is surprising how little came of it. The company were supposed (apparently without foundation) to have profited largely by the Hormuz booty; and both the duke of Buckingham and the king claimed to be "sweetened," as the record phrases it, from this supposed treasure. The former certainly received a large bribe (£10,000). The conclusion of the transaction with the king was formerly considered doubtful; but entries in the calendar of East India papers seem to show that James received an equal sum.[3]

Hormuz never recovered from this blow. The Persians transferred their establishments to Gombroon on the mainland, about 12 m. to the north-west, which the king had lately set up as a royal port under the name of Bander Abbāsi. The English stipulations for aid had embraced an equal division of the customs duties. This division was apparently recognized by the Persians as applying to the new Bander, and, though the trade with Persia was constantly decaying and precarious, the company held to their factory at Gombroon for the sake of this claim to revenue, which of course was most irregularly paid. In 1683-1684 the amount of debt due to the company in Persia, including their proportion of customs duties, was reckoned at a million sterling. As late as 1690-1691 their right seems to have been admitted, and a payment of 3495 sequins was received by them on this account. The factory at Gombroon lingered on till 1759, when it was seized by two French ships of war under Comte d'Estaing. It was re-established, but at the time of Niebuhr's visit to the gulf a few years later no European remained. Niebuhr mentions that in his time (*c.* 1765) Mulla 'Ali Shāh, formerly admiral of Nādir Shāh, was established on the island of Hormuz and part of Kishm as an independent chief.

See also Barros, *Asia*; *Commentaries of Albuquerque*, trans. by Birch (Hak. Society); *Relaciones de Pedro Teixeira* (Antwerp, 1610); Narratives in Hakluyt's *Collection* (reprint in 1809, vol. ii.) and in Purchas's *Pilgrims*, vol. ii.; Pietro della Valle, *Persia*, lett. xii.-xvii.; *Calendar of E. I. Papers*, by Sainsbury, vol. iii.; Ritter, *Erdkunde*, xii.; *Jour. Roy. Geog. Soc.*, Kempthorne in vol. v., White-locke in vol. viii., Pelly in vol. xxxiv.; Fraser, *Narrative of a Journey into Khorasan* (1825); Constable and Stifle, *Persian Gulf Pilot* (1864); Bruce, *Annals of the E. I. Company*, &c. (1810).

(H. Y.)

The island has a circumference of 16 m. and its longest axis measures 4½ m. The village is in 27° 6′ N., 56° 29′ E. The Portuguese fort still stands, but is sadly out of repair and much of its western wall has been undermined and washed away by the action of the sea. It is a bastioned fort with orillons and loopholed casemates under the ramparts and was separated from the town by a deep moat, now silted up, cut E.-W. across the isthmus and crossed by a bridge. It has three cisterns for collecting rainwater; two are 17-18 ft. deep, have a capacity of about

60,000 gallons and are covered by arched roofs supported on six stone pillars. The third cistern is smaller and has no roof. Five rusty old iron guns are lying prone on the roof; six others on the strand before the village are used for fastening boats, another serves as a socket for a flagstaff before the representative of the government. The island is under the jurisdiction of the governor of the Persian Gulf ports who resides at Bushire. Of the old city hardly anything stands except a minaret, 70 ft. high, with a winding staircase inside and much worn away at the base, part of a former mosque used by the Portuguese as a lighthouse, but the traces of buildings, massive foundations constructed of stone quarried in the hills on the island, of many cisterns (some say 300), &c., are numerous and extensive. The modern settlement, situated south of the fort on the eastern shore, has a population of about 1000 during the cool season, but less in the hot season, when many people go over to Minab on the mainland to the east. Most of the people live in huts constructed of the branches and leaves of the date palm. They own about sixty small sailing vessels trading to Muscat and other ports and also do some pearl-fishing. At Turan Bagh on the east coast 4½ m. S.E. of the fort are some considerable ruins, irrigation canals, an extensive burial ground and some huts occupied by a few families who cultivate a small garden on a terrace supported by old retaining walls. On a hill near the shore 1½ m. S.E. of the fort is the ruin of a small chapel called “Santa Lucia” on an old map in Astley’s *Collection of Voyages*, and on the summit of a salt hill 1½ m. south of the fort are the remains of another chapel called “N.S. de la Pena” on the same map, and a “Monastery” in a sketch of Hormuz made by David Davies, a mate on board the East India Company’s ship “Discovery” in 1627. With the exception of the northern part, where the old city stood, and the little patch at Turan Bagh, the island is covered with reddish brown hills with sharp serrated ridges composed of gypsum, rock-salt and clay. These hills, which do not exceed 300 ft. in height, are broken through in four places by conical, whitish peaks of volcanic rocks (greenstone, trachyte); the highest of these peaks with an altitude of 690 ft. is situated almost in the centre of the island.

The island has extensive beds of red ochre in which nodules of very pure hematite are often found. The ochre, here called *gīlek*, has been an important article of export for centuries[4] and great quantities of it are exported at the present time to England (in 1906-1907, 10,000 tons; local price 27s. the ton). The climate of Hormuz, although hot, is, according to medical experts, the best in the Persian Gulf. Rain falls in January, February and March, and the annual rainfall is said to be about the same as that of Bushire, 12 to 13 in.

Capt. A. W. Stiffe in *Geogr. Mag.* (April 1874); William Foster in *Geogr. Journal* (Aug. 1894); writer’s notes taken on island.

(A. H.-S.)

1 In Barros, *Dec. II.* book x. c. 7, there is a curious detail of the revenue and expenditure of the kingdom of Ormuz, which would seem to exhibit the former as not more than £100,000.

2 The attack on Kishm was notable in that one of the two Englishmen killed there was the great navigator Baffin.

3 *Colonial Series, E. Indies*, by Sainsbury, vol. iii. *passim*, especially see pp. 296 and 329.

4 “Reddle or Red Ochre from the Forest of Dean in Gloucestershire is very little inferior to the Sort brought from the Island of Ormuz in the Persian Gulph and so much valued and used by our Painters under the name of Indian Red” (Sir John Hill, *Theophrastus’s History of Stones*, London, 1774).

HORN, ARVID BERNHARD, Count (1664-1742), Swedish statesman, was born at Vuorentaka in Finland on the 6th of April 1664, of a noble but indigent family. After completing his studies at Åbo, he entered the army and served for several years in the Netherlands, in Hungary under Prince Eugene, and in Flanders under Waldeck (1690-1695). He stood high in the favour of the young Charles XII. and was one of his foremost generals in the earlier part of the great Northern War. In 1704 he was entrusted with his first diplomatic mission, the deposition of Augustus II. of Poland and the election of Stanislaus I., a mission which he accomplished with distinguished ability but absolute unscrupulousness. Shortly afterwards he was besieged by Augustus in Warsaw and compelled to surrender. In 1705 he was made a senator, in 1706 a count and in 1707 governor of Charles XII.’s nephew, the young duke Charles Frederick of Holstein-Gottorp. In 1710 he succeeded Nils Gyldenstolpe as prime minister. Transferred to the central point of the administration, he had ample opportunity of regarding with other eyes the situation of the kingdom, and in consequence of his remonstrances he fell rapidly in the favour of Charles XII. Both in 1710 and 1713 Horn was in

favour of summoning the estates, but when in 1714 the diet adopted an anti-monarchical attitude, he gravely warned and ultimately dissolved it. In Charles XII.'s later years Horn had little to do with the administration. After the death of Charles XII. (1718) it was Horn who persuaded the princess Ulrica Leonora to relinquish her hereditary claims and submit to be *elected* queen of Sweden. He protested against the queen's autocratic behaviour, and resigned both the premiership and his senatorship. He was elected *landtmarskalk* at the diet of 1720, and contributed, on the resignation of Ulrica Leonora, to the election of Frederick of Hesse as king of Sweden, whose first act was to restore to him the office of prime minister. For the next eighteen years he so absolutely controlled both the foreign and the domestic affairs of Sweden that the period between 1720 and 1738 has well been called the Horn period. His services to his country were indeed inestimable. His strong hand kept the inevitable strife of the parliamentary factions within due limits, and it was entirely owing to his provident care that Sweden so rapidly recovered from the wretched condition in which the wars of Charles XII. had plunged her. In his foreign policy Horn was extremely wary and cautious, yet without compromising either the independence or the self-respect of his country. He was, however, the promoter of a new principle of administration which in later days proved very dangerous to Sweden under ministers less capable than he was. This was to increase the influence of the diet and its secret committees in the solution of purely diplomatic questions, which should have been left entirely to the executive, thus weakening the central government and at the same time facilitating the interference of foreign Powers in Sweden's domestic affairs. Not till 1731 was there any appearance of opposition in the diet to Horn's "system"; but Horn, piqued by the growing coolness of the king, the same year offered his resignation, which was not accepted. In 1734, however, the opposition was bold enough to denounce his neutrality on the occasion of the war of the Polish Succession, when Stanislaus I. again appeared upon the scene as a candidate for the Polish throne; but Horn was still strong enough to prevent a rupture with Russia. Henceforth he was bitterly but unjustly accused of want of patriotism, and in 1738 was compelled at last to retire before the impetuous onslaught of the triumphant young Hat party. For the rest of his life he lived in retirement at his estate at Ekebyholm, where he died on the 17th of April 1742. Horn in many respects greatly resembled his contemporary Walpole. The peculiar situation of Sweden, and the circumstances of his time, made his policy necessarily opportunist, but it was an opportunism based on excellent common sense.

See V. E. Svedelius, *Arvid Bernard Horn* (Stockholm, 1879); R. N. Bain, *Gustavus III.*, vol. i. (London, 1894), and *Charles XII.* (1895); C. F. Horn, *A. B. Horn: hans lefnad* (Stockholm, 1852).

(R. N. B.)

HORN, PHILIP DE MONTMORENCY, Count of (1518-1568), a man of illustrious descent and great possessions in the Netherlands, became in succession under Charles V. and Philip II. stadtholder of Gelderland, admiral of Flanders and knight of the Golden Fleece. In 1559 he commanded the stately fleet which conveyed Philip II. from the Netherlands to Spain, and he remained at the Spanish court till 1563. On his return he placed himself with the prince of Orange and Count Egmont at the head of the party which opposed the policy of Cardinal Granvella. When Granvella retired the three great nobles continued to resist the introduction of the Spanish Inquisition and of Spanish despotic rule into the Netherlands. But though Philip appeared for a time to give way, he had made up his mind to visit the opponents of his policy with ruthless punishment. The regent, Margaret, duchess of Parma, was replaced by the duke of Alva, who entered the Netherlands at the head of a veteran army and at once began to crush all opposition with a merciless hand. Orange fled from the country, but Egmont and Horn, despite his warning, decided to remain and face the storm. They were both seized, tried and condemned as traitors, and were executed on the 5th of June 1568 in the great square before the town hall at Brussels.

See biographical notices in A. J. van der Aa, *Biographisch Woordenboek der Nederlanden* (Haarlem, 1851-1879); J. Kok, *Vaderlandsch Woordenboek* (Amsterdam, 1785-1799); also bibliography to chaps. vi. vii. and xix. in *Cambridge Modern History*, vol. iii. pp. 798-809 (1904).

HORN, English hero of romance. *King Horn* is a heroic poem or gest of 1546 lines dating from the 13th century. Murry (or Allof), king of Sudenne[1] (Surrey and Sussex?) is slain by Saracen pirates who turn his son Horn adrift with twelve other children. The boat drifts to Westernesse[2] (Cornwall?), where the children are received by King Aylmer (Aethelmaer). Presently Horn is denounced by one of his companions as the lover of the king's daughter Rymenhild (Rimel) and is banished, taking with him a ring, the gift of his bride and a talisman against danger. In Ireland, under the name of Godmod, he serves for seven years, and slays in battle the Saracens who had killed his father. Learning that Rymenhild is to be married against her will to King Mody, he returns to Westernesse disguised as a palmer, and makes himself known to the bride by dropping the ring into the cup she offers him, with the words "Drink to Horn of Horn." He then reconquers his father's kingdom and marries Rymenhild.

The other versions of the story, which are founded on a common tradition, but are not immediately dependent on one another, are: (1) the longer French romance of *Horn et Rimenhild* by "mestre Thomas," describing more complex social conditions than those of the English poem; (2) a slightly shorter Middle English poem, *Horn Childe and Maiden Rimnild*; (3) the Scottish ballad of "Hind Horn;" (4) a prose romance founded on the French *Horn*, entitled *Pontus et Sidoine* (Lyons, 1480, Eng. trans. pr. by Wynkyn de Worde, 1511; German trans. Augsburg, 1483).

There is a marked resemblance between the story of Horn and the legend of Havelok the Dane, and it is interesting to note how closely Richard of Ely followed the Horn tradition in the 12th century *De gestis Herewardi Saxonis*. Hereward also loves an Irish princess, flees to Ireland, and returns in time for the bridal feast, where he is presented with a cup by the princess. The orphaned prince who recovers his father's kingdom and avenges his murder, and the maid or wife who waits years for an absent lover or husband, and is rescued on the eve of a forced marriage, are common characters in romance. The second of these motives, with almost identical incidents, occurs in the legend of Henry the Lion, duke of Brunswick; it is the subject of ballads in Swedish, Danish, German, Bohemian, &c., and of a *Historia* by Hans Sachs, though some magic elements are added; it also occurs in the ballad of *Der edle Moringer* (14th century), well known in Sir Walter Scott's translation; in the story of Torello in the *Decameron* of Boccaccio (10th day, 9th tale); and with some variation in the Russian tale of Dobrynya and Nastasya.

King Horn was re-edited for the Early English Text Soc. by G. H. McKnight in 1901; *Horn et Rimenhild* was edited with the English versions for the Bannatyne Club by F. Michel (Paris, 1845); *Horn Childe and Maiden Rimnild* in J. Ritson's *Metrical Romances*, vol. iii.; and "Hind Horn" in F. J. Child's *English and Scottish Popular Ballads* (vol. i., 1882), with an introductory note on similar legends. See also H. L. Ward, *Catalogue of Romances*, vol. i., where the relation between Havelok and Horn is discussed; *Hist. litt. de la France* (vol. xxii., 1852); W. Söderhjelm, *Sur l'identité du Thomas auteur de Tristan et du Thomas auteur de Horn* (*Romania*, xv., 1886); T. Wissmann, "King Horn" (1876) and "Das Lied von King Horn" (1881) in Nos. 16 and 45 of *Quellen und Forschungen zur Spr. und Culturgesch. d. german. Völker* (Strassburg and London); *Reinfrid von Braunschweig*, a version of the legend of Henry the Lion, edited by K. Bartsch (Stuttgart, 1871); and a further bibliography in O. Hartenstein, *Studien zur Hornsage* (Heidelberg, 1902).

1 There was a barrow in the Isle of Purbeck, Dorsetshire, called Hornesbeorh; and there are other indications which point to a possible connexion between *Horn* and Dorset (see H. L. Ward, *Cat. of Romances*, i. 451).

2 Sudenne and Westernesse are tentatively identified also with Isle of Man and Wirral (*Cambridge Hist. of Eng Lit.*, i. 304).

HORN (a common Teutonic word, cognate with Lat. *cornu*; cf. Gr. κέρας). The weapons which project from the heads of various species of animals, constituting what are known as horns, embrace substances which are, in their anatomical structure and chemical composition, quite distinct from each other; and although in commerce also they are known indiscriminately as horn, their uses are altogether dissimilar. These differences in structure and properties were thus indicated by Sir R. Owen:—"The weapons to which the term horn is properly or technically applied consist of very different substances, and belong to two organic systems, as distinct from each other as both are from the teeth. Thus the horns of deer consist of bone, and are processes of the frontal bone; those of the giraffe are independent bones or 'epiphyses' covered by hairy skin; those of oxen, sheep and antelopes are 'apophyses' of the frontal bone,

covered by the corium and by a sheath of true horny material; those of the prong-horned antelope consist at their basis of bony processes covered by hairy skin, and are covered by horny sheaths in the rest of their extent. They thus combine the character of those of the giraffe and ordinary antelope, together with the expanded and branched form of the antlers of deer. Only the horns of the rhinoceros are composed wholly of horny matter, and this is disposed in longitudinal fibres, so that the horns seem rather to consist of coarse bristles compactly matted together in the form of a more or less elongated sub-compressed cone." True horny matter is really a modified form of epidermic tissue, and consists of the albuminoid "keratin." It forms, not only the horns of the ox tribe, but also the hoofs, claws or nails of animals generally, the carapace of the tortoises and the armadilloes, the scales of the pangolin, porcupine quills, and birds' feathers, &c.

Horn is employed in the manufacture of combs, buttons, the handles of walking-sticks, umbrellas, and knives, drinking-cups, spoons of various kinds, snuff-boxes, &c. In former times it was applied to several uses for which it is no longer required, although such applications have left their traces in the language. Thus the musical instruments and fog signals known as horns indicate their descent from earlier and simpler forms of apparatus made from horn. In the same way powder-horns were spoken of long after they ceased to be made of that substance; to a small extent lanterns still continue to be "glazed" with thin transparent plates of horn.

HORN (Lat. *cornu*; corresponding terms being Fr. *cor*, *trompe*; Ger. *Horn*; Ital. *corno*), a class of wind instruments primarily derived from natural animal horns (see above), and having the common characteristics of a conical bore and the absence of lateral holes. The word "horn" when used by modern English musicians always refers to the French horn.

Modern horns may be divided into three classes: (1) the short horns with wide bore, such as the bugles (*q.v.*) and the post-horn. (2) The saxhorns (*q.v.*), a family of hybrid instruments designed by Adolphe Sax, and resulting from the adaptation of valves and of a cup-shaped mouthpiece to instruments of the calibre of the bugle. The Flügelhorn family is the German equivalent of the saxhorns. The natural scale of instruments of this class comprises the harmonics from the second to the eighth only. (3) The French horn (Fr. *cor de chasse* or *trompe de chasse*, *cor à pistons*; Ger. *Waldhorn*, *Ventilhorn*; Ital. *corno* or *corno di caccia*), one of the most valuable and difficult wind instruments of the orchestra, having a very slender conical tube wound round in coils upon itself. It consists of four principal parts—the body, the crooks, the slide and the mouthpiece.

(*a*) The *body* is the main tube, having a bore of the form known as trunco-conical, measuring approximately 7 ft. 4 in. in length, in which the increase in the diameter of the bore is very gradual in proportion to the length, the cone becoming accentuated only near the bell. In the valve horn the bore is only theoretically conical, the extra lengths of tubing attached to the valves being practically cylindrical. The body is coiled spirally, and has at one end a wide-mouthed bell from 11 to 12 in. in diameter having a parabolic curve, and at the other a conical ferrule into which fit the crooks.

(*b*) The *crooks* (Fr. *corps* or *tons de rechange*; Ger. *Krummbogen*, *Stimmbogen*, *Einsetzbogen*) are interchangeable, spiral tubes, tapering to a diameter of a quarter of an inch at the mouthpiece end and varying in length from 16 in. for the B♭ alto crook to 125 in. for the B♭ basso. Each crook is named according to the fundamental tone which it produces on being added to the body. By lengthening the tube at will the crook lowers the pitch of the instrument, and consequently changes the key in which it stands. Although the harmonic series remains the same for all the crooks, the actual sounds produced by overblowing are lower, the tube being longer, and they now belong to the key of the crook. The principle of the crook was known early in the 17th century; it had been applied to the trumpet, trombone and Jägertrummet[1] before being adapted to the horn. Crooks are merely transposing agents; they are powerless to fill up the gaps in the scale of the horn in order to make it a chromatic or even a diatonic instrument, for they require time for adjustment. The principle of the crook doubtless suggested to Stölzel the system of valves, which is but an instantaneous application of the general principle to the individual notes of the harmonic series, each of which is thereby lowered a semitone, a tone or a tone and a half, as long as the valve remains in operation. The body of the horn without crooks is of the length to produce 8 ft. C., and forms the standard, being known as the alto horn in C, which is the highest key in which the horn is pitched. The notes are sounded as written.

(*c*) The *mouthpiece* of the horn differs substantially from that of the trumpet.[2] There is,

strictly speaking, no cup, the inside of the mouthpiece being, like the bore of the instrument itself, in the form of a truncated cone or funnel. Like the other parts of this difficult and complex instrument, the proportions of the mouthpiece must bear a certain undefined relation to the length and diameter of the column of air. The choice of a suitable mouthpiece is in fact a test of skill; the shape of the lip of the performer and the more special use he may wish to make of either the higher or the lower harmonics have to be taken into consideration. In orchestral music the part for first horns naturally calls for the use of the higher harmonics, which are more easily obtained by means of a somewhat smaller and shallower mouthpiece[3] than that used upon the second horn, which is called upon to dwell more on the lower harmonics.

(*d*) The *tuning slides* (Fr. *coulisses*; Ger. *Stimmbogen*) consist of a pair of sliding **U**-shaped tubes fitting tightly into each other, by means of which the instrument can be brought strictly into tune, and which also act as compensators with the crooks. On these tuning slides, placed across the ring formed by the coils of the valve-horn, are fixed the pistons with their extra lengths of tubing; as the connexion of the pistons with the body of the horn is made through the slides, the value of the latter as compensators will be readily understood. Those accustomed to deal with instruments having fixed notes, such as the piano and harp, hardly realize the extreme difficulties which confront both maker and performer in intricate wind instruments such as the horn, on which no sounds can be produced without conscious adjustment of lips and breath, and but few without the additional use of some such contrivance as slide, crook, piston of of the hand in the bell, in the case of the natural or hand horn.

Acoustics.

The production of sound in wind instruments has a fourfold object: (1) pitch; (2) range or scale of available notes; (3) quality of tone or *timbre*; (4) dynamic variation, or crescendo and diminuendo. The pitch of the horn, as of other wind instruments, depends almost exclusively on the length of the air-column set in vibration, and remains practically uninfluenced by the diameter of the bore. In the case of conical tubes in which the difference in diameter at the two extremities, mouthpiece and bell, is very great, as in the horn, the pitch of the tube will be slightly higher than its theoretical length would warrant.[4] When, for instance, three tubes of the same length are sounded—No. 1, conical diverging; No. 2, conical converging in the direction from mouthpiece to bell; No. 3, cylindrical—No. 1 gives a fundamental tone somewhat higher, No. 2 somewhat lower, than No. 3. Victor Mahillon[5] adds that the rate of vibration in such conical tubes as the horn is slightly less than the rate of vibration in ambient air; therefore, as the rate of vibration (*i.e.* the number of vibrations per second) varies in the inverse ratio with the length of the tube, it follows that the practical length of the horn is slightly less than the theoretical, the difference for the horn in B♭ normal pitch amounting to 13.9 cm. (approximately 5½ in.).

The tube of the horn behaves as an open pipe. E. F. F. Chladni[6] states that the mouthpiece end is to be considered as open in all wind instruments (excepting reed instruments), even when, as in horns and trumpets, it would seem to be closed by the lips. Victor Mahillon, although apparently holding the opposite view, and considering as closed the tubes of all wind instruments played by means of reeds, whether single or double, or by the lips acting as reeds, gives a new and practical explanation of the phenomenon.[7] The result is the same in both cases, for the closed pipe of trunco-conical bore, whose diameter at the bell is at least four times greater than the diameter at the mouthpiece, behaves in the same manner, when set in vibration by a reed, as an open pipe, and gives the consecutive scale of harmonics.[8]

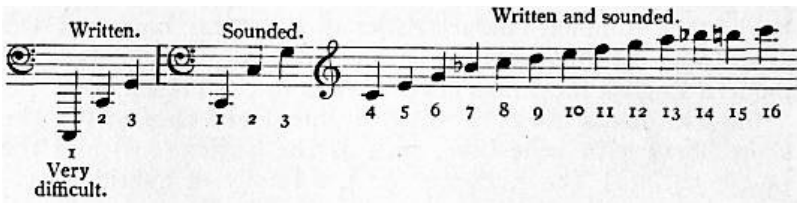
In order to produce sound from the horn, the performer, stretching his lips across the funnel-shaped mouthpiece from rim to rim, blows into the cavity. The lips, vibrating as the breath passes through the aperture between them, communicate pulsations or series of intermittent shocks to the thin stream of air, known as the exciting current, which, issuing from them, strikes the column of air in the tube, already in a state of stationary vibration.[9] The effect of this series of shocks, without which there can be no sound, upon the column of air confined within the walls of the tube is to produce sound-waves, travelling longitudinally through the tube. Each sound-wave consists of two half-lengths, one in which the air has been compressed or condensed by the impulse or push, the second in which, the push being spent, the air again dilates or becomes rarefied. In an open pipe, the wave-length is theoretically equal to the length of the tube. The pitch of the note depends on the frequency per second with which each vibration or complete sound-wave reaches the drum of the ear. The longer the wave the lower the frequency. The velocity of the wave is independent of its length, being solely conditioned by the rate of vibration of the particles composing the conveying medium: while one individual particle performs one complete vibration, the wave advances one wave-length.[10] The rate of particle vibration or frequency is therefore inversely proportional to the corresponding wave-length.[11] Sound-waves generated by the same exciting current travel with the same velocity whatever their length, the difference being the frequency number and therefore the pitch of the note. As long as the performer blows with normal force, the same length of tube produces the same wave-length and therefore the same frequency and pitch. By “blowing with normal force” is understood the proper relative proportions to be maintained between the wind-

pressure and the lip-tension—a ratio which is found instinctively by the performer but was only suspected by the older writers.[12] If the shocks or vibrations initiated by the lips through the medium of the exciting current be sharper owing to the increased tension of the lips, and at the same time succeed each other with greater velocity, the wave-length breaks up, and two, three or more proportionally shorter complete waves form instead of one, and traverse the pipe within the same space of time, producing sounds proportionally higher by an octave, a twelfth, &c., according to the character of the initiatory disturbance. We may therefore add this proposition: the rate of vibration of a tube varies as the number of segments into which the vibrating column of air within it is divided. In order to obtain the fundamental, the performer's lips must be loose and the wind-pressure gentle but steady, so that the exciting current may issue forth in a broad, slow stream. To set in vibration a column of air some 16 or 17 ft. long is a feat of extreme difficulty; that is why it is quite exceptional to find a horn-player who can sound the fundamental on the low C or B♭ *basso* horns. In the organ, where even a 32 ft. tone is obtained, the wind-pressure and the lip-opening controlling the exciting current are mechanically regulated for each length of pipe—only one note being required from each. In order, therefore, to induce the column of air within the tube to break up and vibrate in aliquot parts, the exciting current must be compressed into an ever finer, tenser and more incisive stream. There is in fact a certain minimum pressure for each degree of tension of the lips below which no harmonic can be produced.

It is often stated that the harmonics are obtained by increasing the tension of the lips and a crescendo by increasing the pressure of the breath.[13] Victor Mahillon[14] accounts for the harmonics by increased wind-pressure only. It is evident that the greater the tension of the lips, the greater the force of wind required to set them vibrating; therefore the force and velocity of the air must vary with the tension of the lips in order to produce a steady or musical sound. D. J. Blaikley considers that the ratio of increase in lips and breath follows that of the harmonic series. The tension of the lips has the effect of reducing the width of the slit or aperture between them and the width of the exciting current. While increasing its density the energy of the wind must, therefore, either expend itself in increasing the rate of vibration, or frequency of the pulses, which influences the pitch of the note; or else in increasing the extent of excursion or amplitude of the vibrations, which influences the dynamic force of the sound or loudness.[15] If the aperture be narrowed without providing a proportional increase of wind-pressure, the harmonic overtone may be heard, but either the intonation will suffer or the intensity of the tone will be reduced, because the force required, to set the tenser membrane in vibration is insufficient to give the vibrations the requisite amplitude as well as the frequency. If the force expended be excessive, *i.e.* more than the maximum required to ensure the increased frequency proportional to the increased tension, the superfluous energy must expend itself in increasing the amplitude of the vibrations so that a note of a greater degree of loudness as well as of higher pitch will be produced. The converse is equally true; the lower the pitch of the note the slower the pulses or vibrations and therefore the looser the lip and the gentler the force of current required to set them vibrating. To draw a parallel from organ-pipes: as long as even wind-pressure is maintained, the mouthpiece being fixed proportional to the length of tube, the pipe gives out one note of unvarying dynamic intensity; increase the pressure of the wind and harmonics are heard, but it is impossible to obtain a crescendo unless the mouthpiece be dispensed with and a free reed (*q.v.*) adapted.

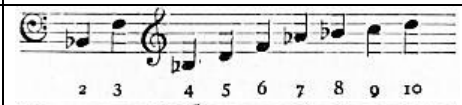
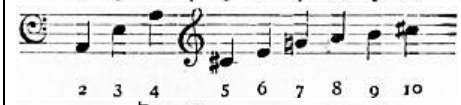
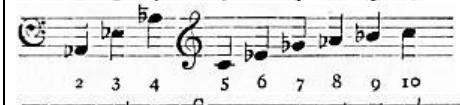
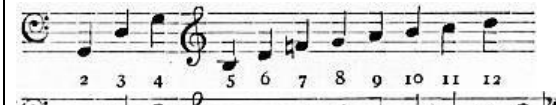
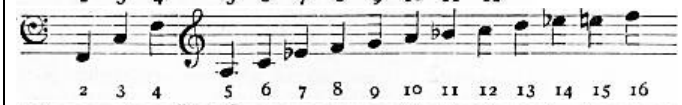
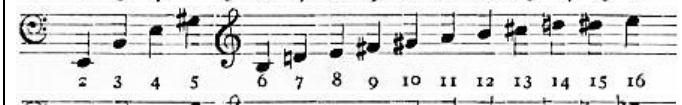
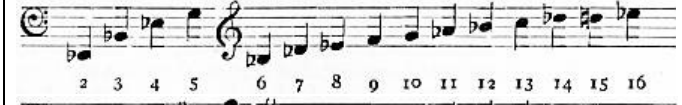
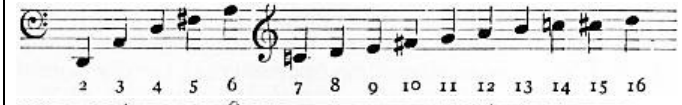
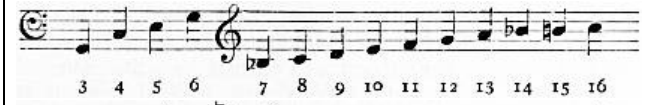
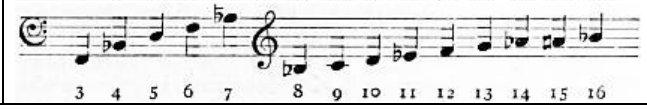
Reference has already been made above to the difficulty of obtaining the fundamental on tubes of great length and narrow bore like the horn. The useful compass of the horn, therefore, begins with the note that an open pipe half its length would give; the Germans term instruments of such small calibre *half instruments*, and those of wide calibre, such as bugles and tubas, *whole instruments*,[16] since in them the whole of the length of the tube is available in practice.

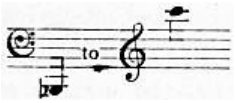
The harmonic series of the horn, or the open notes obtainable without using valves or crooks, is written as for the alto horn in C of 8 ft. tone, which forms the standard of notation. Notes written in the bass clef are generally, for some unexplained reason, placed an octave lower than the real sounds.



All the crooks, a list of the principal of which is appended, therefore necessarily give real sounds *lower* than the above series according to their individual length.

Table of Principal Crooks now in Use.[17]

Key of Crook.	Actual Sounds of Range of Useful Harmonics.		Length of Crook in Inches.	Transposes to
B♭ alto		2nd to 10th	16	major 2nd lower
A♮		2nd to 10th	22½	minor 3rd lower
A♭		2nd to 10th	29½	major 3rd lower
G		2nd to 12th	36¾	perfect 4th lower
F		2nd to 16th	52½	perfect 5th lower
E		2nd to 16th	61	minor 6th lower
E♭		2nd to 16th	70¼	major 6th lower
D		2nd to 16th	80	minor 7th lower
C basso		3rd to 16th	101	8ve lower
B♭ basso		3rd to 16th	125	major 9th lower

The practical aggregate compass of the natural horns from B♭ basso at the service of composers therefore ranges (actual sounds) from  or with 3 valves from  By means of hand-stopping, *i.e.* the practice of thrusting the hand into the bell in order to lower the sound by a tone or a semitone, or by the adaptation of valves to the horn, this compass may be rendered chromatic almost throughout the range.

The principle of the valve as applied to wind instruments differs entirely from that of keys. The latter necessitate lateral holes bored through the tube, and when the keys are raised the vibrating column of air within the tube and the ambient air without are set in communication, with the result that the vibrating column is shortened and the pitch of the note raised. The valve system consists of valves or pistons attached to additional lengths of tubing, the effect of which is invariably to lower the pitch, except in the case of valve systems specified as “ascending” tried by John Shaw and Adolphe Sax. Insuperable practical difficulties led to the abandonment of these systems, which in any case were the exception and not the rule. The valves, placed upon the **U**-shaped slides in the centre of the horn, are worked by means of pistons or levers, opening or closing the wind-ways at will, so that when they are in operation the vibrating column of air no longer takes its normal course along the main tube and directly through the slides, but makes a détour through the extra length of tubing before completing its course. Thus the valves, unlike the keys, do not open any communication with the ambient air. Even authoritative writers[18] have confused the two principles, believing them to be one and the same.

French horns are made with either two or three valves. To the first valve is attached sufficient length of tubing to lower the pitch of the instrument a tone, so that any note played upon the horn in F while the first valve is depressed takes effect a tone lower, or as though the horn were in E♭. The second valve opens a passage into a shorter length of tubing sufficient to lower the pitch of the instrument a semitone, as though the instrument were for the time being

in E. The third valve similarly lowers the pitch a tone and a half. It will thus be seen that the principle applied in the crook and the valve is in the main the same, but the practical value of the valve is immeasurably superior. Thanks to the valve system the performer is able to have the extra lengths of tubing necessary to give the horn a chromatic compass permanently incorporated with the instrument, and at will to connect one or a combination of these lengths with the main tube of the instrument during any interval of time, however short. The three devices, crooks, valves and slides, are in fact all based upon the same principle, that of providing additional length of tubing in order to deepen the pitch of the whole instrument at will and to transpose it into a different key. Valves and slides, being instantaneous in operation, give to the instrument a chromatic compass, whereas crooks merely enable the performer to play in many keys upon one instrument instead of requiring a different instrument for each key. The slide is the oldest of these devices, and probably suggested the crook as a substitute on instruments of conical bore such as the horn.

The invention of the valve, although a substantial improvement, was found to fall short of perfection in its operation on the tubes of wind instruments so soon as the possibility of using the three valves in combination to produce six different positions or series of harmonics was realized, and for the following reason. In order to deepen the pitch one tone by means of valve 1, a length of tubing exactly proportional to the length of the main tube must be thrown into communication with the latter. If, in addition to valve 1, valve 3 be depressed, a further drop in pitch of 1½ tone should be effected; but as the length of tubing added by depressing valve 3 is calculated in proportion to the main tube, and the latter has already been lengthened by depressing valve 1, therefore the additional length supplied by opening valve 3 is now too short to produce a drop of a minor third strictly in tune, and all notes played while valves 1 and 3 are depressed will be too sharp. Means of compensating slight errors in intonation are provided in the **U**-shaped slides mentioned above.

The *timbre* of the natural horn is mellow, sonorous and rich in harmonics; it is quite distinctive and bears but little resemblance to that of the other members of the brass wind. In listening to its sustained notes one receives the impression of the tone being breathed out as by a voice, whereas the trumpet and trombone produce the effect of a rapid series of concussions, and in the tuba and cornet the concussions, although still striking, are softened as by padding. The timbre of the hand-stopped notes is veiled and suggestive of mystery; so characteristic is the timbre that passages in the *Rheingold* heard when the magic power of the Tarnhelm reveals itself sound meaningless if the weird chords are played by means of the valves instead of by hand-stopping. The timbre of the piston notes is more resonant than that of the open notes, partaking a little of the character of the trombone, which is probably due to the fact that the strictly conical bore of the natural horn has been replaced by a mixed cylindrical and conical as in trumpet and trombone.

The form of the mouthpiece (*q.v.*) at the point where it joins the main bore of the tube must also exercise a certain influence on the form of vibration, which it helps to modify in conjunction with the conformation of each individual horn-player's lip. In the horn the cup of the mouthpiece is shaped like a funnel, the bore converging insensibly into the narrow end of the main conical bore without break or sharp edges as in the mouthpieces, more properly known as cup-shaped, of trumpet and bombardon.

The brilliant sonorousness and roundness of the timbre of the horn are due to the strength and predominance of the partial tones up to the 7th or 8th. The prevalence of the higher harmonics from the 10th to the 16th, in which the partial tones lie very close together, determines the harsh quality of the trumpet timbre, which may be easily imitated on the horn by forcing the sound production and using a trumpet mouthpiece, and by raising the bell, an effect which is indicated by composers by the words "Raise the Bells."[19]

History.

The origin of the horn must be sought in remote prehistoric times, when, by breaking off the tip of a short animal horn, one or at best two notes, powerful, rough, unsteady, only barely approximating to definite musical sounds, were obtained. This was undoubtedly the archetype of the modern families of brass wind instruments, and from it evolved the trumpet, the bugle and the tuba no less than the horn. The common characteristics which link together these widely different modern families of instruments are: (1) the more or less pronounced conical bore, and (2) the property possessed in a greater or lesser degree of producing the natural sounds by what has been termed overblowing the harmonic overtones. If we follow the evolution of the animal horn throughout the centuries, the ultimate development leads us not to the French horn but to the bugle and tuba.

Before civilization had dawned in classic Greece, Egypt, Assyria and the Semitic races were using wind instruments of wood and metal which had left the primitive ram or bugle horn far behind. Even in northern Europe, during the Bronze age (*c.* 1000 B.C.), prehistoric man had evolved for himself the prototype of the Roman *cornu*, a bronze horn of wide conical bore, bent in the shape of a **G**. One of these instruments, known among the modern Scandinavian races as

luurs or *lurs*, found in the peat beds of Denmark and now preserved in the Museum of Northern Antiquities in Copenhagen, has a length of 1.91 m. (about 6 ft. 4 in.). The **U**-shaped mouthpiece joint is neatly joined to the remainder of the crescent-tube by means of a bronze ring; the bell, which must have rested on the shoulder, consists merely of a flat rim set round the end of the tube. There is therefore no graceful curve in the bell as in the French horn. An exact facsimile of this prehistoric horn has been made by Victor Mahillon of Brussels, who finds that it was in the key of E♭ and easily produces the first eight harmonics of that key. It stands, therefore, an octave higher than the modern horn in E♭ (which measures some 13 ft.), but on the *lur* the fundamental E♭ can be reached owing to the wider calibre of the bore.[20]

Among the Romans the wind instruments derived from the horn were well represented, and included well-developed types which do not differ materially from the natural instruments of modern times. The buccina developed directly into the trumpet and trombone during the middle ages, losing no characteristic of importance but the bent form, which was perforce abandoned when the art of bending hollow tubes was lost after the fall of the Roman Empire. The name clung through all the changes in form and locality to the one type, and still remains at the present day in the German *Posaune* (trombone). There were four instruments known by the name of *cornu* among the Romans: (1) the short animal horn used by shepherds; (2) the longer, semicircular horn, used for signals; and (3) the still longer *cornu*, bent and carried like the buccina, which had the wide bore of the modern tuba. But whereas on the buccina the higher harmonics were easily obtained, on the cornu the natural scale consisted of the first eight harmonics only. The cornu, although shorter than the buccina, had a deeper pitch and more sonorous tone, for, owing to the wider calibre of the bore, the fundamental was easily reached. In the reliefs on Trajan's Column, where the two instruments may be compared, the wider curve of the buccina forms a ready means of identification. In addition to these was (4) the small instrument like the medieval hunting-horn or post-horn, with the single spiral turn similar to one which figures as service badge in many British infantry regiments,[21] such as the first battalion of the King's Own Light Infantry. A terra-cotta model, slightly broken, but with the spiral intact, was excavated at Ventoux in France and is at present preserved in the department of Greek and Roman antiquities at the British Museum, having been acquired from the collection of M. Morel.

The *lituus*, or cavalry trumpet of the Romans, consisted of a cylindrical tube, to which was attached a bent horn or conical bell, the whole in the shape of a **J**. The long, straight Roman tuba was similar to the large, bent cornu so far as bore and capabilities were concerned, but more unwieldy. All these wind instruments seem to have been used during the classic Greek and Roman periods merely to sound fanfares, and therefore, in spite of the high degree of perfection to which they attained as instruments, they scarcely possess any claim to be considered within the domain of music. They were signalling instruments, mainly used in war, in hunting and in state or civic ceremonial. Vegetius (A.D. 386) describes these instruments, and gives detailed instructions for the special traditional uses of tuba, buccina and cornu in the military camp: "Semivocalia sunt, quae per tubam, aut cornua, aut buccinam dantur. Tuba quae directa est appellatur buccina, quae in semet ipsam aereo circulo flectitur. Cornu quod ex uris agrestibus, argento nexum, temperatum arte, et spiritu, quem canentis flatus emittit auditur."[22] It will be seen that Vegetius demands a skilled horn-player. These service instruments may all be identified in the celebrated bas-reliefs of Trajan's Column[23] (fig. 1) and of the Triumphal arch of Augustus at Susa.[24]

Interesting evidence of a collegium cornicinum (gild of horn-players) is furnished by an altar stone in the Roman catacombs, erected to the memory of one "M. Julius victor ex Collegio Liticinum Cornicinum," on which are carved a lituus, a cornu and a pan's pipe, the cornu being similar to those on Trajan's Column.

All three Roman instruments, the tuba, the buccina and the cornu, had well-formed mouthpieces, differing but little from the modern cup-shaped form in use on the trumpet, the trombone, the tubas, &c.[25] It would seem that even the short horn in the 4th century was provided with a mouthpiece,[26] judging from a carved specimen on an ivory *capsa* or *pyxis* dating from the period immediately preceding the fall of the Roman Empire, preserved among the precious relics at Xanten.

From Conrad Cichorius, *Die Reliefs der Traiansäule*, by permission of Georg Reimer.

Fig. 1.—Roman Cornu and Buccina.

After the fall of the Roman Empire, when instrumental music had fallen into disrepute and had been placed under a ban by the church, the art of playing upon such highly-developed instruments gradually died out in western Europe. With the disappearance of the civilization and culture of the Romans, the skilled crafts also gradually vanished, and the art of making metal pipes of delicate calibre and of bending them was completely forgotten, and had to be reacquired step by step during the middle ages from the more enlightened East. The names of the instruments and representations of them survived in MSS. and monuments of art, and as long as the West was content to turn to late Roman and Romano-Christian art for its models, no difficulties were created for the future archaeologist. By the time the Western races had begun to express themselves and to develop their own characteristics, in the 11th century, the arts of Persia, Arabia and the Byzantine Empire had laid their mark upon the West, and confusion of models, and more especially of names, ensued. The greatest confusion of all was created by the numerous translations and glosses of the Bible and by the attempts of miniaturists to illustrate the principal scenes. In Revelation, for instance (ch. viii.), the seven angels with their trumpets are diversely represented with long tubas, with curved horns of various lengths, and with the buisine, busaun or posaune, the descendant of the buccina.

We know from the colouring used in illuminated MSS., gold and pale blue, that horns were made of metal early in the middle ages. The metal was not cast in moulds but hammered into shape. Viollet-le-Duc[27] reproduces a miniature from a MS. of the end of the 13th century (Paris, Bibliothèque du corps législatif), in which two metal-workers are shown hammering two large horns.

Fig. 2.—Medieval Hunting Horn with the Tablature in use in the 14th Century.

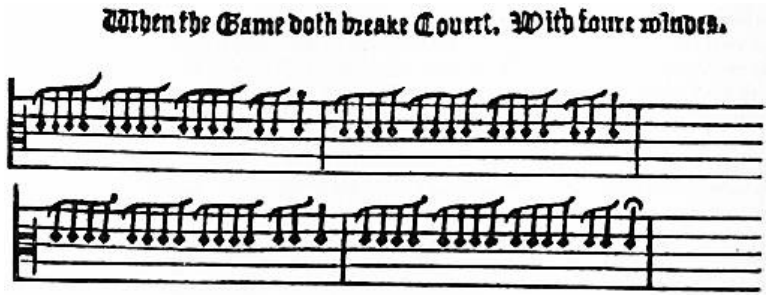
The early medieval horns had no mouthpieces, the narrow end being merely finished with a rim on which the lips rested. The tone suffered in consequence, being uncertain, rough and tremulous, wherefore it was indicated by the neume known as *quilisma*: “Est vox tremula; sicut est sonus flatus tubae vel cornu et designatur per neumam, quae vocatur *quilisma*.”[28]

During the middle ages the bugle-horn or bull’s horn was extensively used as a signal instrument on land and sea (see Bugle), by the night-watchmen in cities, in the watch tower of the feudal castle and by foresters and huntsmen. The hunting-horn was generally represented as small in the hunting scenes which abound in illuminated MSS. and early printed books; it was crescent-shaped and was worn slung by a leather strap over one shoulder and resting on the opposite hip. When played it was held with the wide end curving upwards in front of the huntsman’s head. A kind of tablature for the horn was in use in France in the 14th century; an example of it is here reproduced (fig. 2) from a 14th-century French MS. treatise on venery.[29]

Only one note is indicated, the various calls and signals being based chiefly on rhythm, and the notes being left to the taste and skill of the huntsman. The interpretation[30] of the *Cornure de chasse de veue* seen in the figure is as follows:

In the first poem is given a list of these signs with the names by which they were known in venery.

In the 16th century in England the hunting-horn sometimes had a spiral turn in the centre, half-way between mouthpiece and bell end; the extra length was apparently added solely in order to lower the pitch, the higher harmonics not being used for the hunting calls. In George Turbevile's *Noble Arte of Venerie* (1576, facsimile reprint, Oxford, 1908) the "measures of blowing according to the order which is observed at these dayes in this Realme of Englande" are given for the horn in D. One of these, given in fig. 3, is the English 16th-century hunting call, corresponding to the 14th-century French *Cornure de chasse de veue* given above.



From Turbevile's *Noble Art of Venerie* (1576), by permission of the Clarendon Press.

FIG. 3.—Hunting Call.

The hunting-horn, whether in its simplest form or with the one spiral, was held with the bell upwards on a level with the huntsman's head or just above it.[31]

A horn of the same fine calibre as the French horn, 3 or 4 ft. in length, slightly bent to take the curve of the body, was in use in Italy, it would seem, in the 15th century.[32] It was held slanting across the body with the bell already slightly parabolic, at arm's length to the left side.

The hunting- and post-horns were favourite emblems on medieval coats of arms, more especially in Germany[33] and Bohemia.

It is necessary at this point to draw attention to the fact that the French horn is a hybrid having affinities with both trumpet and primitive animal horn, or with *buccina* and *cornu*, and that both types, although frequently misnamed and confused by medieval writers and miniaturists, subsisted side by side, evolving independently until they merged in the so-called French horn. Both buccina and cornu after the fall of the Roman Empire, while Western arts and crafts were in their infancy, were made straight, being then known as the busine or straight trumpet (busaun or posaun in Germany), and the long horn, *Herhorn*, slightly curved.[34]

FIG. 4.—Medieval Circular Horn.

FIG. 5.—Medieval Circular Horn, 1589.

From two medieval representations of instruments like the Roman cornu one might be led to conclude that the instrument had been revived and was in use from the 14th century. A wooden bas-relief on the under part of the seats of the choir of Worcester cathedral,[35] said to date from the 14th century, shows a musician in a robe with long sleeves of fur playing the horn (fig. 4). The tube winds from the mouth in a circle reaching to his waist, passes under the right arm

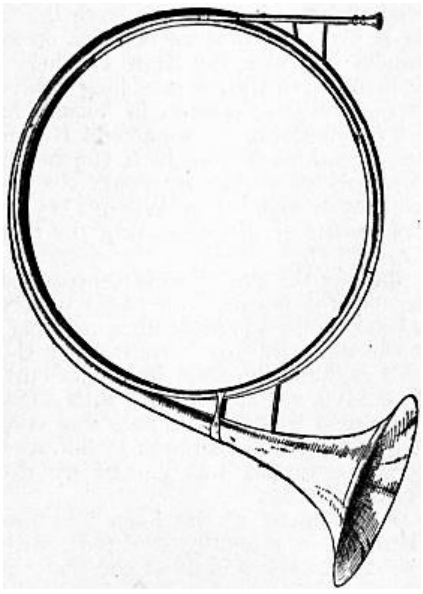
across the shoulders with the bell stretching out horizontally over his left shoulder. The tube, of strictly conical bore, is made in three pieces, the joints being strengthened by means of two rings. The other example is German, and figures in the arms of the city of Frankfort-on-Main.[36] Here in the two opposite corners are two cherubs playing immense cornua. The bore of the instruments (fig. 5) is of a calibre suggestive of the contrabass tuba; the circle formed is of a diameter sufficiently large to accommodate the youthful performer in a sitting posture; the bell is the forerunner of that of the modern saxophone, shaped like a gloxinea; the mouthpiece is cup-shaped. It is possible, of course, that these two examples are attempts to reproduce the classic instrument, but the figures of the musicians and the feeling of the whole scheme of ornamentation seem to render such an explanation improbable. Moreover, Sebastian Virdung,[37] writing on musical instruments at the beginning of the 16th century, gives a drawing of a cornu coiled round tightly, the tubing being probably soldered together at certain points. Virdung calls this instrument a *Jegerhorn*, and the short hunting-horn *Acherhorn* (Ackerhorn—the synonym of the modern Waldhorn). The scale of the former could have consisted only of the first eight harmonics, including the fundamental, which would be easily obtained on an instrument of such a large calibre. Mersenne,[38] a century and a quarter later, gives a drawing of the same kind of horn among his *cors de chasse*, but does not in his description display his customary intimate knowledge of his subject; it may be that he was dealing at second-hand with an instrument of which he had had little practical experience. Praetorius[39] gives as Jägerhorn only the simple forms of crescent-shaped horns with a single spiral; the spirally-wound horn of Virdung is replaced by a new instrument—the *Jägertrummet* (huntsman's trumpet)—of the same form, but less cumbersome, of cylindrical bore excepting at the bell end and having a crook inserted between the mouthpiece and the main coils. The tube, which could not have been less than 8 ft. long, produced the harmonic series of the cavalry trumpet from the 3rd to the 12th. The restrictions placed upon the use of the cavalry trumpet would have rendered it unavailable for use in the hunting-field, but the snake-shaped model, as Praetorius describes it, was a decided improvement on the horn, although inferior in resonance to the cavalry model. Here then are the materials for the fusion of the trumpet and hunting-horn into the natural or hand-horn of the 17th and 18th centuries. There is evidence, however, that a century earlier, *i.e.* at the end of the 15th century, the art of bending a brass tube of the delicate proportions of the French horn, which is still a test of fine workmanship, had been successfully practised. In an illustrated edition of Virgil's works published in Strassburg in 1502 and emanating from Grüninger's office, Brant being responsible for the illustrations, the lines (*Aen.* viii. 1-2) "Ut belli signum Laurenti Turnus ab arce Extulit: et rauco strepuerunt cornua cantu" are illustrated by two soldiers, one with the sackbut (posaune, the descendant of the buccina), the other with a horn wound spirally round his body in three coils, which appear to have a conical bore from the funnel-shaped mouthpiece to the bell which extends at the back of the head horizontally over the left shoulder (fig. 6). There is ample room for the performer's head and shoulders to pass through the circle: the length of the tube could not therefore have been much less than 16 ft. long, equivalent to the horn in C or B♭ basso. In the same book (pl. ccci.) is another horn, smaller, differing slightly in the disposition of the coils and held like the modern horn in front.

FIG. 6.—Spirally Coiled Horn from Virgil's Works (1502), folio cccviii. versa.

These horns were not used for hunting but for war in conjunction with the draw-trumpet. Brant could not have imagined these instruments, and must have seen the originals or at least drawings of them; the instruments probably emanated from the famed workshops of Nuremberg, being intended mainly for use in Italy, and had not been generally adopted in Germany. The significance of these drawings of natural horns in a German work of the dawn of the 16th century will not be lost. It disposes once and for all of the oft-repeated fable that the hunting-horn first assumed its present form in France about 1680, a statement accepted without question by authorities of all countries, but without reference to any *pièce justificative* other than the story of the Bohemian Count Spörken first quoted by Gerber,[40] and repeated in most musical works without the context. The account which gave rise to this statement had been published in 1782 in a book by Faustinus Prochaska:[41] "Vix Parisiis inflandi cornua venatoria inventa ars quum delectatus suavitate cantus duos ex hominibus sibi obnoxiis ea instituendos curavit. Id principium apud nos artis, qua hodie Bohemi excellere putantur." In a preceding passage after the count's name, Franz Anton, Graf von Spörken, are the words "anno saeculi superioris octogesimo quum iter in externas provincias suscepisset," &c. There is no reference here to the invention of the horn in Paris or to the folding of the tube spirally, but only to the manner of eliciting sound from the instrument. Count Spörken, accustomed to the medieval hunting fanfares in which the tone of the horn approximated to the blare of the trumpet, was merely struck by the musical quality of the true horn tone elicited in Paris, and gave France the credit of the so-called invention, which probably more properly belonged to Italy.

The account published by Prochaska a hundred years after, without reference to the source from which it was obtained, finds no corroboration from French sources. Had the French really made any substantial improvement in the hunting-horn at the end of the 17th century, transforming it from the primitive instrument into an orchestral instrument, it would only be reasonable to expect to find some evidence of this, considering the importance attached to the art of music at the court of Louis XIV., whose musical establishments, la Chapelle Musique,[42] la Musique de la Chambre du Roi and la Musique de la Grande Écurie, included the most brilliant French artists. One would expect to find horns of that period by French makers among the relics of musical instruments in the museums of Europe. This does not seem to be the case. Moreover, in Diderot and d'Alembert's *Encyclopédie* (1767) the information given under the heading *trompe ou cor de chasse grand et petit* is very vague, and contains no hint of any special merit due to France for any improvement in construction. Among the plates (vol. v., pl. vii.) is given an illustration of a horn very similar to the instruments made in England and Germany nearly a century earlier, but with a funnel-shaped mouthpiece. Dr Julius Rühlmann states that there are two horns by Raoux, bearing the date 1703,[43] in the Bavarian National Museum in Munich,[44] but although fine examples, one in silver, the other in brass (fig. 6) by Raoux, they turn out on inquiry[45] to bear no date whatever. Rühlmann's statement in the same article, that in the arms of the family of Wartenberg-Kolb (now extinct), which goes back to 1169, there is a hunting-horn coiled round in a complete circle is also misleading. The horn (a post-horn) did not appear in the arms of the family in question until 1699, when the first peer Casimir Johann Friedrich was created hereditary Post-Master. The influence of such erroneous statements in the work of noted writers is far-reaching. Inquiries at the department of National Archives in Paris concerning Raoux, the founder of the afterwards famous firm of horn-makers whose model with pistons is used in the British military bands and at Kneller Hall, proved fruitless. Fétis states that he worked during the second half of the 18th century. Albert Chouquet[46] states that he has seen a trumpet by Raoux, "seul ordinaire du Roy, Place du Louvre" dated 1695. The inscriptions on the horns in question are: For No. 105, a silver horn of the simplest form of construction in D, "Fait à Paris par Raoux"; for No. 106, a brass horn engraved with a crown on an ermine mantle with the initials C. A. (Carl Albert), "Fait à Paris par Raoux, seul ordinaire du Roy, Place du Louvre." Both horns measure across the coils 56 cm. and across the bell 27½. They are practically the same as the *cors de chasse* now in use in French and Belgian military bands, the large diameter of the coil enabling the performer to carry it over his shoulder. The orchestral horn was given a narrower diameter in order to facilitate its being held in front of the performer in a convenient position for stopping the bell with the right hand. No. 107 in the same collection, a horn of German construction, bears the inscription "Macht Jacob Schmid in Nürnberg" and the trademark "J. S." with a bird. A horn in E♭] of French make, having fleur-de-lys stamped on the rim of the bell, and measuring only 15 in. across the coils to the exterior edge of the bell—therefore a very small horn—is preserved in the Grand Ducal Museum at Darmstadt.[47] A horn in F♯ (probably F in modern high pitch), having the rim ornamented as above and the inscription "Fait à Paris, Carlin, ordinaire du Roy," readily gives the harmonics from the 3rd to the 12th.[48] The extreme width is 20 in.[49] Carlin, who lived at rue Croix des Petits Champs, died about 1780. The earliest dated horn extant is believed to be the one preserved in the Hohenzollern Museum in Sigmaringen, "Machts Wilhelm Haas, Nürnberg, 1688."[50] Another early German horn engraved "Machts Heinr. Rich. Pfeiffer in Leipzig, 1697,"[51] formerly in Paul de Wit's museum in Leipzig and now transferred with the rest of the collection to Cologne, is of similar construction.

The horn must have been well known at this time in England, for there are 17th-century horns of English manufacture still extant, one, for instance, in the collection of the Rev. F. W. Galpin by William Bull, dated 1699.[52] In 1701 Clagget[53] invented a contrivance by means of which two horns in different keys could be coupled and played by means of one mouthpiece, a valve or key opening the passage into the airways of one or the other of these horns at the will of the performer. Another horn of English manufacture about 1700 was exhibited at the South Kensington Museum in 1872, bearing No. 337 in the catalogue, in which unfortunately no details are given. Enough examples have been quoted to show that, judging from the specimens extant, Germany was not behind France, if not actually ahead, in the manufacture of early natural horns. Data are wanting concerning the instruments of Italy; they would probably prove to be the earliest of all, and as brass wind instruments are perishable are perhaps for that very reason unrepresented at the present day.



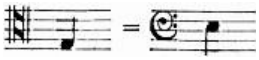
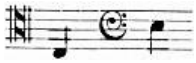
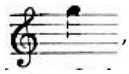
From a Photo by K. Teufel.

FIG. 7.—Early Raoux Horn

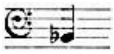
The horn at the present stage in its evolution was also well represented among the illustrations of the musical literature in Germany[54] during the first half of the 18th century, and references to it are frequent. (Munich).

The earliest orchestral music for the horn occurs in the operas of Cavalli and Cesti, leaders of the Venetian Opera in the 17th century. Already in 1639 Cavalli in his opera *Le Nozze de Tito e Pelei* (act i. sc. 1) introduced a short scena, "Chiamata alla Caccia"[55] in C major for four horns on a basso continuo. An examination of the scoring in C clefs on the first, second, third and fourth lines shows, by the use of the note

Music.

 in the bass part and in the second tenor of  the 5th harmonic of the series, that the fundamental could have been no other than the 16-ft. C; the highest note in the treble part is  , the 12th harmonic of the 8-ft. alto horn in C, now obsolete. It is clear therefore that horns with tubing respectively 8 ft. and 16 ft. long, which must have been disposed in coils as in the present day, were in use in Italy before the middle of the 17th century, fifty years before the date of their reputed invention in Paris.

In the same opera, act i. sc. 4, "Coro di Cavalieri" is a stirring call to arms of elemental grandeur, in which occur the words: "all' armi, ò la guerrieri corni e tamburi e trombe, ogni campo ogni canto, armi rimbombe." There are above the voice parts four staves with treble and C clef signatures above the bass, and, although no instruments are indicated, the music written thereon, which alternates with the voices but does not accompany them, can have been intended for no instruments but trumpets and horns, thus carrying out the indications in the text. The horn is here once again put to the same use as the Roman cornu, and associated in like manner with the descendant of the buccina in a call to arms. It may be purely a coincidence that the early illustration of a horn with the tubing wound in coils round the body in the Strassburg Virgil mentioned above was put to the same use and associated with the same instrument.

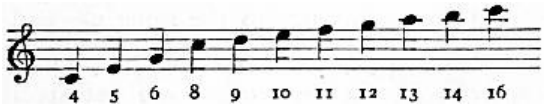
Cesti's operas likewise contain many passages evidently intended for the horn, although the instruments are not specified in the score, which was nothing unusual at the time. Lulli composed the incidental music for a ballet, *La Princesse d'Elide*, which formed part of Molière's divertissement, "Les plaisirs de l'île enchantée," written for a great festival at Versailles on the 7th of May 1664. A copy of the music for this ballet, made about 1680, is preserved in the library of the Fitzwilliam Museum, Cambridge. The music contains a piece entitled "Les violons et les cors de chasse," written in the same style as Cavalli's scena; there are but two staves, and on both the music is characteristic of the horn, with which the violins would play in unison. The piece finishes on B♭  and to play this note as the second of the harmonic series, the fundamental not being obtainable, the tube of the horn must have been over 17 ft. long. Among Philidor's copies of Lulli's ballets preserved in the library of the Paris Conservatoire of Music (vol. xlvii., p. 61) is a more complete copy of the above. The second number is an "Air des valets de chiens et des chasseurs avec les cors de chasse," which is substantially the same as the one in the Fitzwilliam Museum, but set for five horns in B♭. Here again the use of D, the fifth note of the harmonic series, indicates that the fundamental was  a tone lower than the C horn scored for by Cavalli, and known as B♭ basso. Victor Mahillon[56] considers that the music reveals the fact that it was written for horns in B♭, 35 degrees (chromatic semitones) above 32-ft. C, or  having a wave-length of 1.475 m. To this statement it is not possible to subscribe. The quintette required four horns in B♭ over 8 ft. long and one B♭ basso about 17 ft. long. It is obvious that the present custom of placing the bass notes of the horn on the F clef an octave too low, as is now customary, had not yet been adopted, for in that case the bass horn would in several bars be playing above the tenor.

In 1647 Cardinal Mazarin, wishing to create in France a taste for Italian opera, had procured from Italy an orchestra, singers and mise-en-scène. That he was not entirely successful in making Paris appreciate Italian music is beside the mark; he developed instead a demand for French opera, to which Lulli proved equal. The great similarity in the style of the horn *scène* by Cavalli and Lulli may perhaps provide a clue to the mysterious and sudden apparition of the natural horn in France, where nothing was known of the hybrid instrument thirty years before, when Mersenne[57] wrote his careful treatise on musical instruments.

The orchestral horn had been introduced from Italy. It is not difficult to understand how the horn came to be called the *French* horn in England; the term only appears after Gerber and other writers had repeated the story of Count Spörken introducing the musical horn into Bohemia.[58] By this time the firm of Raoux, established in Paris a hundred years, had won for itself full recognition of its high standard of workmanship in the making of horns.

This use of the horn by Lulli in the one ballet seems to be an isolated instance; no other has yet been quoted. The introduction of the natural horn into the orchestra of the French opera did not occur until much later in 1735 in André Campra's *Achille et Deidamie*, and then only in a fanfare. In the meantime the horn had already won a place in most of the rising opera houses and ducal orchestras[59] of Germany, and had been introduced by Handel into the orchestra in London in his *Water-music* composed in honour of George I.

Although the Italians were undoubtedly the first to introduce the horn into the orchestra, it figured at first only as the characteristic instrument of the chase, suggesting and accompanying hunting scenes or calls to arms. For a more independent use of the horn in the orchestra we must turn to Germany. Reinhard Keiser, the founder of German opera, at the end of the 17th century in Hamburg, introduced two horns in C into the opening chorus of his opera *Octavia* in 1705, where the horns are added to the string quartette and the oboes; they play again in act i. sc. 3, and in act ii. sc. 6 and 9. The compass used by the composer for the horns in C alto is the following:—



Wilhelm Kleefeld draws attention to the characterization, which differed in the three acts. In *Henrico* (1711), in *Diana* (1712) and in *L'Inganno Fedele* (1714) F horns were used. This called forth from Mattheson[60] his much-quoted eulogium, the earliest description of the orchestral horn: "Die lieblich pompeusen Waldhörner sind bei itziger Zeit sehr *en vogue* kommen, weil sie theils nicht so rude von Natur sind als die Trompeten, teils auch weil sie mit mehr *Facilité* können tractiret werden. Die brauchbarsten haben F und mit den Trompeten aus dem C gleichen *Ambitum*. Sie klingen auch dicker und füllen besser aus als die übertäubende und schreyende Clarinen, weil sie um eine ganze quinte tiefer stehen."

Lotti in his *Giove in Argo*, given in Dresden, 1717, scored for two horns in C, writing for them soli in the aria for tenor[61] (act iii. sc. 1). Examples of C. H. Graun's[62] scoring for horns in F and G respectively in *Polydorus* (1708-1729) and in *Iphigenia* (1731) show the complete emancipation of the instrument from its original limitations; it serves not only as melody instrument but also to enrich the harmony and emphasize the rhythm. A comparison of the early scores of Cavalli and Lulli with those of Handel's *Wasserfahrtmusik*[63] (1717) and of *Radamisto*, performed in London in 1720, shows the rapid progress made by the horn, even at a time when its technique was still necessarily imperfect.

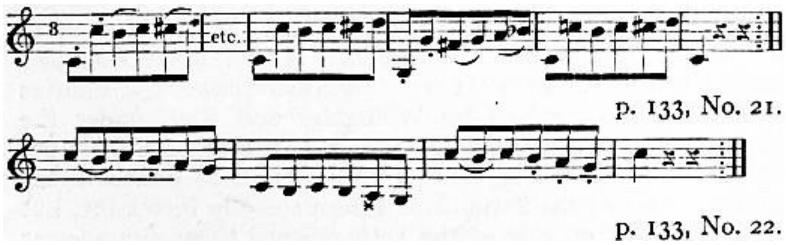
While Bach was conductor of the prince of Anhalt-Cöthen's orchestra (1717-1723), it is probable that horns in several keys were used. In Dresden two Bohemian horn-players, Johann Adalbert Fischer and Franz Adam Samm, were added to the court orchestra in 1711.[64] In Vienna the addition is stated to have taken place in 1712 at the opera.[65] It is probable that as in Paris so in Vienna there were solitary instances in which the horn was heard in opera without attracting the attention of musicians long before 1712, for instance in Cesti's *Il Pomo d'Oro*, printed in Vienna in 1667 and 1668 and performed for the wedding ceremonies of Kaiser Leopold and Margareta, infanta of Spain. A horn in E (former F pitch) in the museum of the Brussels conservatoire bears the inscription "Machts Michael Leicham Schneider in Wien, 1713."[66] Fürstenau[67] gives a further list of operas in Vienna during the first two decades of the 18th century.

It will be well before the next stage in the evolution is approached to consider the compass of the natural horn. The pedal octave from the fundamental to the 2nd harmonic was altogether wanting; the next octave contained only the 2nd and 3rd harmonics or the octave and its fifth; in the third octave, the 8ve, its major 3rd, 5th and minor 7th; in the fourth octave, a diatonic scale with a few accidentals was possible. It will be seen that the compass was very limited on any individual horn, but by grouping horns in different keys, or by changing the crooks, command was gained by the composer over a larger number of open notes.

An important period in the development of the horn has now been reached. Anton Joseph Hampel is generally credited[68] with the innovation of adapting the crooks to the middle of the body of the horn instead of near the mouthpiece, which greatly improved the quality of the notes obtained by means of the crooks. The crooks fitted into the two branches of **U**-shaped tubes, thus forming slides which acted as compensators. Hampel's *Inventionshorn*, as it is called in Germany (Fr. *cor harmonique*), is said to date from 1753,[69] the first instrument having been made for him by Johann Werner, a brass instrument-maker of Dresden. The same invention is also attributed to Haltenhof of Hanau.[70] Others again mention Michael Wögel[71] of Carlsruhe and Rastadt, probably confusing his adaptation of the *Invention* or *Maschine*, as the slide contrivance was called in Germany, to the trumpet in 1780. The Inventionshorn, although embodying an important principle which has also found its application in all brass wind instruments with valves as a means of correcting defective intonation, did not add to the

compass of the horn. At some date before 1762 it would seem that Hampel[72] also discovered the principle on which hand-stopping is founded.

By hand-stopping (Fr. *sons bouchés*, Ger. *gestöpfte Töne*) is understood the practice of inserting the hand with palm outstretched and fingers drawn together, forming a long, shallow cup, into the bell of the horn; the effect is similar to that produced in wood wind instruments, termed *d'amore*, by the pear-shaped bell with a narrow opening, *i.e.* a veiled mysterious quality, and, according to the arrangement of the hand and fingers (which cannot be taught theoretically, being inter-dependent on other acoustic conditions), a drop in pitch which enables the performer merely to correct the faulty intonation of difficult harmonics or to lower the pitch exactly a semitone or even a full tone by inserting the hand well up the bore of the bell. J. Fröhlich[73] gives drawings of the two principal positions of the hand in the horn. The same phenomenon may be observed in the flute by closing all the holes, so that the fundamental note of the pipe speaks, and then gradually bringing the palm of the hand nearer the open end of the flute. As a probable explanation may be offered the following suggestion. The partial closing of the opening of the bell removes the boundary of ambient air, which determines the ventral segment of the half wave-length some distance beyond the normal length; this boundary always lies *beyond* the end of the tube, thus accounting for the discrepancy between the theoretical length of the air-column and the practical length actually given to the tube.[74] Hampel is also said to have been the first to apply the *sordini*[75] (Fr. *sourdine*) or mute, already in use in the 17th century for the trumpet,[76] to the horn. The original mute did not affect the pitch of the instrument, but only the tone, and when properly constructed may be used with the valve horn to produce the mysterious veiled quality of the hand-stopped notes. No satisfactory scientific explanation of the modifications in the pitch effected by the partial obstruction of the bell, whether by the hand or by means of certain mechanical devices, has as yet been offered. D. J. Blaikley suggests that in cases when the effect of hand-stopping appears to be to raise the pitch of the notes of the harmonic series, the real result of any contraction of the bell mouth (as by the insertion of the hand) is always a flattening of pitch accompanied by the introduction of a distorted or inharmonic scale, of such a character that for instance, the *c*, *d*, *e*, or 8th, 9th and 10th notes of the original harmonic scale become not the c♯ d♯ e♯ of a fundamental raised a semitone, but D♭, E♭, and f due to the 9th, 10th and 11th notes of a disturbed or distorted scale having a fundamental lower than that of the normal horn.



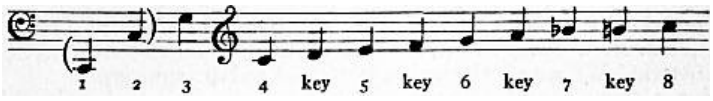
With regard to the discovery of this method of obtaining a chromatic compass for the horn, which rendered the instrument very popular with composers, instrumentalists and the public, and procured for it a generally accredited position in the orchestra, the following is the sum of evidence at present available. In the Kgl. öffentliche Bibliothek, Dresden, is preserved, amongst the musical MSS., an autograph volume of 152 pages, entitled *Lection pro Cornui*, bearing the signature A. J. H[ampel], the name being filled in in pencil by a different hand. There is no introduction, no letterpress of any description belonging to the MS. method for the horn, nor is any book or pamphlet explaining the Inventionshorn or the method of hand-stopping by Hampel extant or known to have existed. He has apparently left no record of his accomplishment. A few typical extracts copied and selected from the original MS., courteously communicated by the director of the Royal Library, Hofrath, P. E. Richter (a practical musician and performer on horn and trumpet), do not prove conclusively that they were intended to be played on hand-stopped horns, with the exception, perhaps, of the A, 13th harmonic from C, which could not easily be obtained except by hand-stopping on the hand-horn. On the blank sheet preceding the exercises is an inscription in the hand of Moritz Fürstenau, former custodian of the Royal Private Musical Collection (incorporated with the public library in 1896): "Anton Joseph Hampel, by whom these exercises for the horn were written, was a celebrated horn-player, a member of the Orchestra of the Electoral Prince of Saxony. He invented the so-called Inventionshorn. Cf. *Neues biog.-hist. Lexicon der Tonkünstler* by Gerber, pt. i. col. 493; also *Zur Gesch. der Musik u. des Theaters am Hofe zu Dresden*, by M. Fürstenau, Bd. ii." It will be seen that Fürstenau gives Gerber as his authority for the attribution of the invention to Hampel, although he searched the archives, to which he had free access, for material for his book.

The first possessor of the MS., Franz Schubert (1768-1824), musical director of the Italian opera in Dresden, wrote the following note in pencil on the last page of the cover: "Franz Schubert. The complete school of horn-playing by the Kgl. Polnischen u. Kursächs.

Cammermusicus Anton Joseph Hampel, a celebrated virtuoso, invented by himself in 1762." Judging from the standard of modern technique, there are many passages in the "Lection" which could not be played without artificially humouring the production of harmonics with the lips, and it is an open question to what extent this method of correcting intonation and of altering the pitch was practised in the 18th century. When, therefore, Franz Schubert states that the method was *invented* by Hampel, we may take this as indirectly confirming Gerber's statements. Further confirmation is obtained from the text of a work on the horn written by Heinrich Domnich[77] (b. 1760), the son of a celebrated horn-player of Würtzburg contemporary with Hampel. Domnich junior settled eventually in Paris, where he was appointed first professor of the horn at the Conservatoire. According to him the mute (sourdine) of metal, wood or cardboard in the form of a hollow cone, having a hole in the base, was used to soften the tone of the horn without altering the pitch. But Hampel, substituting for this the pad of cotton wool used for a similar purpose with the oboe, found with surprise that its effect in the bell of the horn was to *raise* the pitch a semitone (see D. J. Blaikley's explanation above). By this means, says Domnich, a diatonic and chromatic scale was obtained. Later Hampel substituted the hand for the pad. Domnich duly ascribes to Hampel the credit of the Inventionshorn, but erroneously states that it was Haltenhoff of Hanau who made the first instrument. Domnich further explains that Hampel, who had not practised the *bouché* notes in his youth, only made use of them in slow music, and that the credit of making practical use of the discovery was due to his pupil Giovanni Punto (Joh. Stich) the celebrated horn virtuoso, who was a friend of Domnich's.

It may be well to draw attention to the fact that hand-stopping was not possible so long as the tube of horn was folded in a circle wide enough to be worn round the body. The reduction of the diameter of the orchestral horn in order to allow the performer to hold the instrument in front of him, thus bringing the bell in front of the right arm in a convenient position for hand-stopping, must have preceded the discovery of hand-stopping. In the absence of contrary evidence we may suppose that the change was effected for the more convenient arrangement and manipulation of the slides or *Inventions*. So radical a change in the compass of the horn could not occur and be adopted generally without leaving its mark on the horn music of the period; this change does not occur, as far as we know, before the last decades of the 18th century. The rapid acceptance in other countries of Hampel's discovery of hand-stopping is evidenced by a passage from a little English work on music, published in London in 1772 but bearing at the end of the preface the date June 1766:[78] "Some eminent Proficients have been so dexterous as very nearly to perform all the defective notes of the scale on the Horn by management of Breath and by a little stopping the bell with their hands."

Hampel's success gave a general impetus to the inventive faculty of musical instrument makers in Europe. At first the result was negative. Kölbel's attempt must, however, be mentioned, if only to correct a misconception. Kölbel, a Bohemian horn virtuoso at the imperial Russian court from 1754, spent many years in vain endeavours to improve his instrument. At last, in 1760, he applied keys to the horn or the bugle, calling it Klappenhorn (the bugle is known in Germany as *Signal* or *Buglehorn*). Kölbel's experiment did not become widely known or adopted during his lifetime, but Anton Weidinger, court trumpeter at Vienna, made a keyed trumpet[79] in 1801, which attracted attention in musical circles and gave a fresh impetus in experimenting with keys upon brass instruments. In 1813 Joseph Weidinger, the twelve-year-old son of the above, gave a concert in Vienna on the *Klappenwaldhorn*[80] (or keyed French horn), about which little seems to be known. Victor Mahillon[81] describes such an instrument, but ascribes the invention to Kölbel; there was but one key placed on the bell, which on being opened had the effect of raising the pitch of the instrument a whole tone. By alternately using the harmonic open notes on the normal length of the tube, and then by the action of the key shortening the air column, the following diatonic scale was obtained in the third octave:



In 1812 Dikhuth,[82] horn-player in the orchestra of the grand-duke of Baden at Mannheim, constructed a horn in which a slide on the principle of that of the trombone was intended to replace hand-stopping and to lower the pitch at will a semitone.

The most felicitous, far-reaching and important of all improvements was the invention of valves (*q.v.*), pistons or cylinders (the principle of which has already been explained), by Heinrich Stölzel,[83] who applied them first of all to the horn, the trumpet and the trombone,[84] thus endowing the brass wind with a chromatic compass obtained with perfect ease

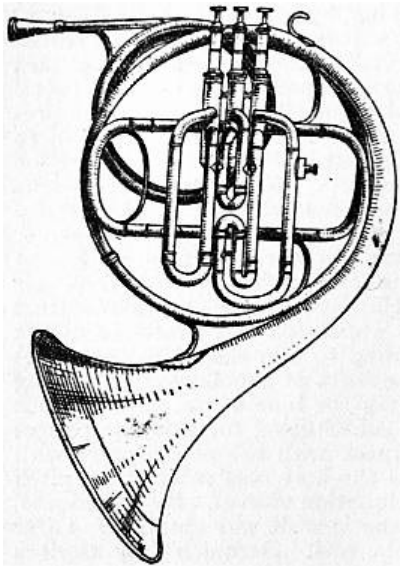


FIG. 8.—Modern Horn (Boosey & Co.)

throughout the compass. The inherent defect of valve instruments already explained, which causes faulty intonation needing correction when the pistons are used in combination, has now been practically overcome. The numerous attempts to solve the difficulty, made with varying success by makers of brass instruments, are described under VALVE, BOMBARDEN and CORNET.[85]

(K. S.)

---

1 See Michael Praetorius, *De organographia* (Wolfenbüttel, 1618), tab. viii., where crooks for lowering the key by one tone on trumpet and trombone are pictured.

2 See Victor Mahillon, *Les Éléments d'acoustique musicale et instrumentale* (Brussels, 1874), pp. 96, 97, &c.; Friedrich Zamminer, *Die Musik und die musikalischen Instrumente* (Giessen, 1855), p. 310, where diagrams of the mouthpieces are given.

3 See Joseph Fröhlich, *Vollständige theoretisch-praktische Musikschule* (Bonn, 1811), iii. 7, where diagrams of the two mouthpieces for first and second horn are given.

4 See Gottfried Weber, "Zur Akustik der Blasinstrumente," in *Allgemeine musikalische Zeitung* (Leipzig, 1816), p. 38.

5 *Les Instruments de musique au musée du Conservatoire royal de musique de Bruxelles*, "Instruments à vent," ii., "Le Cor, son histoire, sa théorie, sa construction" (Brussels and London, 1907), p. 28.

6 *Die Akustik* (Leipzig, 1802), p. 86, § 72.

7 *Op. cit.* p. 13, § 20, and p. 15, §§ 24 and 25. This apparent discrepancy between an early and a modern authority on the acoustics of wind instruments is easily explained. Chladni, when speaking of open and closed pipes, refers to the standard cylindrical and rectangular organ-pipes. Mahillon, on the other hand, draws a distinction in favour of the conical pipe, demonstrating in a practical manner how, given a certain calibre, the conical pipe must overblow the harmonics of the open pipe, whatever the method of producing the sound.

8 See Gottfried Weber, *loc. cit.*

9 See Ernst Heinrich and Wilhelm Weber, *Wellenlehre* (Leipzig, 1825), p. 519, § 281, and *A Text-Book of Physics*, part. ii., "Sound," by J. H. Poynting and J. J. Thomson (London, 1906), pp. 104 and 105.

10 See Sedley Taylor, *Sound and Music* (1896), p. 21.

11 *Id.* pp. 23-25.

12 See Gottfried Weber, *op. cit.*, pp. 39-41, and Ernst H. and Wilhelm Weber, *op. cit.* p. 522, end of § 285.

13 See A. Ganot, *Elementary Treatise on Physics*, translated by E. Atkinson (16th ed., London, 1902), p. 266, § 282, "In the horn different notes are produced by altering the distance of the lips." Such a vague and misleading statement is worse than useless. See also Poynting and Thomson, *op. cit.* p. 113.

14 "Le Cor," p. 22; p. 11, § 18; pp. 6 and 7, § 8.

15 The phraseology alone is here borrowed from Sedley Taylor, (*op. cit.* p. 55), who does not enter into the practical application of the theory he expounds so clearly.

16 See Dr Emil Schafhäutl's article on musical instruments, § iv. of *Bericht der Beurtheilungs Commission bei der Allg. Deutschen Industrie Ausstellung, 1854* (Munich, 1855), pp. 169-170; also F. Zamminer, *op. cit.*

17 The measurements are for the high philharmonic pitch a'=452.4. V. Mahillon, "Le cor" (p. 32), gives a table of the lengths of crooks in metres.

18 Robert Eitner, editor of the Monatshefte für Musikwissenschaft, published therein an article in 1881, p. 41 seq., "Wer hat die Ventiltrompete erfunden," in which, after referring to the

Klappenwaldhorn and *Trompete* (keyed horn and trumpet) made by Weidinger and played in public in 1802 and 1813 respectively, he goes on to state that Schilling in his Lexicon makes the comical mistake of looking upon the Klappentrompete (keyed trumpet) and *Ventiltrompete* (valve trumpet) as different instruments. He accordingly sets matters right, as he thinks, by according to Weidinger the honour of the invention of valves, hitherto wrongfully attributed to Stölzel; and in the *Quellenlexikon* (1904) he leaves out Stölzel's name, and names Weidinger as the inventor of the *Klappen* or *Ventil*, referring readers for further particulars to his article, just quoted, in the *Monatshefte*.

19 See Hector Berlioz, *A Treatise on Modern Instrumentation and Orchestration*, translated by Mary Cowden Clarke, new edition revised by Joseph Bennett (1882), p. 141.

20 See Victor Mahillon, *Catal. descriptif des instruments de musique*, &c., vol. ii. p. 388, No. 1156, where an illustration is given. See also Dr August Hammerich (French translation by E. Beauvais), "Über altnordische Luren" in *Vierteljährschrift für Musik-Wissenschaft* x. (1894).

21 See Major J. H. L. Archer, *The British Army Records* (London, 1888), pp. 402, &c.

22 *De re militari*, iii. 5 (Basel, 1532). The successive editions and translations of this classic, both manuscript and printed, throughout the middle ages afford useful evidence of the evolution of these three wind instruments.

23 See Wilhelm Froehner, *La Colonne Trajane d'après le surmoulage exécuté à Rome en 1861-1862* (Paris, 1872-1874). On pl. 51 is a cornu framing the head of a cornicen or horn-player. See also the fine plates in Conrad Cichorius, *Die Reliefs der Traiansäule* (Berlin, 1896, &c.).

24 Ermanno Ferrero, *L'Arc d'Auguste à Suse* (Segusio, 9-8 B.C.) (Turin, 1901).

25 See the mouthpiece on the Pompeian buccinas preserved in the museum at Naples, reproduced in the article Buccina. The museums of the conservatoires of Paris and Brussels and the Collection Kraus in Florence possess facsimiles of these instruments; see Victor Mahillon, *Catalogue*, vol. ii. p. 30. Cf. also the pair of bronze Etruscan cornua, No. 2734 in the department of Creek and Roman antiquities at the British Museum, which possess well-preserved cup-shaped mouthpieces.

26 See Bock, "Gebrauch der Hörner im Mittelalter," in Gustav Heider's *Mittelalterliche Kunstdenkmäler Österreichs* (Stuttgart, 1858-1860).

27 *Dictionnaire raisonné du mobilier français* (Paris, 1889), ii. p. 246.

28 Engelbertus Admontensis in *De Musica Scriptores*, by Martin Gerbert, Bd. ii. lib. ii. cap. 29; and Edward Buhle, *Die Musikalischen Instrumente in den Miniaturen des frühen Mittelalters*, pt. i., "Die Blasinstrumente" (Leipzig, 1903), p. 16.

29 *Le Trésor de vénerie par Hardouin, seigneur de Fontaines-Guérin* (edited by H. Michelant, Metz, 1856); the first part was edited by Jérome Pichon (Paris, 1855), with an historical introduction by Bottée de Toulmon.

30 As worked out by Edward Buhle, *op. cit.*, p. 23.

31 See Turbevile, *op. cit.*, also J. du Fouilloux, *La Vénerie* (Paris, 1628), p. 70; cf. also editions of 1650 and of 1562, where the horn is called *trompe*, used with the verb *corner*; Juliana Bernes, *Boke of St Albans* (1496), the frontispiece of which is a hunting scene showing a horn of very wide bore, without bell. Only half the instrument is visible.

32 See "Reliure italienne du xv^{e} siècle en argent niellé. Collection du Baron Nathaniel de Rothschild, Vienne," in *Gazette archéologique* (Paris, 1880), xiii. p. 295, pl. 38, where other instruments are also represented.

33 See Jost Amman, *Wappen und Stammbuch* (1589). A reprint in facsimile has been published by Georg Hirth as vol. iii. of *Liebhaber Bibliothek* (Munich, 1881). See arms of Sultzberger aus Tirol (p. 52), "Ein Jägerhörnlin," and of the Herzog von Wirtenberg; cf. the latter with the arms of Wurthemberch in pl. xxii. vol. ii. of Gelre's *Wappenboek ou armorial de 1334 à 1372* (miniatures of coats of arms in facsimile), edited by Victor Bouton (Paris, 1883).

34 For illustrations see autotype facsimile of Utrecht Psalter, 9th century; British Museum, Add. MS. 10,546, Ps. 150, 9th century; Add. MS. 24,199, 10th century; Eadwine Psalter, Trin. Coll. Camb., 11th century, and Cotton MS., Nero, D. IV., 8th century; also Edward Buhle, *op. cit.*, pl. ii. and pp. 12-24.

35 See John Carter, *Specimens of Ancient Sculpture and Paintings* (London, 1780-1794), i. p. 53 (plates unnumbered); also reproduced in H. Lavoix, *Histoire de la musique* (Paris, 1884).

36 See Jost Amman, *op. cit.*

37 *Musica getutscht und ausgezogen* (Basel, 1511), p. 30. The names are not given under the drawings, but the above is the order in which they occur, which is probably reversed.

38 *Harmonie universelle* (Paris, 1636), p. 245.

39 *Syntagma Musicum* (Wolfenbüttel, 1618), pl. vii. No. 11, p. 39.

40 *Historisch-biographisches Lexicon der Tonkünstler* (Leipzig, 1790-1792 and 1812-1814).

41 *De saecularibus Liberalium Artium in Bohemia et Moravia fatis commentarius* (Prague, 1784), p.

401.

42 See Ernest Thoinan, *Les Origines de la chapelle musique des souverains de France* (Paris, 1864); F. J. Fétis, "Recherches sur la musique des rois de France, et de quelques princes depuis Philippe le Bel jusqu'à la fin du règne de Louis XIV.," *Revue musicale* (Paris, 1832), xii. pp. 193, 217, 233, 241, 257; Castil-Blaze, *La Chapelle musique des rois de France* (Paris, 1882); Michel Brenet, "Deux comptes de la chapelle musique des rois de France," *Intern. Mus. Ges.*, Smbd. vi., i. pp. 1-32; J. Ecorcheville, "Quelques documents sur la musique de la grande écurie du roi," *Intern. Mus. Ges.*, Smbd. ii. 4 (Leipzig, 1901), pp. 608-642.

43 *Neue Zeitschrift f. Musik* (Leipzig, 1870), p. 309.

44 See *Die Sammlung der Musikinstrumente des baierischen Nat. Museum* by K. A. Bierdimpfl (Munich, 1883), Nos. 105 and 106.

45 Communication from Dr Georg Hagen, assistant director.

46 See Musée du Conservatoire National de Musique. *Catalogue des instruments de musique* (Paris, 1884), p. 147.

47 See Captain C. R. Day, *Descriptive Catalogue of the Musical Instruments exhibited at the Military Exhibition* (London, 1890), p. 147, No. 307.

48 See V. Mahillon, *Catal.* vol. i. No. 468.

49 See Captain C. R. Day, *Catal.* No. 309, p. 148.

50 For an illustration see *Catalogue of the Special Exhibition of Ancient Musical Instruments at South Kensington Museum 1872* (London, 1873), p. 25, No. 332.

51 See *Katalog des musikhistorischen Museums von Paul de Wit* (Leipzig, 1904), p. 142, No. 564, where it is classified as a Jägertrompete after Praetorius; it has a trumpet mouthpiece.

52 For an illustration see F. J. Crowest, *English Music*, p. 449, No. 12.

53 See Ignatz and Anton Böck in *Baierisches Musik-Lexikon* by Felix J. Lipowski (Munich, 1811), p. 26, note.

54 See, for instance, frontispiece of Walther's *Musikalisches Lexikon* (Leipzig, 1732); J. F. B. C. Majer's *Musik-Saal* (Nuremberg, 1741, 2nd ed.), p. 54; Joh. Christ. Kolb, *Pinacotheca Davidica* (Augsburg, 1711); Ps. xci.; "Componimenti Musicali per il cembalo Dr Theofilo Muffat, organista di sua Sacra Maesta Carlo VI. Imp." (1690), title-page in *Denkmäler d. Tonkunst in Oesterreich*, Bd. iii.

55 See Hugo Goldschmidt, "Das Orchester der italienischen Oper im 17 Jahrhundert," *Intern. Mus. Ges.*, Smbd. ii. 1, p. 73.

56 See "Le Cor," pp. 23 and 24, and *Dictionnaire de l'acad. des beaux arts*, vol. iv., art. "Cor."

57 Mersenne's drawings of *cors de chasse* are very crude; they have no bell and are all of the large calibre suggestive of the primitive animal horn. He mentions nevertheless that they were not only used for signals and fanfares but also for little concerted pieces in four parts for horns alone, or with oboes, at the conclusion of the hunt.

58 See William Tans'ur Senior, *The Elements of Musick* (London, 1772); Br. V. Dictionary under "Horn." Also Scale of Horn in the hand of Samuel Wesley; in Add. MS. 35011, fol. 166, Brit. Mus.

59 A horn-player, Johann Theodor Zeddelmayer, was engaged in 1706 at the Saxon court at Weissenfels; see *Neue-Mitteilungen aus dem Gebiete histor. antiqu. Forschungen*, Bd. xv. (2) (Halle, 1882), p. 503; also Wilhelm Kleefeld, "Das Orchester der Hamburger Oper, 1678-1738," *Intern. Mus. Ges.*, Smbd. i. 2, p. 280, where the appearance of the horn in the orchestras of Germany is traced.

60 *Das neu-eröffnete Orchester*, i. 267.

61 See Moritz Fürstenau, *Zur Geschichte der Musik und des Theaters zu Dresden* (Dresden, 1861-1862), vol. ii. p. 60.

62 See "Carl Heinrich Graun als Opernkomponist," by Albert Mayer-Reinach, *Intern. Mus. Ges.*, Smbd. i. 3 (Leipzig, 1900), pp. 516-517 and 523-524, where musical examples are given.

63 Cf. Chrysander, *Haendel*, ii. 146.

64 See Moritz Fürstenau, *op. cit.* ii. 58.

65 See Ludwig von Köchel, *Die kaiserliche Hofkappelle in Wien* (Vienna, 1869), p. 80.

66 See Victor Mahillon, *Catalogue descriptif*, vol. ii. No. 1160, p. 389.

67 *Op. cit.* ii. 60.

68 The Department of State Archives for Saxony in Dresden possesses no documents which can throw any light upon this point, but, through the courtesy of the director, the following facts have been communicated. Two documents concerning Anton Joseph Hampel are extant: (1) An application by his son, Johann Michael Hampel, to the elector Friedrich August III. of Saxony, dated Dresden, April 3, 1771, in which he prays that the post of his father as horn-player in the court orchestra—in which he had already served as deputy for his invalid father—may be awarded to him. (2) A petition from

the widow, Aloisia Ludevica Hampelin, to the elector, bearing the same date (April 3, 1771), wherein she announces the death of her husband on the 30th of March 1771, who had been in the service of the house of Saxony thirty-four years as horn-player, and prays for the grant of a monthly pension for herself and her three delicate daughters, as she finds herself in the most unfortunate circumstances. There is no allusion in either letter to any musical merit of the deceased.

69 There is an instrument of this early type, supposed to date from the middle of the 18th century, in Paul de Wit's fine collection of musical instruments formerly in Leipzig and now transferred to Cologne; see *Katalog*, No. 645, p. 148.

70 See *Dictionnaire de l'acad. des beaux arts*, vol. iv. (Paris), article "Cor."

71 See Dr Gustav Schilling, *Universal Lexikon der Tonkunst* (Stuttgart, 1840), Bd. vi., "Trompete"; also Capt. C. R. Day, pp. 139 and 151, where the term *Invention* is quite misunderstood and misapplied. See Gottfried Weber in *Caecilia* (Mainz, 1835), Bd. xvii.

72 Gerber in the first edition of his *Lexikon* does not mention Hampel or award him a separate biographical article; we may therefore conclude that he was not personally acquainted with him, although Hampel was still a member of the electoral orchestra in Dresden during Gerber's short career in Leipzig. In the edition of 1812 Gerber renders him full justice.

73 *Vollständige theoretisch-praktische Musikschule* (Bonn, 1811), pt. iii. p. 7.

74 See Victor Mahillon, "Le Cor," p. 28; Chladni, *op. cit.* p. 87.

75 See Fröhlich, *op. cit.* 7; and Gerber, *Lexikon* (ed. 1812), p. 493; "Le Cor," pp. 34 and 53.

76 See Praetorius and Mersenne, *op. cit.*; the latter gives an illustration of the trumpet mute.

77 *Methode de premier et de second cor* (Paris, c. 1807). The passage in question was discovered and courteously communicated by Hofrat P. E. Richter of the Royal Library, Dresden. There is no copy of Domnich's work in the British Museum.

78 See William Tans'ur Senior, *op. et loc. cit.*

79 See *Allgemeine musikalische Zeitung* (Leipzig), Nov. 1802, p. 158, and Jan. 1803, p. 245; and E. Hanslick, *Geschichte des Concertwesens in Wien* (Vienna, 1869), p. 119.

80 See *Allgem. mus. Ztg.*, 1815, p. 844.

81 "Le Cor," pp. 34-35.

82 See the description of the instrument and of other attempts to obtain the same result by Gottfried Weber, "Wichtige Verbesserung des Horns" in *Allg. musik. Ztg.* (Leipzig, 1812), pp. 758, &c.; also 1815, pp. 637 and 638 (the regent or keyed bugle).

83 See *Allg. musik. Ztg.*, 1815, May, p. 309, the first announcement of the invention in a paragraph by Captain G. B. Bierey.

84 *Ibid.*, 1817, p. 814, by F. Schneider, and Dec. p. 558; 1818, p. 531. An announcement of the invention and of a patent granted for the same for ten years, in which Blümel is for the first time associated with Stölzel as co-inventor. See also *Caecilia* (Mainz, 1835), Bd. xvii. pp. 73 seq., with illustrations, an excellent article by Gottfried Weber on the valve horn and valve trumpet.

85 For a very complete exposition of the operation of valves in the horn, and of the mathematical proportions to be observed in construction, see Victor Mahillon's "Le Cor," also the article by Gottfried Weber in *Caecilia* (1835), to which reference was made above. A list of horn-players of note during the 18th century is given by C. Gottlieb Murr in *Journal f. Kunstgeschichte* (Nuremberg, 1776), vol. ii. p. 27. See also a good description of the style of playing of the virtuoso J. Nisle in 1767 in Schubart, *Aesthetik d. Tonkunst*, p. 161, and *Leben u. Gesinnungen* (1791), Bd. ii. p. 92; or in L. Schiedermair, "Die Blütezeit d. Ottingen-Wallensteinschen Hofkapelle," *Intern. Mus. Ges.* Smbd. ix. (1), 1907, pp. 83-130.

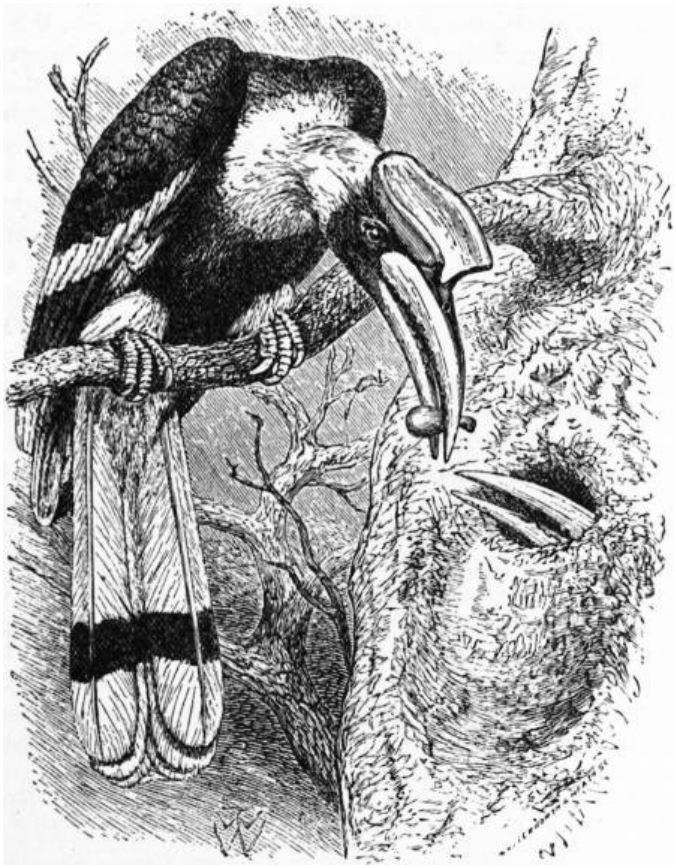
HORNBEAM (*Carpinus betulus*), a member of a small genus of trees of the natural order Corylaceae. The Latin name *Carpinus* has been thought to be derived from the Celtic *car*, wood, and *pin* or *pen*, head, the wood of hornbeams having been used for yokes of cattle (see Loudon, *Ency. of Pl.* p. 792, new ed. 1855, and Littré, Dict. ii. 556). The common hornbeam, or yoke-elm, *Carpinus betulus* (Ger. *Hornbaum* and *Hornbuche*, Fr. *charme*), is indigenous in the temperate parts of western Asia and of Asia Minor, and in Europe, where it ranges as high as 55° and 56° N. lat. It is common in woods and hedges in parts of Wales and of the south of England. The trunk is usually flattened, and twisted as though composed of several stems united; the bark is smooth and light grey; and the leaves are in two rows, 2 to 3 in. long, elliptic-ovate, doubly toothed, pointed, numerously ribbed, hairy below and opaque, and not glossy as in the beech, have short stalks and when young are plaited. The stipules of the leaves

act as protecting scale-leaves in the winter-bud and fall when the bud opens in spring. The flowers appear with the leaves in April and May. The male catkins are about 1½ in. long, and have pale-yellow anthers, bearing tufts of hairs at the apex; the female attain a length in the fruiting stage of 2 to 4 in., with bracts 1 to 1½ in. long. The green and angular fruit or "nut" ripens in October; it is about ¼ in. in length, is in shape like a small chestnut, and is enclosed in leafy, 3-lobed bracts. The hornbeam thrives well on stiff, clayey, moist soils, into which its roots penetrate deeply; on chalk or gravel it does not flourish. Raised from seed it may become a tree 40 to as much as 70 ft. in height, greatly resembling the beech, except in its rounder and closer head. It is, however, rarely grown as a timber-tree, its chief employment being for hedges. "In the single row," says Evelyn (*Sylva*, p. 29, 1664), "it makes the noblest and the stateliest *hedges* for long Walks in Gardens or *Parks*, of any Tree whatsoever whose leaves are *deciduous*." As it bears clipping well, it was formerly much used in geometric gardening. The branches should not be lopped in spring, on account of their tendency to bleed at that season. The wood of the hornbeam is white and close-grained, and polishes ill, is of considerable tenacity and little flexibility, and is extremely tough and hard to work—whence, according to Gerard, the name of the tree. It has been found to lose about 8% of its weight by drying. As a fuel it is excellent; and its charcoal is much esteemed for making gunpowder. The inner part of the bark of the hornbeam is stated by Linnaeus to afford a yellow dye. In France the leaves serve as fodder. The tree is a favourite with hares and rabbits, and the seedlings are apt to be destroyed by mice. Pliny (*Nat. Hist.* xxvi. 26), who describes its wood as red and easily split, classes the hornbeam with maples.

The American hornbeam, blue or water beech, is *Carpinus americana* (also known as *C. caroliniana*); the common hop-hornbeam, a native of the south of Europe, is a member of a closely allied genus, *Ostrya vulgaris*, the allied American species, *O. virginiana*, is also known as ironwood from its very hard, tight, close-grained wood.

HORNBILL, the English name long generally given to all the birds of the family *Bucerotidae* of modern ornithologists, from the extraordinary horn-like excrescence (*epithema*) developed on the bill of most of the species, though to which of them it was first applied seems doubtful. Among classical authors Pliny had heard of such animals, and mentions them (*Hist. Nat.* lib. x. cap. lxx.) under the name of *Tragopan*; but he deemed their existence fabulous, comparing them with *Pegasi* and *Gryphones*—in the words of Holland, his translator (vol. i. p. 296)—"I thinke the same of the Tragopanades, which many men affirme to bee greater than the Ægle; having crooked hornes like a Ram on either side of the head, of the colour of yron, and the head onely red." Yet this is but an exaggerated description of some of the species with which doubtless his informants had an imperfect acquaintance. Medieval writers found Pliny's bird to be no fable, for specimens of the beak of one species or another seem occasionally to have been brought to Europe, where they were preserved in the cabinets of the curious, and thus Aldrovandus was able to describe pretty fairly and to figure (*Ornithologia*, lib. xii. cap. xx. tab. x. fig. 7) one of them under the name of "*Rhinoceros Avis*," though the rest of the bird was wholly unknown to him. When the exploration of the East Indies had extended farther, more examples reached Europe, and the "*Corvus Indicus cornutus*" of Bontius became fully recognized by Willughby and Ray, under the title of the "Horned Indian Raven or *Topau* called the Rhinocerot Bird." Since the time of those excellent ornithologists our knowledge of the hornbills has been steadily increasing, but up to the third quarter of the 19th century there was a great lack of precise information, and the publication of D. G. Elliot's "*Monograph of the Bucerotidae*," then supplied a great want. He divides the family into two sections, the *Bucerotinae* and the *Bucorvinae*. The former group contains most of the species, which are divided into many genera. Of these, the most remarkable is *Rhinoplax*, which seems properly to contain but one species, the *Buceros vigil*, *B. scutatus* or *B. geleatus* of authors, commonly known as the helmet-hornbill, a native of Sumatra and Borneo. This is easily distinguished by having the front of its nearly vertical and slightly convex *epithema* composed of a solid mass of horn[1] instead of a thin coating of the light and cellular structure found in the others. So dense and hard is this portion of the "helmet" that Chinese and Malay artists carve figures on its surface, or cut it transversely into plates, which from their agreeable colouring, bright yellow with a scarlet rim, are worn as brooches or other ornaments. This bird, which is larger than a raven, is also remarkable for its long graduated tail, having the middle two feathers nearly twice the length of the rest. Nothing is known of its habits. Its head was figured by George Edwards in the 18th century, but little else had been seen of it until 1801, when John Latham described the plumage from a specimen in the British Museum, and the first figure of the

whole bird, from an example in the Museum at Calcutta, was published by General Hardwicke in 1823 (*Trans. Linn. Society*, xiv. pl. 23). Yet more than twenty years elapsed before French naturalists became acquainted with it.



Great Indian Hornbill (*B. bicornis*). (After Tickell's drawing in the Zoological Society's Library.)

In the *Bucorvinae* we have only the genus *Bucorvus*, or *Bucorax* as some call it, confined to Africa, and containing at least two and perhaps more species, distinguishable by their longer legs and shorter toes, the ground-hornbills of English writers, in contrast to the *Bucerotinae* which are chiefly arboreal in their habits, and when not flying move by short leaps or hops, while the members of this group walk and run with facility. From the days of James Bruce at least there are few African travellers who have not met with and in their narratives more or less fully described one or other of these birds, whose large size and fearless habits render them conspicuous objects.

As a whole the hornbills, of which more than 50 species have been described, form a very natural and in some respects an isolated group, placed by Huxley among his *Coccygomorphae*. It has been suggested that they have some affinity with the hoopoes (*Upupidae*), and this view is now generally accepted. Their supposed alliance to the toucans (*Rhamphastidae*) rests only on the apparent similarity presented by the enormous beak, and is contradicted by important structural characters. In many of their habits, so far as these are known, all hornbills seem to be much alike, and though the modification in the form of the beak, and the presence or absence of the extraordinary excrescence,[2] whence their name is derived, causes great diversity of aspect among them, the possession of prominent eyelashes (not a common feature in birds) produces a uniformity of expression which makes it impossible to mistake any member of the family. Hornbills are social birds, keeping in companies, not to say flocks, and living chiefly on fruits and seeds; but the bigger species also capture and devour a large number of snakes, while the smaller are great destroyers of insects. The older writers say that they eat carrion, but further evidence to that effect is required before the statement can be believed. Almost every morsel of food that is picked up is tossed into the air, and then caught in the bill before it is swallowed. They breed in holes of trees, laying large white eggs, and when the hen begins to sit the cock plasters up the entrance with mud or clay, leaving only a small window through which she receives the food he brings her during her incarceration.

This remarkable habit, almost simultaneously noticed by Dr Mason in Burma, S. R. Tickell in India, and Livingstone in Africa, and since confirmed by other observers, especially A. R. Wallace[3] in the Malay Archipelago, has been connected by A. D. Bartlett (*Proc. Zool. Society*, 1869, p. 142) with a peculiarity as remarkable, which he was the first to notice. This is the fact that hornbills at intervals of time, whether periodical or irregular is not yet known, cast the epithelial layer of their gizzard, that layer being formed by a secretion derived from the glands

of the proventriculus or some other upper part of the alimentary canal. The epithelium is ejected in the form of a sack or bag, the mouth of which is closely folded, and is filled with the fruit that the bird has been eating. The announcement of a circumstance so extraordinary naturally caused some hesitation in its acceptance, but the essential truth of Bartlett's observations was abundantly confirmed by Sir W. H. Flower and especially by Dr J. Murie. These castings form the hen bird's food during her confinement.

(A. N.)

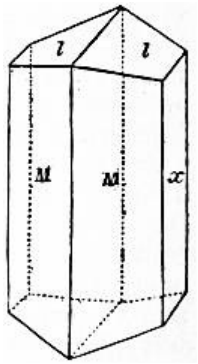
---

1 Apparently correlated with this structure is the curious thickening of the "prosencephalic median septum" of the cranium as also of that which divides the "prosencephalic" from the "mesencephalic chamber," noticed by Sir R. Owen (*Cat. Osteol. Ser. Mus. Roy. Coll. Surg. England*, i. 287); while the solid horny mass is further strengthened by a backing of bony props, directed forwards and meeting its base at right angles. This last singular arrangement is not perceptible in the skull of any other species examined by the present writer.

2 Buffon, as was his manner, enlarges on the cruel injustice done to these birds by Nature in encumbering them with this deformity, which he declares must hinder them from getting their food with ease. The only corroboration his perverted view receives is afforded by the observed fact that hornbills, in captivity at any rate, never have any fat about them.

3 In *The Malay Archipelago* (i. 213), Wallace describes a nestling hornbill (*B. bicornis*) which he obtained as "a most curious object, as large as a pigeon, but without a particle of plumage on any part of it. It was exceedingly plump and soft, and with a semi-transparent skin, so that it looked more like a bag of jelly, with head and feet stuck on, than like a real bird."

HORNBLENDE, an important member of the amphibole group of rock-forming minerals. The name is an old one of German origin, and was used for any dark-coloured prismatic crystals from which metals could not be extracted. It is now applied to the dark-coloured aluminous members of the monoclinic amphiboles, occupying in this group the same position that augite occupies in the pyroxene group. The monoclinic crystals are prismatic in habit with a six-sided cross-section; the angle between the prism-faces (*M*), parallel to which there are perfect cleavages, is 55° 49′. The colour (green, brown or black) and the specific gravity (3.0-3.3) vary with the amount of iron present. The pleochroism is always strong, and the angle of optical extinction on the plane of symmetry (x in the figure) varies from 0° to 37°. The chemical composition is expressed by mixtures in varying proportions of the molecules $Ca(Mg, Fe)_3(SiO_3)_4$, $(Mg, Fe)(Al, Fe)_2SiO_6$ and $NaAl(SiO_3)_2$. Numerous varieties have been distinguished by special names: edenite, from Edenville in New York, is a pale-coloured aluminous amphibole containing little iron; pargasite, from Pargas near Abo in Finland, a green or bluish-green variety; common hornblende includes the greenish-black and black kinds containing more iron. The dark-coloured porphyritic crystals of basalts are known as basaltic hornblende.



Hornblende occurs as an essential constituent of many kinds of igneous rocks, such as 708
hornblende-granite, syenite, diorite, hornblende-andesite, basalt, &c.; and in many crystalline schists, for example, amphibolite and hornblende-schist which are composed almost entirely of this mineral. Well-crystallized specimens are met with at many localities, for example: brilliant black crystals (syntagmatite) with augite and mica in the sanidine bombs of Monte Somma, Vesuvius; large crystals at Arendal in Norway, and at several places in the state of New York; isolated crystals from the basalts of Bohemia.

(L. J. S.)

HORN-BOOK, a name originally applied to a sheet containing the letters of the alphabet, which formed a primer for the use of children. It was mounted on wood and protected with transparent horn. Sometimes the leaf was simply pasted against the slice of horn. The wooden frame had a handle, and it was usually hung at the child's girdle. The sheet, which in ancient times was of vellum and latterly of paper, contained first a large cross—the criss-crosse—from

which the horn-book was called the Christ Cross Row, or criss-cross-row. The alphabet in large and small letters followed. The vowels then formed a line, and their combinations with the consonants were given in a tabular form. The usual exorcism—"in the name of the Father and of the Sonne and of the Holy Ghost, Amen"—followed, then the Lord's Prayer, the whole concluding with the Roman numerals. The horn-book is mentioned in Shakespeare's *Love's Labour's Lost*, v. 1, where the *ba*, the *a*, *e*, *i*, *o*, *u*, and the horn, are alluded to by Moth. It is also described by Ben Jonson—

> "The letters may be read, through the horn,
> That make the story perfect."

HORNBY, SIR GEOFFREY THOMAS PHIPPS (1825-1895), British admiral of the fleet, son of Admiral Sir Phipps Hornby, the first cousin and brother-in-law of the 13th earl of Derby, by a daughter of Lieut.-General Burgoyne, commonly distinguished as "Saratoga" Burgoyne, was born on the 20th of February 1825. At the age of twelve he was sent to sea in the flagship of Sir Robert Stopford, with whom he saw the capture of Acre in November 1840. He afterwards served in the flagship of Rear-Admiral Josceline Percy at the Cape of Good Hope, was flag-lieutenant to his father in the Pacific, and came home as a commander. When the Derby ministry fell in December 1852 young Hornby was promoted to be captain. Early in 1853 he married, and as the Derby connexion put him out of favour with the Aberdeen ministry, and especially with Sir James Graham, the first lord of the Admiralty, he settled down in Sussex as manager of his father's property. He had no appointment in the navy till 1858, when he was sent out to China to take command of the "Tribune" frigate and convey a body of marines to Vancouver Island, where the dispute with the United States about the island of San Juan was threatening to become very bitter. As senior naval officer there Hornby's moderation, temper and tact did much to smooth over matters, and a temporary arrangement for joint occupation of the island was concluded. He afterwards commanded the "Neptune" in the Mediterranean under Sir William Fanshawe Martin, was flag-captain to Rear-Admiral Dacres in the Channel, was commodore of the squadron on the west coast of Africa, and, being promoted to rear-admiral in January 1869, commanded the training squadron for a couple of years. He then commanded the Channel Fleet, and was for two years a junior lord of the Admiralty. It was early in 1877 that he went out as commander-in-chief in the Mediterranean, where his skill in manœuvring the fleet, his power as a disciplinarian, and the tact and determination with which he conducted the foreign relations at the time of the Russian advance on Constantinople, won for him the K. C. B. He returned home in 1880 with the character of being perhaps the most able commander on the active list of the navy. His later appointments were to the Royal Naval College as president, and afterwards to Portsmouth as commander-in-chief. On hauling down his flag he was appointed G. C. B., and in May 1888 was promoted to be admiral of the fleet. From 1886 he was principal naval aide-de-camp to Queen Victoria, and in that capacity, and as an admiral of the fleet, was appointed on the staff of the German emperor during his visits to England in 1889 and 1890. He died, after a short illness, on the 3rd of March 1895. By his wife, who predeceased him, he left several children, daughters and sons, one of whom, a major in the artillery, won the Victoria Cross in South Africa in 1900.

His life was written by his daughter, Mrs Fred. Egerton, (1896).

HORNCASTLE, a market-town in the S. Lindsey or Horncastle parliamentary division of Lincolnshire, England, at the foot of a line of low hills called the Wolds, at the confluence of the Bain and Waring streams; the terminus of a branch line of the Great Northern railway, 130 m. N. from London. Pop. of urban district (1901) 4038. The church of St Mary is principally Decorated and Perpendicular, with some Early English remains and an embattled western tower. Queen Elizabeth's grammar school was founded in 1562. Other buildings are an exchange, a court-house and a dispensary founded in 1789. The prosperity of the town is chiefly dependent on agriculture and its well-known horse fairs. Brewing and malting are carried on, and there is some trade in coal and iron.

Remains have been found here which may indicate the existence of a Roman village. The manor of Horncastle (Hornecastre) belonged to Queen Edith in Saxon times and was royal demesne in 1086 and the head of a large soke. In the reign of Stephen it apparently belonged to Alice de Cundi, a partisan of the empress Maud, and passing to the crown on her death it was granted by Henry III. to Gerbald de Escald, from whom it descended to Ralph de Rhodes, who sold it to Walter Mauclerc, bishop of Carlisle in 1230. The see of Carlisle retained it till the reign of Edward VI. when it was granted to Edward, Lord Clinton, but was recovered in the following reign. In 1230 Henry III. directed the men of Horncastle to render a reasonable aid to the bishop, who obtained the right to try felons, hold a court leet and have free warren. An inquisition of 1275 shows that the bishop had then, besides the return of writs, the assize of bread and ale and waifs and strays in the soke. Horncastle was a centre of the Lincolnshire rebellion of 1536. Royalist troops occupied the town in 1643, and were pursued through its streets after the battle fought at Winceby. It was never a municipal or parliamentary borough, but during the middle ages it was frequently the residence of the bishops of Carlisle. Its prosperity has always depended largely on its fairs, the great horse fair described by George Borrow in *Romany Rye* being granted to the bishop in 1230 for the octave of St Lawrence, together with the fair on the feast of St Barnabas. The three other fairs are apparently of later date.

See George Weir, *Historical and Descriptive Sketches of the Town and Soke of Horncastle in the County of Lincoln and of Several Places adjacent* (London, 1820).

HORN DANCE, a medieval dance, still celebrated during the September “wakes” at Abbots Bromley, a village on the borders of Needwood Forest, Staffordshire. Six or seven men, each wearing a deer’s skull with antlers, dance through the streets, pursued by a comrade who bestrides a mimic horse, and whips the dancers to keep them on the move. The horn-dance usually takes place on the Monday after Wakes Sunday, which is the Sunday next after the 4th of September. Originally the dance took place on a Sunday.

See *Strand Magazine* for November 1896; also *Folk-lore*, vol. vii. (1896), p. 381.

HORNE, GEORGE (1730-1792), English divine, was born on the 1st of November 1730, at Otham near Maidstone, and received his education at Maidstone school and University College, Oxford. In 1749 he became a fellow of Magdalen, of which college he was elected president in 1768. As a preacher he early attained great popularity, and was, albeit unjustly, accused of Methodism. His reputation was helped by several clever if somewhat wrong-headed publications, including a satirical pamphlet entitled *The Theology and Philosophy of Cicero’s Somnium Scipionis* (1751), a defence of the Hutchinsonians in *A Fair, Candid and Impartial State of the Case between Sir Isaac Newton and Mr Hutchinson* (1753), and critiques upon William Law (1758) and Benjamin Kennicott (1760). In 1771 he published his well-known *Commentary on the Psalms*. a series of expositions based on the Messianic idea. In 1776 he was chosen vice-chancellor of his university; in 1781 he was made dean of Canterbury, and in 1790 was raised to the see of Norwich. He died at Bath on the 17th of January 1792.

His collected *Works* were published with a Memoir by William Jones in 1799.

HORNE, RICHARD HENRY, or **HENGIST** (1803-1884), English poet and critic, was born in London on New Year’s Day 1803. He was intended for the army, and entered at Sandhurst, but receiving no commission, he left his country and joined the Mexican navy. He served in the war against Spain, and underwent many adventures. Returning to England, he became a journalist, and in 1836-1837 edited *The Monthly Repository*. In 1837 he published two tragedies, *Cosmo de Medici* and *The Death of Marlowe*, and in 1841 a *History of Napoleon*. The

book, however, by which he lives is his epic of *Orion*, which appeared in 1843. It was published originally at a farthing, was widely read, and passed through many editions. In the next year he set forth a volume of critical essays called *A New Spirit of the Age*, in which he was assisted by Elizabeth Barrett (Mrs Browning), with whom, from 1839 to her marriage in 1846, he conducted a voluminous correspondence. In 1852 he went to Australia in company with William Howitt, and did not return to England until 1869. He received a Civil List pension in 1874, and died at Margate on the 13th of March 1884. Horne possessed extraordinary versatility, but, except in the case of *Orion*, he never attained to a very high degree of distinction. That poem, indeed, has much of the quality of fine poetry; it is earnest, vivid and alive with spirit. But Horne early drove his talent too hard, and continued to write when he had little left to say. In criticism he had insight and quickness. He was one of the first to appreciate Keats and Tennyson, and he gave valuable encouragement to Mrs Browning when she was still Miss Elizabeth Barrett.

HORNE, THOMAS HARTWELL (1780-1862), English theologian and bibliographer, was born in London on the 20th of October 1780, and was educated at Christ's Hospital, with S. T. Coleridge as an elder contemporary. On leaving school he became clerk to a barrister, but showed a keen taste for authorship. As early as 1800 he published *A Brief View of the Necessity and Truth of the Christian Revelation*, which was followed by several minor works on very varied subjects. In 1814, having been appointed librarian of the Surrey Institution, he issued his *Introduction to the Study of Bibliography*. This was followed in 1818 by his long matured work, the *Introduction to the Critical Study of the Holy Scriptures*, which rapidly attained popularity, and secured for its author widespread fame and an honorary M.A. degree from Aberdeen. In 1819 he received ordination from William Howley, bishop of London, and after holding two smaller livings was appointed rector of the united parishes of St Edmund the King and Martyr, and St Nicolas Acons in London. On the breaking up of the Surrey Institution in 1823, he was appointed (1824) senior assistant librarian in the department of printed books in the British Museum. After the project of making a classified catalogue had been abandoned, he took part in the preparation of the alphabetical one, and his connexion with the museum continued until within a few months of his death on the 27th of January 1862.

Horne's works exceed forty in number. The *Introduction*, edited by John Ayre and S. P. Tregelles, reached a 12th edition in 1869; but, owing to subsequent advances in biblical scholarship, it fell into disuse.

HORNELL, a city of Steuben county, New York, U.S.A., on the Canisteo river, 90 m. S.E. of Buffalo. Pop. (1890) 10,996; (1900) 11,918, of whom 1230 were foreign-born; (1910 census) 13,617. Hornell is served by the Erie and the Pittsburg, Shawmut & Northern railways; the latter connects at Wayland (20 m. distant by rail) with the Delaware, Lackawanna & Western railroad. In the city are St Ann's Academy, the St James Mercy Hospital, the Steuben Sanitarium, a public library, and a county court-house—terms of the county court being held here as well as in Bath (pop. in 1905, 3695), the county-seat, and in Corning. Hornell has extensive car shops of the Erie railroad, and among its manufactures are silk goods (silk gloves being a specially important product), sash, doors and blinds, leather, furniture, shoes, white-goods, wire-fences, foundry and machine shop products, electric motors, and brick and tile. The value of the factory product in 1905 was $3,162,677, an increase of 30.1% since 1900. The first settlement here was made in 1790, within the district of Erwin (then in Ontario county); after 1796 it was a part of Canisteo township, and the settlement itself was known as Upper Canisteo until 1820, when a new township was formed and named Hornellsville in honour of Judge George Hornell (d. 1813). The village of Hornellsville was incorporated in 1852, and in 1888 was chartered as a city; and by act of the state legislature the name was changed to Hornell in 1906.

See G. H. McMaster, *History of the Settlement of Steuben County* (Bath, New York, 1849).

HORNEMANN, FREDERICK (fl. 1796-1800), German traveller in Africa, was born at Hildesheim. He was a young man when, early in 1796, he offered his services to the African Association of London as an explorer in Africa. By the association he was sent to Göttingen University to study Arabic and otherwise prepare for an expedition into the unknown regions of North Africa from the east. In September 1797 he arrived in Egypt, where he continued his studies. On the invasion of the country by the French he was confined in the citadel of Cairo, to preserve him from the fanaticism of the populace. Liberated by the French, he received the patronage of Bonaparte. On the 5th of September 1798 he joined a caravan returning to the Maghrib from Mecca, attaching himself to a party of Fezzan merchants who accompanied the pilgrims. As an avowed Christian would not have been permitted to join the caravan Hornemann assumed the character of a young mameluke trading to Fezzan. He then spoke, but indifferently, both Arabic and Turkish, and he was accompanied as servant and interpreter by Joseph Freudenburg, a German convert to Islam, who had thrice made the pilgrimage to Mecca. Travelling by way of the oases of Siwa and Aujila, a "black rocky desert" was traversed to Temissa in Fezzan. Murzuk was reached on the 17th of November 1798. Here Hornemann lived till June 1799, going thence to the city of Tripoli, whence in August of the same year he despatched his journals to London. He then returned to Murzuk. Nothing further is known with certainty concerning him or his companion. In Murzuk Hornemann had collected a great deal of trustworthy information concerning the peoples and countries of the western Sahara and central Sudan, and when he left Tripoli it was his intention to go direct to the Hausa country, which region he was the first European definitely to locate. "If I do not perish in my undertaking," he wrote in his journal, "I hope in five years I shall be able to make the Society better acquainted with the people of whom I have given this short description." The British consul at Tripoli heard from a source believed to be trustworthy that about June 1803 Jusef (Hornemann's Mahommedan name) was at Caśna, *i.e.* Katsena, in Northern Nigeria, "in good health and highly respected as a marabout." A report reached Murzuk in 1819 that the traveller had gone to "Noofy" (Nupe), and had died there. Hornemann was the first European in modern times to traverse the north-eastern Sahara, and up to 1910 no other explorer had followed his route across the Jebel-es-Suda from Aujila to Temissa.

The original text of Hornemann's journal, which was written in German, was printed at Weimar in 1801; an English translation, *Travels from Cairo to Mourzouk*, &c., with maps and dissertations by Major James Rennell, appeared in London in 1802. A French translation of the English work, made by order of the First Consul, and augmented with notes and a memoir on the Egyptian oases by L. Langlès, was published in Paris in the following year. The French version is the most valuable of the three. Consult also the *Proceedings of the African Association* (1810), and the Geog. Jnl. Nov. 1906.

HORNER, FRANCIS (1778-1817), British economist, was born at Edinburgh on the 12th of August 1778. After passing through the usual courses at the high school and university of his native city, he devoted five years, the first two in England, to comprehensive but desultory study, and in 1800 was called to the Scottish bar. Desirous, however, of a wider sphere, Horner removed to London in 1802, and occupied the interval that elapsed before his admission to the English bar in 1807 with researches in law, philosophy and political economy. In February 1806 he became one of the commissioners for adjusting the claims against the nawab of Arcot, and in November entered parliament as member for St Ives. Next year he sat. for Wendover, and in 1812 for St Mawes, in the patronage of the marquis of Buckingham. In 1811, when Lord Grenville was organizing a prospective ministry, Horner had the offer, which he refused, of a treasury secretaryship. He had resolved not to accept office till he could afford to live out of office; and his professional income, on which he depended, was at no time proportionate to his abilities. His labours at last began to tell upon a constitution never robust, and in October 1816 his physicians ordered him to Italy, where, however, he sank under his malady. He died at Pisa, on the 8th of February 1817. He was buried at Leghorn, and a marble statue by Chantrey was erected to his memory in Westminster Abbey.

Without the advantages of rank, or wealth, or even of genius, Francis Horner rose to a high position of public influence and private esteem. His special field was political economy. Master of that subject, and exercising a sort of moral as well as intellectual influence over the House of Commons he, by his nervous and earnest rather than eloquent style of speaking, could fix its attention for hours on such dry topics as finance, and coinage, and currency. As chairman of the parliamentary committee for investigating the depreciation of bank-notes, for which he moved in 1810, he extended and confirmed his fame as a political economist by his share in the

famous *Bullion Report*. It was chiefly through his efforts that the paper-issue of the English banks was checked, and gold and silver reinstated in their true position as circulating media; and his views on free trade and commerce have been generally accepted at their really high value. Horner was one of the promoters of the *Edinburgh Review* in 1802. His articles in the early numbers of that publication, chiefly on political economy, form his only literary legacy.

See *Memoirs and Correspondence of Francis Horner, M.P.*, published by his brother (see below) in 1843. Also the *Edinburgh* and *Quarterly Reviews* for the same year; and *Blackwood's Magazine*, vol. i.

HORNER, LEONARD (1785-1864), Scottish geologist, brother of Francis Horner (above), was born in Edinburgh on the 17th of January 1785. His father, John Horner, was a linen merchant in Edinburgh, and Leonard, the third and youngest son, entered the university of Edinburgh in 1799. There in the course of the next four years he studied chemistry and mineralogy, and gained a love of geology from Playfair's *Illustrations of the Huttonian Theory*. At the age of nineteen he became a partner in a branch of his father's business, and went to London. In 1808 he joined the newly formed Geological Society and two years later was elected one of the secretaries. Throughout his long life he was ardently devoted to the welfare of the society; he was elected president in 1846 and again in 1860. In 1811 he read his first paper "On the Mineralogy of the Malvern Hills" (*Trans. Geol. Soc.* vol. i.) and subsequently communicated other papers on the "Brine-springs at Droitwich," and the "Geology of the S.W. part of Somersetshire." He was elected F.R.S. in 1813. In 1815 he returned to Edinburgh to take personal superintendence of his business, and while there (1821) he was instrumental in founding the Edinburgh School of Arts for the instruction of mechanics, and he was one of the founders of the Edinburgh Academy. In 1827 he was invited to London to become warden of the London University, an office which he held for four years; he then resided at Bonn for two years and pursued the study of minerals and rocks, communicating to the Geological Society on his return a paper on the "Geology of the Environs of Bonn," and another "On the Quantity of Solid Matter suspended in the Water of the Rhine." In 1833 he was appointed one of the commissioners to inquire into the employment of children in the factories of Great Britain, and he was subsequently selected as one of the inspectors. In later years he devoted much attention to the geological history of the alluvial lands of Egypt; and in 1843 he published his *Life* of his brother Francis. He died in London on the 5th of March 1864.

See *Memoir of Leonard Horner*, by Katherine M. Lyell (1890) (privately printed).

HÖRNES, MORITZ (1815-1868), Austrian palaeontologist, was born in Vienna on the 14th of July 1815. He was educated in the university and graduated Ph.D. He then became assistant in the Vienna mineralogical museum. He was distinguished for his researches on the Tertiary mollusca of the Vienna Basin, and on the Triassic mollusca of Alpine regions. Most of his memoirs were published in the *Jahrbuch der K. K. geol. Reichsanstalt*. In 1864 he introduced the term Neogene to include Miocene and Pliocene, as these formations are not always to be clearly separated: the fauna of the lower division being subtropical and gradually giving place in the upper division to Mediterranean forms. He died in Vienna on the 4th of November 1868. His son Dr Rudolf Hörnes (b. 1850), professor of geology and palaeontology in the university of Graz, has also carried on researches among the Tertiary mollusca, and is author of *Elemente der Palaeontologie* (1884).

HORNFELS (a German word meaning hornstone), the group designation for a series of rocks which have been baked and indurated by the heat of intrusive granitic masses and have been rendered massive, hard, splintery, and in some cases exceedingly tough and durable. Most hornfelses are fine-grained, and while the original rocks (such as sandstone, shale and

slate, limestone and diabase) may have been more or less fissile owing to the presence of bedding or cleavage planes, this structure is effaced or rendered inoperative in the hornfels. Though they may show banding, due to bedding, &c., they break across this as readily as along it; in fact they tend to separate into cubical fragments rather than into thin plates. The commonest hornfelses (the “biotite hornfelses”) are dark-brown to black with a somewhat velvety lustre owing to the abundance of small crystals of shining black mica. The “lime hornfelses” are often white, yellow, pale-green, brown and other colours. Green and dark-green are the prevalent tints of the hornfelses produced by the alteration of igneous rocks. Although for the most part the constituent grains are too small to be determined by the unaided eye, there are often larger crystals of garnet or andalusite scattered through the fine matrix, and these may become very prominent on the weathered faces of the rock.

The structure of the hornfelses is very characteristic. Very rarely do any of the minerals show crystalline form, but the small grains fit closely together like the fragments of a mosaic; they are usually of nearly equal dimensions and from the resemblance to rough pavement work this has been called *pflaster* structure or pavement structure. Each mineral may also enclose particles of the others; in the quartz, for example, small crystals of graphite, biotite, iron oxides, sillimanite or felspar may appear in great numbers. Often the whole of the grains are rendered semi-opaque in this way. The minutest crystals may show traces of crystalline outlines; undoubtedly they are of new formation and have originated *in situ*. This leads us to believe that the whole rock has been recrystallized at a high temperature and in the solid state, so that there was little freedom for the mineral molecules to build up well-individualized crystals. The regeneration of the rock has been sufficient to efface most of the original structures and to replace the former minerals more or less completely by new ones. But crystallization has been hampered by the solid condition of the mass and the new minerals are formless and have been unable to reject impurities, but have grown around them.

Slates, shales and clays yield biotite hornfelses in which the most conspicuous mineral is black mica, in small scales which under the microscope are transparent and have a dark reddish-brown colour and strong dichroism. There is also quartz, and often a considerable amount of felspar, while graphite, tourmaline and iron oxides frequently occur in lesser quantity. In these biotite hornfelses the minerals, which consist of aluminium silicates, are commonly found; they are usually andalusite and sillimanite, but kyanite appears also in hornfelses, especially in those which have a schistose character. The andalusite may be pink and is then often pleochroic in thin sections, or it may be white with the cross-shaped dark enclosures of the matrix which are characteristic of chiastolite. Sillimanite usually forms exceedingly minute needles embedded in quartz. In the rocks of this group cordierite also occurs, not rarely, and may have the outlines of imperfect hexagonal prisms which are divided up into six sectors when seen in polarized light. In biotite hornfelses a faint striping may indicate the original bedding of the unaltered rock and corresponds to small changes in the nature of the sediment deposited. More commonly there is a distinct spotting, visible on the surfaces of the hand specimens. The spots are round or elliptical, and may be paler or darker than the rest of the rock. In some cases they are rich in graphite or carbonaceous matters; in others they are full of brown mica; some spots consist of rather coarser grains of quartz than occur in the matrix. The frequency with which this feature reappears in the less altered slates and hornfelses is rather remarkable, especially as it seems certain that the spots are not always of the same nature or origin. “Tourmaline hornfelses” are found sometimes near the margins of tourmaline granites; they are black with small needles of schorl which under the microscope are dark brown and richly pleochroic. As the tourmaline contains boron there must have been some permeation of vapours from the granite into the sediments. Rocks of this group are often seen in the Cornish tin-mining districts, especially near the lodes.

A second great group of hornfelses are the calc-silicate-hornfelses which arise from the thermal alteration of impure limestones. The purer beds recrystallize as marbles, but where there has been originally an admixture of sand or clay lime-bearing silicates are formed, such as diopside, epidote, garnet, sphene, vesuvianite, scapolite; with these phlogopite, various felspars, pyrites, quartz and actinolite often occur. These rocks are fine-grained, and though often banded are tough and much harder than the original limestones. They are excessively variable in their mineralogical composition, and very often alternate in thin seams with biotite hornfels and indurated quartzites. When perfused with boric and fluoric vapours from the granite they may contain much axinite, fluorite and datolite, but the aluminous silicates (andalusite, &c.) are absent from these rocks.

From diabases, basalts, andesites and other igneous rocks a third type of hornfels is produced. They consist essentially of felspar with hornblende (generally of brown colour) and pale pyroxene. Sphene, biotite and iron oxides are the other common constituents, but these rocks show much variety of composition and structure. Where the original mass was decomposed and contained calcite, zeolites, chlorite and other secondary minerals either in

veins or in cavities, there are usually rounded areas or irregular streaks containing a suite of new minerals, which may resemble those of the calc silicate hornfelses above described. The original porphyritic, fluidal, vesicular or fragmental structures of the igneous rock are clearly visible in the less advanced stages of hornfelsing, but become less evident as the alteration progresses.

In some districts hornfelsed rocks occur which have acquired a schistose structure through shearing, and these form transitions to schists and gneisses which contain the same minerals as the hornfelses, but have a schistose instead of a hornfels structure. Among these may be mentioned cordierite and sillimanite gneisses, andalusite and kyanite mica schists, and those schistose calc silicate rocks which are known as cipolins. That these are sediments which have undergone thermal alteration is generally admitted, but the exact conditions under which they were formed is not always clear. The essential features of hornfelsing are ascribed to the action of heat, pressure and permeating vapours, regenerating a rock mass without the production of fusion (at least on a large scale). It has been argued, however, that often there is extensive chemical change owing to the introduction of matter from the granite into the rocks surrounding it. The formation of new felspar in the hornfelses is pointed out as evidence of this. While this “felspathization” may have occurred in a few localities, it seems conspicuously absent from others. Most authorities at the present time regard the changes as being purely of a physical and not of a chemical nature.

(J. S. F.)

HORNING, LETTERS OF, a term in Scots law. Originally in Scotland imprisonment for debt was enforceable only in certain cases, but a custom gradually grew up of taking the debtor’s oath to pay. If the debtor broke his oath, he became liable to the discipline of the Church. The civil power, further, stepped in to aid the ecclesiastical, and denounced him as a rebel, imprisoning his person and confiscating his goods. The method declaring a person a rebel was by giving three blasts on a horn and publicly proclaiming the fact; hence the expression, “put to the horn.” The subsequent process, the warrant directing a messenger-at-arms to charge the debtor to pay or perform in terms of the letters, was called “letters of horning.” This system of execution was simplified by an act of 1837 (Personal Diligence Act), and execution is now usually by diligence (see Execution).

HORNPIPE, originally the name of an instrument no longer in existence, and now the name of an English national dance. The sailors’ hornpipe, although the most common, is by no means the only form of the dance, for there is a pretty tune known as the “College Hornpipe,” and other specimens of a similar kind might be cited. The composition of hornpipes flourished chiefly in the 18th century, and even Handel did not disdain to use the characteristic rhythm. The hornpipe may be written in ⅜ or in common time, and is always of a lively nature.

HORNSEY, a municipal borough in the Hornsey parliamentary division of Middlesex, England, suburban to London, 6 m. N. of St Paul’s Cathedral, on the Great Northern railway. Pop. (1891) 44,523; (1901) 72,056. It is chiefly occupied by small residences of the working classes. The manor, called in the 13th century *Haringee* (a name which survives as Harringay), belonged from an early date to the see of London, the bishops having a seat here. In 1387 the duke of Gloucester, uncle of Richard II., assembled in Hornsey Park the forces by the display of which he compelled the king to dismiss his minister de la Pole, earl of Suffolk; and in 1483 the park was the scene of the ceremonious reception of Edward V., under the charge of Richard, duke of Gloucester, by Edmund Shaw, lord mayor of London. The parish church of St Mary, Hornsey, retains its Perpendicular tower (*c.* 1500) and a number of interesting monuments. Finsbury Park, of 120 acres, and other smaller public grounds, are within the borough. Hornsey was incorporated in 1903 under a mayor, 10 aldermen and 30 councillors. Area, 2875

acres.

HOROWITZ, ISAIAH (*c.* 1555-*c.* 1630), Jewish rabbi and mystic, was born at Prague, and died at Safed, then the home of Jewish Kabbala. His largest work is called *Shelah* (abbreviated from the initials of the full title *Shene luhoth ha-berit*, "Two Tables of the Covenant"). This is a compilation of ritual, ethics and mysticism, and had a profound influence on Jewish life. It has been often reprinted, especially in an abbreviated form.

For an account of the Jewish mystics at Safed see S. Schecter, *Studies in Judaism*, series ii. (1908).

HORREUM, the Latin word for a magazine or storehouse for the storage of grain and other produce of the earth, and occasionally for that of agricultural implements. The storehouses of Rome were of the most extensive character, there being no fewer than 290 public horrea at the time of Constantine. They were used for the storage of food and merchandize of all kinds, being part of the great Roman system of providing food for the population, and they were supplied constantly with corn and other provisions from Africa, Spain and elsewhere.

HORROCKS, JEREMIAH (1619-1641), English astronomer, was born in 1619 at Toxteth Park, near Liverpool. His family was poor, and the register of Emmanuel College, Cambridge, testifies to his entry as sizar on the 18th of May 1632. Isolated in his scientific tastes, and painfully straitened in means, he pursued amid innumerable difficulties his purpose of self-education. His university career lasted three years, and on its termination he became a tutor at Toxteth, devoting to astronomical observations his brief intervals of leisure. In 1636 he met with a congenial spirit in William Crabtree, a draper of Broughton, near Manchester; and encouraged by his advice he exchanged the guidance of Philipp von Lansberg, a pretentious but inaccurate Belgian astronomer, for that of Kepler. He now set himself to the revision of the Rudolphine Tables (published by Kepler in 1627), and in the progress of his task became convinced that a transit of Venus overlooked by Kepler would nevertheless occur on the 24th of November (O.S.) 1639. He was at this time curate of Hoole, near Preston, having recently taken orders in the Church of England, although, according to the received accounts, he had not attained the canonical age. The 24th of November falling on a Sunday, his clerical duties threatened fatally to clash with his astronomical observations; he was, however, released just in time to witness the punctual verification of his forecast, and carefully noted the progress of the phenomenon during half an hour before sunset (3.15 to 3.45). This transit of Venus is remarkable as the first ever observed, that of 1631 predicted by Kepler having been invisible in western Europe. Notwithstanding the rude character of the apparatus at his disposal, Horrocks was enabled by his observation of it to introduce some important corrections into the elements of the planet's orbit, and to reduce to its exact value the received estimate of its apparent diameter.

After a year spent at Hoole, he returned to Toxteth, and there, on the eve of a long-promised visit to his friend Crabtree, he died, on the 3rd of January 1641, when only in his twenty-second year. To the inventive activity of the discoverer he had already united the patient skill of the observer and the practical sagacity of the experimentalist. Before he was twenty he had afforded a specimen of his powers by an important contribution to the lunar theory. He first brought the revolutions of our satellite within the domain of Kepler's laws, pointing out that her apparent irregularities could be completely accounted for by supposing her to move in an ellipse with a variable eccentricity and directly rotatory major axis, of which the earth occupied one focus. These precise conditions were afterwards demonstrated by Newton to follow necessarily from the law of gravitation.

In his speculations as to the physical cause of the celestial motions, his mind, though not wholly emancipated from the tyranny of gratuitous assumptions, was working steadily towards the light. He clearly perceived the significant analogy between terrestrial gravity and the force exerted in the solar system, and by the ingenious device of a circular pendulum illustrated the composite character of the planetary movements. He also reduced the solar parallax to 14″ (less than a quarter of Kepler's estimate), corrected the sun's semi-diameter to 15′ 45″, recommended decimal notation, and was the first to make tidal observations.

Only a remnant of the papers left by Horrocks was preserved by the care of William Crabtree. After his death (which occurred soon after that of his friend) these were purchased by Dr Worthington, of Cambridge; and from his hands the treatise *Venus in sole visa* passed into those of Hevelius, and was published by him in 1662 with his own observations on a transit of Mercury. The remaining fragments were, under the directions of the Royal Society, reduced by Dr Wallis to a compact form, with the heading *Astronomia Kepleriana defensa et promota*, and published with numerous extracts from the letters of Horrocks to Crabtree, and a sketch of the author's life, in a volume entitled *Jeremiae Horroccii opera posthuma* (London, 1672). A memoir of his life by the Rev. Arundell Blount Whatton, prefixed to a translation of the *Venus in sole visa*, appeared at London in 1859.

For additional particulars, see J. E. Bailey's *Palatine Note-Book*, ii. 253, iii. 17; Bailey's "Writings of Horrocks and Crabtree" (from *Notes and Queries*, Dec. 2, 1882); *Notes and Queries*, 3rd series, vol. v., 5th series, vols. ii., iv.; Martin's *Biographia philosophica*, p. 271 (1764); R. Brickel, *Transits of Venus, 1639-1874* (Preston, 1874); *Astronomical Register*, xii. 293; Hevelii, *Mercurius in sole visus*, pp. 116-140; S. Rigaud's *Correspondence of Scientific Men*; Th. Birch, *History of the Royal Society*, i. 386, 395, 470; Sir E. Sherburne's *Sphere of M. Manilius*, p. 92 (1675); Sir J. A. Picton's *Memorials of Liverpool*, ii. 561; M. Gregson's *Fragments relative to the Duchy of Lancaster*, p. 166 (1817); *Liverpool Repository*, i. 570 (1826); *Phil. Trans. Abridged*, ii. 12 (1809); C. Hutton's *Phil. and Math. Dictionary* (1815); *Penny Cyclopaedia* (De Morgan); *Nature*, viii. 117, 137; J. B. J. Delambre, *Hist. de l'astronomie moderne*, ii. 495; *Hist. de l'astronomie au XVIII^{e} siècle*, pp. 28, 61, 74; W. Whewell, *Hist. of the Inductive Sciences*, i. 331; R. Grant, *Hist. of Physical Astronomy*, pp. 420, 545; J. Mädler, *Geschichte der Himmelskunde*, i. 275; M. Marie, *Hist. des Sciences*, iv. 168, vi. 90; J. C. Houzeau, *Bibl. Astr.* ii. 167.

(A. M. C.)

HORROCKS, JOHN (1768-1804), British cotton manufacturer, was born at Edgeworth, near Bolton, in 1768. His father was the owner of a small quarry, and John Horrocks spent his early days in dressing and polishing millstones. The Lancashire cotton industry was then in its infancy, but Horrocks was greatly impressed with its future possibilities, and he managed to obtain a few spinning-frames which he erected in a corner of his father's offices. For a time he combined cotton-spinning on a very small scale with stone-working, but finally devoted himself entirely to cotton-spinning, working the frames with his own hands, and travelling through the Lancashire manufacturing districts to sell the yarn. His goods obtained a reputation for quality, and his customers increased so rapidly that in 1791 he removed to Preston, where he began to manufacture cotton shirtings and long-cloths in addition to spinning the cotton yarn. By taking full advantage of the machinery invented for manufacturing textiles, and by rigidly maintaining the quality of his goods, Horrocks rapidly developed his business, and with the aid of the capital of a local banker, whom he took into partnership, erected within a year of his arrival in Preston his first large mill, securing shortly afterwards from the East India Company a monopoly of the manufacture of cottons and muslins for the Indian market. The demand for Horrocks's goods continued to increase, and to cope with the additional work he took first an elder brother and in 1801 a Mr Whitehead and a Mr Miller into partnership, the title of the firm being altered to Horrockses, Miller & Co. In 1802 he entered parliament as tory member for Preston. He died in London in 1804 of brain-fever resulting from over-work.

HORSE (a word common to Teutonic languages in such forms as *hors*, *hros*, *ros*; cf. the Ger. *ross*), a name properly restricted to the domesticated horse (*Equus caballus*) and its wild or half-wild representatives, but in a zoological sense used as a general term for all the members

of the family Equidae.

Species

The distinctive characteristics of the family, and its position in the zoological system, are given in the articles Equidae and Perissodactyla. Here attention is concentrated on the leading features of the horse as contrasted with the other members of the same family, and subsequently on the anatomical structure of the former animal. The evolution of the existing representatives of the family from primitive extinct animals is summarized in the article Equidae.

Horse, *Wild Horse*, *Pony*.—The horse (*Equus caballus*) is distinguished from the others by the long hairs of the tail being more abundant and growing quite or nearly from the base as well as the end and sides, and also by possessing a small bare callosity on the inner side of the hind leg, just below the "hock" or heel joint, in addition to the one on the inner side of the fore-arm above the carpus or "knee," common to all the genus. The mane is also longer and more flowing, and the ears are shorter, the limbs longer, and the head smaller.

Though existing horses are usually not marked in any definite manner, or only irregularly dappled, or spotted with light surrounded by a darker ring, many examples are met with showing a dark median dorsal streak like that found in all the other members of the genus, and even with dark stripes on the shoulders and legs.

Two distinct types of horse, in many instances largely modified by interbreeding, appear to exist. (1) The northern, or dun type, represented by the dun ponies of Norway (*Equus caballus typicus*), the closely allied Celtic pony (*E. c. celticus*) of Iceland, the Hebrides, &c., and the wild pony of Mongolia (*E. c. przewalskii*), with which the now extinct tarpan of the Russian steppes appears to have been identical. The prevalent colour is yellow-dun, with dark brown or black mane, tail and legs; in the wild forms the muzzle is often white and the root of the tail short-haired; while the head is relatively large and heavy. No depression exists in the skull in front of the eye. Most of the ordinary horses of N.W. Europe are descended from the dun type, with more or less admixture of Barb blood. (2) The southern, or Barb type, represented by Barbs, Arabs, thoroughbreds, &c. (*E. c. asiaticus* or *libycus*), in which the typical colour is bay with black "points" and often a white star on the forehead, and the mane and tail are long and full. The skull generally shows a slight depression in front of the socket of the eye, which, although now serving as the attachment for the muscle running to the nostril, may represent the face-gland of the extinct *Hipparion*. Many of the dark-coloured horses of Europe have Barb or Arab blood in their veins, this being markedly the case with the Old English black or Shire horse, the skull of which shows a distinct depression in front of the eye-socket. This depression is still more marked in the extinct Indian *E. sivalensis*, which may have been the ancestral form.

In Europe wild horses were abundant in the prehistoric Neolithic or polished-stone period. Judging from the quantity of their remains found associated with those of the men of that time, the chase of these animals must have been among man's chief occupations, and horses must have furnished him with one of his most important food-supplies. The characters of the bones preserved, and certain rude but graphic representations carved on bones or reindeers' antlers, enable us to know that they were rather small in size and heavy in build, with large heads and rough shaggy manes and tails, much like, in fact, the recently extinct tarpans or wild horses of the steppes of the south of Russia, and the still-surviving Mongolian wild pony or "Przewalski's horse." These horses were domesticated by the inhabitants of Europe before the dawn of history. Horses are now diffused by the agency of man throughout almost the whole of the inhabited parts of the globe, and the great modifications they have undergone in consequence of domestication, crossing, and selective breeding are well exemplified by comparing such extreme forms as the Shetland pony, dwarfed by uncongenial climate, the thoroughbred racer, and the London dray-horse. In Australia, as in America, horses imported by European settlers have escaped into unreclaimed lands and multiplied to a prodigious extent, roaming in vast herds over the wide and uncultivated plains.

Ass, *Zebra*, *Quagga*.—The next group is formed by the Asiatic wild asses, or kiangs and onagers, as they might well be called, in order to distinguish them from the wild asses of Africa. These asses have moderate ears, the tail rather long, and the back-stripe dark brown and running from head to tail. On the neck and withers this stripe is formed by the mane. There are two species of Asiatic wild ass, with several varieties. The first and largest has two races, the chigetai (*Equus hemionus*) of Mongolia, and the kiang (*E. h. kiang*) of Tibet, which is a redder animal. The onager (*E. onager*), of which there are several races, is smaller, with a broader dorsal stripe, bordered with white; the colour varying from sandy to greyish. This species ranges from Baluchistan and N.W. India to Persia, Syria and Arabia. These asses

inhabit desert plains or open table-land; the kiang dwelling at elevations of about 14,000 ft. They are generally found in herds of from twenty to forty, although occasionally in larger numbers. All are fleet, and traverse rough ground with speed. On the lowlands they feed on dry grasses, and in Tibet on small woody plants. In India and Persia they are difficult to approach, although this is not the case in Tibet. Their sandy or chestnut colouring assimilates them to the horse, and separates them widely from the African wild asses, which are grey. The kiang has also larger and more horse-like hoofs, and the tail is haired higher up, thus approximating to *Equus caballus przewalskii*.

Among the striped species, or zebras and quaggas of Africa, the large Grévy's zebra (*Equus grevyi*) of Somaliland and Abyssinia stands apart from the rest by the number and narrowness of its stripes, which have an altogether peculiar arrangement on the hind-quarters, the small size of the callosities on the fore-legs, the mane extending on to the withers and enormous rounded ears, thickly haired internally. The large size of the ears and the narrow stripes are in some degree at any rate adaptations to a life on scrub-clad plains.

Next comes the closely allied species with small pointed ears, of which the true quagga (*E. quagga*) of South Africa is now extinct. This animal has the dark stripes limited to the head, neck and shoulders, upon a brown ground. In the typical form, now also extinct, of the bonte-quagga, dauw, or Burchell's zebra (*E. burchelli*), the ground-colour is white, and the stripes cover the body and upper part of the limbs. This was the commonest species in the great plains of South Africa, where it roamed in large herds, often in company with the quagga and numerous antelopes. The species ranges from the Orange river to the confines of Abyssinia, but its more northern representatives show a gradual increase in the striping of the legs, culminating in the north-east African *E. burchelli granti*, in which the stripes extend to the hoofs. The markings, too, are alternately black and white, in place of brown and creamy, with intermediate "shadow stripes," as in the southern races.

Lastly, there is the true or mountain zebra (*E. zebra*), typically from the mountain ranges of Cape Colony, where it is now specially protected, but represented by *E. zebra penricei* in south-west Africa. In its relatively long ears and general build it approaches the African wild asses, from which it chiefly differs by the striping (which is markedly different from that of the quagga-group) and the reversal of the direction of the hairs along the spine.

The African wild ass (*E. asinus*) is the parent of the domesticated breed, and is a long-eared grey animal, with no forelock, and either a shoulder-stripe or dark barrings on the legs. There are two races, of which the Nubian *E. a. africanus* is the smaller, and has a continuous dorsal stripe and a shoulder-stripe but no bars on the legs. The Somali race (*E. a somaliensis*), on the other hand, is a larger and greyer animal, with an interrupted dorsal and no shoulder-stripe, but distinct leg-barrings.

Hybrids.—There are thus eight modifications of the horse-type at present existing, sufficiently distinct to be reckoned as species by most zoologists, and easily recognizable by their external characters. They are, however, all so closely allied that each will, at least in a state of domestication or captivity, breed with any of the others. Cases of fertile union are recorded between the horse and the quagga, the horse and the bonte-quagga or Burchell's zebra, the horse and the onager and kiang or Asiatic wild asses, the common ass and the zebra, the ass and bonte-quagga, the ass and the onager, the onager and the zebra, and the onager and the bonte-quagga. The two species which are farthest removed in structure, the horse and the ass, produce, as is well known, hybrids or mules, which in certain qualities useful to man excel both their progenitors, and in some countries and for certain kinds of work are in greater requisition than either. Although occasional more or less doubtful instances have been recorded of female mules breeding with the males of one or other of the pure species, it is more than doubtful if any case has occurred of their breeding *inter se*, although the opportunities of doing so must have been great, as mules have been reared in immense numbers for at least several thousands of years. We may therefore consider it settled that the different species of the group are now in that degree of physiological differentiation which enables them to produce offspring with each other, but does not permit of the progeny continuing the race, at all events unless reinforced by the aid of one of the pure forms.

The several members of the group show mental differences quite as striking as those exhibited by their external form, and more than perhaps might be expected from the similarity of their brains. The patience of the ass, the high spirit of the horse, the obstinacy of the mule, have long been proverbial. It is very remarkable that, out of so many species, two only should have shown any aptitude for domestication, and that these should have been from time immemorial the universal and most useful companions and servants of man, while all the others remain in their native freedom to this day. It is, however, still a question whether this really arises from a different mental constitution causing a natural capacity for entering into relations with man, or whether it may not be owing to their having been brought gradually into

this condition by long-continued and persevering efforts when the need of their services was felt. It is possible that one reason why most of the attempts to add new species to the list of our domestic animals in modern times have ended in failure is that it does not answer to do so in cases in which existing species supply all the principal purposes to which the new ones might be put. It can hardly be expected that zebras and bonte-quaggas fresh from their native mountains and plains can be brought into competition as beasts of burden and draught with horses and asses, whose useful qualities have been augmented by the training of thousands of generations of progenitors.

Not infrequently instances occur of domestic horses being produced with a small additional toe with complete hoof, usually on the inside of the principal toe, and, though far more rarely, three or more toes may be present. These malformations are often cited as instances of reversion to the condition of some of the earlier forms of equine animals previously mentioned. In some instances, however, the feet of such polydactyle horses bear little resemblance to those of the extinct *Hipparion* or *Anchitherium*, but look rather as if due to that tendency to reduplication of parts which occurs so frequently as a monstrous condition, especially among domesticated animals, and which, whatever its origin, certainly cannot in many instances, as the cases of entire limbs superadded, or of six digits in man, be attributed to reversion.

Anatomy

The anatomical structure of the horse has been described in detail in several works mentioned in the bibliography at the end of this section, though these have generally been written from the point of view of the veterinarian rather than of the comparative anatomist. The limits of the present article will only admit of the most salient points being indicated, particularly those in which the horse differs from other Ungulata. Unless otherwise specified, it must be understood that all that is stated here, although mostly derived from observation upon the horse, applies equally well to the other existing members of the group.

Skeleton.—The skull as a whole is greatly elongated, chiefly in consequence of the immense size of the face as compared with the hinder or true cranial portion. The basal line of the cranium from the lower border of the foramen magnum to the incisor border of the palate is nearly straight. The orbit, of nearly circular form, though small in proportion to the size of the whole skull, is distinctly marked, being completely surrounded by a strong ring of bone with prominent edges. Behind it, and freely communicating with it beneath the osseous bridge (the post-orbital process of the frontal) forming the boundary between them, is the small temporal fossa occupying the whole of the side of the cranium proper, and in front is the great flattened expanse of the “cheek,” formed chiefly by the maxilla, giving support to the long row of cheek-teeth, and having a prominent ridge running forward from below the orbit for the attachment of the masseter muscle. The lachrymal occupies a considerable space on the flat surface of the cheek in front of the orbit, and below it the jugal does the same. The latter sends a horizontal or slightly ascending process backwards below the orbit to join the under surface of the zygomatic process of the squamosal, which is remarkably large, and instead of ending as usual behind the orbit, runs forwards to join the greatly developed post-orbital process of the frontal, and even forms part of the posterior and inferior boundary of the orbit, an arrangement not met with in other mammals. The closure of the orbit behind distinguishes the skull of the horse from that of its allies the rhinoceros and tapir, and also from all of the perissodactyles of the Eocene period. In front of the brain cavity, the great tubular nasal cavities are provided with well-developed turbinal bones, and are roofed over by large nasals, broad behind, and ending in front in a narrow decurved point. The opening of the anterior nostrils is prolonged backwards on each side of the face between the nasals and the elongated slender premaxillae. The latter expand in front, and are curved downwards to form the semicircular alveolar border which supports the large incisor teeth. The palate is narrow in the interval between the incisor and molar teeth, in which are situated the large anterior palatine foramina. Between the molar teeth it is broader, and it ends posteriorly in a rounded excavated border opposite the hinder border of the penultimate molar tooth. It is mainly formed by the maxillae, as the palatines are very narrow. The pterygoids are delicate slender slips of bone attached to the hinder border of the palatines, and supported externally by, and generally welded with, the rough pterygoid plates of the alisphenoid, with no pterygoid fossa between. They slope obliquely forwards, and end in curved, compressed, hamular processes. There is a distinct alisphenoid canal for the passage of the internal maxillary artery. The base of the cranium is long and narrow; the alisphenoid is very obliquely perforated by the foramen rotundum, but the foramen ovale is confluent with the large foramen lacerum medium behind. The glenoid surface for the articulation of the mandible is greatly extended transversely, concave from side to side, convex from before backwards in front, and hollow behind, and is bounded posteriorly at its inner part by a prominent post-glenoid process. The squamosal enters considerably into the formation of the temporal fossa, and, besides sending the zygomatic process forwards, it sends down behind the meatus auditorius a post-tympanic process which aids to hold in place the otherwise loose

tympano-periotic bone. Behind this the exoccipital gives off a long paroccipital process. The periotic and tympanic are welded together, but not with the squamosal. The former has a wide but shallow floccular fossa on its inner side, and sends backwards a considerable “pars mastoidea,” which appears on the outer surface of the skull between the post-tympanic process of the squamosal and the exoccipital. The tympanic forms a tubular meatus auditorius externus directed outwards and slightly backwards. It is not dilated into a distinct bulla, but ends in front in a pointed rod-like process. It completely embraces the truncated cylindrical tympanohyal, which is of great size, corresponding with the large development of the whole anterior arch of the hyoid. This consists mainly of a long and compressed stylohyal, expanded at the upper end, where it sends off a triangular posterior process. The basi-hyal is remarkable for the long, median, pointed, compressed “glossohyal” process, which it sends forward from its anterior border into the base of the tongue. A similar but less developed process is found in the rhinoceros and tapir. The lower jaw is large, especially the region of the angle, which is expanded and flattened, giving great surface for the attachment of the masseter muscle. The condyle is greatly elevated above the alveolar border; its articular surface is very wide transversely, and narrow and convex from before backwards. The coronoid process is slender, straight, and inclined backwards. The horizontal ramus, long, straight, and compressed, gradually narrows towards the symphysis, where it expands laterally to form with the ankylosed opposite ramus the wide, semicircular, shallow alveolar border for the incisor teeth.

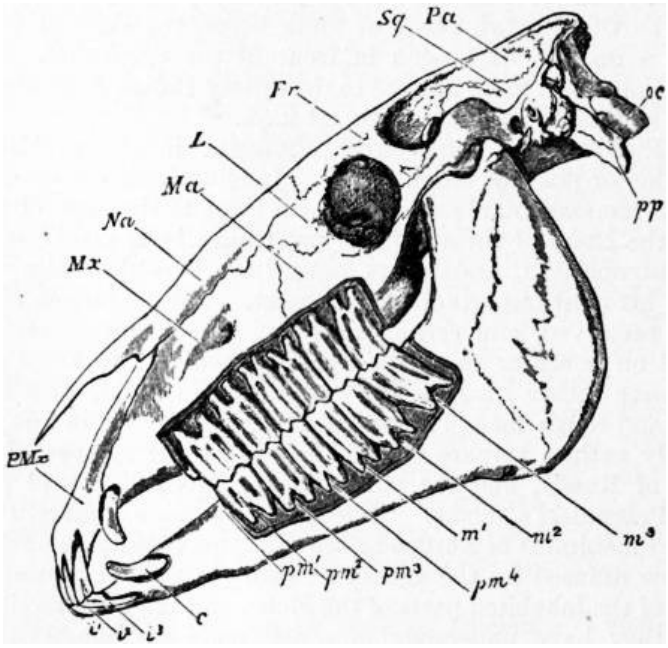


FIG. 1.—Side view of Skull of Horse, with the bone removed so as to expose the whole of the teeth.

PMx, Premaxilla.
Mx, Maxilla.
Na, Nasal bone.
Ma, Jugal or malar bone.
L, Lacrymal bone.
Fr, Frontal bone.
Sq, Squamosal bone.
Pa, Parietal bone.
oc, Occipital condyle.
pp, Paroccipital process.
i^1, i^2, and i^3, The three incisor teeth.
c, The canine tooth.
pm^1, The situation of the rudimentary first premolar, which has been lost in the lower, but is present in the upper jaw.
pm^2, pm^3, and pm^4, The three fully developed premolar teeth.
m^1, m^2, and m^3, The three true molar teeth.

The vertebral column consists of seven cervical, eighteen dorsal, six lumbar, five sacral, and fifteen to eighteen caudal vertebrae There may be nineteen rib-bearing vertebrae, in which case five only will be reckoned as belonging to the lumbar series. The odontoid process of the axis is wide, flat, and hollowed above, as in the ruminants. The bodies of the cervical vertebrae are elongated, strongly keeled, and markedly opisthocoelous, or concave behind and convex in front. The neural laminae are broad, the spines almost obsolete, except in the seventh, and the transverse processes not largely developed. In the trunk vertebrae the opisthocoelous character of the centrum gradually diminishes. The spinous processes of the anterior thoracic region are high and compressed. To these is attached the powerful elastic ligament (*ligamentum nuchae*, or “paxwax”) which, passing forwards in the middle line of the neck

above the neural arches of the cervical vertebrae—to which it is also connected—is attached to the occiput and supports the weight of the head. The transverse processes of the lumbar vertebrae are long, flattened, and project horizontally outwards or slightly forward from the arch. The metapophyses are moderately developed, and there are no anapophyses. The caudal vertebrae, except those quite at the base, are slender and cylindrical, without processes and without chevron bones beneath. The ribs are eighteen or nineteen in number on each side, flattened, and united to the sternum by short, stout, tolerably well ossified sternal ribs. The sternum consists of six pieces; the anterior or presternum is compressed and projects forwards like the prow of a boat. The segments which follow gradually widen, and the hinder part of the sternum is broad and flat.

As in all other ungulates, there are no clavicles. The scapula is long and slender, the supra-scapular border being rounded, and slowly and imperfectly ossified. The spine is very slightly developed; rather above the middle its edge is thickened and somewhat turned backwards, but it gradually subsides at the lower extremity without forming any acromial process. The coracoid is a prominent rounded nodule. The humerus is stout and rather short. The ulna is rudimentary, being represented by little more than the olecranon. The shaft gradually tapers below and is firmly welded to the radius. The latter bone is of nearly equal width throughout. The three bones of the first row of the carpus (scaphoid, lunar and cuneiform) are subequal in size. The second row consists of a broad and flat magnum, supporting the great third metacarpal, having to its radial side the trapezoid, and to its ulnar side the unciform, which are both small, and articulate inferiorally with the rudimentary second and fourth metacarpals. The pisiform is large and prominent, flattened and curved; it articulates partly with the cuneiform and partly with the lower end of the radius. The large metacarpal is called in veterinary anatomy “cannon bone”; the small lateral metacarpals, which gradually taper towards their lower extremities, and lie in close contact with the large one, are called “splint bones.” The single digit consists of a moderate-sized proximal (*os suffraginis*, or large pastern), a short middle (*os coronae*, or small pastern), and a wide, semi-lunar, ungual phalanx (*os pedis*, or coffin bone). There is a pair of large nodular sesamoids behind the metacarpo-phalangeal articulation, and a single large transversely-extended sesamoid behind the joint between the second and third phalanx, called the “navicular bone.”

The carpal joint, corresponding to the wrist of man, is commonly called the “knee” of the horse, the joint between the metacarpal and the first phalanx the “fetlock,” that between the first and second phalanges the “pastern,” and that between the second and third phalanges the “coffin joint.”

In the hinder limb the femur is marked, as in other perissodactyles, by the presence of a “third trochanter,” a flattened process, curving forwards and arising from the outer side of the bone, about one-third of the distance from the upper end. The fibula is reduced to a mere rod-like rudiment of the upper end. The lower part is absent or completely fused with the tibia. The calcaneum has a long and compressed calcaneal process. The astragalus has a large flat articular surface in front for the navicular, and a small one for the cuboid. The navicular and the external cuneiform bones are broad and flat. The cuboid is small, and the internal and middle cuneiform bones are small and united together. The metapodals and phalanges resemble very closely those of the fore limb, but the principal metatarsal is more laterally compressed at its upper end than is the corresponding metacarpal. The joint between the femur and tibia, corresponding to the knee of man, is called the “stifle-joint”; that between the tibia and tarsus, corresponding to the ankle of man, the “hock.” The bones and joints of the foot have the same names as in the fore limb. The horse is eminently “digitigrade,” standing on the extremity of the single digit of each foot, which is kept habitually in a position approaching to vertical.

The muscles of the limbs are modified from those of the ordinary mammalian type in accordance with the reduced condition of the bones and the simple requirements of flexion and extension of the joints, no such actions as pronation and supination, or opposition of digits, being possible or needed. The muscles therefore which perform these functions in other quadrupeds are absent or rudimentary.

Below the carpal and tarsal joints, the fore and hind limbs correspond almost exactly in structure as well as function. On the anterior or extensor surface of the limb a powerful tendon (7 in fig. 2), that of the anterior extensor of the phalanges (corresponding to the *extensor communis digitorum* of the arm and *extensor longus digitorum* of the foot of man) passes down over the metacarpal bone and phalanges, to be inserted mainly into the upper edge of the anterior surface of the last phalanx or pedal bone. There is also a much smaller second extensor on the outer side of this in each limb, the lateral extensor of the phalanges. In the fore-leg the tendon of this muscle (which corresponds with the *extensor minimi digiti* of man) receives a slip from that of the principal extensor, and is inserted into the first phalanx. In the hind-leg (where it is the homologue apparently of the *peroneus brevis* of man) the tendon becomes blended with that of the large extensor.

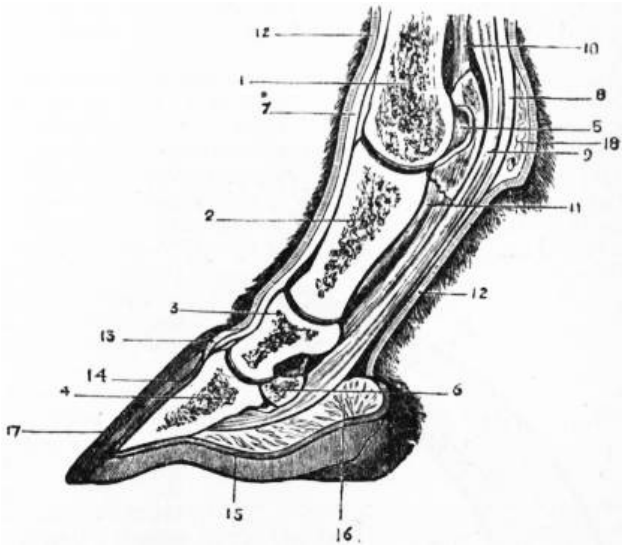


FIG. 2.—Section of Foot of Horse.

1, Metacarpal bone.
2, First phalanx (*os suffraginis*).
3, Second phalanx (*os coronae*).
4, Third or ungual phalanx (*os pedis*, or coffin bone).
5, One of the upper sesamoid bones.
6, Lower sesamoid or navicular bone.
7, Tendon of anterior extensor of the phalanges.
8, Tendon of superficial flexor (*fl. perforatus*).
9, Tendon of deep flexor (*fl. perforans*).
10, Suspensory ligament of fetlock.
11, Inferior or short sesamoid ligament.
12, Derma or skin of the foot, covered with hair, and continued into
13, The coronary cushion,
14, The podophyllous or laminar membrane, and
15, The keratogenous membrane of the sole.
16, Plantar cushion.
17, Hoof.
18, Fatty cushion of fetlock.

A strong ligamentous band behind the metapodium, arising from near the upper extremity of its posterior surface, divides into two at its lower end, and each division, being first connected with one of the paired upper sesamoid bones, passes by the side of the first phalanx to join the extensor tendon of the phalanges. This is called in veterinary anatomy the “suspensory ligament of the sesamoids,” or of the “fetlock” (10 in fig. 2); but its attachments and relations, as well as the occasional presence of muscular fibres in its substance, show that it is the homologue of the interosseous muscles of other mammals, modified in structure and function, to suit the requirements of the horse’s foot. Behind or superficial to this are placed the two strong tendons of the flexor muscles, the most superficial, or *flexor perforatus* (8) dividing to allow the other to pass through, and then inserted into the middle phalanx. The *flexor perforans* (9) is as usual inserted into the terminal phalange. In the fore-leg these muscles correspond with those similarly named in man. In the hind-leg, the perforated tendon is a continuation of that of the plantaris, passing pulley-wise over the tuberosity of the calcaneum. The perforating tendon is derived from the muscle corresponding with the long flexor of man, and the smaller tendon of the oblique flexor (*tibialis porticus* of man) is united with it.

The hoof of the horse corresponds to the nail or claw of other mammals, but is so constructed as to form a complete and solid case to the expanded termination of the toe, giving a firm basis of support formed of a non-sensitive substance, which is continually renewed by the addition of material from within, as its surface wears away by friction. The terminal phalange of the toe is greatly enlarged and modified in form to support this hoof, and the size of the internal framework of the foot is increased by a pair of lateral fibro-cartilaginous masses attached on each side to the hinder edges of the bone, and by a fibro-cellular and fatty plantar cushion in the median part. These structures are all enclosed in the middle subcorneous integument, a continuation of the ordinary skin of the limb, but extremely vascular, and having its superficial extent greatly increased by being developed into papillae or laminae. From this the horny material which constitutes the hoof is exuded. A thickened ring encircling the upper part, called coronary cushion (13) and the sole (15), are covered with numerous thickly-set papillae or villi, and take the greatest share in the formation of the hoof; the intermediate part constituting the front and side of the foot (14), corresponding with the wall of the hoof, is covered with parallel, fine longitudinal laminae, which fit into corresponding depressions in the

inner side of the horny hoof.

The horny hoof is divided into a wall or crust consisting of the front and sides, the flattened or concave sole, and the frog, a triangular median prominence, notched posteriorly, with the apex turned forwards, situated in the hinder part of the sole. It is formed of pavement epithelial cells, mainly grouped in a concentric manner around the vascular papillae of the subcorneous integument, so that a section near the base of the hoof, cut transversely to the long axis of these papillae, shows a number of small circular or oval orifices, with cells arranged concentrically round them. The nearer the surface of the hoof, or farther removed from the seat of growth, the more indistinct the structure becomes.

Small round or oval plates of horny epithelium called “chestnuts,” callosities growing like the hoof from enlarged papillae of the skin, are found on the inner face of the fore-arm, above the carpal joint in all species of Equidae, and in the horse (*E. caballus*) similar structures occur near the upper extremity of the inner face of the metatarsus. They are evidently rudimentary structures which it is suggested may represent glands (Lydekker, *Proc. Zool. Soc. London*, 1903, vol. i.).

Dentition.—The dentition of the horse, when all the teeth are in place, is expressed by the formula *i.* ⅜, *c.* ¼, *p.* ⅘ *m.* ⅜ = 44. The incisors of each jaw are placed in close contact, forming a semicircle. The crowns are broad, somewhat awl-shaped, and of nearly equal size. They have all the great peculiarity, not found in the teeth of any other mammal, and only in the Equidae of comparatively recent geological periods (see also Palaeontology), of an involution of the external surface of the tooth (see fig. 3), by which what should properly be the apex is carried deeply into the interior of the crown, forming a pit, the bottom of which becomes partially filled with cement. As the tooth wears, the surface, besides the external enamel layer as in an ordinary simple tooth, shows in addition a second inner ring of the same hard substance surrounding the pit, which adds greatly to the efficiency of the tooth as an organ for biting tough, fibrous substances. This pit, generally filled in the living animal with particles of food, is conspicuous from its dark colour, and constitutes the “mark” by which the age of the horse is judged, as in consequence of its only extending to a certain depth in the crown it becomes obliterated as the latter wears away, and then the tooth assumes the character of that of an ordinary incisor, consisting only of a core of dentine, surrounded by the external enamel layer. It is not quite so deep in the lower as in the upper teeth. The canines are either rudimentary or absent in the female. In the male they are compressed, pointed, and smaller than the incisors, from which they are separated by a slight interval. The teeth of the cheek series are all in contact with each other, but separated from the canines by a considerable toothless space. The anterior premolars are quite rudimentary, sometimes not developed at all, and generally fall by the time the animal attains maturity, so that there are but six functional cheek teeth,—three that have predecessors in the milk-dentition, and hence are considered as premolars, and three molars, but otherwise, except the first and last of the series, not distinguishable in form or structure. These teeth in both upper and lower jaws are extremely long-crowned or hypsodont, successive portions being pushed out as the surface wears away, a process which continues until the animal becomes advanced in age. The enamelled surface is infolded in a complex manner (a modification of that found in other perissodactyles), the folds extending quite to the base of the crown, and the interstices being filled and the surface covered with a considerable mass of cement, which binds together and strengthens the whole tooth. As the teeth wear, the folded enamel, being harder than the other constituents, the dentine and cement, forms projecting ridges on the surface arranged in a definite pattern, which give it great efficiency as a grinding instrument (see fig. 2, in article Equidae). The free surfaces of the upper teeth are quadrate, except the first and last, which are nearly triangular. The lower teeth are much narrower than the upper.

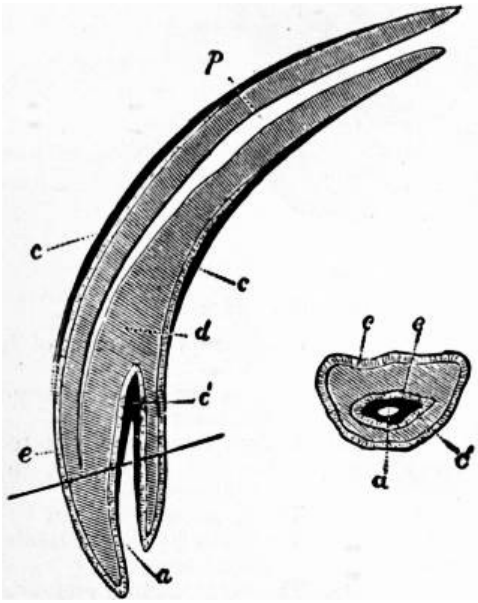


Fig. 3.—Longitudinal and Transverse Section of Upper Incisor of Horse.

p, Pulp cavity.
d, Dentine or ivory.
e, Enamel.
c, Outer layer of cementum or crusta petrosa.
c′, Inner layer of cementum, lining *a*, the pit or cavity of the crown of the tooth.

The milk-dentition consists of i. ⅜, c. ⁰⁄₀, m. ⅜ = 24,—the canines and first or rudimentary premolars having apparently no predecessors. In form and structure the milk-teeth much resemble the permanent ones, having the same characteristic enamel-foldings. Their eruption

commences a few days after birth, and is complete before the end of the first year, the upper teeth usually appearing somewhat earlier than the lower. The first teeth which appear are the first and second milk-molars (about five days), then the central incisor (from seven to ten days); this is followed by the second incisor (at one month), then the third molar, and finally the third incisor. Of the permanent teeth the first molar appears a little after the end of the first year, followed by the second molar before the end of the second year. At about two and a half years the first premolar replaces its predecessor. Between two and a half and three years the first incisor appears. At three years the second and third premolars, and the third molar have appeared, at from three and a half to four years the second incisor, at four to four and a half years the canine, and, finally, at five years, the third incisor, completing the permanent dentition. Up to this period the age of the horse is clearly shown by the condition of dentition, and for some time longer indications can be obtained from the wear of the incisors, though this depends to a certain extent upon the hardness of the food or other circumstances. As a general rule, the depression caused by the infolding of the surface of the incisor (the “mark”) is obliterated in the first or central incisor at six years, in the second at seven years, and in the third at eight years. In the upper teeth, as the depressions are deeper, this obliteration does not take place until about two years later. After this period no certain indications can be obtained of the age of the horse from the teeth.

Digestive Organs.—The lips are flexible and prehensile; and the membrane that lines them and the cheeks smooth. The palate is long and narrow; its mucous surface has seventeen pairs of not very sharply defined oblique ridges, extending as far back as the last molar tooth, beyond which the *velum palati* extends for about 3 in., having a soft corrugated surface, and ending posteriorly in an arched border without a uvula. This embraces the base of the epiglottis, and, except while swallowing food, shuts off all communication between the cavity of the mouth and the pharynx, respiration being, under ordinary circumstances, exclusively through the nostrils. Between the mucous membrane and the bone of the hard palate is a dense vascular and nervous plexus. The membrane lining the jaws is soft and corrugated. An elongated raised glandular mass, 3 in. long and 1 in. from above downwards, extending backwards from the root of the tongue along the side of the jaws, with openings on the surface leading into crypts with glandular walls, represents the tonsil. The tongue, corresponding to the form of the mouth, is long and narrow. It consists of a compressed intermolar portion with a flat upper surface, broad behind and becoming narrower in front, and of a depressed anterior part rather shorter than the former, which is narrow behind and widens towards the evenly rounded apex. The dorsal surface generally is soft and smooth. There are two large circumvallate papillae near the base, rather irregular in form, about a quarter of an inch in diameter and half an inch apart. The conical papillae are small and close set, though longer and more filamentous on the intermolar portion. There are no fungiform papillae on the dorsum, but a few inconspicuous ones scattered along the sides of the organ.

Of the salivary glands the parotid is by far the largest, elongated in the vertical direction, and narrower in the middle than at either end. Its upper extremity embraces the lower surface of the cartilaginous ear-conch; its lower end reaches the level of the inferior margin of the mandible, along the posterior margin of which it is placed. Its duct leaves the inferior anterior angle, at first descends a little, and runs forward under cover of the rounded inferior border of the lower jaw, then curves up along the anterior margin of the masseter muscle, becoming superficial, pierces the buccinator, and enters the mouth by a simple aperture opposite the middle of the crown of the third premolar tooth. It is not quite so thick as a goose-quill when distended, and nearly a foot in length.

The submaxillary gland is of very similar texture to the last, but much smaller; it is placed deeper, and lies with its main axis horizontal. It is elongated and slender, and flattened from within outwards. Its posterior end rests against the anterior surface of the transverse process of the atlas, from which it extends forwards and downwards, slightly curved, to beneath the ramus of the jaw. The duct which runs along its upper and internal border passes forwards in the usual course, lying in the inner side of the sublingual gland, to open on the outer surface of a distinct papilla, situated on the floor of the mouth, half an inch from the middle line, and midway between the lower incisor teeth and the attachment of the fraenum linguae. The sublingual is represented by a mass of glands lying just beneath the mucous membrane of the floor of the mouth on the side of the tongue, causing a distinct ridge, extending from the fraenum backwards, the numerous ducts opening separately along the summit of the ridge. The buccal glands are arranged in two rows parallel with the molar teeth. The upper ones are the largest, and are continuous anteriorly with the labial glands, the ducts of which open on the mucous membrane of the upper lip.

The stomach of the horse is simple in its external form, with a largely developed right *cul de sac*, and is a good deal curved on itself, so that the cardiac and pyloric orifices are brought near together. The *antrum pyloricum* is small and not very distinctly marked. The interior is divided by the character of the lining membrane into two distinct portions, right and left. Over the latter the dense white smooth epithelial lining of the œsophagus is continued, terminating abruptly by a raised crenulated border. Over the right part the mucous membrane has a

greyish-red colour and a velvety appearance, and contains numerous peptic glands, which are wanting in the cardiac portion. The œsophageal orifice is small, and guarded by a strong crescentic or horseshoe-like band of muscular fibres, supposed to be the cause of the difficulty of vomiting in the horse. The small intestine is of great length (80 to 90 ft.), its mucous membrane being covered with numerous fine villi. The caecum is of conical form, about 2 ft. long and nearly a foot in diameter; its walls are sacculated, especially near the base, having four longitudinal muscular bands; and its capacity is about twice that of the stomach. It lies with its base near the lower part of the abdomen, and its apex directed towards the thorax. The colon is about one-third the length of the small intestine, and very capacious in the greater part of its course. As usual it may be divided into an ascending, transverse, and descending portion; but the middle or transverse portion is folded into a great loop, which descends as low as the pubis; so that the colon forms altogether four folds, generally parallel to the long axis of the body. The descending colon is much narrower than the rest, and not sacculated, and, being considerably longer than the distance it has to traverse, is thrown into numerous folds.

The liver is tolerably symmetrical in general arrangement, being divided nearly equally into segments by a well-marked umbilical fissure. Each segment is again divided by lateral fissures, which do not extend quite to the posterior border of the organ; of the central lobes thus cut off, the right is rather the larger, and has two fissures in its free border dividing it into lobules. The extent of these varies, however, in different individuals. The two lateral lobes are subtriangular in form. The Spigelian lobe is represented by a flat surface between the postal fissure and the posterior border, not distinctly marked off from the left lateral by a fissure of the ductus venosus, as this vessel is buried deep in the hepatic substance, but the caudate lobe is distinct and tongue-shaped, its free apex reaching nearly to the border of the right lateral lobe. There is no gall-bladder, and the biliary duct enters the duodenum about 6 in. from the pylorus. The pancreas has two lobes or branches, a long one passing to the left and reaching the spleen, and a shorter right lobe. The principal duct enters the duedenum with the bile-duct, and there is often a second small duct opening separately.

Circulatory and Respiratory Organs.—The heart has the form of a rather elongated and pointed cone. There is one anterior vena cava, formed by the union of the two jugular and two axillary veins. The aorta gives off a large branch (the anterior aorta) very near its origin, from which arise—first, the left axillary, and afterwards the right axillary and the two carotid arteries.

Under ordinary circumstances the horse breathes entirely by the nasal passages, the communication between the larynx and the mouth being closed by the velum palati. The nostrils are placed laterally, near the termination of the muzzle, and are large and dilatable, being bordered by cartilages upon which several muscles act. Immediately within the opening of the nostril, the respiratory canal sends off on its upper and outer side a blind pouch (“false nostril”) of conical form, and curved, 2 to 3 in. in depth, lying in the notch formed between the nasal and premaxillary bones. It is lined by mucous membrane continuous with that of the nasal passage; its use is not apparent. It is longer in the ass than in the horse. Here may be mentioned the guttural pouches, large air-sacs from the Eustachian tubes, and lying behind the upper part of the pharynx, the function of which is also not understood. The larynx has the lateral sacculi well developed, though entirely concealed within the alae of the thyroid cartilage. The trachea divides into two bronchi.

Nervous System.—The brain differs little, except in details of arrangement of convolutions, from that of other ungulates. The hemispheres are rather elongated and subcylindrical, the olfactory lobes are large and project freely in front of the hemispheres, and the greater part of the cerebellum is uncovered. The eye is provided with a nictitating membrane or third eyelid, at the base of which open the ducts of the Harderian gland.

Reproductive System.—The testes are situated in a distinct sessile or slightly pedunculated scrotum, into which they descend from the sixth to the tenth month after birth. The accessory generative glands are the two vesiculae seminales, with the median third vesicle, or *uterus masculinus*, lying between them, the single bilobed prostate, and a pair of globular Cowper’s glands. The penis is very large, cylindrical, with a truncated, expanded, flattened termination. When in a state of repose it is retracted, by a muscle arising from the sacrum, within the prepuce, a cutaneous fold attached below the symphysis pubis.

The uterus is bicornuate. The vagina is often partially divided by a membraneous septum or hymen. The teats are two, inguinally placed. The surface of the chorion is covered evenly with minute villi, constituting a diffuse non-deciduate placenta. The period of gestation is eleven months.

Authorities.—R. I. Pocock, “The Species and Subspecies of Zebras,” *Ann. Mag. Nat. Hist.* ser. 6, vol. xx., 1897, and “A New Arrangement of the Existing Species of Equidae,” *Op. cit.* ser. 7, vol. x., 1902; R. Lydekker, “Notes on the specimens of Wild Asses in English Collections,” *Novitates Zoologicae*, vol. xi., 1904; B. Salensky, “On Equus przewalskii,” *Mém. Acad. St Pétersburg*, 1902; M. S. Arloing, “Organisation du pied chez le cheval,” *Ann. Sci. Nat.*, 1867, viii. 55-81; H. Burmeister, *Los caballos fosiles de la Pampa Argentina* (Buenos Aires, 1875);

Chauveau and Arloing, *Traité d'anatomie comparée des animaux domestiques* (Paris, 1871), and English edition by G. Fleming (1873); A. Ecker, "Das Europäische Wildpferd und dessen Beziehungen zum domesticirten Pferd," *Globus*, Bd. xxxiv. (Brunswick, 1878); Major Forsyth, "Beiträge zur Geschichte der fossilen Pferde besonders Italiens," *Abh. Schw. Pal. Ges.* iv. 1-16, pt. iv.; George, "Études zool. sur les Hémiones et quelques autres espèces chevalines," *Ann. Sci. Nat.*, 1869, xii. 5; E. F. Gurlt, *Anatomische Abbildungen der Haussäugethiere* (1824), and *Hand. der vergleich. Anat. der Haussäugethiere* (2 vols., 1822); Huet, "Croisement des diverses espèces du genre cheval," *Nouv. Archives du Muséum*, 2nd ser., tom. ii. p. 46, 1879; Leisering, *Atlas der Anatomie des Pferdes* (Leipzig, 1861); O. C. Marsh, "Notice of New Equine Mammals from the Tertiary Formation," *Am. Journ. of Science and Arts*, vol. vii., March 1874; *Id.*, "Fossil Horses in America," *Amer. Naturalist*, vol. viii., May 1874; *Id.*, "Polydactyle Horses," *Am. Journ. Sci. and Arts*, vol. xvii., June 1879; Franz Müller, *Lehrbuch der Anatomie des Pferdes* (Vienna, 1853); R. Owen, "Equine Remains in Cavern of Bruniquel," *Phil. Trans.* vol. clix., 1870, p. 535; W. Percivall, *The Anatomy of the Horse* (1832); G. Stubbs, *Anatomy of the Horse* (1766); W. H. Flower, *The Horse* (London, 1891); Ridgeway, *Origin of the Thoroughbred Horse* (1905).

(W. H. F; R. L.*)

History

From the evidence of philology it appears that the horse was already known to the Aryans before the period of their dispersion.[1]

The first mention of the British horse occurs in the well-known passages in Caesar (*B.G.* iv. 24. 33, v. 15. 16; cf. Pomp. Mela iii. 6), in which he mentions the native "essedarii" and the skill with which they handled their war chariots. We are left quite in the dark as to the character of the animal thus employed; but there would appear to be much probability in the surmise of W. Youatt, who conjectures the horse to have been, "then as ever, the creature of the country in which he lived. With short fare, and exposed to the rigour of the seasons, he was probably the little hardy thing we yet see him; but in the marshes of the Nen and the Witham, and on the borders of the Tees and the Clyde, there would be as much proportionate development of frame and strength as we find at the present day." After the occupation of the country by the Romans, it appears that the horses of their cavalry were crossed with the native mares, and thus there was infused into the breed new blood, consisting probably of strains from every quarter from which Roman remounts were procured. As to the effect of this cross we are not, however, in a position to judge. We are also quite uncertain as to the extent to which the Jutes and Saxons may in their turn have again introduced a new breed of horses into England; and even to the close of the Anglo-Saxon period of English history allusions to the horse are still very infrequent. The *horsthegn* we know, however, was from an early period a high court official; and from such a law as that of Athelstan prohibiting the exportation of horses except as presents, it may be inferred that the English breed was not only much valued at home but also in great request abroad.[2]

The period of the Norman Conquest marks an important stage in the history of the British horse. William the Conqueror's own horse was of the Spanish breed, and others of the same kind were introduced by the barons on their estates. But the Norman horses included many varieties, and there is no doubt that to the Conquest the inhabitants of Britain were indebted for a decided improvement in the native horse, as well as for the introduction of several varieties previously unknown. According to Giraldus Cambrensis, Roger de Bellesme, a follower of William I., afterwards created earl of Shrewsbury, imported some stallions from Spain into England; their produce was celebrated by Drayton the poet. It is curious to notice that agriculture seems to be the last use to which the horse has been put. The earliest suggestion that horses were used in agriculture is derived from a piece of the Bayeux tapestry, where a horse is represented as drawing a harrow. This, however, must have been an exceptional case, for we know that oxen were used until a comparatively late time, and that in Wales a law existed forbidding horses to be used for ploughing.

In 1121 two Eastern horses are said to have been imported,—one of them remaining in England, and the other being sent as a present by King Alexander I. to the church of St Andrews, in Scotland. It has been alleged that these horses were Barbs from Morocco, but a still more likely theory is that they existed only in name, and never reached either England or Scotland. The crusades were probably the means of introducing fresh strains of blood into England, and of giving opportunity for fresh crossings. The Spanish jennet was brought over about 1182. King John gave great encouragement to horse-breeding: one of his earliest efforts was to import a hundred Flemish stallions, and, having thus paved the way for improving the breed of agricultural horses, he set about acquiring a valuable stud for his own use.

Edward III. was likewise an admirer of the horse; he procured fifty Spanish horses, probably jennets. At this time there was evidently a tendency to breed a somewhat lighter and speedier

horse; but, while the introduction of a more active animal would soon have led to the displacement of the ponderous but powerful cavalry horse then in use, the substituted variety would have been unable to carry the weight of armour with which horse and rider were alike protected; and so in the end the old breed was kept up for a time. With the object of preserving to England whatever advantages might accrue from her care and skill in breeding an improved stamp of horses, Edward III. forbade their exportation; they consequently improved so rapidly in value that Richard II. compelled dealers to limit their prices to a fixed maximum. In the ninth year of his reign, Edward received from the king of Navarre a present of two running horses, supposed to have been valuable. The wars of 1346 checked the improvement of horses, and undid much of what had been previously accomplished, for we read that the cavalry taken into France by Edward III. were but indifferently mounted, and that in consequence he had to purchase large numbers of foreign horses from Hainault and elsewhere for remounts. The reign of Richard III. does not seem to have been remarkable for the furtherance of horse-breeding; but it was then that post-horses and stages were introduced.

Our information on the whole subject is but scanty down to the reign of Henry VII., who continued the enactment against the exportation of stallions, but relaxed it in the case of mares above two years old. His object was to retain the best horses in the country, and to keep the price of them down by limiting the demand and encouraging the supply. In his reign gelding is believed to have had its origin, on account of numerous herds of horses belonging to different proprietors grazing together, especially in time of harvest. Henry VIII. was particularly careful that horse-breeding should be conducted on right principles, and his enactments, if somewhat arbitrary, were singularly to the point. In the thirty-second year of this reign, the “bill for the breed of horses” was passed, the preamble of which runs thus:—“Forasmuch as the generation and breed of good and strong horses within this realm extendeth not only to a great help and defence of the same, but also is a great commodity and profit to the inhabitants thereof, which is now much decayed and diminished, by reason that, in forests, chases, moors and waste grounds within this realm, little stoned horses and nags of small stature and of little value be not only suffered to pasture thereupon, but also to cover mares feeding there, whereof cometh in manner no profit or commodity.” Section 2 of the act provides that no entire horse being above the age of two years, and not being of the height of 15 “handfulls,” shall be put to graze on any common or waste land in certain counties; any one was to be at liberty to seize a horse of unlawful height, and those whose duty it was to measure horses, but who refused to do so, were to be fined 40s. By section 6 all forests, chases, commons, &c., were to be “driven” within fifteen days of Michaelmas day, and all horses, mares and colts not giving promise of growing into serviceable animals, or of producing them, were to be killed. The aim of the act was to prevent breeding from animals not calculated to produce the class of horse suited to the needs of the country. By another act (27 Henry VIII. chapter 6), after stating that the “breed of good strong horses” was likely to diminish, it was ordered that the owners of all parks and enclosed grounds of the extent of one mile should keep two mares 13 hands high for breeding purposes, or, if the extent of the ground was 4 m., four mares. The statute was not to extend to the counties of Westmorland, Cumberland, Northumberland or the bishopric of Durham. Henry took great pains to improve the royal stud: according to Sir Thomas Chaloner—a writer in the reign of Elizabeth—he imported horses from Turkey, Naples and Spain.

Queen Elizabeth is reputed to have been an accomplished horsewoman, and to have indulged in riding late in life. In the first year of her reign she revived an act passed by Henry VIII. making it felony “to sell, exchange or deliver within Scotland, or to the use of any Scottishman, any horse”; this, however, was very naturally repealed by James I. Carriages were soon after introduced, and the use of them speedily became so fashionable that a bill was brought in “to restrain the excessive and superfluous use of coaches.” Prior to the introduction of carriages horseback was the means of locomotion, and Queen Elizabeth rode in state to St Paul’s on a pillion; but even after carriages were used, horseback was held to be more dignified, for James I. and his judges rode on horseback to Westminster Hall. One advantage of the introduction of carriages was that it created a demand for a lighter and quicker sort of horse, instead of the ponderous animal which, despite all attempts to banish him, was still the horse of England—the age of chivalry having been the first epoch of the British horse.

Gunpowder, too, was invented; and now that the weight of the cavalry soldier was diminished by the substitution of lighter armour, a quicker and better bred horse was thought desirable for military service. The introduction of carriages and the invention of gunpowder thus opened out a new industry in breeding; and a decided change was gradually creeping on by the time that James I. came to the throne (1603), which commences the second epoch. James was a thorough sportsman, and his taste for racing, in which he freely indulged, caused him to think but little of the speed of even the best English horses. With the laudable motive, therefore, of effecting improvement in horses, he gave the then large sum of 500 guineas for an Arab stallion which had been procured from Constantinople by a Mr Markham, since known as the “Markham Arabian.” This is the first authentic account we have of the importation of Arab

blood, and the *Stud-Book* says he was the first of that breed ever seen in England. The people having to do with horses at that time were as conservative in their notions as most of the grooms are now, and the "Markham Arabian" was not at all approved of. The duke of Newcastle, in his treatise on horsemanship, said that he had seen the above Arabian, and described him as a small bay horse and not of very excellent shape. In this instance, however, prejudice (and it is difficult to believe that it was anything else) was right, for King James's first venture does not appear to have been a success either as a race-horse or as a sire, and thus Arabian blood was brought into disrepute. The king, however, resolved to give Eastern blood another trial, and bought a horse known as Place's White Turk from a Mr Place, who subsequently held some office in connexion with the stable under Cromwell. Charles I. followed in the footsteps of James, and lent such patronage to the breeding of a better kind of horse that a memorial was presented to him, asking that some measures might be taken to prevent the old stamp of horse "fit for the defence of the country" from dying out.

We now come to a very important period in the history of the British horse, for Charles II. warmly espoused the introduction of Eastern blood into England. He sent his master of the horse abroad to purchase a number of foreign horses and mares for breeding, and the mares brought over by him (as also many of their produce) were called "royal mares"; they form a conspicuous feature in the annals of breeding. The *Stud-Book* shows of what breed the royal mares really were: one of them, the dam of Dodsworth (who, though foaled in England, was a natural Barb), was a Barb mare; she was sold by the stud-master, after Charles II.'s death, for forty guineas, at twenty years old, when in foal by the Helmsley Turk.

James II. was a good horseman, and had circumstances been more propitious he might have left his mark in the sporting annals of the country. In his reign, according to the *Stud-Book*, the Stradling or Lister Turk was brought into England by the duke of Berwick from the siege of Buda.

The reign of William III. is noteworthy as the era in which, among other importations, there appeared the first of three Eastern horses to which the modern thoroughbred race-horse traces back as the founders of his lineage. This was the Byerly Turk, of whom nothing more is known than that—to use the words of the first volume of the *Stud-Book*—he was Captain Byerly's charger in Ireland in King William's wars. The second of the three horses above alluded to was the Darley Arabian, who was a genuine Arab, and was imported from Aleppo by a brother of Mr Darley of Aldby Park, Yorkshire, about the end of the reign of William III. or the beginning of that of Anne. The third horse of the famous trio, the Godolphin Arabian or Barb, brought to England about five-and-twenty years after the Darley Arabian, will be more particularly referred to further on. All the horses now on the turf or at the stud trace their ancestry in the direct male line to one or other of these three—the Byerly Turk, the Darley Arabian, and the Godolphin Arabian or Barb. In the female line their pedigrees can be traced to other sources, but for all practical purposes it suffices to regard one or other of these three animals as the *ultima Thule* of racing pedigree. Of course there is a large interfusion of the blood of each of the trio through the dams of horses of the present day; indeed, it is impossible to find an English race-horse which does not combine the blood of all three.

The Race-horse.—The third and last epoch of the British horse, viz. that of the thoroughbred racer, may be taken to date from the beginning of the 18th century. By thoroughbred is meant a horse or mare whose pedigree is registered in the *Stud-Book* kept by Messrs Weatherby, the official agents of the Jockey Club—originally termed the keepers of the match-book—as well as publishers of the *Racing Calendar*. The first attempt to evolve order out of the chaos which had long reigned supreme was made in 1791, for we find in the preface of the first volume of the Stud-Book, published in 1808, that "with a view to correct the then increasing evil of false and inaccurate pedigrees, the author was in the year 1791 prevailed upon to publish an *Introduction to a General Stud-Book*, consisting of a small collection of pedigrees which he had extracted from racing calendars and sale papers and arranged on a new plan." It will be seen that the compiler of the volume on which so much depends had to go back fully a century, with little else to guide him but odds and ends in the way of publications and tradition. Mistakes under such circumstances are pardonable. The *Stud-Book* then (vol. i.), which is the oldest authority we have, contains the names and in most cases the pedigrees, obscure though they may be, of a very large number of horses and mares of note from the earliest accounts, but with two exceptions no dates prior to the 18th century are specified in it. These exceptions are the Byerly Turk, who was "Captain Byerly's charger in Ireland in King William's wars (1689, &c.)," and a horse called Counsellor, bred by Mr Egerton in 1694, by Lord D'Arcy's Counsellor by Lord Lonsdale's Counsellor by the Shaftesbury Turk out of sister to Spanker—all the dams in Counsellor's pedigree tracing back to Eastern mares. There is not the least doubt that many of the animals named in the *Stud-Book* were foaled much earlier than the above dates, but we have no particulars as to time; and after all it is not of much consequence.

The *Stud-Book* goes on to say of the Byerly Turk that he did not cover many bred mares, but was the sire of the duke of Devonshire's Basto, Halloway's Jigg, and others. Jigg, or Jig, is a very important factor, as will be seen hereafter. The *Stud-Book*, although silent as to the date of his birth, says he was a common country stallion in Lincolnshire until Partner was six years old—and we know from the same authority that Partner was foaled in 1718; we may therefore conclude that Jigg was a later foal than Basto, who, according to Whyte's *History of the Turf*, was a brown horse foaled in 1703.

The reign of Queen Anne, however (1702-1714), is that which will ever be inseparably connected with the thoroughbred race-horse on account of the fame during that period of the Darley Arabian, a bay stallion, from whom our very best horses are descended. According to the *Stud-Book*, "Darley's Arabian was brought over by a brother of Mr Darley of Yorkshire, who, being an agent in merchandise abroad, became member of a hunting club, by which means he acquired interest to procure this horse." The *Stud-Book* is silent, and other authorities differ, as to the date of the importation of this celebrated Arab, some saying he came over in the year 1700, others that he arrived somewhat later; but we know from the *Stud-Book* that Manica (foaled in 1707), Aleppo (1711), Almanzor (1713), and Flying Childers (1715) were got by him, as also was Bartlett's Childers, a younger brother of Flying Childers. It is generally believed that he was imported in Anne's reign, but the exact date is immaterial, for, assuming that he was brought over as early as 1700 from Aleppo, he could scarcely have had a foal living before 1701, the first year of the 18th century. The Darley Arabian did much to remove the prejudice against Eastern blood which had been instilled into the public mind by the duke of Newcastle's denunciation of the Markham Arabian. Prince George of Denmark, consort of Queen Anne, was himself a large horse-owner; and it was in a great measure owing to his intervention that so many valuable stallions were imported during her reign.

At this period we find, among a mass of horses and mares in the *Stud-Book* without any dates against their names, many animals of note with the earliest chronology extant, from Grey Ramsden (1704) and Bay Bolton (1705) down to a mare who exercised a most important influence on the English blood-horse. This was Roxana (1718) by the Bald Galloway, her dam sister to Chanter by the Akaster Turk, from a daughter of Leedes's Arabian and a mare by Spanker. Roxana threw in 1732 the bay colt Lath by the Godolphin Arabian, the sorrel colt Roundhead by Childers in 1733, and the bay colt Cade by the Godolphin Arabian in 1734, in which year she died within a fortnight after foaling, the produce—Cade—being reared on cow's milk. The Godolphin Barb or Arabian, as he was commonly called, was a brown bay about 15 hands in stature, with an unnaturally high crest, and with some white on his off hind heel. He is said to have been imported into England from France by Mr Coke, where, as the editor of the *Stud-Book* was informed by a French gentlemen, he was so little thought of that he had actually drawn a cart in the streets of Paris. Mr Coke gave him to a Mr. Williams, who in his turn presented him to the earl of Godolphin. Although called an Arabian, there is little doubt he was a Barb pure and simple. In 1731, being then the property of Mr. Coke, he was teazer to Hobgoblin, and on the latter refusing his services to Roxana, the mare was put to the Godolphin, and the produce was Lath (1732), the first of his get, and the most celebrated race-horse of his day after Flying Childers. He was also the sire of Cade, own brother to Lath, and of Regulus the maternal grandsire of Eclipse. He died at Gogmagog in Cambridgeshire, in the possession of Lord Godolphin, in 1753, being then, as is supposed, in his twenty-ninth year. He is believed to have been foaled in Barbary about 1724, and to have been imported during the reign of George II.

In regard to the mares generally, we have a record of the royal mares already alluded to, and likewise of three Turk mares brought over from the siege of Vienna in 1684, as well as of other importations; but it is unquestionable that there was a very large number of native mares in England, improved probably from time to time by racing, however much they may have been crossed at various periods with foreign horses, and that from this original stock were to some extent derived the size and stride which characterized the English race-horse, while his powers of endurance and elegant shape were no doubt inherited from the Eastern horses, most of which were of a low stature, 14 hands or thereabouts. It is only necessary to trace carefully back the pedigree of most of the famous horses of early times to discover faults on the side of the dam—that is to say, the expression "dam's pedigree unknown," which evidently means of original or native blood. Whatever therefore may be owing to Eastern blood, of which from the middle of the 17th to the beginning of the 18th century a complete wave swept over the British Isles, some credit is unquestionably due to the native mares (which Blaine says were mostly Cleveland bays) upon which the Arabian, Barb, or Turk blood was grafted, and which laid the foundation of the modern thoroughbred. Other nations may have furnished the blood, but England has made the race-horse.

Without prosecuting this subject further, it may be enough here to follow out the lines of the Darley Arabian, the Byerly Turk, and the Godolphin Arabian or Barb, the main ancestors of the

British thoroughbred of the 18th and 19th centuries, through several famous race-horses, each and all brilliant winners,—Flying Childers, Eclipse, Herod and Matchem,—to whom it is considered sufficient to look as the great progenitors of the race-horse of to-day.

1. The Darley Arabian's line is represented in a twofold degree—first, through his son Flying Childers, his grandsons Blaze and Snip, and his great-grandson Snap, and, secondly, through his other son Bartlett's Childers and his great-great-grandson Eclipse. Flying or Devonshire Childers, so called to distinguish him from other horses of the same name, was a bay horse of entirely Eastern blood, with a blaze in his face and four white feet, foaled in 1715. He was bred by Mr Leonard Childers of Carr House near Doncaster, and was purchased when young by the duke of Devonshire. He was got by the Darley Arabian from Betty Leedes, by Careless from sister to Leedes, by Leedes's Arabian from a mare by Spanker out of a Barb mare, who was Spanker's own mother. Spanker himself was by D'Arcy's Yellow Turk from a daughter of the Morocco Barb and Old Bald Peg, by an Arab horse from a Barb mare. Careless was by Spanker from a Barb mare, so that Childers's dam was closely in-bred to Spanker. Flying Childers—the wonder of his time—was never beaten, and died in the duke of Devonshire's stud in 1741, aged twenty-six years. He was the sire of, among other horses, Blaze (1733) and Snip (1736). Snip too had a celebrated son called Snap (1750), and it is chiefly in the female line through the mares by these horses, of which there are fully thirty in the *Stud-Book*, that the blood of Flying Childers is handed down to us.

The other representative line of the Darley Arabian is through Bartlett's Childers, also bred by Mr Leonard Childers, and sold to Mr Bartlett of Masham, in Yorkshire. He was for several years called Young Childers,—it being generally supposed that he was a younger brother of his Flying namesake, but his date of birth is not on record,—and subsequently Bartlett's Childers. This horse, who was never trained, was the sire of Squirt (1732), whose son Marske (1750) begat Eclipse and Young Marske (1762), sire of Shuttle (1793). This at least is the generally accepted theory, although Eclipse's dam is said to have been covered by Shakespeare as well as by Marske. Shakespeare was the son of Hobgoblin by Aleppo, and consequently the male line of the Darley Arabian would come through these horses instead of through Bartlett's Childers, Squirt, and Marske; the *Stud-Book*, however, says that Marske was the sire of Eclipse. This last-named celebrated horse—perhaps the most celebrated in the annals of the turf—was foaled on the 1st of April 1764, the day on which a remarkable eclipse of the sun occurred, and he was named after it. He was bred by the duke of Cumberland, after whose decease he was purchased by a Mr Wildman, and subsequently sold to Mr D. O'Kelly, with whom he will ever be identified. His dam Spiletta was by Regulus, son of the Godolphin Barb, from Mother Western, by a son of Snake from a mare by Old Montague out of a mare by Hautboy, from a daughter of Brimmer and a mare whose pedigree was unknown. In Eclipse's pedigree there are upwards of a dozen mares whose pedigrees are not known, but who are supposed to be of native blood. Eclipse was a chestnut horse with a white blaze down his face; his off hind leg was white from the hock downwards, and he had black spots upon his rump—this peculiarity coming down to the present day in direct male descent. His racing career commenced at five years of age, viz. on the 3rd May 1769, at Epsom, and terminated on the 4th October 1770, at Newmarket. He ran or walked over for eighteen races, and was never beaten. It was in his first race that Mr O'Kelly took the odds to a large amount before the start for the second heat, that he would place the horses. When called upon to declare, he uttered the exclamation, which the event justified, "Eclipse first, and the rest nowhere."

Eclipse commenced his stud career in 1771, and had an enormous number of foals, of which four only in the direct male line have come down to us, viz. Potooooooooo, or, as he is commonly called, Pot-8-os (1773), his most celebrated son, King Fergus (1775), Joe Andrews (1778), and Mercury (1778), though several others are represented in the female line. Pot-8-os was the sire of Waxy (1790) out of Maria (1777) by Herod out of Lisette (1772) by Snap. Waxy, who has been not inaptly termed the ace of trumps in the *Stud-Book*, begat Whalebone (1807), Web (1808), Woful (1809), Wire (1811), Whisker (1812), and Waxy Pope (1806), all but the last being out of Penelope (1798) by Trumpator (1782) from Prunella (1788) by Highflyer out of Promise by Snap, while Waxy Pope was out of Prunella, dam of Parasol (1800) by Pot-8-os. Trumpator was a son of Conductor, who was by Matchem out of a mare by Snap.

Whalebone's best sons were Camel (1822) and Sir Hercules (1826). Camel was the sire of Defence (1824) and Touchstone (1831), while Sir Hercules was the sire of Birdcatcher (1833) and Faugh-a-Ballagh (1841), own brothers, and of Gemma di Vergy (1854). Touchstone was the sire of Newminster (1848), who begat Lord Clifden, Adventurer, and the Hermit, as well as of Orlando (1841), sire of Teddington (1848). Whalebone's blood also descends through Waverley (1817) and his son the Saddler (1828), while Whisker is represented by the Colonel (1825) and by Economist (1825) and his son Harkaway (1834), sire of King Tom (1851). Birdcatcher begat, besides Saunterer (1854), the Baron (1842), sire of Stockwell (1849) and of Rataplan (1850). Stockwell, who was a chestnut with black spots, was the sire of Blair Athol (1861), a chestnut, and also of Doncaster (1870), another chestnut, but with the characteristic black spots of his grandsire; and Doncaster was the sire of the chestnut Bend Or (1877).

To turn to Eclipse's other sons. King Fergus (1775) was the sire of Beningbrough (1791), whose son was Orville (1799), whence comes some of the stoutest blood on the turf, including Emilius (1820) and his son Priam (1827), Plenipotentiary (1831), Muley (1810), Chesterfield (1834), and the Hero (1843). Joe Andrews (1778) was the sire of Dick Andrews (1797), and from him descend Tramp (1810), Lottery (1820), Liverpool (1828), Sheet Anchor (1832), Lanercost (1835), Weatherbit (1842), Beadsman (1855), and Blue Gown (1865). Mercury was sire of Gohanna (1790), who was foaled in the same year as Waxy, and the two, who were both grandsons of Eclipse and both out of Herod mares, had several contests, Waxy generally getting the better of his cousin. Gohanna's descendants come down through Golumpus (1802), Catton (1809), Mulatto (1823), Royal Oak (1823), and Slane (1833).

2. The Byerly Turk's line is represented by Herod, the Turk being the sire of Jigg, who was the sire of Partner (1718), whose son Tartar (1743) begat King Herod, or Herod as he was commonly called, foaled in 1758. Herod's dam was Cypron (1750) by Blaze (1733), son of Flying Childers. Cypron's dam was Selima by Bethel's Arabian from a mare by Graham's Champion from a daughter of the Darley Arabian and a mare who claims Merlin for her sire, but whose mother's pedigree is unknown. In Herod's pedigree there are fully a dozen dams whose pedigree is unknown. Herod was a bay horse about 15 hands 3 inches high, possessed both of substance and length,—those grand requisites in a race-horse,—combined with uncommon power and stamina or lasting qualities. He was bred by William, duke of Cumberland, uncle of King George III. He commenced his racing career in October 1763, when he was five years old, and ended it on the 16th of May 1767. He ran ten times, winning six and losing four races. He died in 1780, and among other progeny left two famous sons, Woodpecker (1773), whose dam was Miss Ramsden (1760) by Cade, son of the Godolphin Barb, but descended also on the dam's side from the Darley Arabian and the Byerly Turk, and Highflyer (1774), whose dam was Rachel (1763) by Blank, son of the Godolphin Barb from a daughter of Regulus, also son of the Godolphin. These two horses have transmitted Herod's qualities down to the present day in the direct male line, although in the female line he is represented through some of his other sons and his daughters as well. Woodpecker was the sire of Buzzard (1787), who in his turn became the father of three celebrated sons, Castrel (1801), Selim (1802), and Rubens (1803), all three chestnuts, and all out of an Alexander mare (1790), who thereby became famous. This mare was by Eclipse's son Alexander (1782) out of a mare by Highflyer (son of Herod) out of a daughter of Alfred, by Matchem out of a daughter of Snap. Bustard (1813), whose dam was a daughter of Shuttle, and his son Heron (1833), Sultan (1816) and his sons Glencoe (1831) and Bay Middleton (1833) and Middleton's sons Cowl (1842) and the Flying Dutchman (1846), Pantaloon (1824) and his son Windhound (1847), Langar (1817) and his son Epirus (1834) and grandson Pyrrhus the First (1843), are representatives of Castrel and Selim.

Highflyer is represented through his greatly esteemed son Sir Peter Teazle, commonly called Sir Peter (1784), whose dam was Papillon by Snap. Sir Peter had five sons at the stud, Walton (1790), Stamford (1794), and Sir Paul (1802) being the chief. Paulowitz (1813), Cain (1822), Ion (1835), Wild Dayrell (1852), and his son Buccaneer (1857) bring down Sir Paul's blood; whilst Walton is represented through Phantom (1806), Partisan (1811) and his sons Glaucus (1829) and Venison (1833) and Gladiator (1833), Venison's sons Alarm (1842) and Kingston (1849), Gladiator's son Sweetmeat (1842), Sweetmeat's sons Macaroni (1860) and Parmesan (1857), and Parmesan's sons Favonius (1868) and Cremorne (1869). It may be added that in the first volume of the *Stud-Book* there are nearly a hundred Herod and Highflyer mares registered.

3. The Godolphin Barb is represented by Matchem, as the former was the sire of Cade (1734), and Cade begat Matchem, who was foaled in 1748. He was thus ten years the senior of Herod, representing the Byerly Turk, and sixteen years before Eclipse, though long subsequent to Flying Childers, who represent the Darley Arabian. Matchem was a brown bay horse with some white on his off hind heel, about 15 hands high, bred by Sir John Holme of Carlisle, and sold to Mr W. Fenwick of Bywell, Northumberland. His dam was sister to Miss Partner (1735) by Partner out of Brown Farewell by Makeless (son of the Oglethorpe Arabian) from a daughter of Brimmer out of Trumpet's dam, by Place's White Turk from a daughter of the Barb Dodsworth and a Layton Barb mare; while Brimmer was by D'Arcy's Yellow Turk from a royal mare. Matchem commenced his racing career on the 2nd of August 1753, and terminated it on 1st September 1758. Out of thirteen engagements he won eleven and lost two. He died in 1781, aged thirty-three years. His best son was Conductor (1767) out of a mare by Snap; Conductor was the sire of Trumpator (1782), whose two sons, Sorcerer (1790) and Paynator (1791), transmit the blood of the Godolphin down to modern times. Sorcerer was the sire of Soothsayer (1808), Comus (1809), and Smolensko (1810). Comus was the sire of Humphrey Clinker (1822), whose son was Melbourne (1834), sire of West Australian (1850) and of many valuable mares, including Canezou (1845) and Blink Bonny (1854), dam of Blair Athol. Paynator was the sire of Dr Syntax (1811), who had a celebrated daughter called Beeswing (1833), dam of Newminster by Touchstone.

The gems of the three lines may be briefly enumerated thus: (1) of the Darley Arab's line—Snap, Shuttle, Waxy, and Orville—the stoutest blood on the turf; (2) of the Byerly Turk's line—

Buzzard and Sir Peter—speedy blood, the latter the stouter of the two; (3) of the Godolphin Barb's line—Sorcerer—often producing large-sized animals, but showing a tendency to die out, and becoming rare.

On the principle that as a rule like begets like, it has been the practice to select as sires the best public performers on the turf, and of two horses of like blood it is sound sense to choose the better as against the inferior public performer. But there can be little doubt that the mating of mares with horses has been often pursued on a haphazard plan, or on no system at all; to this the *Stud-Book* testifies too plainly. In the article HORSE-RACING mention is made of some of the great horses of recent years; but the following list of the principal sires of earlier days indicates also how their progeny found a place among the winners of the three great races, the Derby (D), Oaks (O), and St Leger (L):—

Eclipse: Young Eclipse (D), Saltram (D), Sergeant (D), Annette (O).

Herod: Bridget (O), Faith (O), Maid of the Oaks (O), Phenomenon (L).

Matchem: Teetotum (O), Hollandaise (L).

Florizel (son of Herod): Diomed (D), Eager (D), Tartar (L), Ninety-three (L).

Highflyer: Noble (D), Sir Peter Teazle (D), Skyscraper (D), Violante (O), Omphale (L), Cowslip (L), Spadille (L), Young Flora (L).

Pot-8-os: Waxy (D), Champion (D, L), Tyrant (D), Nightshade (O).

Sir Peter (D): Sir Harry (D), Archduke (D), Ditto (D), Paris (D), Hermione (O), Parasite (O), Ambrosio (L), Fyldener (L), Paulina (L), Petronius (L).

Waxy (D): Pope (D), Whalebone (D), Blucher (D), Whisker (D), Music (O), Minuet (O), Corinne (O).

Whalebone (D): Moses (D), Lapdog (D), Spaniel (D), Caroline (O).

Woful: Augusta (O), Zinc (O), Theodore (L).

Whisker (D): Memnon (L), The Colonel (L).

Phantom: Cedric (D), Middleton (D), Cobweb (O).

Orville (L): Octavius (D), Emilius (D), Ebor (L).

Tramp: St Giles (D), Dangerous (D), Barefoot (L).

Emilius (D): Priam (D), Plenipotentiary (D), Oxygen (O), Mango (L).

Priam (D): Miss Seltz (O), Industry (O), Crucifix (O).

Sir Hercules: Coronation (D), Faugh-a-Ballagh (L), Birdcatcher (L).

Touchstone (L): Cotherstone (D), Orlando (D), Surplice (D, L), Mendicant (O), Blue Bonnet (L), Newminster (L).

Birdcatcher (L): Daniel O'Rourke (D), Songstress (O), Knight of St George (L), Warlock (L), The Baron (L).

The Baron (L): Stockwell (L).

Melbourne: West Australian (D, L), Blink Bonny (D, O), Sir Tatton Sykes (L).

Newminster (L): Musjid (D), Hermit (D), Lord Clifden (L).

Sweetmeat: Macaroni (D), Mincemeat (O), Mincepie (O).

Stockwell (L): Blair Athol (D, L), Lord Lyon (D, L), Doncaster (D), Regalia (O), St Albans (L), Caller Ou (L), The Marquis (L), Achievement (L).

King Tom: Kingcraft (D), Tormentor (O), Hippia (O), Hannah (O, L).

Rataplan (son of the Baron): Kettledrum (D).

Monarque: Gladiateur (D, L).

Parmesan (son of Sweetmeat): Favonius (D), Cremorne (D).

Buccaneer: Kisber (D), Formosa (O, L), Brigantine (O).

Lord Clifden (L): Jannette (O, L), Hawthornden (L), Wenlock (L), Petrarch (L).

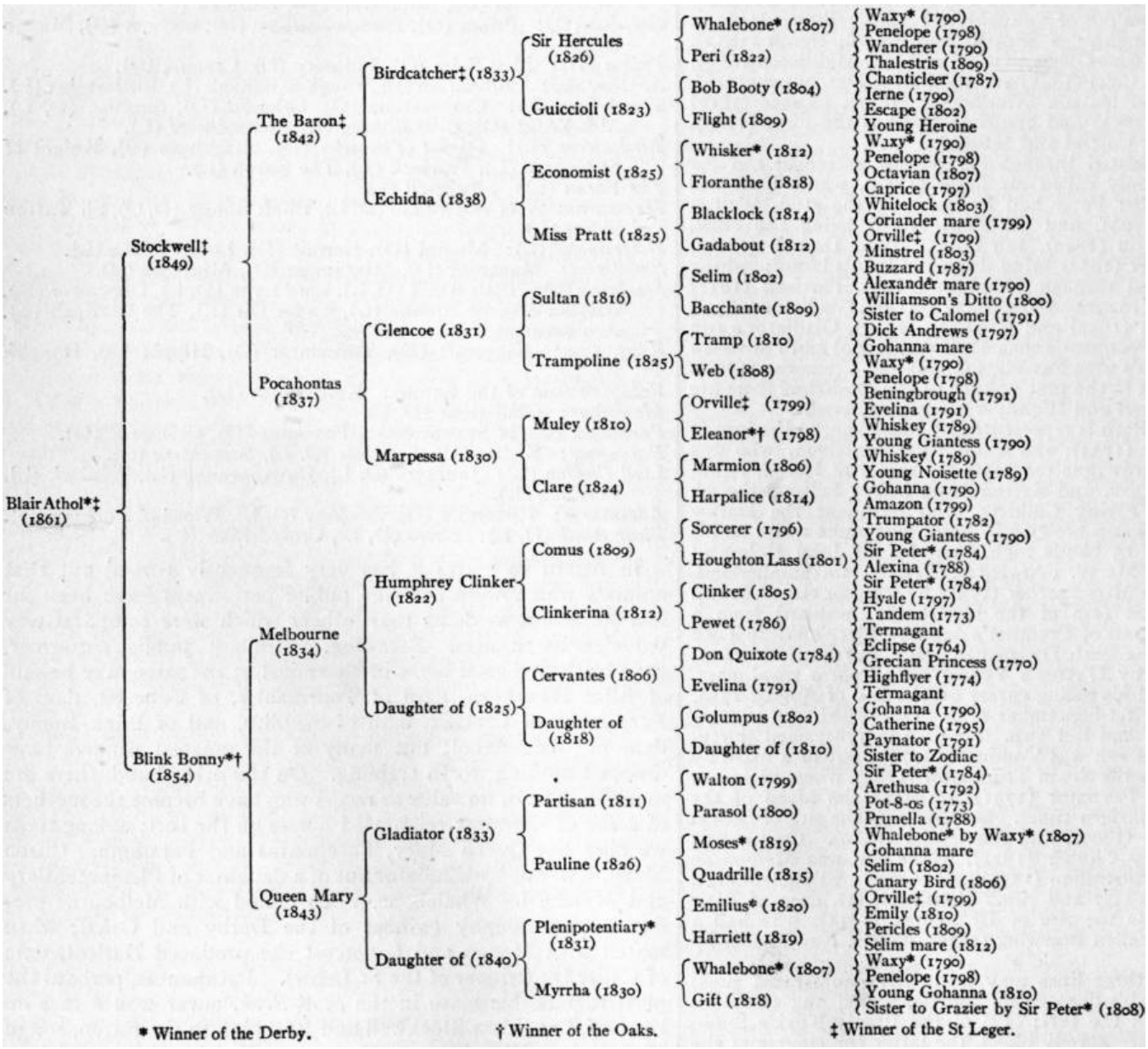
Adventurer: Pretender (D), Apology (O, L), Wheel of Fortune (O).

Blair Athol (D, L): Silvio (D, L), Craig Millar (L).

In regard to mares it has very frequently turned out that animals which were brilliant public

performers have been far less successful as dams than others which were comparatively valueless as runners. Beeswing, a brilliant public performer, gave birth to a good horse in Newminster; the same may be said of Alice Hawthorn, dam of Thormanby, of Canezou, dam of Fazzoletto, of Crucifix, dam of Surplice, and of Blink Bonny, dam of Blair Athol; but many of the greatest winners have dropped nothing worth training. On the other hand, there are mares of little or no value as racers who have become the mothers of some of the most celebrated horses on the turf; among them we may cite Queen Mary, Pocahontas and Paradigm. Queen Mary, who was by Gladiator out of a daughter of Plenipotentiary and Myrrha by Whalebone, when mated with Melbourne produced Blink Bonny (winner of the Derby and Oaks); when mated with Mango and Lanercost she produced Haricot, dam of Caller Ou (winner of the St Leger). Pocahontas, perhaps the most remarkable mare in the *Stud-Book*, never won a race on the turf, but threw Stockwell and Rataplan to the Baron, son of Birdcatcher, King Tom to Harkaway, Knight of St Patrick to Knight of St George, and Knight of Kars to Nutwith—all these horses being 16 hands high and upwards, while Pocahontas was a long low mare of about 15 hands or a trifle more. She also gave birth to Ayacanora by Birdcatcher, and to Araucaria by Ambrose, both very valuable brood mares, Araucaria being the dam of Chamant by Mortemer, and of Rayon d'Or by Flageolet, son of Plutus by Touchstone. Paradigm again produced, among several winners of more or less celebrity, Lord Lyon (winner of the Two Thousand Guineas, Derby and St Leger) and Achievement (winner of the St Leger), both being by Stockwell. Another famous mare was Manganese (1853) by Birdcatcher from Moonbeam by Tomboy from Lunatic by the Prime Minister from Maniac by Shuttle. Manganese when mated with Rataplan threw Mandragora, dam of Apology, winner of the Oaks and St Leger, whose sire was Adventurer, son of Newminster. She also threw Mineral, who, when mated with Lord Clifden, produced Wenlock, winner of the St Leger, and after being sold to go to Hungary, was there mated with Buccaneer, the produce being Kisber, winner of the Derby.

We append the pedigree of Blair Athol, winner of the Derby and St Leger in 1864, who, when subsequently sold by auction, fetched the then unprecedented sum of 12,000 guineas, as it contains, not only Stockwell (the emperor of stallions, as he has been termed), but Blink Bonny and Eleanor—in which latter animal are combined the blood of Eclipse, Herod, Matchem and Snap,—the mares that won the Derby in 1801 and 1857 respectively, as well as those queens of the stud, Eleanor's great-granddaughter Pocahontas and Blink Bonny's dam Queen Mary. Both Eleanor and Blink Bonny won the Oaks as well as the Derby.



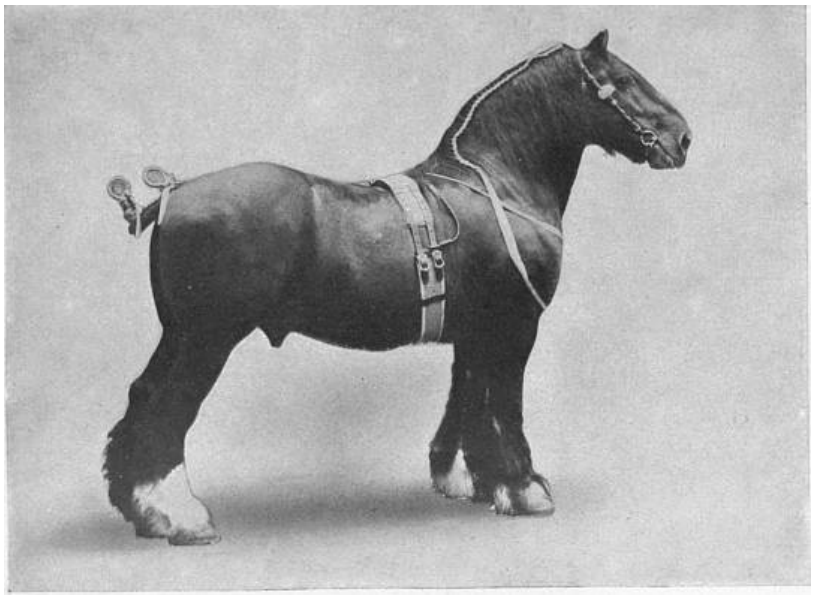
The shape of a race-horse is of considerable importance, although it is said with some degree of truth that they win in all shapes. There are the neat and elegant animals, like the descendants of Saunterer and Sweetmeat; the large-framed, plain-looking, and heavy-headed Melbournes, often with lop ears; the descendants of Birdcatcher, full of quality, and of more than average stature, though sometimes disfigured with curby hocks; and the medium-sized but withal speedy descendants of Touchstone, though in some cases characterized by somewhat loaded shoulders. In height it will be found that the most successful racers average from 15 to 16½ hands, the former being considered somewhat small, while the latter is unquestionably very large; the mean may be taken as between 15½ and 16 hands (the hand = 4 in.). The head should be light and lean, and well set on; the ears small and pricked, but not too short; the eyes full; the forehead broad and flat; the nostrils large and dilating; the muzzle fine; the neck moderate in length, wide, muscular, and yet light; the throat clean; the windpipe spacious and loosely attached to the neck; the crest thin, not coarse and arched. The withers may be moderately high and thin; the chest well developed, but not too wide or deep; the shoulder should lie well on the chest, and be oblique and well covered with muscle, so as to reduce concussion in galloping; the upper and lower arms should be long and muscular; the knees broad and strong; legs short, flat and broad; fetlock joints large; pasterns strong and of moderate length; the feet should be moderately large, with the heels open and frogs sound—with no signs of contraction. The body or barrel should be moderately deep, long and straight, the length being really in the shoulders and in the quarters; the back should be strong and muscular, with the shoulders and loins running well in at each end; the loins themselves should have great breadth and substance, this being a vital necessity for weight-carrying and propelling power uphill. The hips should be long and wide, with the stifle and thigh strong, long and proportionately developed, and the hind quarters well let down. The hock should have plenty of bone, and be strongly affixed to the leg, and show no signs of curb; the bones below the hock should be flat, and free from adhesions; the ligaments and tendons well developed, and standing out from the bone; the joints well formed and wide, yet without undue

enlargement; the pasterns and feet similar to those of the forehand. The tail should be high set on, the croup being continued in a straight line to the tail, and not falling away and drooping to a low-set tail. Fine action is the best criterion of everything fitting properly, and all a horse's points ought to harmonize or be in proportion to one another, no one point being more prominent than another, such as good shoulders, fine loins or excellent quarters. If the observer is struck with the remarkable prominence of any one feature, it is probable that the remaining parts are deficient. A well-made horse wants dissecting in detail, and then if a good judge can discover no fault with any part, but finds each of good proportions, and the whole to harmonize without defect, deformity or deficiency, he has before him a well-shaped horse; and of two equally well-made and equitably proportioned horses the best bred one will be the best. As regards hue, the favourite colour of the ancients, according to Xenophon, was bay, and for a long time it was the fashionable colour in England; but for some time chestnut thoroughbreds have been the most conspicuous figure on English race-courses, so far as the more important events are concerned. Eclipse was a chestnut; Castrel, Selim and Rubens were chestnuts; so also were Glencoe and Pantaloon, of whom the latter had black spots on his hind quarters like Eclipse; and also Stockwell and Doncaster. Birdcatcher was a chestnut, so also were Stockwell and his brother Rataplan, Manganese, Mandragora, Thormanby, Kettledrum, St Albans, Blair Athol, Regalia, Formosa, Hermit, Marie Stuart, Doncaster, George Frederick, Apology, Craig Millar, Prince Charlie, Rayon d'Or and Bend Or. The dark browns or black browns, such as the Sweetmeat tribe, are not so common as the bays, and black or grey horses are almost as unusual as roans. The skin and hair of the throughbred are finer, and the veins which underlie the skin are larger and more prominent than in other horses. The mane and tail should be silky and devoid of curl, which is a sign of impurity.

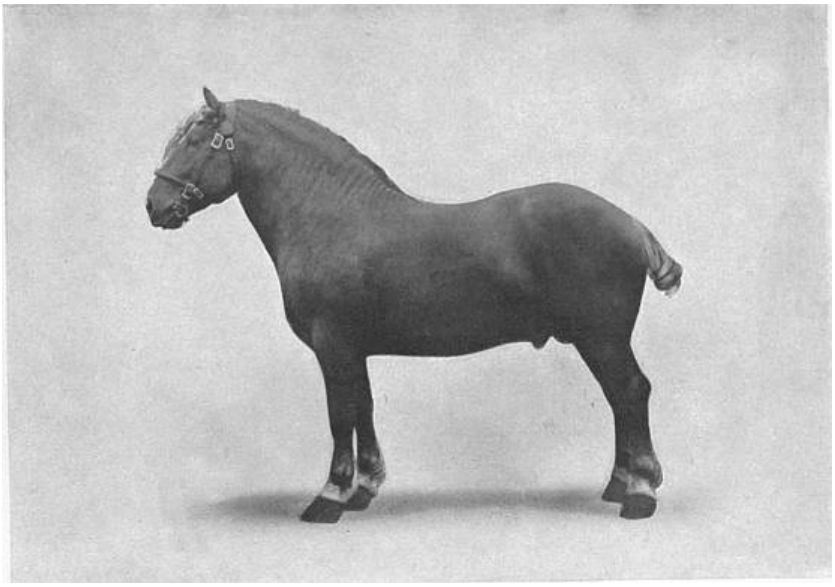
Whether the race-horse of to-day is as good as the stock to which he traces back has often been disputed, chiefly no doubt because he is brought to more early maturity, commencing to win races at two years instead of at five years of age, as in the days of Childers and Eclipse; but the highest authorities, and none more emphatically than the late Admiral Rous, have insisted that he can not only stay quite as long as his ancestors, but also go a good deal faster. In size and shape the modern race-horse is unquestionably superior, being on an average fully a hand higher than the Eastern horses from which he is descended; and in elegance of shape and beauty of outline he has certainly never been surpassed. That experiments, founded on the study of his nature and properties, which have from time to time been made to improve the breed, and bring the different varieties to the perfection in which we now find them, have succeeded, is best confirmed by the high estimation in which the horses of Great Britain are held in all parts of the civilized world; and it is not too much to assert that, although the cold, humid and variable nature of their climate is by no means favourable to the production of these animals in their very best form, Englishmen have by great care, and by sedulous attention to breeding, high feeding and good grooming, with consequent development of muscle, brought them to the highest state of perfection of which their nature is capable.

(E. D. B.)

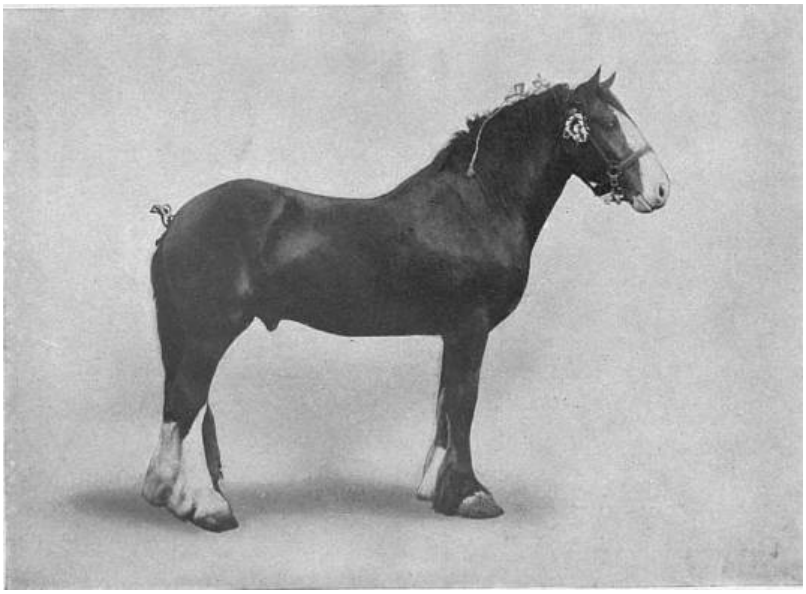
PLATE I.



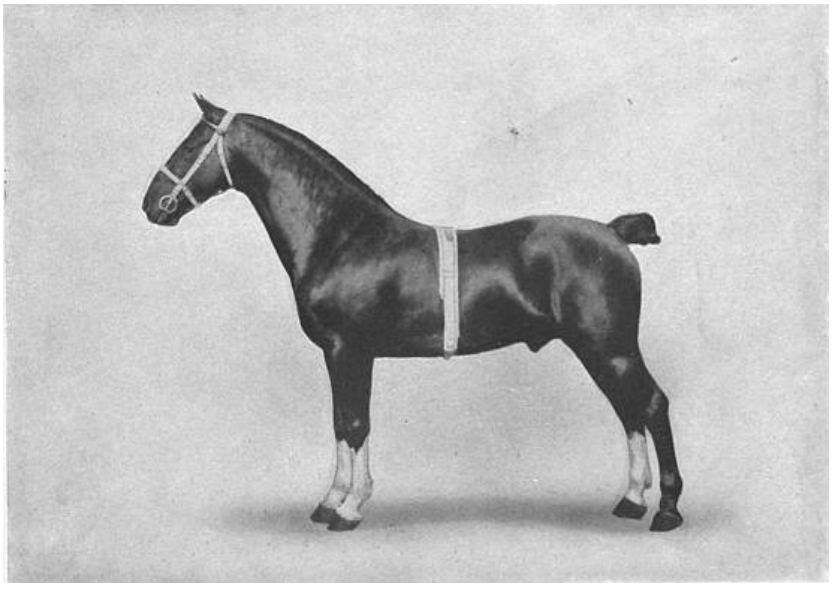
SHIRE STALLION.



SUFFOLK STALLION.

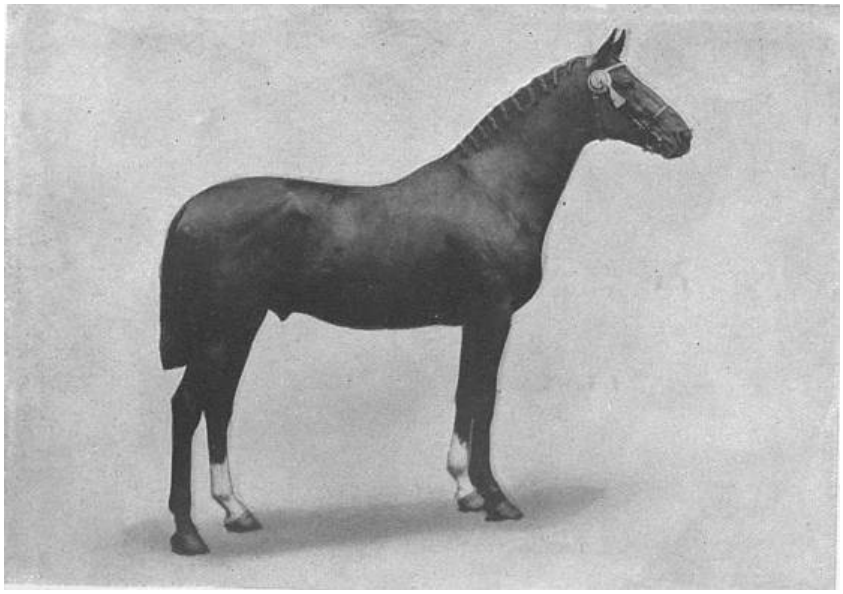


CLYDESDALE STALLION.

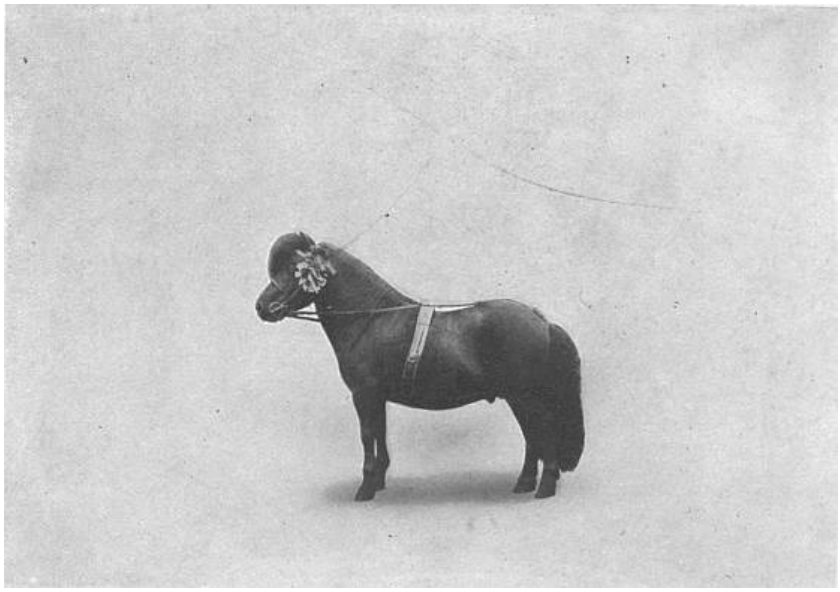


HACKNEY STALLION.

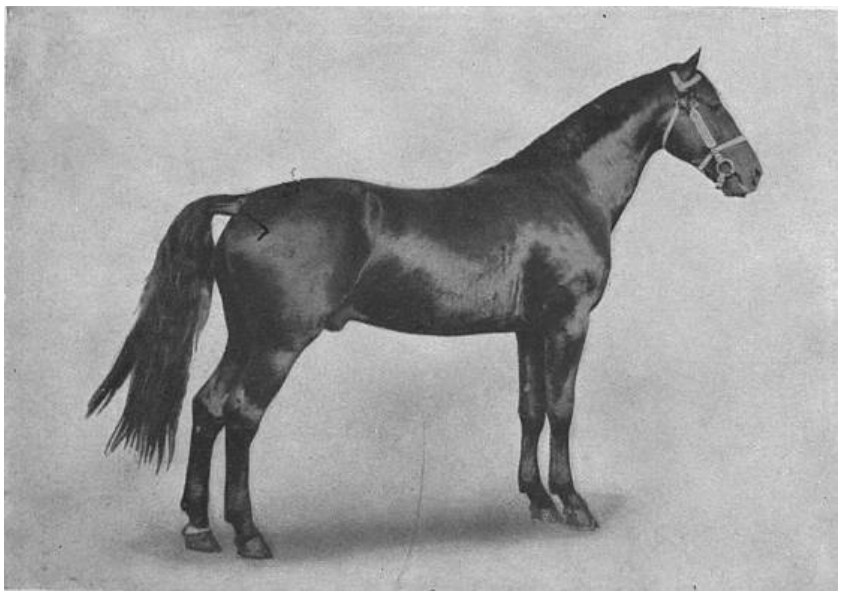
BREEDS OF HORSES. (*From Photographs by F. Babbage.*)
The comparative sizes of the horses are shown.



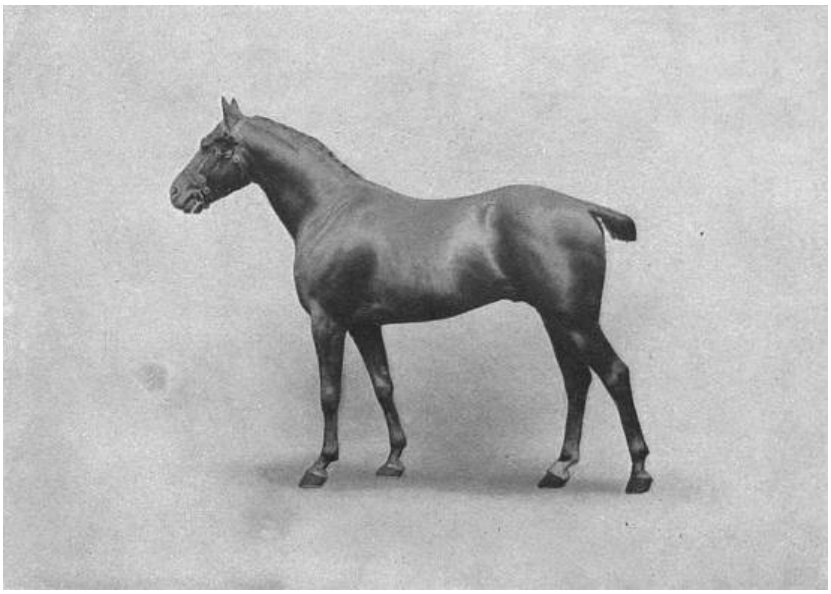
THOROUGHBRED STALLION.



SHETLAND PONY STALLION.



COACHING STALLION.



POLO PONY STALLION.

BREEDS OF HORSES. (*From Photographs by F. Babbage.*)
The comparative sizes of the horses are shown.

Breeds of Horses

The British breeds of *light* horses include the Thoroughbred, the Yorkshire Coach-horse, the Cleveland Bay, the Hackney and the Pony; of *heavy* horses, the Shire, the Clydesdale and the Suffolk.

The *Thoroughbred* is probably the oldest of the breeds, and it is known as the "blood-horse" on account of the length of time through which its purity of descent can be traced. The frame is light, slender and graceful. The points of chief importance are a fine, clean, lean head, set on free from collar heaviness; a long and strongly muscular neck, shoulders oblique and covered with muscle; high, long withers, chest of good depth and narrow but not extremely so; body round in type; back rib well down; depth at withers a little under half the height; length equal to the height at withers and croup; loins level and muscular; croup long, rather level; tail set on high and carried gracefully; the hind quarters long, strongly developed, and full of muscle and driving power; the limbs clean-cut and sinewy, possessing abundance of good bone, especially desired in the cannons, which are short, broad and flat; comparatively little space between the fore legs; pastern joints smooth and true; pasterns strong, clean and springy, sloping when at rest at an angle of 45°; feet medium size, wide and high at the heels, concave below and set on straight. The action in trotting is generally low, but the bending of the knee and the flexing of the hock is smooth, free and true. The thoroughbred is apt to be nervous and excitable, and impatient of common work, but its speed, resolution and endurance, as tested on the race-course, are beyond praise.

Many of the best hunters in the United Kingdom are thoroughbreds, but of the substantial weight-carrying type. The Hunters Improvement Society, established in 1885, did not restrict entries to the *Hunters' Stud-Book* to entirely clean-bred animals, but admitted those with breeding enough to pass strict inspection. This society acts in consort with two other powerful organizations (the Royal Commission on Horse-breeding, which began its work in 1888, and the Brood Mare Society, established in 1903), with the desirable object of improving the standard of light horse breeding. The initial efforts began by securing the services of thoroughbred stallions for specified districts, by offering a limited number of "Queen's Premiums," of £200 each, to selected animals of four years old and upwards. Since the formation of the Brood Mare Society mares have come within the sphere of influence of the three bodies, and well-conceived inducements are offered to breeders to retain their young mares at home. The efforts have met with gratifying success, and they were much needed, for while in 1904 the Dutch government took away 350 of the best young Irish mares, Great Britain was paying the foreigner over £2,000,000 a year for horses which the old system of

management did not supply at home. The Royal Dublin Society also keeps a *Register of Thoroughbred Stallions* under the horse-breeding scheme of 1892, which, like the British efforts, is now bearing fruit.

The *Yorkshire Coach-horse* is extensively bred in the North and East Ridings of Yorkshire, and the thoroughbred has taken a share in its development. The colour is usually bay, with black or brown points. A fine head, sloping shoulders, strong loins, lengthy quarters, high-stepping action, flat bone and sound feet are characteristic. The height varies from 16 hands to 16 hands 2 in.

The *Cleveland Bay* is an ancestor of the Yorkshire Coach-horse and is bred in parts of Yorkshire, Durham and Northumberland. He is adapted alike for the plough, for heavy draught, and for slow saddle work. Some specimens make imposing-looking carriage horses, but they have low action and are lacking in quality. The colour is light or dark bay, with black legs. Though rather coarse-headed, the Cleveland Bay has a well-set shoulder and neck, a deep chest and round barrel. The height is from 16 to 17 hands.

The *Hackney* has come prominently to the front in recent years. The term *Nag*, applied to the active riding or trotting horse, is derived from the A.S. *hnegan*, to neigh. The Normans brought with them their own word *haquenée*, or *hacquenée*, a French derivative from the Latin *equus*, a horse, whence the name hackney. Both nag and hackney continue to be used as synonymous terms. Frequent mention is made of hackneys and trotters in old farm accounts of the 14th century. The first noteworthy trotting hackney stallion, of the modern type, was a horse foaled about 1755, and known as the Schales, Shields or Shales horse, and most of the recognized hackneys of to-day trace back to him. The breeding of hackneys is extensively pursued in the counties of Norfolk, Cambridge, Huntingdon, Lincoln and York, and in the showyard competitions a keen but friendly rivalry is usually to be noticed between the hackney-breeding farmers of Norfolk and Yorkshire. The high hackney action is uncomfortable in a riding horse. Excellent results have sometimes followed the use of hackney sires upon half-bred mares, *i.e.* by thoroughbred stallions and trotting mares, but it is not always so. As regards the movement, 724
or “action,” of the hackney, he should go light in hand, and the knee should be well elevated and advanced during the trot, and, before the foot is put down, the leg should be well extended. The hackney should also possess good hock action, as distinguished from mere fetlock action, the propelling power depending upon the efficiency of the former. The hackney type of the day is “a powerfully built, short-legged, big horse, with an intelligent head, neat neck, strong, level back, powerful loins, and as perfect shoulders as can be obtained, good feet, flat-boned legs, and a height of from 15 hands 2 in. to 15 hands 3½ in.” Carriage-horses hackney-bred have been produced over 17 hands high.

The *Pony* differs essentially from the hackney in height, the former not exceeding 14 hands. There is one exception, which is made clear in the following extract from Sir Walter Gilbey’s *Ponies Past and Present* (1900):—

> Before the establishment of the Hackney Horse Society in 1883 the dividing line between the horse and the pony in England was vague and undefined. It was then found necessary to distinguish clearly between horses and ponies, and, accordingly, all animals measuring 14 hands or under were designated “ponies,” and registered in a separate part of the (Hackney) Stud-Book. This record of height, with other particulars as to breeding, &c., serves to direct breeders in their choice of sires and dams. The standard of height established by the Hackney Horse Society was accepted and officially recognized by the Royal Agricultural Society in 1889, when the prize-list for the Windsor show contained pony classes for animals not exceeding 14 hands. The altered polo-rule, which fixes the limit of height at 14 hands 2 in., may be productive of some little confusion; but for all other purposes 14 hands is the recognized *maximum* height of a pony. Prior to 1883 small horses were called indifferently Galloways, hobbies, cobs or ponies, irrespective of their height.

Native ponies include those variously known as Welsh, New Forest, Exmoor, Dartmoor, Cumberland and Westmorland, Fell, Highland, Highland Garron, Celtic, Shetland and Connemara. Ponies range in height from 14 hands down to 8 hands, Shetland ponies eligible for the Stud-Book not exceeding the latter. As in the case of the hackney, so with the pony, thoroughbred blood has been used, and with good results, except in the case of those animals which have to remain to breed in their native haunts on the hills and moorlands. There the only possible way of improvement is by selecting the best native specimens, especially the sires, to breed from. The thin-skinned progeny of thoroughbred or Arab stock is too delicate to live unless when hand-fed—and hand-feeding is not according to custom. Excellent polo ponies are bred as first or second crosses by thoroughbred stallions on the mares of nearly all the varieties of ponies named. The defective formation of the pony, the perpendicular shoulder and the drooping hind quarters, are modified; but neither the latter, nor bent hocks, which place the hind legs under the body as in the zebra, are objected to, as the conformation is favourable

to rapid turning. One object of the pony breeder, while maintaining hardiness of constitution, is to control size—to compress the most valuable qualities into small compass. He endeavours to breed an animal possessing a small head, good shoulders, true action and perfect manners. A combination of the best points of the hunter with the style and finish of the hackney produces a class of weight-carrying pony which is always saleable.

The *Shire* horse owes its happily-chosen name to Arthur Young's remarks, in the description of his agricultural tours during the closing years of the 18th century, concerning the large Old English Black Horse, "the produce principally of the *Shire* counties in the heart of England." Long previous to this, however, the word Shire, in connexion with horses, was used in the statutes of Henry VIII. Under the various names of the War Horse, the Great Horse, the Old English Black Horse and the Shire Horse, the breed has for centuries been cultivated in the rich fen-lands of Lincolnshire and Cambridgeshire, and in many counties to the west. The Shire is the largest of draught horses, the stallion commonly attaining a height of 17 to 17.3 hands. Though the black colour is still frequently met with, bay and brown are more usually seen. With their immense size and weight—1800 lb to 2200 lb—the Shires combine great strength, and they are withal docile and intelligent. They stand on short stout legs, with a plentiful covering—sometimes too abundant—of long hair extending chiefly down the back but also round the front of the limbs from knees and hocks, and when in full feather obscuring nearly the whole of the hoofs. The head is a good size, and broad between the eyes; the neck fairly long, with the crest well arched on to the shoulders, which are deep and strong, and moderately oblique. The chest is wide, full and deep, the back short and straight, the ribs are round and deep, the hind quarters long, level and well let down into the muscular thighs. The cannon-bones should be flat, heavy and clean, and the feet wide, tough, and prominent at the heels. A good type of Shire horse combines symmetrical outlines and bold, free action. There is a good and remunerative demand for Shire geldings for use as draught horses in towns.

The *Clydesdale*, the Scottish breed named from the valley of the Clyde, is not quite so large as the Shire, the average height of stallions being about 16 hands 2 in. The popular colour is bay, particularly if of a dark shade, or dappled. Black is not uncommon, but grey is not encouraged. White markings on one or more of the legs, with a white star or stripe on the face, are characteristic. The long hair on the legs is not so abundant as in the Shires, and it is finer in texture. It is regarded as an indication of good bone. The bones of the legs should be short, flat, clean and hard; the feet large, with hoofs deep and concave below. With its symmetry, activity, strength and endurance the Clydesdale is easily broken to harness, and makes an excellent draught horse. This breed is growing rapidly in favour in Canada, but in the United States the *Percheron*, with its round bone and short pasterns, holds the field. A blend of the Shire and Clydesdale strains of the British rough-legged draught horse (virtually sections of the same breed) is a better animal than either of the parents. It is an improvement upon the Shire due to the quality contributed by the Clydesdale, and it surpasses the Clydesdale in strength and substance, as a result of the Shire connexion. To secure success the two Stud-Books will require to be opened to animals eligible to be entered in either record. The blend is being established in U.S.A. as a National breed.

The *Suffolk* is a horse quite distinct from the Shire and the Clydesdale. Its body looks too heavy for its limbs, which are free from the "feather" so much admired in the two other heavy breeds; it possesses a characteristic chestnut colour. How long the Suffolks have been associated with the county after which they are named is unknown, but they are mentioned in 1586 in Camden's *Britannia*. With an average height of about 16 hands they often have a weight of as much as 2000 lb., and this may explain the appearance which has given rise to the name of the Suffolk Punch, by which the breed is known. The Suffolk is a resolute and unwearying worker, and is richly endowed with many of the best qualities of a horse. The *Suffolk Stud-Book and History of the Breed*, published in 1880, is the most exhaustive record of its kind in England.

(W. Fr.; R. W.)

Management

Breeding.—Animals to breed from should be of good blood, sound and compactly built, with good pluck and free from nervous excitability and vicious tendency. A mare used to be put to the horse at three years old, but latterly two has become the common age. Young sires begin to serve in moderation at two. May is considered the best month for a mare to foal, as there is abundance of natural food and the weather is mild enough for the mare to lie out. Show specimens generally profit by being born earlier. The period of gestation in the mare is about eleven months. No nursing mare should go to work, if this can possibly be avoided. A brood mare requires plenty of exercise at a slow pace and may work, except between shafts or on a road, till the day of foaling.

To avoid colic an animal has to be gradually prepared by giving small quantities of green food for a few days before going to grass. Shelter against severe storms is needed. Succulent food encourages the flow of milk, and the success of the foal greatly depends on its milk supply. Mares most readily conceive when served at the “foal heat” eleven days after foaling. A mature stallion can serve from eighty to one hundred mares per annum.

Foals are weaned when five or six months old, often in October, and require to be housed to save the foal-flesh, and liberally but not overfed; but from the time they are a month old they require to be “gentled” by handling and kindly treatment, and the elementary training of leading from time to time by a halter adjusted permanently to the head. When they are hand-reared on cow’s milk foals require firm treatment and must have no fooling to teach them tricks. Young horses that are too highly fed are apt to become weak-limbed and top-heavy.

Breaking.—Systematic breaking begins at about the age of two years, and the method of subduing a colt by “galvayning” is as good as any. It is a more humane system than “rareying,” which overcame by exhaustion under circumstances which were not fruitful of permanent results. Galvayning is accomplished by bending the horse’s neck round at an angle of thirty-five to forty degrees and tieing the halter to the tail, so that when he attempts to walk forward he holds himself and turns “round and round, almost upon his own ground.” The more strenuous his resistance the sooner he yields to the inevitable force applied by himself. A wooden pole, the “third hand,” is then gently applied to all parts of the body until kicking or any form of resistance ceases. “Bitting” or “mouthing,” or the familiarizing of an animal to the bit in his mouth, and to answer to the rein without bending his neck, is still a necessity with the galvayning method of breaking. Experience can only be gained by a horse continuing during a considerable time to practise what he has been taught.

Three main characteristics of a successful horse-breaker are firmness, good temper and incessant vigilance. Carelessness in trusting too much to a young colt that begins its training by being docile is a fruitful source of untrustworthy habits which need never have developed. Driving with long reins in the field should precede the fastening of ropes to the collar, as it accustoms the animal to the pressure on the shoulders of the draught, later to be experienced in the yoke. If a young horse be well handled and accustomed to the dummy jockey, mounting it is not attended with much risk of resistance, although this should invariably be anticipated. An animal ought to be in good condition when being broken in, else it is liable to break out in unpleasant ways when it becomes high-spirited as a result of improved condition. It should be well but not overfed, and while young not overworked, as an overtired animal is liable to refuse to pull, and thus contract a bad habit. Most bad habits and stable tricks are the result of defective management and avoidable accidents.

Feeding.—Horses have small stomachs relatively to ruminating animals, and require small quantities of food frequently. While grazing they feed almost continually, preferring short pasture. No stable food for quick work surpasses a superior sample of fine-hulled whole oats like “Garton’s Abundance” (120 lb per week), and Timothy hay harvested in dry weather. The unbruised oats develop a spirit and courage in either a saddle or harness horse that no other food can. A double handful of clean chaff, or of bran mixed with the oats in the manger, prevents a greedy horse from swallowing a considerable proportion whole. Unchewed oats pass out in the faeces uninjured, so that they are capable of germination, and are of less than no value to a horse. Horses doing slow or other than “upper ten” work may have oats crushed, not ground, and a variety of additions made to the oats which are usually the basis of the feed —for example, a few old crushed beans, a little linseed meal, ground linseed cake or about a wine-glassful of unboiled linseed oil. Indian pulses are to be avoided on account of the danger of Lathyrus poisoning. A seasoning of ground fenugreek or spice is sometimes given to shy feeders to encourage them to eat. A little sugar or molascuit added to the food will sometimes serve the same purpose. Newly crushed barley or cracked maize, even in considerable proportion to the rest of the food, gives good results with draught, coach, ’bus and light harness horses generally. Boiled food of any kind is unnatural to a horse, and is risky to give, being liable to produce colic, especially if the animal bolts its food when hungry, although it generally produces a glossy coat. Too much linseed, often used in preparing horses for market, gives a similar appearance, but is liable to induce fatty degeneration of the liver; given in moderation it regulates the bowels and stimulates the more perfect digestion of other foods. In England red-clover hay, or, better still, crimson-clover or lucerne hay, is liberally fed to farm horses with about 10 lb per day of oats, while they usually run in open yards with shelter sheds. Bean straw is sometimes given as part of the roughage in Scotland, but not in England. In England hunters and carriage horses are generally fed on natural hay, in Scotland on Timothy, largely imported from Canada, or ryegrass hay that has not been grown with nitrate of soda. Heavily nitrated hay is reputed to produce excessive urination and irritation of the bladder. Pease straw, if not sandy, and good bright oat straw are good fodder for horses; but with barley and wheat straw, in the case of a horse, more energy is consumed during its passage

through the alimentary canal than the digested straw yields. Three or four Swedish turnips or an equivalent of carrots is an excellent cooling food for a horse at hard work. The greater number of horses in the country should have green forage given them during summer, when the work they do will permit of it, as it is their natural food, and they thrive better on it than on any dry food.

When a horse has been overstrained by work the best remedy is a long rest at pasture, and, if it be lame or weak in the limbs, the winter season is most conducive to recovery. The horse becomes low in condition and moves about quietly, and the frost tends to brace up the limbs. In autumn all horses that have been grazing should be dosed with some vermifuge to destroy the worms that are invariably present, and thus prevent colic or an unthrifty or anaemic state. On a long journey a horse should have occasional short drinks, and near the end a long drink with a slower rate of progression with the object of cooling off. In the stable a horse should always be provided with rock salt, and water to drink at will by means of some such stall fixture as the Mundt hygienic water-supply fittings. Overhead hay-racks are unnatural and are liable to drop seeds into a horse's eye.

LITERATURE.—For riding, &c. see RIDING, DRIVING, HORSEMANSHIP, and HORSE-RACING. For diseases of the horse see VETERINARY SCIENCE. The literature about the horse and its history and uses is voluminous, and is collected up to 1887 in Huth's *Works on Horses, &c.*, a bibliographical record of hippology. See also, besides the works already mentioned, various books by Capt. M. Horace Hayes, *Points of the Horse* (1893, 2nd ed., 1897); *Stable Management and Exercise* (1900); *Illustrated Horse-breaking* (1889, 2nd ed., 1896); and *The Horsewoman* (1893) (with Mrs Hayes); E. L. Anderson, *Modern Horsemanship* (1884); W. Day, *The Horse: How to Breed and Rear Him* (1888); W. Ridgeway, *Origin and Influence of the Thoroughbred Horse* (1905); Major-General Tweedie, *The Arab Horse* (1894); J. Wortley Axe, *The Horse; its Treatment in Health and Disease* (1906); R. Wallace, *Farm Live Stock of Great Britain* (1885, 4th ed., 1907); Sydney Galvayne, *The Twentieth Century Book of the Horse* (1905); C. Bruce Low, *Breeding Racehorses by the Figure System* (1895); J. H. Wallace, *The Horse of America in his Derivation, &c.* (1897); Weatherly's *Celebrated Racehorses* (1887); Ruff's *Guide to the Turf*; T. A. Cook, *History of the English Turf* (1903); *The General Stud-Book* (issued quinquennially); and the *Stud-Books* of the various breed societies.

(R. W.)

---

1 Compare Sans, *açva*, Zendish and Old Persian *açpa*, Lithuanian *aszva* (mare), Prussian *asvinan* (mare's milk), O.H. Ger. *ehu*, A.S. *eoh*, Icel. *iör*, Gothic *aihos*, *aihous* (?), Old Irish *ech*, Old Cambrian and Gaelic *ep* (as in *Epona*, the horse goddess), Lat. *equus*, Gr. ἵππος or ἴκκος. The word seems, however, to have disappeared from the Slavonic languages. The root is probably *ak*, with the idea of sharpness or swiftness (ἄκρος, ὠκύς, *acus*, *ocior*). See Pott, *Etym. Forsch*, ii. 256, and Hehn, *Kulturpflanzen u. Hausthiere in ihrem Ueber gang aus Asien nach Griechenland u. Italien sowie in das übrige Europa* (3rd ed., 1877), p. 38. The last-named author, who points out the absence of the horse from the Egyptian monuments prior to the beginning of the 18th century B.C., and the fact that the earliest references to this animal in Hebrew literature (Judges v. 22, 28; cf. Josh, xi. 4) do not carry us any farther back, is of opinion that the Semitic peoples as a whole were indebted for the horse to the lands of Iran. He also shows that literature affords no trace of the horse as indigenous to Arabia prior to about the beginning of the 5th century A.D., although references abound in the pre-Islamitic poetry. Horses were not numerous even in Mahomet's time (Sprenger, *Leb. Moh.* iii. 139, 140). Compare Ignazio Guidi's paper "Della sede primitiva dei popoli Semitici" in the *Transactions* of the Accademia dei Lincei (1878-1879), Professor W. Ridgeway, in his *Origin and Influence of the Thoroughbred Horse* (1905), reinvestigated the historical mystery as to the Arab breed, and its connexion with the English thoroughbred stock, but his conclusions have been hotly controverted; archaeology and biology are in fact still in the dark on the subject, but see the section on "Species" above. According to Ridgeway, the original source of the finest equine blood is Africa, still the home of the largest variety of wild Equidae; he concludes that thence it passed into Europe at an early time, to be blended with that of the indigenous Celtic species, and thence into western Asia into the veins of an indigenous Mongolian species, still represented by "Przewalski's horse"; not till a comparatively late period did it reach Arabia, though the "Arab" now represents the purest form of the Libyan blood. The controversy depends upon the consideration of a wealth of detail, which should be studied in Ridgeway's book; but zoological authorities are sceptical as to the suggested species, *Equus caballus libycus*.

2 Some fragments of legislation relating to the horse about this period may be gleaned from *Ancient Laws and Institutes of England* (fol., London, 1840), and *Ancient Laws and Institutes of Wales* (fol., London, 1841).

HORSE LATITUDES, the belts of calms and variable breezes at the polar edge of the N.E.

and S.E. trades. According to the *New English Dictionary* two explanations have been given of the origin of the name: one that the calm kills horses on a sailing ship, the other that the name signifies the unruly and boisterous nature of these winds compared with the pleasant trades. The name is commonly applied to the permanent belt of high atmospheric pressure which encircles the globe in 30° to 35° from the equator.

HORSE-MACKEREL, the name applied to a genus of fishes (*Caranx*) found in abundance in almost all temperate and especially in tropical seas. The designation “cavalli,” given to them by the early Portuguese navigators, and often met with in the accounts of the adventures of the buccaneers, is still in frequent use among the sailors of all nations. Some ninety different kinds are known—the majority being wholesome food, and some of the species attaining a length of 3 ft. and more. The fish to which the name horse-mackerel is applied in Great Britain is *Caranx trachurus*, distinguished by having the lateral line in its whole length armed with large but narrow bony plates. Horse-mackerel are found singly on the coast all the year round, but sometimes they congregate in shoals of many thousands. Although well-flavoured, they are much more frequently used for bait than for food. This species has a most extraordinary range, being found almost everywhere within the temperate and tropical zones of the northern and southern hemispheres.

HORSEMANSHIP, the art of managing the horse from his back and controlling his paces and the direction and speed of his movement. The ordinary procedure is dealt with in the articles on Riding and cognate subjects (see also Horse: section *Management*). A special kind of skill is, however, needed in breaking, training, bitting and schooling horses for a game like polo, or for the evolutions of what is known as the *haute école*. It is with the latter, or “school” riding, that we deal here. The middle ages had seen chivalry developed into a social distinction, and horsemanship into a form of knightly prowess. The Renaissance introduced the cultivation of horsemanship as an art, with regular conditions and rules, instead of merely its skilful practice for utility and exercise. In Italy in the 16th century schools of horsemanship were established at Naples, Rome and other chief cities; thither flocked the nobility of France, Spain and Germany; and Henry VIII. of England and other monarchs of his time had Italians for their masters of the horse. The academy of Pignatelli at Naples was the most famous of the schools in the middle of the 16th century, but a score of other less renowned masters devoted themselves to teaching the riders and training the horses. Trappings of all sorts multiplied; the prescribed tricks, feats and postures involved considerable dexterity; they were fatiguing to both man and beast, and were really useless except for show. This elaborate art, enthusiastically followed among the Romance nations, was the parent of later developments of the *haute école*, and of the circus-performances of modern days. In England, however, the continental style did not find favour for long. The duke of Newcastle’s *Méthode nouvelle de dresser les chevaux* (1648) was the leading text-book of the day, and in 1761 the earl of Pembroke published his *Manual of Cavalry Horsemanship*. In France a simplification was introduced in the early part of the 18th century by La Guérinière (*École de cavalerie*) and others. The French military school thus became the model for Europe, though the English style remained in opposition, forming a sort of compromise with the ordinary method of riding across country. In more modern times France again came to the front in regard to the *haute école*, through the innovations of the vicomte d’Aure (1798-1863) and François Baucher (1796-1873). Baucher was a circus-rider who became the greatest master of his art, and who had an elaborate theory of the principles involved in training a horse. His system was carried on, with modifications, by masters and theorists like Captain Raabe, M. Barroil and M. Fillis. In more recent times the style of the *haute école* has also been cultivated by various masters in the United States, such as H. L. de Bussigny at Boston.

See d’Aure, *Traité d’équitation* (1847); Hundersdorf, *Équitation allemande* (Bruxelles, 1843); Baucher, *Passe-temps équestres* (1840), *Méthode d’équitation* (1867); Raabe, *Méthode de haute école d’équitation* (1863); Barroil, *Art équestre*; Fillis, *Principes de dressage*; Hayes, *Riding on the flat, &c.* (1882).

HORSENS, a market town of Denmark, at the head of Horsens Fjord, on the east side of Jutland, 32 m. by rail S.W. of Aarhus, in the *amt* (county) of that name. Pop. (1901) 22,243. It is the junction of branch railways to Bryrup and to Törring inland, and to Juelsminde on the coast. The exports are chiefly bacon and butter; the imports, iron, yarn, coal and timber. The town is ancient; there is a disused convent church with tombs of the 17th century, and the Vor-Frelsers-Kirke has a carved pulpit of the same period. Horsens is the birthplace of the navigator Vitus Bering or Behring (1680), the Arctic explorer. To the north lies the picturesque lake district between Skanderborg and Silkeborg (see AARHUS).

HORSE-POWER. The device, frequently seen in farmyards, by which the power of a horse is utilized to drive threshing or other machinery, is sometimes described as a "horse-power," but this term usually denotes the unit in which the performance of steam and other engines is expressed, and which is defined as the rate at which work is done when 33,000 lb are raised one foot in one minute. This value was adopted by James Watt as the result of experiments with strong dray-horses, but, as he was aware, it is in excess of what can be done by an average horse over a full day's work. It is equal to 746 watts. On the metric system it is reckoned as 4500 kilogram-metres a minute, and the French *cheval-vapeur* is thus equal to 32,549 foot-pounds a minute, or 0.9863 of an English horse-power, or 736 watts. The "nominal horse-power" by which engines are sometimes rated is an arbitrary and obsolescent term of indefinite significance. An ordinary formula for obtaining it is $\frac{1}{15.6}D^2 \sqrt[3]{S}$ for high-pressure engines, and $\frac{1}{47}D^2 \sqrt[3]{S}$ for condensing engines, where D is the diameter of the piston in inches and S the length of the stroke in feet, though varying numbers are used for the divisor. The "indicated horse-power" of a reciprocating engine is given by ASPN/33,000, where A is the area of the piston in square inches, S the length of the stroke in feet, P the mean pressure on the piston in lb per sq. in., and N the number of effective strokes per minute, namely, one for each revolution of the crank shaft if the engine is single-acting, but twice as many if it is double-acting. The mean pressure P is ascertained from the diagram or "card" given by an indicator (see STEAM-ENGINE). In turbine engines this method is inapplicable. A statement of indicated horse-power supplies a measure of the force acting in the cylinder of an engine, but the power available for doing external work off the crank-shaft is less than this by the amount absorbed in driving the engine itself. The useful residue, known as the "actual," "effective" or "brake" horse-power, can be directly measured by a dynamometer (*q.v.*); it amounts to about 80% of the indicated horse-power for good condensing engines and about 85% for non-condensing engines, or perhaps a little more when the engines are of the largest sizes. When turbines, as often happens in land practice, are directly coupled to electrical generators, their horse-power can be deduced from the electrical output. When they are used for the propulsion of ships recourse is had to "torsion meters" which measure the amount of twist undergone by the propeller shafts while transmitting power. Two points are selected on the surface of the shaft at different positions along it, and the relative displacement which occurs between them round the shaft when power is being transmitted is determined either by electrical means, as in the Denny-Johnson torsion-meter, or optically, as in the Hopkinson-Thring and Bevis-Gibson instruments. The twist or surface-shear being proportional to the torque, the horse-power can be calculated if the modulus of rigidity of the steel employed is known or if the amount of twist corresponding to a given power has previously been ascertained by direct experiment on the shaft before it has been put in place.

HORSE-RACING. Probably the earliest instance of the use of horses in racing recorded in literature occurs in *Il.* xxiii. 212-650, where the various incidents of the chariot-race at the funeral games held in honour of Patroclus are detailed with much vividness. According to the ancient authorities the four-horse chariot-race was introduced into the Olympic games as early as the 23rd Olympiad; to this the race with mounted horses was added in the 33rd; while other variations (such as two-horse chariot-races, mule races, loose-horse races, special races for under-aged horses) were admitted at a still later period. Of the training and management of the Olympic race-horse we are left in ignorance; but it is known that the equestrian candidates were required to enter their names and send their horses to Elis at least thirty days before the celebration of the games commenced, and that the charioteers and riders, whether owners or

proxies, went through a prescribed course of exercise during the intervening month. At all the other national games of Greece (Pythian, Isthmian, Nemean), as well as at many of the local festivals (the Athenian Olympia and Panathenaea), similar contests had a prominent place. Some indication of the extent to which the passion for horse-racing was indulged in at Athens, for example, about the time of Aristophanes may be obtained from the scene with which *The Clouds* opens; while it is a significant fact that the Boeotians termed one of the months of their year, corresponding to the Athenian Hecatombaeon, Hippodromius ("Horse-race month"; see Plutarch, *Cam.* 15). For the chariot-races and horse-races of the Greeks and Romans, see Circus and Games.

Great Britain

There is no direct historical evidence to show that the ancient Britons addicted themselves to any form of this amusement; but there are indications that among some at least of the Germanic tribes, from a very early period, horse-racing was an accompaniment of their religious cultus. There can be no doubt that the Romans encouraged the pursuit in Britain, if they did not introduce it; traces of race-courses belonging to the period of their occupation have been frequently discovered. The influence of the Christian Church was everywhere at first strongly against the practice. The opinion of Augustine and other fathers of the church with regard to attendance at the spectacles, whether of theatre or of circus, is well known; those who performed in them were rigidly excluded from church fellowship, and sometimes even those who merely frequented them. Thus the first council of Arles, in its fourth canon, declared that those members of the church who drove chariots at the public games should, so long as they continued in that employment, be denied communion. (Compare the rule in the *Ap. Const.* viii. 32; ap. Bingham. *Ant. Chr. Church*, xvi. 4, 10.) In many cases, however, the weight of ecclesiastical authority proved insufficient to cope with the force of old custom, or with the fascination of a sport the unchristian character of which was not very easily demonstrable; and ultimately in Germany and elsewhere the old local races appear to have been admitted to a recognized place among the ceremonies peculiar to certain Christian festivals.

The first distinct indication which contemporary history affords of horse-racing as a sport occurs in the *Description of the City of London* of William Fitzstephen (*c.* 1174). He says that in a certain "plane field without one of the gates (quidam planus campus re et nomine —*Smithfield*, quasi Smoothfield) every Friday, unless it be one of the more solemn festivals, is a noted show of well-bred (*nobilium*) horses exposed for sale. The earls, barons and knights who are resident in the city, as well as a multitude of citizens, flock thither either to look on or buy." After describing the different varieties of horses brought into the market, especially the more valuable chargers (*dextrarios preciosos*), he says: "When a race is to be run by such horses as these, and perhaps by others which, in like manner, according to their breed are strong for carriage and vigorous for the course, the people raise a shout and order the common horses to be withdrawn to another part of the field. The jockeys, who are boys expert in the management of horses, which they regulate by means of curb bridles, sometimes by threes and sometimes by twos, as the match is made, prepare themselves for the contest. Their chief aim is to prevent a competitor from getting before them. The horses too, after their manner, are eager for the race: their limbs tremble, and impatient of delay they cannot stand still; upon the signal being given they stretch out their limbs, hurry on the course, and are borne along with unremitting speed. The riders, inspired with the love of praise and the hope of victory, clap spurs to their flying horses, lashing them with whips, and inciting them by their shouts" (see Stow's Translation).

In the reign of Richard I. knights rode at Whitsuntide on steeds and palfreys over a three-mile course for "forty pounds of ready gold," according to the old romance of Sir Bevys of Hampton. The feats of the tilt-yard, however, seem to have surpassed horse-racing in popular estimation at the period of the crusades. That the sport was to some extent indulged in by King John is quite possible, as running horses are frequently mentioned in the register of royal expenditure; and we know that Edward III. had a number of running horses, but it is probable they were chiefly used for field sports.

An evidence of the growing favour in which horse-racing was held as a popular amusement is furnished by the fact that public races were established at Chester in 1512. Randle Holme of that city tells us that towards the latter part of Henry VIII.'s reign, on Shrove Tuesday, the company of saddlers of Chester presented to "the drapers a wooden ball embellished with flowers, and placed upon the point of a lance. This ceremony was performed in the presence of the mayor at the cross of the Roody or Roodee, an open place near the city; but this year (1540) the ball was changed into a silver bell, valued at three shillings and sixpence or more, to be given to him who shall run best and furthest on horseback before them on the same day, Shrove Tuesday; these bells were denominated St George's bells." In the reign of Elizabeth

there is evidence from the poems of Bishop Hall (1597) that racing was in vogue, though apparently not patronized by the queen, or it would no doubt have formed part of the pastimes at Kenilworth; indeed, it seems then to have gone much out of fashion.

The accession of the Stuarts opened up an era of prosperity for the sport, for James I., who, according to Youatt, had encouraged if not established horse-racing in Scotland, greatly patronized it in England when he came to the throne. Not only did he run races at Croydon and Enfield, but he endeavoured to improve the breed of horses by the purchase for a high figure of the Arab stallion known as Markham's Arabian, which little horse, however, was beaten in every race he ran.

In 1607, according to Camden's *Britannia*, races were run near York, the prize being a little golden bell. Camden also mentions as the prize for running horses in Gatherley Forest a little golden ball, which was apparently anterior to the bell. In 1609 Mr Robert Ambrye, sometime sheriff of the city of Chester, caused three silver bells to be made of good value, which bells he appointed to be run for with horses on St George's day upon the Roodee, the first horse to have the best bell and the money put in by the horses that ran—in other words, a sweepstake—the bells to be returned that day twelvemonth as challenge cups are now; towards the expenses he had an allowance from the city. In 1613 subscription purses are first mentioned. Nicholls, in his *Progress of James I.*, makes mention of racing in the years 1617 and 1619. Challenge bells appear to have continued to be the prizes at Chester, according to Randle Holme the younger, and Ormerod's *History of Chester*, until 1623 or 1624, when Mr John Brereton, mayor of Chester, altered the course and caused the horses to run five times round the Roodee, the bell to be of good value, £8 or £10, and to be a free bell to be held for ever—in other words, a presentation and not a challenge prize.

During James's reign public race meetings were established at Gatherley or Garterley, near Richmond in Yorkshire, at Croydon in Surrey, and at Enfield Chase, the last two being patronized by the king, who not only had races at Epsom during his residence at Nonsuch, but also built a house at Newmarket for the purpose of enjoying hunting, and no doubt racing too, as we find a note of there having been horse-races at this place as early as 1605. Races are also recorded as having taken place at Linton near Cambridge, but they were probably merely casual meetings. The prizes were for the most part silver or gold bells, whence the phrase "bearing away the bell." The turf indeed appears to have attracted a great deal of notice, and the systematic preparation of running horses was studied, attention being paid to their feeding and training, to the instruction of jockeys—although private matches between gentlemen who rode their own horses were very common,—and to the adjustment of weights, which were usually about 10 stone. The sport also seems to have taken firm hold of the people, and to have become very popular.

The reign of Charles I., which commenced in 1625, saw still more marked strides made, for the king not only patronized the racing at Newmarket, which we know was current In 1640, but thoroughly established it there, and built a stand house in 1667, since which year the races have been annual. Mention is likewise made in the comedy of the *Merry Beggars*, played in 1641, of races, both horse and foot, in Hyde Park, which were patronized by Charles I., who gave a silver cup, value 100 guineas, to be run for instead of bells. Butcher, in his survey of the town of Stamford (1646), also says that a race was annually run in that town for a silver and gilt cup and cover, of the value of £7 or £8, provided by the care of the aldermen for the time being out of the interest of a stock formerly made by the nobility and gentry of the neighbourhood.

In 1648 Clarendon tells us that a meeting of Royalists was held at Banstead Downs, as Epsom Downs were then called, "under the pretence of a horse-race," so that horse-racing at Epsom was not unknown early in the 17th century; Pepys, too, in his *Diary* of 1663, mentions his having intended to go to Banstead Downs to see a famous horse-race. Cromwell is said to have kept running horses in the year 1653, but in 1654 he appears to have gone so far as to forbid racing for six and eight months respectively. After the Reformation in 1660, a new impetus was given to horse-racing, which had languished during the civil wars, and the races at Newmarket, which had been suspended, were restored and attended by the king; and as an additional spur to emulation, according to Youatt, royal plates were given at each of the principal courses, and royal mares, as they were called, were imported from abroad. Charles II. rebuilt the house originally erected at Newmarket by James I., which had fallen into decay. The Round course was made in 1666, and racing at the headquarters of the turf was regulated in the most systematic way, as to the course, weights and other conditions. Charles II. was the first monarch who entered and ran horses in his own name; and, besides being a frequent visitor at the races on Newmarket Heath, and on Burford Downs, near Stockbridge, where the Bibury Club meeting was held, he established races at Datchet. In the reign of James II. nothing specially noteworthy occurred, but William III. continued former crown donations and

even added to them.

Anne was much devoted to horse-racing, and not only gave royal plates to be competed for, but ran horses for them in her own name. In 1703 Doncaster races were established, when 4 guineas a year were voted by the corporation towards a plate, and in 1716 the Town Plate was established by the same authority to be run on Doncaster Moor. Nearly a century, however, elapsed before the St Leger was instituted. Matches at Newmarket had become common, for we find that Basto, one of the earliest race-horses of whom we have any authentic account, won several matches there in 1708 and 1709. In the latter year, according to Camden, York races were established, the course at first being on Clifton Ings, but it was subsequently removed to Knavesmire, on which the races are now run. In 1710 the first gold cup said to have been given by the queen, of 60 guineas value, was run for by six-year-old horses carrying 12 stone each, the best of three 4-mile heats, and was won by Bay Bolton. In 1711 it was increased to 100 guineas. In 1712 Queen Anne's gelding Pepper ran for the Royal Cup of £100 at York, and her Mustard, a nutmeg-grey horse, ran for the same prize in 1713. Again in 1714 her Majesty's bay horse Star won a sweepstake of 10 guineas added to a plate of £40 at the same place, in four heats, carrying 11 stone. In 1716 the Ladies' Plate at York for five-year-olds was won by Aleppo, son of the Darley Arabian. Racing and match-making continued to be a regular sport at Newmarket, and at York and Hambleton, and we also find a record of a race at Lincoln in August 1717 for a silver tea-board, won by Brocklesby Betty, as was the Queen's Plate at Black Hambleton in the year before.

Between 1714 and 1720 there were races at Pontefract in Yorkshire for plates or money. The best of two out of three heats was to be the winner, provided the said horse was not distanced in the third heat—the distance post being 1 furlong from the winning post; and this appears to have been a usual condition. In or about the year 1721 Flying Childers is said to have run a trial against Almanzor and Brown Betty over the Round course at Newmarket (3 m. 4 f. 93 y.) in 6 m. 40 s., and another trial over the Beacon course (4 m. 1 f. 138 y.) in 7 m. 30 s.—which is fast even for a six-year old; but it is just possible that in those days the art of time-taking was anything but perfect. In 1721 George I. gave 100 guineas in specie in lieu of the gold cup at York presented by Anne, and the king's or queen's plates have been given in cash ever since. In 1725 a ladies' plate was run for on the 14th of September by female riders on Ripon Heath in Yorkshire. In 1727 Mr John Cheney established the *Racing Calendar*—an historical list of all the horse matches run, and of all plates and prizes run for in England and Wales of the value of £10 or upwards in 1727, &c. No systematic records had till then been preserved of the running of the race-horses of the day, and it is only through the performances of certain celebrated horses and mares that we have any information of what actually took place, and even that is more or less of a fragmentary kind. At this time racing was thoroughly established as a national and popular sport, for there were upwards of a hundred meetings in England and Wales; but the plates or sweepstakes run for were for the most part of small value, as £10, £20, £30, £40, and sometimes £50. In 1727, according to Whyte, there were only a dozen royal plates run for in England: one at Newmarket in April for six-year-old horses at 12 stone each, in heats over the Round course—first called the King's Plate course; one for five-year-old mares at 10 stone each, in one heat, and another in October for six-year-old horses at 12 stone, in heats over the same course; one at York (which commenced in 1711) for six-year-old horses, 12 stone each, 4-m. heats; one at Black Hambleton, Yorkshire (of which no regular account was kept until 1715), for five-year-old mares, 10 stone, 4 m.; one at each of the following places, Nottingham, Lincoln, Guildford, Winchester, Salisbury and Lewes, for six-year-old horses, 12 stone each, 4-m. heats; and one at Ipswich for five-year-old horses, 10 stone each. A royal plate was also run for at Edinburgh in 1728 or 1729, and one at the Curragh of Kildare in 1741.

In 1739 an act was passed to prevent racing by ponies and weak horses, 13 Geo. II. cap. 10, which also prohibited prizes or plates of less value than £50. At this period the best horses seldom ran more than five or six times, and some not so often, there being scarcely any plates of note except royal ones, and very few sweepstakes or matches of value except at Newmarket until after 1750; moreover, as the races were run in heats, best three out of four, over a course of several miles in length, the task set the horses before winning a plate was very severe, and by no means commensurate with the value of the prize. In 1751 the great subscription races commenced at York, the city also giving £50 added money to each day's racing. At Newmarket there were only two meetings, one in April and the other in October, but in 1753 a second spring meeting was established, and in that year the Jockey Club, which was founded in 1750, established the present racing ground. In 1762 a second October meeting was added, in 1765 the July meeting, in 1770 the Houghton meeting, and in 1771 the Craven meeting. In 1766 Tattersall's was established at Hyde Park Corner by Richard Tattersall for the sale of horses; it remained the great emporium of horses, and the rendezvous for betting on horse races, until 1865, when, the lease of the premises at the Corner having run out, it was removed to Knightsbridge.

We now come to a very important period—that at which the great three-year-old races were instituted.

The St Leger.

The St Leger was established in 1776 by Colonel St Leger, who resided at Parkhill, near Doncaster. On the 24th of September, during the Doncaster races, which took place annually in the autumn, at his suggestion a sweepstake of 25 guineas each for three-year-old colts and fillies was run over a 2-m. course; there were six competitors, the property of as many subscribers,—a very small beginning, it must be owned. The race was won by a filly by Sampson, belonging to Lord Rockingham, which was afterwards named Allabaculia. In the following year the same stake had twelve subscribers and ten starters, and was won by Mr Sotheron's Bourbon. It was not, however, until the succeeding year, 1778, that it was named the St Leger, in compliment to the founder, at the suggestion of the marquis of Rockingham. The stakes were increased in 1832 to 50 sovs. each, and the weights have been raised from time to time to keep pace with modern requirements. The Doncaster Cup, a weight for age race for three-year-olds and upwards, was established in 1801. The course is nearly flat, of an oval or kite shape, about 1¾ m. round the town-moor.

The Derby and Oaks.

The Epsom Derby and Oaks were established in 1779 and 1780, the Oaks in the former and the Derby in the latter year. It is true that in 1730 Epsom races became annual, but the prizes were nothing more than the usual plates run for in heats, the money required being raised by voluntary subscriptions, as well by the owners of booths on the downs as by the parties more immediately interested, whence arose the custom of charges being made by the lord of the manor for permission to erect booths, &c. during the race-meetings. On the 14th of May 1779 the twelfth earl of Derby originated the Oaks stakes (named after his seat or hunting-box "The Oaks" at Woodmansterne), a sweepstake for three-year-old fillies run on a course 1½ m. long. The race was won by Lord Derby's bay filly Bridget, bred by himself—her sire being Herod and her dam Jemima. In the following year the earl established a sweepstake of 50 sovs. each, half forfeit, for three-year-old colts. This, the first Derby, was won by Sir C. Bunbury's chestnut colt Diomed by Florizel, son of Herod, who beat eight opponents, including the duke of Bolton's Bay Bolton and Lord Grosvenor's Diadem. These two races have since been run for regularly every year, the Derby, which before 1839 was run on the Thursday, now taking place on the Wednesday, and the Oaks on the Friday, in the same week at the end of May.

Ascot Races.

Ascot races, which are held on Ascot Heath, were established by the duke of Cumberland, uncle of George III., and are patronized by royalty in state or semi-state. They are mentioned in the first *Racing Calendar*, published in 1727, but the races were for the most part plates and other prizes of small importance, though a royal plate for hunters appears to have been given in 1785. The Gold Cup was first given in 1807, and has been regularly competed for ever since, though from 1845 to 1853 inclusive it went by the designation of the Emperor's Plate, the prize being offered by the emperor of Russia. In 1854, during the Crimean War, the cup was again called the Ascot Gold Cup, and was given from the race fund. The Queen's Vase was first given in 1838, and the Royal Hunt Cup in 1843, while in 1865 a new long-distance race for four-year-olds and upwards was established, and named the Alexandra Plate, after the Princess of Wales.

Goodwood.

Goodwood races were established by the duke of Richmond on the downs at the northern edge of Goodwood Park in 1802, upon the earl of Egremont discontinuing races in his park at Petworth. The races take place at the end of July, on the close of the London season. The Goodwood Cup, the chief prize of the meeting, was first given in 1812; but from 1815 to 1824 inclusive there was no race for it, with the single exception of 1816.

Two Thousand, &c.

During the latter half of the 18th century horse-racing declined very much in England, and numbers of meetings were discontinued, the wars which took place necessarily causing the change. From the beginning of the 19th century, and especially after the conclusion of the French war in 1815, racing rapidly revived, and many new meetings were either founded or renewed after a period of suspension, and new races were from time to time established. Among others the Two Thousand Guineas at Newmarket for three-year-old colts and fillies, and the One Thousand Guineas for fillies, were established in 1809 and 1814 respectively, the Goodwood Stakes in 1823, the Chester Cup and Brighton Stakes in 1824, the Liverpool Summer Cup in 1828, the Northumberland Plate in 1833, the Manchester Cup in 1834, the Ascot Stakes and the Cesarewitch and Cambridgeshire Handicaps at Newmarket in 1839, the Stewards' and Chesterfield Cups at Goodwood in 1840, the Great Ebor Handicap at York in 1843, and, to omit others, the City and Suburban Handicap at Epsom in 1851, and the Lincoln Handicap in 1853.

Two-year-old racing was established very shortly after the great three-year-old races, and on

a similar footing, that is to say, the competitors carried the same weights, with the exception of a slight allowance for sex,—the July Stakes at the Newmarket Midsummer Meeting having been founded as early as 1786. The Woodcote Stakes at Epsom succeeded in 1807, the Champagne Stakes at Doncaster in 1823, the Criterion Stakes at the Houghton Meeting in 1829, the Chesterfield Stakes at the Newmarket July meeting in 1834, the New Stakes at Ascot in 1843, the Middle Park Plate (or two-year-old Derby, as it is sometimes called) at the Newmarket Second October Meeting in 1866, the Dewhurst Plate at the Houghton Meeting in 1875, and the Richmond Stakes at Goodwood in 1877.

(E. D. B.)

Present Conditions.—Horse-racing, usually described as "the national sport," has greatly advanced in general popularity in the British Isles. There is no doubt that the best specimens of the English thoroughbred horse are the finest animals of their kind in existence; the value of an infusion of the blood for chargers, hunters, hacks, and other varieties is scarcely to be overestimated; and the only way of ascertaining what animals may be most judiciously employed for breeding purposes is to submit them to the tests of preparation for and performance on the turf. Racing is therefore a practical necessity. On some accepted authority, the origin of which is not to be traced, five races run each season by three-year-olds are distinguished as "classic." Of these the chief, by universal consent, is the Derby, which takes place at Epsom during the week which includes the 31st May. The Epsom course, on which the Derby has been run since its origin in 1780, is by no means a good one, in consequence of the abrupt turn at Tattenham Corner; and the severe descent after this turn is made is also held to be a disadvantage, though a really good horse should be able to act on ascents, descents and level ground with equal relative facility. In many respects the St Leger, run at Doncaster about the middle of September, is a better test, as here colts and fillies meet when both are presumably able to do themselves the fullest justice. September, indeed, has been called "the Mares' Month," for though fillies are eligible to run in the Derby, they are very frequently out of sorts and always more or less uncertain in their performances during the summer—only four have been successful in 129 contests for the stake—whereas in the autumn their numerous victories in the St Leger prove them to be at their best. It was the recognition of this fact which induced an alteration of the weights in the year 1882, previously to which fillies had carried 5 ℔ less than colts; the weights, formerly 8 st. 10 ℔ and 8 st. 5 ℔, are now 9 st. and 8 st. 11 ℔. The Doncaster course is superior for racing purposes to that at Epsom, where the Oaks, another of the "classic races," is run on the Friday following the Derby; the other two contests which come into this category being the Two Thousand Guineas for colts and fillies, and the One Thousand Guineas for fillies only. These races take place at Newmarket during the First Spring Meeting, the former always on a Wednesday, the latter on Friday. The expression "a Derby horse" is common, but has no precise significance, as the three-year-olds vary much in capacity from year to year. It is generally understood, for instance, that Ormonde, who won the Derby in 1886, must have been at least 21 ℔ superior to Sir Visto or Jeddah, who were successful in 1895 and 1898. By their ability to carry weight the value of horses is estimated on the turf. Thus one horse who beats another by a length over a distance of a mile would be described as a 5-℔ better animal.

Classic Races in England.

The term "handicap horse" once had an adverse significance which it does not now possess. In handicaps horses carry weight according to their presumed capacity, as calculated by handicappers who are licensed by the Jockey Club and employed by the directors of different meetings. The idea of a handicap is to afford chances of success to animals who would have no prospect of winning if they met their rivals on equal terms; but of late years the value of handicaps has been so greatly increased that few owners resist the temptation of taking part in them. Horses nowadays who do not run in this kind of contest are very rare, though a few, such as Ormonde, Isinglass, and Persimmon, never condescended to this class of sport. The duke of Westminster did not hesitate to put his Derby winner Bend Or into some of the chief handicaps; and it is, of course, a great test of merit when horses carrying heavy weights show marked superiority in these contests to rivals of good reputation more lightly burdened. St Gatien, who dead-heated with Harvester in the Derby of 1884; Robert the Devil, who won the St Leger in 1880 and on several occasions beat the Derby winner Bend Or; and La Flèche, who won the Oaks and the St Leger in 1892, added to the esteem in which they were held by their successes under heavy weights, the colts in the Cesarewitch, the filly in the Cambridgeshire. Of the chief handicaps of the year, special mention may be made of the City and Suburban, run at the Epsom Spring Meeting over 1¼ m.; the Kempton Park Jubilee, over 1 m.; the Ascot Stakes, 2 m., and the Royal Hunt Cup, 1 m.; the Stewards' Cup at Goodwood, six furlongs; the Cesarewitch Stakes and the Cambridgeshire Stakes at Newmarket, the former 2¼ m., the latter now a mile and a furlong—till lately it was "a mile and a distance"—"a distance" on the Turf being a fixed limit of 240 yds. The cups at Manchester, Newbury, and Liverpool are also handicaps of some note,

Handicap Horses.

though it may be remarked that the expression “a cup horse” is understood to imply an animal capable of distinguishing himself over a long distance at even weights against the best opponents. There are many other valuable stakes of almost equal importance, diminishing to what are known as “selling handicaps,” the winners of which are always put up for sale by auction immediately after the race, in the lowest class of them the condition being that the winner is to be offered for £50. No stake of less than £100 can be run for under Jockey Club rules, which govern all reputable flat racing in England, nor is any horse ever entered to be sold for less than £50. As horses mature they are naturally able to carry heavier weights.

Scale of Weight for Age.

The following scale of weight for age is published under the sanction of the Stewards of the Jockey Club as a guide to managers of race meetings, but is not intended to be imperative, especially as regards the weights of two-and three-year olds relatively to the old horses in selling races early in the year. It is founded on the scale published by Admiral Rous, and revised by him in 1873, but has been modified in accordance with suggestions from the principal trainers and practical authorities.

Age.	Mar. and April.		May.		June.		July.		Aug.		Sept.		Oct. and Nov.	
Five Furlongs—	st.	lb	st.	lb	st.	lb	st.	lb	st.	lb	st.	lb	st.	lb
Two years	6	0	6	2	6	7	6	9	7	0	7	4	7	7
Three years	8	2	8	3	8	5	8	7	8	9	8	10	8	11
Four years	9	0	9	0	9	0	9	0	9	0	9	0	9	0
Five, six and aged	9	1	9	0	9	0	9	0	9	0	9	0	9	0
Six Furlongs—														
Two years	6	0	6	4	6	7	6	11	7	0	7	5	7	7
Three years	8	4	8	6	8	8	8	10	8	12	9	0	9	2
Four years	9	7	9	7	9	7	9	7	9	7	9	7	9	7
Five, six and aged	9	9	9	8	9	7	9	7	9	7	9	7	9	7
One Mile—														
Two years	..		..		..		..		..		6	5	6	7
Three years	7	9	7	11	7	13	8	2	8	4	8	5	8	6
Four years	9	0	9	0	9	0	9	0	9	0	9	0	9	0
Five, six and aged	9	4	9	3	9	2	9	0	9	0	9	0	9	0
One Mile and a Half—														
Two years	..		..		..		..		..		6	0	6	4
Three years	7	7	7	9	7	11	7	13	8	1	8	3	8	5
Four years	9	0	9	0	9	0	9	0	9	0	9	0	9	0
Five, six and aged	9	5	9	4	9	3	9	2	9	1	9	0	9	0
Two Miles—														
Two years	..		..		..		..		..		6	0	6	2
Three years	7	8	7	11	7	12	8	0	8	3	8	4	8	5
Four years	9	4	9	4	9	4	9	4	9	4	9	4	9	4
Five, six and aged	9	10	9	9	9	8	9	7	9	6	9	5	9	4
Three Miles—														
Three years	7	1	7	4	7	5	7	7	7	9	7	11	7	13
Four years	9	0	9	0	9	0	9	0	9	0	9	0	9	0
Five years	9	8	9	7	9	6	9	5	9	5	9	4	9	3
Six and aged	9	10	9	8	9	7	9	6	9	5	9	4	9	3

£10,000 Races.

In the year 1884 the managers of Sandown Park formulated the scheme of a race for a prize of £10,000, to be called the Eclipse Stakes, and to be run over a distance of 1¼ m. In order to secure a large entry, horses were to be nominated soon after their birth; owners who perceived the hopelessness of their nominations could withdraw at stated intervals by the payment of increasing forfeits; if their animals finally went to the post a stake amounting in all to £115 would have to be paid for them; and thus it will be seen that owners were really running for their own money, though if there were an insufficient number of entries the funds of the club might be taxed to supply the deficiency. The scheme was found to be attractive, and the example was followed at Leicester and at Manchester, at both of which places, however, it lapsed. At Newmarket, under the immediate auspices of the Jockey Club, the £10,000 races succeeded, and there were two of them each year. The Princess of Wales’s Stakes was run for the first time in 1894 at the First July Meeting, and the Jockey Club Stakes at the First October. The former has, however, now been reduced to £2000 added to a sweepstake of £30 each with a minor forfeit. In the year 1900 a fourth race of similar character, the Century Stakes, was originated at Sandown, but the experiment proved a failure, and the contest was discontinued.

The age of the thoroughbred horse is always dated from the 1st January. Foals are generally born in February, March or April, though not a few good horses have been born in May; they become yearlings, therefore, on the 1st January following, two-year-olds twelve months later, and many of them begin to race in the following March, for flat racing always starts during the week which contains the 25th, except when Easter falls unusually early. In France no two-year-olds run until the 1st August, and discussion is frequently raised as to the respective wisdom of the English and French systems. It happens, however, that some young horses "come to hand" soon, and deteriorate with equal rapidity. They are, in fact, able to win races at the beginning of the season, and fail to hold their own later in the year against bigger and more powerful animals of their own age who have taken longer to mature; so that there is some argument in favour of the earlier date. The first noteworthy two-year-old race is the Brocklesby Stakes, run at Lincoln during the first week of the season. Sometimes the winner of the Brocklesby is really a good animal, as was the case with The Bard in 1885 and Donovan in 1888, but as a general rule when the autumn comes he is found to be far inferior to the winners of subsequent two-year-old races of good class. It is seldom that a first-class two-year-old appears before the Ascot Meeting about the middle of June, though horses of character sometimes run for the Woodcote Stakes at Epsom and in other contests elsewhere. The names of many of the most famous horses on the turf are found in the list of winners of the New Stakes at Ascot, which was first run in 1843 and maintains its character. In 1890 the Coventry Stakes was originated, and is regarded as a race of practically equal importance. The July Stakes at Newmarket is the oldest of existing two-year-old races, having been first run in 1786. The list of winners is a brilliant one. The Chesterfield Stakes ranks with it. The best two-year-olds are usually seen out at Goodwood, and as a general rule those that have chiefly distinguished themselves during the year, and are to make names for themselves later in life, are found contesting the Middle Park Plate at the Newmarket Second October Meeting and the Dewhurst Plate at the Newmarket Houghton. The Middle Park Plate is generally worth over £2000, the other races named are between £1000 and £2000 in value; but these are not the richest two-year-old prizes of the year, the value of the National Breeders' Produce Stakes at Sandown, run on the day following the Eclipse, being between £4000 and £5000, and the Imperial Stakes at Kempton Park falling not very far short of £3000. As a rule, a colt who has been specially successful as a two-year-old maintains his capacity later in life, unless it be found that he cannot "stay"—that is to say, is unable to maintain his best speed over more than five or six furlongs; but it is frequently the case that fillies who have won good races as two-year-olds entirely lose their form and meet with little or no success afterwards.

Two-year-old Races.

Newmarket is called with reason "the headquarters of the Turf." There are about forty training establishments in the town, each trainer being in charge of an average of thirty to forty horses, irrespective of mares, foals and yearlings. During the year eight race meetings are held on the Heath: the Craven; the First and Second Spring; the First and Second October—the First October usually occurring at the end of September; and the Houghton. These are contested on "the Flat," the course which includes the Rowley Mile. It is said that the Rowley Mile is so called from the fact of its having been a favourite race-ground with Charles II. The First and Second July Meetings take place on another course, known as "Behind the Ditch," the Ditch being the huge embankment which runs through several counties and has existed from time immemorial. The Craven Stakes for three-year-olds is an event of some importance at the first meeting of the year. It used to finish on an ascent at what is called the "Top of the Town," a course over which the handicap for the Cambridgeshire was run. This course has now been abandoned and the stand pulled down. At the First Spring Meeting the Two Thousand Guineas and the One Thousand Guineas occur, as already stated, but the names do not represent the values of the stakes, which are, in fact, usually worth close on £5000 each. The July Stakes and the Princess of Wales' Stakes are run at the First July Meeting. The Jockey Club Stakes is the leading event of the First October; the Cesarewitch and the Middle Park Plates follow in the Second October; the Criterion Stakes, another of the few races that once finished at the "Top of the Town," the Cambridgeshire and the Dewhurst Plate take place at the Houghton Meeting. The majority of races finish at the Rowley Mile post; but there are three other winning-posts along the Rowley Mile. "Behind the Ditch" races finish at two different posts, one of which enables horses to avoid the necessity of galloping up the severe ascent of the "Bunbury Mile." Although, as a rule, there is no better racing to be seen than the best events at Newmarket, the programmes are often spun out by selling plates and paltry handicaps, and a high level is nowhere so consistently maintained as at Ascot. The Ascot meeting is distinguished by the entire absence of selling plates, and much more "added money" is given than on any other course. Added money is the sum supplied by the directors of a race meeting, derived by them from the amounts paid for entrances to stands and enclosures; for in many races—the Ten Thousand prizes, for instance—owners run mainly or entirely for money which they have themselves provided. The Ascot Cup is generally

Newmarket.

Ascot and other meetings.

spoken of as a race success in which sets the seal to the fame of a good horse. It is a prize of the highest distinction, and of late years has been of considerable value, the winner in 1909 having gained for his owner £3430. That the number of runners for this race should be invariably small—the average for many years past has been about six—is not a matter of surprise to those who are familiar with the Turf. There are very few horses possessing sufficient speed and staying power to make it worth the while of their owners to submit them to the exceedingly severe test of a preparation for this race, which is run over 2½ m. of ground at a time of year when the turf is almost always extremely hard everywhere, and harder at Ascot than almost anywhere else. There is no course on which more good horses have hopelessly broken down. All the prizes are handsome, and success at Ascot confers much prestige, for the reason that the majority of horses that run are good ones; but annually there is a list of victims that never recover from the effects of galloping on this ground. Goodwood also attracts horses of high character, though some unimportant races fill out the programme. Formerly there were many meetings around London, which fell into disrepute in consequence of the manner in which they were conducted. These have been replaced by well-managed gatherings in enclosed parks, and here the value of the prizes is often so high that the best horses in training are attracted. These meetings include Sandown, Kempton, Gatwick, Lingfield, Newbury and Hurst Park. Liverpool, Manchester, Birmingham, Brighton, York and various other towns have race meetings twice or oftener in the course of each year. At the various fixtures over half a million of money is annually given in stakes. The largest sum ever won by a horse was the £57,185 gained by Isinglass in 1892-1895. Donovan follows with £54,935. In all probability these large totals would have been considerably exceeded had not Flying Fox—who had won in his first two seasons £40,090—been disqualified by the death of his owner, the duke of Westminster, as this colt was engaged in the four £10,000 races of 1900, in which to all appearance he could not have been beaten, so much was he superior to his contemporaries. The death of an owner of horses disqualifies the animals he has entered—a necessary regulation, as otherwise an heir might be burdened with a stable of horses the possession of which would entail heavy expense and serious responsibility on a person who perhaps had no knowledge of or taste for racing.

Value of horses.

The value of an unquestionably good horse is enormous. It has been seen what handsome prizes are offered for competition, and when withdrawn from the Turf the horse may secure a large income to his owner at the stud. A stallion’s fee of 600 guineas (as in the case of St Simon) should mean well over £20,000 a year; and fees of 100 guineas and more are common. Proved merit on the Turf is considered essential in a sire, though there have been instances of horses, unsuccessful during their racing career, who have distinguished themselves at the stud: Wisdom, sire of the Derby winner Sir Hugo, and several notable examples might be cited. Mares are much more uncertain in this respect. On the whole, the famous mares that have won the Oaks, the St Leger and other leading races, have been apt to fail in the paddocks; but there is always a hope of success with them, and the large sum of 12,600 guineas was paid for La Flèche when she had ceased from active service on the Turf. For None-the-Wiser 7200 guineas was given; and 4600 guineas for Wedlock when well advanced in years, on the strength of her having been the dam of a good horse called Best Man. Well-bred mares that have shown no capacity for racing are, however, frequently the dams of good winners. Breeding is a lottery. An Australian enthusiast some years since published a book the object of which was to enable breeders to produce good horses by a species of mathematical calculation; but the fallacy of the “Figure System” was at once proved by the simple circumstance that in very many cases the own brothers and sisters of good winners, whose breeding conformed entirely to the system, proved to be utterly worthless for racing purposes. It is a fact difficult of explanation that the majority of famous winners have been privately bred by their owners. Many persons breed for sale, in some cases sparing no expense or trouble in the endeavour to secure good results, and yearlings sold by auction have fetched prices of from 10,000 guineas (paid for Sceptre, a daughter of Persimmon and Ornament, in 1900) downwards; sums of over 1000 guineas being frequently given. That so large a proportion of high-priced yearlings should turn out failures is not at all a matter for surprise, considering the uncertainties of the Turf, but it by no means follows that a high-priced yearling is necessarily an expensive animal; 5500 guineas was, for instance, given for La Flèche, who won for her owner £34,585 in stakes, and, as already observed, was subsequently sold for 12,600 guineas. The principal yearling sales take place during the July meeting at Newmarket and the Doncaster meeting in September. There are also sales at Ascot and elsewhere. The Royal Stud at Bushey Park, where Memoir, La Flèche, Best Man and other good animals were bred, has now been abandoned.

Trainers and

In many cases trainers have graduated from jockeys. The usual charge to an owner is 50s. a week per horse, but, as regards the cost of a horse in training, to this there are various additions irrespective of entrances to races, forfeits, travelling, jockey’s fees, &c. The recognized sum paid to a jockey is 3 guineas for a losing mount, 5

jockeys.

guineas for winning. In many cases special terms are made; the principal owners usually have a claim on a rider's services, and for this call as much as £5000 per annum, exclusive of the usual riding fees, has been given.

From time immemorial until within a very recent period jockeys rode in much the same style, though, of course, with varying degrees of skill. Many hundreds of boys exercise daily at Newmarket and other training grounds, all of them necessarily having a firm seat in the saddle, for the thoroughbred horse is, as a rule, high-couraged and apt to play violent tricks; but though most of these lads find chances to distinguish themselves in trials and races for apprentices, probably not 5% grow into professional jockeys, increasing weight keeping many from the business, as a jockey has few chances unless he can ride well under 9 stone. Knowledge of pace is a rare gift or acquisition which is essential to successful jockeyship. The rider must also be quick to perceive how his own horse is going—what he has "left in him"; he must understand at a glance which of his rivals are beaten and which are still likely to be dangerous; must know when the moment comes for the supreme effort to be made, and how to balance and prepare the horse for that critical struggle. At the beginning of the race the jockey used to stand in his stirrups, with the idea of removing weight from the horse's back and preserving perfect steadiness; towards the end of the race, if it were necessary to drive the animal home, he sat down "to finish."

This method used to be adopted in all countries, but recently a new system came into practice in America. Instead of putting the saddle in the middle of the horse's back, where it had always been placed previously, it was shifted forward on to the animal's withers. The jockey rode with very short stirrups, leaning forward over the neck and grasping the reins within a few inches of the horse's mouth. The appearance of this was ungainly in the extreme and an entire departure from ancient ways (though Fordham and a few other riders of great reputation had always sat much more forward than their contemporaries), but it was found to be remarkably effective. From the position thus adopted there was less resistance to the wind, and though the saving in this respect was largely exaggerated, in racing, where success or failure is frequently a matter of a very few inches, every little that helps is to be considered. The value of the discovery lay almost entirely in the fact that the horse carries weight better—and is therefore able to stride out more freely—when it is placed well forward on his shoulders. With characteristic conservatism the English were slow to accept the new plan. Several American jockeys, however, came to England. In all the main attributes of horsemanship there was no reason to believe that they were in the least superior to English jockeys, but their constant successes required explanation, and the only way to account for them appeared to be that horses derived a marked advantage from the new system of saddling. A number of English riders followed the American lead, and those who did so met with an unusual degree of success. Race-riding, indeed, was in a very great measure revolutionized in the closing years of the 19th century.

Of late years American horses—bred, it must always be remembered, from stock imported from England—have won many races in England. Australian horses have also been sent to the mother country, with results remunerative to their owners, and the intermixture of blood which will necessarily result should have beneficial consequences. French horses—*i.e.* horses bred in France from immediate or from more or less remote English parentage—have also on various occasions distinguished themselves on English race-courses. That coveted trophy, the Ascot Cup, was won by a French horse, Elf II., in 1898, it having fallen also to the French-bred Verneuil in 1878, to Boiard in 1874, to Henry in 1872 and to Mortemer in 1871. In the Cesarewitch Plaisanterie (3 yrs., 7 st. 8 lb) and Ténébreuse (4 yrs., 8 st. 12 lb) were successful in 1885 and 1888; and Plaisanterie also carried off the Cambridgeshire as a three-year-old with the heavy weight of 8 st. 12 lb in a field of 27 runners. In most respects racing in France is conducted with praiseworthy discrimination. There are scarcely any of the five- and six-furlong scrambles for horses over two years old which are such common features of English programmes.

Foreign horses.

That the horses who have covered various distances in the shortest times on record must have been exceptionally speedy animals is obvious. The times of races, however, frequently form a most deceptive basis in any attempt to gauge the relative capacity of horses. A good animal will often win a race in bad time, for the reason that his opponents are unable to make him exert himself to the utmost. Not seldom a race is described as having been "won in a canter," and this necessarily signifies that if the winner had been harder pressed he would have completed the course more quickly. The following figures show the shortest times that had been occupied in winning over various distances up to the spring of 1910:—

Time.

	M.	S.
Mirida (2 years), Epsom, 1905		

Five furlongs	Le Buff (aged), Epsom, 1903 Master Willie (aged), Epsom, 1903	0	56⅖
Six furlongs	Master Willie (5 years), Epsom, 1901	1	7⅕
Seven furlongs	Vav (4 years), Epsom, 1907	1	20⅗
Mile	Caiman (4 years), Lingfield, 1900	1	33⅕
Mile and a quarter	Housewife (3 years), Brighton, 1904	2	1⅘
Mile and a half	Zinfandel (3 years), Manchester, 1903	2	28⅘
Mile and three quarters	Golden Measure (4 years), York, 1906	2	57⅘
Two miles	Pradella (aged), Ascot, 1906	3	19⅖
Two miles and a half	Bachelor's Button, Ascot, 1906	4	23⅕
Three miles	Corrie Roy, Ascot, 1884	5	9

It may be noted that, as compared with similar records in 1901, only three of these latter held good in 1910, *i.e.* the mile, the six furlongs and the three miles. The fastest times over a mile and a half (the Derby and Oaks distance) up to 1901 may be repeated here as of some interest: Avidity, 2 min. 30⅘ secs., in September 1901 at Doncaster; Santoi, 2 min. 31 secs., in May 1901 at Hurst Park; King's Courier, 2 min. 31 secs., in 1900 at Hurst Park; Landrail, 2 min. 34 secs., in September 1899 at Doncaster; Carbiston, 2 min. 37⅖ secs., in August 1899 at York; Bend Or, 2 min. 40 secs., in 1881 at Epsom (gold cup): Volodyovski won the Derby in 1901, and Memoir the Oaks in 1890, in 2 min. 40⅘ secs.

As regards time in famous races, Ormonde, perhaps the best horse of the 19th century—one, at any rate, that can scarcely have had a superior—occupied 2 minutes 45⅗ seconds in winning the Derby; and Lonely, one of the worst mares that have won the Oaks, galloped the same mile and a half in 2 seconds less. Ormonde's St Leger time was 3 m. 21⅖ s., and Sir Visto, one of the poorest specimens of a winner of the great Doncaster race, took 3 m. 18⅖ s. The regulation of the weight to be carried serves to "bring the horses together," as the popular sporting phrase runs—that is to say, it equalizes their chances of winning; hence handicaps, the carrying of penalties by winners of previous races, and the granting of "maiden allowances." A horse that has never won a race, and is therefore known as a "maiden," often has an allowance of as much as 7 lb made in its favour.

The Jockey Club.

Sport is carried on under the auspices of the Jockey Club, a self-elected body of the highest standing, whose powers are absolute and whose sway is judicious and beneficent. Three stewards, one of whom retires each year, when a successor is nominated, govern the active—and extremely arduous—work of the club. They grant licences to trainers and jockeys and all officials, and supervise the whole business of racing. The stewards of the Jockey Club are *ex officio* stewards of Ascot, Epsom, Goodwood and Doncaster. All other meetings are controlled by stewards, usually well-known patrons of the Turf invited to act by the projectors of the fixture, who settle disputed points, hear and adjudicate on objections, &c., and, if special difficulties arise, report to the stewards of the Jockey Club, whose decision is final.

Steeplechasing.

Steeplechasing has altered entirely since the first introduction of this essentially British sport. In early days men were accustomed to match their hunters against each other and ride across country to a fixed point near to some steeple which guided them on their way; and this is no doubt, in several respects, a class of sport superior to that now practised under the name of steeplechasing; for it tested the capacity of the horse to jump fences of all descriptions, and provided the rider with opportunities of showing his readiness and skill in picking the best line of country. But racing of this kind afforded spectators a very small chance of watching the struggle; and made-up steeplechase courses, the whole circuit of which could be viewed from the enclosures, came into existence. The steeplechase horse has also changed. The speed of the thoroughbred is so much greater than that of all other breeds that if one were in the field, if he only stood up and could jump a little, his success was certain; consequently, except in "point-to-point" races, organized by various hunts, where a qualification is that all starters must have been regularly ridden with hounds, few other than thoroughbred horses are nowadays ever found in races run under the rules of the National Hunt Committee, the body which governs the sport of steeplechasing. A considerable proportion of existing steeplechase horses have done duty on the flat. Members of certain equine families display a special aptitude for jumping; thus the descendants of Hermit, who won the Derby in 1867, are very frequently successful in steeplechases—Hermit's son Ascetic, the sire of Cloister, Hidden Mystery and other good winners, is a notable case in point. The sons and daughters of Timothy and of several other Hermit horses often jump well. When a flat-race horse appears to have comparatively poor prospects of winning under Jockey Club rules, he is frequently, if he "looks like jumping," schooled for steeplechasing, generally in the first place over hurdles, and subsequently over what is technically called "a country," beginning with small fences, over which he canters, led by some steady animal who is to be

depended on to show the way. A great many steeplechase horses also come from Ireland. They are usually recognizable as thoroughbred, though it is possible that in some cases the name of an ancestor may be missing from the Stud Book. Irish horse-masters are for the most part particularly skilful in schooling jumpers, and the grass and climate of Ireland appear to have beneficial effects on young stock; but, as a rule, the imported Irish horse improves considerably in an English training-stable, where he is better fed and groomed than in most Irish establishments. All steeplechase courses must at the present time contain certain regulation jumps, the nature of which is specified in the National Hunt rules:—

> 44. In all steeplechase courses there shall be at least twelve fences (exclusive of hurdles) in the first 2 m., and at least six fences in each succeeding m. There shall be a water jump at least 12 ft. wide and 2 ft. deep, to be left open, or guarded only by a perpendicular fence not exceeding 2 ft. in height. There shall be in each m. at least one ditch 6 ft. wide and 3 ft. deep on the taking-off side of the fence, which ditch may be guarded by a single rail, or left open, and which fence must be 4 ft. 6 in. in height, and, if of dead brushwood or gorse, 2 ft. in width.
>
> 45. In all hurdle-race courses there shall be not less than eight flights of hurdles in the first 2 m., with an additional flight of hurdles for every quarter of a m. or part of one beyond that distance, the height of the hurdles being not less than 3 ft. 6 in. from the bottom bar to the top bar.

Natural fences would no doubt be desirable if they could be utilized; but it is obvious that fences must be made up, because when the same hedge is jumped frequently, and for the most part in the same place—as it is the object of riders to go the shortest way round—gaps would necessarily be made. The use of these made courses naturally renders the sport somewhat artificial, but under existing conditions this is unavoidable; and as a matter of fact, by reason of the conformation of the ground, the arrangement and make of the fences, courses do vary in no small degree. The steeplechase horse differs from the hunter in his method of jumping. In riding to hounds a man usually steadies his horse at a fence, and in almost every case the animal “dwells” more or less after the leap. In a steeplechase, where speed is everything, horses must be taught to dash resolutely at their jumps without hesitation, and to get away with no pause on the other side; as a rule, therefore, an old steeplechase horse who is employed as a hunter is rarely a pleasant mount for any but a bold rider. It has been remarked that steeplechase horses are usually in the first place schooled over hurdles, and many animals remain hurdle racers till the end. More speed is required for hurdles than for a steeplechase course, and there is more money to be won over hurdles than over “a country.” No hurdle race is worth so much as the Grand National or the Lancashire Handicap Steeplechase, the two richest prizes now offered; but, with the exception of these, hurdle-race stakes are as a rule of greater value. Except as a spectacle, there is little to be said in defence of this mongrel business, which is neither one thing nor the other; but hurdle races are popular and are therefore likely to continue. A few years ago an attempt was made to discriminate between what were called “hunters” and handicap steeplechase horses, and certain races were only open to the former class. It proved, however, to be a distinction without a difference; thoroughbred horses crept into the ranks of the so-called hunters, and when nominal hunters began to be entered for, and in some cases to win, the Grand National and other important steeplechases, for which they could be nominated by abandoning their qualification of hunter, the meaningless title was relinquished. Still more absurd were the hunters’ flat races of a former day. In order to compete in these the rule was that an owner must produce a certificate from a master of hounds to the effect that his horse had been hunted. Thoroughbreds who lacked speed to win under Jockey Club rules used to be ridden to a meet, perhaps cantered across a field or two, and were then supposed to have become hunters. Animals who were genuinely and regularly utilized for the pursuit of foxes had of course no chance against these race-horses in shallow disguise. What are called National Hunt flat races still exist, the qualification being that a horse must have been placed first, second or third in a steeplechase in Great Britain or Ireland, after having jumped all the fences and completed the whole distance of the race to the satisfaction of at least two of the stewards, to whom previous notice must have been given in writing. There are no handicaps for such animals, and none is allowed to carry less than 11 stone. No race under National Hunt rules can be of a shorter distance than 2 m., except for three-year-olds, who sometimes run a mile and a half over hurdles; and the lowest weight carried can never be less than 10 stone except in a handicap steeplechase of 3½ m. or upwards, when it may be 9 st. 7 lb.

Horses are ridden in these races either by gentlemen, or qualified riders or jockeys. The first of these classes comprises officers on full pay in the army or navy, persons holding commissions under the Crown, bearing titles either in their own right or by courtesy, or members of certain social and racing clubs. Qualified riders may be farmers holding at least a hundred acres of land, their sons if following the same occupation, and persons elected by members of the National Hunt Committee, a proviso being that they must never have ridden

for hire; but it is feared that this rule is in not a few cases evaded. Professional jockeys are paid £5 for each mount or £10 if they win. The sport is governed by the National Hunt Committee, a body which receives delegated powers from the Jockey Club, and six stewards are elected every year to supervise the business of the various meetings. Steeplechases and hurdle races are either handicaps or weight-for-age races according to the following scale:—

For Steeplechases of 3 miles and upwards.

From the 1st of January to the 30th of June, both inclusive:—

4 yrs.	5 yrs.	6 and aged
10 st. 3 lb.	11 st. 8 lb.	12 st. 3 lb.

From the 1st of July to the 31st of December, both inclusive:—

4 yrs.	5 yrs.	6 and aged
11 st.	11 st. 12 lb.	12 st. 3 lb.

For Steeplechases of less than 3 miles.

From the 1st of January to the 30th of June, both inclusive:—

4 yrs.	5 yrs.	6 and aged
10 st. 10 lb.	11 st. 10 lb.	12 st. 3 lb.

From the 1st of July to the 31st of December, both inclusive:—

4 yrs.	5 yrs.	6 and aged
11 st. 6 lb.	12 st.	12 st. 3 lb.

For Hurdle Races.

From the 1st of January to the 31st of August, inclusive:—

4 yrs.	5 yrs.	6 and aged
11 st. 6 lb.	11 st. 10 lb.	12 st. 0 lb.

From the 1st of September to the 31st of December, inclusive:—

3 yrs.	4 yrs.	5, 6, and aged
10 st. 7 lb.	11 st. 12 lb.	12 st. 3 lb.

The Grand National.

The great test of merit in a steeplechase horse is success in the Grand National, which is always run at Liverpool during the first week of the flat-racing season. The course is 4½ m., and includes thirty jumps, the fences being for the most part larger than are found elsewhere. The average time occupied is well under ten minutes. The stake has varied in value since the race was originated in 1839; it now amounts to close on £2500. Only a very small percentage of steeplechase horses possess the speed and staying power to give them a chance in this race, and the number of entries year by year falls considerably short of a hundred, the prospects of many of these usually appearing hopeless to all but unduly sanguine owners. The average number of starters during the period 1860-1901 was rather over twenty. As many as thirty-two competed in 1909, when the French-bred Latteur III. won; in 1883, when Zoedone, ridden by her owner, Count Kinsky, was successful, only ten went to the post. Mishaps are almost invariably numerous; in most years about one-third complete the course. So severe is the task that for a long time many good judges of steeplechasing believed that no horse with more than 12 stone on his back could possibly win. In 1893, however, Cloister won in a canter by forty lengths carrying 12 st. 7 lb., and with the same weight Manifesto also won in 1899. The race which most nearly approaches the Grand National in importance is the Lancashire Handicap Steeplechase, run at Manchester over 3½ m. early in April. The stake is worth about £1750. An interesting steeplechase called the Grand Sefton takes place at Liverpool about the middle of November; the distance is 3 m. During the winter, and extending into the spring, steeplechasing and hurdle racing are carried on at Sandown, Kempton, Gatwick, Lingfield, Newbury and Hurst Park; at Ludlow, Newmarket, Aldershot, Birmingham, Manchester, Windsor and other places. A race called the National Hunt Steeplechase, under the immediate patronage of the National Hunt Committee, is run annually over a 4-mile course, the stake being £1000. Managers of various courses bid for the privilege of having the race on their ground, and it is therefore found in different localities. A condition is that no horse who has ever won a race can compete; and, as few owners are willing to keep their animals with a view to success in this event, the field consists either of unknown horses or of those that have been beaten.

Australia

Racing in Australia has its headquarters at Sydney, under the government of the Australian Jockey Club, the principal course being at Ranwick; and at Melbourne, where the Victoria Jockey Club is supreme, the principal course being at Flemington. In New Zealand sport is carried on under the authority of delegates from the chief racing clubs, who meet in conference. There is a Sydney Derby and a Victoria Derby, and a notable event at Flemington is the Champion Race, weight-for-age, for three-year-olds and upwards, which usually attracts the best horses in training, as the fee at which a sire stands depends in a great measure on his success in this contest. This race is over a distance of 3 m., and to ensure a good pace there is

a regulation that the time in which it is run must not exceed 5 minutes 40 seconds, though the stewards have power to extend this in case the ground should be made exceptionally heavy by rainy weather. The Melbourne Cup is regarded as one of the most important races in the state. This is a handicap, and in comparison with English races may perhaps be ranked with the Cesarewitch. The birth of horses dates from the 1st of August, which corresponds as nearly as possible to the 1st of February in England, so that the Australian horses are practically seven months younger than the English—a matter of some importance in the case of those sent to run in England. There are few races which close long before the date of decision, and practically all the good animals run in handicaps. The five- and six-furlong races for other than two-year-olds, so common in Great Britain, are extremely rare; and it is asserted by colonial sportsmen that their horses stay better than those bred in England, a circumstance which is largely attributed to the fact that mares and foals have much more liberty and exercise than is the case in the mother country.

United States

Horse-racing was indulged in to a limited extent in Maryland and Virginia as early as the middle of the 17th century, particularly in the latter colony. Most of the inhabitants of both were either from the British Isles or were descended from parents who had immigrated from them, and they inherited a taste for the sport. The animals used for this purpose, however, were not highly prized at the time, and the pedigree of not even one of them has been preserved. A horse called Bully Rock by the Darley Arabian out of a mare by the Byerly Turk, granddam by the Lister Turk, great-granddam a royal mare, foaled 1718, is the first recorded importation of a thoroughbred horse into America. He was imported into Virginia in 1730. In 1723 the duke of Bolton bred a mare named Bonny Lass by his celebrated horse Bay Bolton out of a daughter of the Darley Arabian. She became celebrated in England as a brood mare, and was the first thoroughbred mare, according to the records, that was carried to America. This is supposed to have been in or after 1740, as the *Stud-Book* shows she produced in England after 1739 a filly by Lord Lonsdale’s Arabian, and subsequently became familiar to the public as the granddam of Zamora. The importations increased very rapidly from this period, and many valuable shipments were made before the war which resulted in a separation of the colonies from the mother country. This acquisition of thoroughbred stock increased the number and value of racing prizes, and extended the area of operations into the Carolinas in the South, and New Jersey and New York in the North. The first race run in South Carolina was in February 1734 for £20. It took place over “the Green,” on Charleston Neck. This shows that the earlier races in America were actually on the turf, as they have always been in England. The next year a Jockey Club was organized at Charleston (1735), and a course was prepared, such as those which came later into general use throughout the states, the turf being removed and the ground made as level as possible.

After 1776, when the United States declared their independence of Great Britain, the importation of thoroughbred horses from England became quite common, and selections were made from the best stocks in the United Kingdom. This continued and even increased as the country became developed, down to 1840. The following Derby winners were among those carried into the states: Diomed, who won the first Derby in 1780; Saltram, winner in 1783; John Bull, winner in 1792; Spread Eagle, winner in 1795; Sir Harry, winner in 1798; Archduke, winner in 1799; and Priam, who won in 1830. The most important and valuable importations, however, proved to be Jolly Roger, Fearnought, Medley, Traveller, Diomed, Glencoe, Leviathan, Tranby, Lexington, Margrave, Yorkshire Buzzard, Albion and Leamington. The best results were obtained from Diomed and Glencoe. Diomed sired one horse, Sir Archy, who founded a family to which nearly all the blood horses of America trace back. He was foaled in 1805, in Virginia, and became celebrated as a sire. The superiority of his progeny was so generally conceded that they were greatly sought after. From this period, too, the number and value of races increased; still they were comparatively few in number, and could not compare in value with those of Great Britain. Up to 1860 the value of racing prizes was quite inadequate to develop large breeding establishments, or to sustain extensive training stables. Then the civil war between the North and the South broke out, which raged for four years. Breeding establishments were broken up during that time; the horses were taken by the armies for cavalry purposes, for which service they were highly prized; and racing was completely paralysed. It took some time to regain its strength; but an era of prosperity set in about 1870, and since then the progress in interest has been continuous.

In the United States interest in trotting races more than rivals that felt in the contests of thoroughbred horses. This interest dates back to the importation to Philadelphia from England, in 1788, of the thoroughbred horse Messenger, a grey stallion, by Mambrino, 1st dam by Turf, 2nd dam by Regulus, 3rd dam by Starling, 4th dam by Fox, 5th dam Gipsey, by Bay Bolton, 6th dam by duke of Newcastle’s Turk, 7th dam by Byerly Turk, 8th dam by Taffolet Barb, 9th dam

by Place's White Turk. He was eight years old when imported to the United States. He was at the stud for twenty years, in the vicinity of Philadelphia and New York, serving a number of thoroughbred mares, but a far greater number of cold-blooded mares, and in the progeny of the latter the trotting instinct was almost invariably developed, while his thoroughbred sons, who became scattered over the country, were also noted for transmitting the trotting instinct. The first public trotting race of which there is any account in the United States was in 1818, when the grey gelding Boston Blue was matched to trot a mile in 3 minutes, a feat deemed impossible; but he won, though the time of his performance has not been preserved. From about that date interest in this gait began to increase; breeders of trotters sprang up, and horses were trained for trotting contests. The problem of breeding trotters has been necessarily found to be a much more complex one than that of breeding the thoroughbred, as in the latter case pure blood lines of long recognized value could be relied upon, while in the former the best results were constantly being obtained from most unexpected sources. Among the leading families came to be the Hambletonian, of which the modern head was Rysdyk's Hambletonian, a bay horse foaled in 1849, got by Abdallah (traced to imp. Messenger on the side of both sire and dam) out of the Charles Kent mare, by imp. (*i.e.* imported) Bellfounder, with two crosses to imp. Messenger on her dam's side; the Mambrinos, whose modern head was Mambrino Chief, foaled 1844, by Mambrino Paymaster, a grandson of imp. Messenger; the Bashaws, founded by Young Bashaw, foaled 1822, by Grand Bashaw, an Arabian horse, dam Pearl, by First Consul; the Clays, springing from Henry Clay, a grandson of Young Bashaw through Andrew Jackson; the Stars, springing from Stockholm's American Star, by Duroc, son of imp. Diomed; the Morgans, whose founder was Justin Morgan, foaled 1793, by a horse called True Briton, or Beautiful Bay, who was probably thoroughbred; the Black Hawks, a branch of the Morgan family; the Blue Bulls, descended from Doyle's Blue Bull, foaled 1855, a pacer, sired by a pacer of the same name, dam by Blacknose, son of Medoc; the Canadians, whose best representatives were St Lawrence and pacing Pilot, horses of unknown pedigree; the Gold Dusts, another branch of the Morgan family; and the Royal Georges, springing from Tippoo, a horse who was probably by Ogden's Messenger, son of imp. Messenger. But trotters of great speed have been produced which do not trace to any of the sources mentioned. Very large prices are paid. Steinway, a three-year-old colt, was sold in 1879, to go to California, for $13,000; and in 1878 $21,000 was paid for the four-year-old filly Maud S., after she had trotted a mile in public in 2 m. 17½ s. Much larger sums have been paid, however, for matured trotters, such as $40,000 for the stallion Smuggler, $38,000 for Pocahontas, $35,000 for Dexter, $36,000 for Rarus, and long prices for many others; St Julien, the trotter with the fastest record at the close of 1879, was held at $50,000, while Rysdyk's Hambletonian, Messenger Duroc and Volunteer were valued, in their prime, at $100,000 each.

Compared with the early days of American trotting, the advance has been rapid and the changes marked. After the performance of Boston Blue, mentioned above, more attention was paid to the gait, but for a long time the races were generally under saddle, and at long distances, 3 m. being rather the favourite. The best of the old time trotters were Edwin Forrest, who trotted a mile in 2 m. 31½ s. in 1834; Dutchman, who did 3 m. under saddle in 7 m. 32½ s.; Ripton; Lady Suffolk, who trotted a mile in 2 m. 26½ s. in 1843, and headed the list of performers; Mac, Tacony, &c. After 1850, however, the taste of the people settled upon the style of race called "mile heats, best three out of five, in harness" as the favourite. By "in harness" is meant that the horse draws a sulky, a light two-wheeled vehicle in which the driver sits close to the horse, with his legs on each side of his flanks. These sulkies often weigh less than 40 ℔. The driver is required to weigh, with the blanket on which he sits, 150 ℔, while for saddle races the regulation weight is 145 ℔, or 10 st. 5 ℔. Each heat of a mile is a separate race; 20 minutes is allowed between heats; and the horse that first places three heats to his credit wins the race. There are various penalties imposed upon a horse that breaks into a run in a trotting race. The driver is required to pull him to a trot as quickly as possible; if the horse gains by running, the judges set him back at the finish twice the distance he has gained, in their estimation, by running; and for repeated "breaks" they can declare him distanced. The first-class tracks are of oval shape, with long stretches and easy curves, measuring 1 m. at 3 ft. distance from the "pole," as the inner railing of the track is called. The time in which the leading horse trots each heat is accurately kept, placed on a blackboard in front of the judges' stand for the information of the public, and also placed in the book of the course. The fastest time that any trotter has is thus entered as his "record." This is one of the distinctive features of trotting in America.

Prior to 1866 purses for trotters were small; match races were more in vogue, and the trotting turf was in bad odour. In that year an association was formed at Buffalo, N.Y., which inaugurated its efforts by offering the then unprecedented sum of $10,500 for a trotting meeting of four days' duration. The experiment was successful; other cities followed the example of Buffalo; larger and larger purses were given; and at Buffalo in 1872 the prizes amounted to $70,000. Since then the amount offered in the United States and Canada, during a

single year, has reached $1,500,000. Individual trotters, in the course of a long turf career, earn enormous amounts. A remarkable instance of this was the mare Goldsmith Maid, by Alexander's Abdallah (a son of Rysdyk's Hambletonian), out of an Abdallah mare. She began trotting in 1866, and left the turf in 1878, when twenty-one years old, and her winnings amounted to over $200,000.

In 1869 the National Trotting Association was formed, under which an elaborate code of rules has been published.

In trotting races, it will be noted, the time test is supreme, differing from running races, in which time is of comparatively little consequence. The animal which has the fastest record for 1 mile in harness is, until deposed, the king or queen of the trotting turf. Lady Suffolk, with her record of 2 m. 26½ s., in 1843, held this honour until 1853, when Tacony trotted in 2 m. 25½ s. under saddle; Flora Temple wrested it from him in 1856 by trotting in 2 m. 24½ s. in harness. This latter mare, in 1859, trotted a mile in 2 m. 19¾ s., a feat which the best horsemen thought would never be repeated, but since that time forty-two trotters have beaten 2 m. 20 s. Dexter's record was 2 m. 17¼ s. in 1867, and Goldsmith Maid's in 1871 was 2 m. 17 s., which she reduced, by successive efforts, to 2 m. 16¾ s., 2 m. 16 s., 2 m. 15 s., 2 m. 14¾ s., and finally, in 1874, to 2 m. 14 s. In 1878 Rarus trotted a mile in 2 m. 13¼ s., and in October 1879 the bay gelding St Julien, by Volunteer, son of Rysdyk's Hambletonian, dam by Henry Clay, trotted a mile in California in 2 m. 12¾ s. Other notable performances reducing the record were Maud S. in 1881, 2 m. 10¼ s.; Maud S. in 1885, 2 m. 8¾ s.; Sunol in 1891, 2 m. 8¼ s.; Nancy Hanks in 1892, 2 m. 4 s.; Alix in 1894, 2 m. 3¾ s.; Cresceus in 1901, 2 m. 2¼ s.; Lou Dillon in 1905, 1 m. 58½ s. Improved times have doubtless been the result of improved methods, as well as of care in the breeding of the trotter. Some very severe training rules used to be sedulously observed; about 1870, for instance, a horse never had water the night before a race, and the system generally appears to have overtaxed the animal's strength. A prominent consideration in trotting races is the adjustment of toe-weights, which are fastened on to the horses' feet to equalize their action, and it is found that horses improve their time to the extent of several seconds when properly shod.

Pacing races are also frequent in the United States. In trotting the action may be described as diagonal; the pacer moves both legs on the same side at the same time, and both feet stride as one. A similar "gait," to employ the American term, was called in England some centuries ago an "amble." The pacer moves more easily and with apparently less exertion than the trotter, and the mile record (made by Prince Alert in 1903) stands at 1 m. 57 s.

Owing to the vast size of the country there are various centres of sport, which can be classified with reasonable accuracy as follows: the Eastern States, dominated by the Jockey Club, founded in New York in 1894, and recognized by a state law in 1895; the Middle Western States, under the control of the Western Jockey Club, whose headquarters are in Chicago; the Pacific Coast, with San Francisco for its centre; and the Southern and South-Western States, with Louisville as the most important centre. The passage of the racing law in New York State marked the opening of a new era. Supreme even over the Jockey Club is a State Racing Commission of three, appointed by the governor of the state. While the Jockey Club is only recognized by law in its native state, it has assumed and maintains control of all racing on the eastern seaboard, within certain lines of latitude and longitude, extending as far north as the Canadian border and south to Georgia. There is small question that other states, both east and west, will follow suit and enact similar laws. The Western Jockey Club, though not recognized by law, controls practically all the racing through the middle west, south-west and south; but the racing associations of the Pacific Coast have maintained a position of independence.

What New York is to the east, Chicago is to the middle west, and a very large proportion of American racing is conducted close to these centres. In New York State the Coney Island Jockey Club, at Sheepshead Bay; the Brooklyn Jockey Club, at Gravesend; the Westchester Racing Association, at Morris Park; the Brighton Beach Racing Association, at Brighton Beach; the Queen's County Jockey Club, at Aqueduct; and the Saratoga Racing Association, at Saratoga, are the leading organizations; and all these race-courses, with the exception of Saratoga, are within a radius of 20 miles of the city. The Empire City Jockey Club, near Yonkers, and another club with headquarters near Jamaica, Long Island, have also become prominent institutions. The Washington Park Club, at Chicago, is the leading Turf body of the west, and the only one on an equal footing with the prominent associations of New York State. With this single exception the most important and valuable stakes of the American Turf are given in the east; and so great has the prosperity of the Turf been since the Jockey Club came into existence that the list of rich prizes is growing at a surprising rate. In this respect the principal fault is the undue encouragement given to the racing of two-year-olds. At the winter meetings held at New Orleans and San Francisco, two-year-olds are raced from the very beginning of the year; and under the rules of the Jockey Club of New York they run as early as

March. The Westchester Racing Association, with which are closely identified some of the principal members of the Jockey Club, gives valuable two-year-old stakes in May. The Futurity Stakes, the richest event of the year—on one occasion it reached a value of $67,675—is for two-year-olds, and is run at Sheepshead Bay in the autumn. The institution of races, either absolutely or practically at weight-for-age, and over long courses, has engaged much attention. The Coney Island Jockey Club has the leading three-year-old stake in the Lawrence Realization, over 1 mile 5 furlongs, with an average value of about $30,000. The Westchester Racing Association's two principal three-year-old stakes, the Withers, over a mile, run in May, and the Belmont, 1 mile and 3 furlongs, run later in the same month, are of less value, but are much older-established and have a species of "classic" prestige, dating from the old Jerome Park race-course in the 'sixties. The Coney Island Jockey Club's Century and the Annual Champion Stakes, both for three-year-olds and upwards, over a mile and a half and two miles and a quarter respectively, are fair specimens of the races the associations have founded. At Saratoga a stake of $50,000 for three-year-olds and upwards, distance a mile and a quarter, was opened, and run for first in 1904. The hope is to wean owners from the practice of overtaxing their two-year-olds, which has resulted practically in a positive dearth, almost a total absence, of good four-year-olds and upwards of late years. Handicaps play a more important part than in England. The principal events of this character, such as the Brooklyn Handicap at Gravesend and the Suburban at Sheepshead Bay, have for years drawn the largest attendances of the racing season.

Practically all flat racing in the United States is held on "dirt-tracks," *i.e.* courses with soil specially prepared for racing, instead of turf courses. At Sheepshead Bay there is a turf course, but it is only used for a minority of races. Dirt-tracks, which are, like many other things in American racing, a legacy from the once hugely popular harness-racing, are conducive to great speed, but are costly in the extreme strain on horses' legs. Steeplechases are run on turf. This branch of the sport in the east is now flourishing under the administration of the National Steeplechase and Hunt Association, a sister body of the Jockey Club. Comparatively few races are, however, run under these rules, as the weather conditions render it impossible to have a separate season for cross-country sport and steeplechases, and hurdle races are incorporated in programmes of flat racing held through the spring, summer and autumn, though the ground is frequently so hard as to be unsafe. Since the National Steeplechase and Hunt Association assumed control, regulation courses, practically similar in every respect to those used in England, have been insisted upon in the east, the "open ditch" figuring under the name of the "Liverpool." In the west and south there is not the same uniformity, and so far the sport has not flourished.

France

Racing in France as conducted on modern lines may be said to date from the year 1833, when the French *Stud-Book* was originated, and a body formed, somewhat after the model of the English Jockey Club, under the title of the Société d'Encouragement pour l'Amélioration des Races de Chevaux en France. Races took place in the Champs de Mars, and an unsuccessful attempt was made in 1834 to arrange for a course, or "hippodrome," as it is termed in France, at Maisons Laffitte. Chantilly was, however, fixed upon as the principal racing centre; on the 22nd April 1836 the first meeting was held there, with five races on the card, the principal being the Prix d'Orléans, a stake of 3500 francs, named after the due d'Orléans, one of the chief promoters of the fixture. Next day the first race for the Prix du Jockey Club was run, and won by Frank, the property of Lord Henry Seymour, who was at the time taking a very active part in French sport. The Prix du Jockey Club was then worth 5000 francs; the value has since increased to 200,000 francs. This race occupies in France the place of the English Derby. The Prix de Diane, which corresponds to the English Oaks, was first run in 1843. Chantilly still continues an important centre of the French Turf, and a great many horses are trained in the district. Attempts had been made to popularize racing at Longchamps prior to the year 1856, when the Société d'Encouragement obtained a lease, erected stands, laid out the course, and held their first meeting on the 27th August 1857. Next season two meetings were held, one of four days in the spring and another of three in the autumn; at the present time the sport is vigorously carried on from March to the end of October, except during a summer recess. In 1857 meetings under the auspices of the Société d'Encouragement began to take place at Amiens, Caen, Nantes, Versailles, Moulins and other towns; and there were stakes for two-year-olds in the spring, though of late years the appearance of the young horses has been postponed to the 1st of August. Progress was rapid, and in 1863 two important events were contested for the first time, the Prix du Prince Impérial, which was designed to balance the English St Leger, but for obvious reasons faded out of the programme, and the Grand Prix de Paris, an international race for three-year-olds, run at Longchamps over a distance of 1 mile 7 furlongs, and now the most valuable stake in Europe. In 1909 the prize was

£14,071. The first Grand Prix fell to an English horse, Mr Savile's The Ranger; two years later it was won by Gladiateur, winner of the English Derby and the property of the comte de Lagrange, who raced equally in France and in England; the duke of Beaufort's Ceylon was successful in 1866, and the marquis of Hastings' Earl in 1868. Mr Savile's Cremorne followed up his Derby victory by a victory at Longchamps in 1872, as did Mr Baltazzi's Kisber four years later. English horses were also victorious in 1874 (Mr W. R. Marshall's Trent), in 1878 (Prince Soltykoff's Thurio), in 1880 (Mr C. Brewer's Robert the Devil), in 1881 (Mr Keene's Foxhall, who, however, should rather rank as an American horse), in 1882 (Mr Rymill's Bruce), in 1885 (Mr Cloete's Paradox), in 1886 (Mr Vyner's Minting); and in 1906 Major Eustace Loder's Derby winner Spearmint. During the first 23 years of the Grand Prix (owing to the war the race did not take place in 1871) the stake fell to English horses—if Kisber and Foxhall be included—on twelve occasions, and generally to English jockeys. In recent years, however, French owners have held their own. In not a few respects racing is managed more judiciously than in England. The courses, for one thing, are better tended and maintained. The five- and six-furlong races for others than two-year-olds, which are so common at English meetings, are comparatively rare in France, and the value of the prizes in an average day's racing is considerably higher across the Channel than in England. A very large percentage of trainers and jockeys are English, and the former are, as a rule, quite as expert as at Newmarket and elsewhere. Transatlantic methods have been introduced by American jockeys since 1899. From the middle of February until the middle of December a race meeting within easy reach of Paris takes place almost every day, except during August, when the sport is carried on in the provinces, notably at Deauville. Near Paris, the chief centre after Longchamps is Maisons Laffitte. At Longchamps, early in October, a race called the Prix du Conseil Municipal, worth £4000, for three-year-olds and upwards, over a mile and a half, was organized in 1893, and has usually attracted English horses, Mr Wallace Johnstone's Best Man having been successful in 1894, and Mr Sullivan's Winkfield's Pride the following year. Except when the Whip is challenged for and the challenge decided over the Beacon Course at Newmarket, no race is run in England over a longer distance than two miles and 6 furlongs; but in France the Prix Gladiateur, of £1200 and a work of art value £100, 3 miles 7 furlongs, creates considerable interest at Longchamps in the autumn.

Steeplechasing.

The first recognized steeplechase in France took place at Croix de Berny, and was won by the comte de Vaublanc's May-fly, all the horses at that time being ridden by gentlemen. Sport does not seem to have been carried on with much spirit, for it is said that the death of an animal called Barcha, in 1839, nearly led to the abandonment of the meeting; and it was not till 1863, when the Société des Steeplechases de France was founded, that the business was resolutely taken in hand. Gravelle and Vincennes were the principal centres until 1873, when the Société obtained possession of the ground at Auteuil, where the excellent course now in use was laid out. In 1874 twelve days' racing took place here, the card each day including three steeplechases and a hurdle race, the "hurdles," however, being small fences, as they are at present. The Grand Steeplechase d'Auteuil was then for a stake of 30,000 francs, at the time the most valuable offered in any country; but, as in racing on the flat, the stakes have enormously increased in value, and in 1901 the Paris Grand Steeplechase, as the chief event is now called, credited the winner with £6020, the hurdle race being worth rather more than half as much. In England there is scarcely any steeplechasing between March and November, except at hunt meetings, but in Paris cross-country sport is pursued almost all through the year, the chief races at Auteuil taking place in June, about the time of the Grand Prix, which is usually run for between the English Epsom and Ascot meetings. The Auteuil course is laid out in the shape of the figure 8, with varied fences, several of which really test a horse's jumping capacity; and variety is further obtained by starting the fields in different places and traversing the course in different ways. St Ouen, a meeting within half an hour's drive of the Louvre, is entirely devoted to steeplechasing; and jumping is also carried on at Vincennes, Colombes, Enghien, and elsewhere near Paris, as also at Nice in the winter, at Dieppe and other places in August. As a rule, the stakes run for, especially at Auteuil, are very much larger than in England. There are none of the clubs and special enclosures such as at Sandown, Kempton, Hurst, Lingfield, Gatwick, &c., though portions of the stand are set apart for privileged persons. A fee of 20 francs is charged for admission to the chief French race-courses, with half as much for a lady's voucher, and the tickets give access everywhere but to the very few reserved portions. At Vincennes, St Cloud, and some other courses trotting races are also contested.

Other Countries.—Racing in Germany is mainly conducted under the authority of the Union Club of Berlin, the principal course being the Hoppegarten. Two-year-olds do not run until the 1st of June, except in Saxony, where they appear a month earlier. During the month of August there are several days' racing at Baden-Baden, steeplechases as well as flat races being run. Some of the more valuable stakes are usually contested by a proportion of horses from France and other countries, a few being occasionally sent from England. For years past blood-stock

has been imported from England. In Austria the two centres of racing are Vienna and Budapest, each of which has its Jockey Club. Racing in Belgium derives no little support from the contiguity of the country to France. The headquarters of the Belgium Jockey Club are in the Bois de la Cambre at Boisfort, and meetings are held at Ostend, Antwerp, Spa, Bruges and elsewhere. Steeplechases take place at Groenenval and on other Belgian courses, but are not of high class. Racing has not reached a great degree of excellence in Italy, though attempts have been made to improve competitors by the purchase of Melton, who won the Derby of 1885, and of other notable animals. Meetings take place at Florence, Padua, Bologna and other places, but the stakes are usually small.

(A. E. T. W.)

HORSERADISH (Ger. *Meerrettig*; Fr. *raifort = racine forte*, *cran de Bretagne*; Swed. *Peppar-rot*; Russ. *chren*), known botanically as *Cochlearia Armoracia*, a perennial plant of the natural order Cruciferae, having a stout cylindrical rootstock from the crown of which spring large radical leaves on long stalks, 4 to 6 in. broad, and about a foot in length with a deeply crenate margin, and coarsely veined; the stem-leaves are short-stalked or sessile, elongated and tapering to their attachment, the lower ones often deeply toothed. The flowers, which appear in May and June, are ⅜ in. in width, in flat-topped panicles, with purplish sepals and white petals; the fruit is a small silicula, which does not ripen in the climate of England. The horseradish is indigenous to eastern Europe. Into western Europe and Great Britain, where it is to be met with on waste ground, it was probably introduced. It was wild in various parts of England in Gerard's time.

The root, the *armoraciae radix* of pharmacy, is ½ to 2 in. or more in diameter, and commonly 1 ft., sometimes 3 ft. in length; the upper part is enlarged into a crown, which is annulated with the scars of fallen leaves; and from the numerous irregular lateral branches are produced vertical stolons, and also adventitious buds, which latter render the plant very difficult of extirpation. From the root of Aconite (*q.v.*), which has occasionally been mistaken for it, horseradish root differs in being more or less cylindrical from a little below the crown, and in its pale yellowish (or brownish) white hue externally, acrid and penetrating odour when scraped or bruised, and pungent and either sweetish or bitter taste. Under the influence of a 738
ferment which it contains, the fresh root yields on distillation with water about .05% of a volatile oil, butyl sulphocyanide, C_4H_9CNS. After drying, the root has been found to afford 11.15% of ash. Horseradish root is an ingredient in the *spiritus armoraciae compositus* (dose 1-2 drachms) of the British Pharmacopoeia. It is an agreeable flavouring agent. In common with other species of *Cochlearia*, the horseradish was formerly in high repute as an antiscorbutic. The root was, as well as the leaves, taken with food by the Germans in the middle ages, whence the old French name for it, *moutarde des Allemands*; and Coles, writing in 1657, mentions its use with meat in England, where it is still chiefly employed as a condiment with beef.

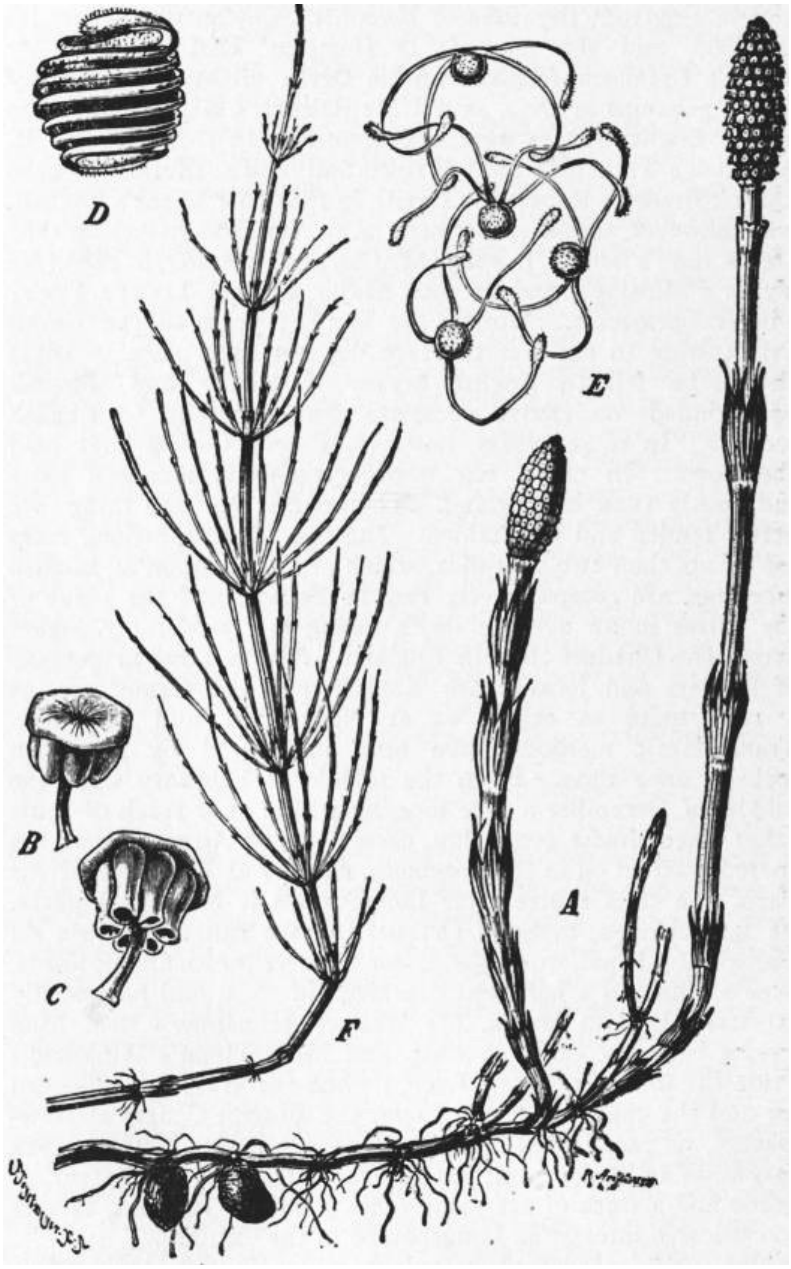
For the successful cultivation of the horseradish, a light and friable damp soil is the most suitable; this having been trenched 3 ft. deep in autumn, and the surface turned down with a liberal supply of farm-yard manure, a second dressing of decomposed manure should in the ensuing spring be dug in 2 ft. deep, and pieces of the root 6 in. in length may then be planted a foot apart in narrow trenches. During summer the ground requires to be kept free of weeds; and the application of liquid manure twice or thrice in sufficient quantity to reach the lowest roots is an advantage. When dug the root may be long preserved in good condition by placing it in sand.

See Gerard, *Herball*, p. 240, ed. Johnson (1636); Flückiger and Hanbury, *Pharmacographia*, p. 71 (2nd ed., 1879); Bentley and Trimen, *Med. Pl.*, i. 21 (1880).

HORSE-SHOES. The horny casing of the foot of the horse and other Solidungulates, while quite sufficient to protect the extremity of the limb under natural conditions, is found to wear away and break, especially in moist climates, when the animal is subjected to hard work of any kind. This, however, can be obviated by the simple device of attaching to the hoof a rim of iron, adjusted to the shape of the hoof. The animal itself has been in a very marked manner modified

by shoeing, for without this we could have had neither the fleet racers nor the heavy and powerful cart-horses of the present day. Though the ancients were sufficiently impressed by the damage done to horses' hoofs to devise certain forms of covering for them (in the shape of socks or sandals), the practice of nailing iron plates or rim-shoes to the hoof does not appear to have been introduced earlier than the 2nd century B.C., and was not commonly known till the close of the 5th century A.D., or in regular use till the middle ages. The evidence for the earlier date depends on the doubtful interpretations of designs on coins, &c. As time went on, however, the profession of the farrier and the art of the shoesmith gradually grew in importance. It was only in the 19th century that horse-shoeing was introduced in Japan, where the former practice was to attach to the horse's feet slippers of straw, which were renewed when necessary, a custom which may indicate the usage of early peoples. In modern times much attention has been devoted to horse-shoeing by veterinary science, with the result of showing that methods formerly adopted caused cruel injury to horses and serious loss to their owners. The evils resulted from (1) paring the sole and frog; (2) applying shoes too heavy and of faulty shape; (3) employing too many and too large nails; (4) applying shoes too small and removing the wall of the hoof to make the feet fit the shoes, and (5) rasping the front of the hoof. In rural districts, where the art of the farrier is combined with general blacksmith work, too little attention is apt to be given to considerations which have an important bearing on the comfort, usefulness and life of the horse. According to modern principles (1) shoes should be as light as compatible with the wear demanded of them; (2) the ground face of the shoe should be concave, and the face applied to the foot plain; (3) heavy draught horses alone should have toe and heel calks on their shoes to increase foothold; (4) the excess growth of the wall or outer portion of horny matter should only be removed in re-shoeing, care being taken to keep both sides of the hoof of equal height; (5) the shoe should fit accurately to the circumference of the hoof, and project slightly beyond the heel; (6) the shoes should be fixed with as few nails as possible, six or seven in fore-shoes and eight in hind-shoes, and (7) the nails should take a short thick hold of the wall, so that old nail-holes may be removed with the natural growth and paring of the horny matter. Horse-shoes and nails are now made with great economy by machinery, and special forms of shoe or plate are made for race-horses and trotters, or to suit abnormalities of the hoof.

HORSETAIL (*Equisetum*), the sole genus of the botanical natural order Equisetaceae, consisting of a group of vascular cryptogamous plants (see PTERIDOPHYTA) remarkable for the vegetative structure which resembles in general appearance the genera of flowering plants *Casuarina* and *Ephedra*. They are herbaceous plants growing from an underground much-branched rootstock from which spring slender aerial shoots which are green, ribbed, and bear at each node a whorl of leaves reduced to a toothed sheath. From the nodes spring whorls of similar but more slender branches. Some shoots are sterile while others are fertile, bearing at the apex the so-called fructification—a dense oval, oblong conical or cylindrical spike, consisting of a number of shortly-stalked peltate scales, each of which has attached to its under surface a circle of spore-cases (sporangia) which open by a longitudinal slit on their inner side. The spores differ from those of ferns in their outer coat (*exospore*) being split up into four club-shaped hygroscopic threads (*elaters*) which are curled when moist, but become straightened when dry. In most species the fertile and sterile shoots are alike, both being green and leaf-bearing, but in a few species the fertile are more or less different, *e.g.* in *E. arvense* the fertile shoots appear first, in the spring, and are unbranched and not green. Any portion of the underground rhizome when broken off is capable of producing a new plant; hence the difficulty of eradicating them when once established. There are 24 known species of the genus which is universally distributed.



From Strasburger's *Lehrbuch der Botanik*, by permission of Gustav Fischer.

Equisetum arvense.

A, Fertile shoot, springing from the rhizome, which also bears tubers; the vegetative shoots have not yet unfolded.

F, Sterile vegetative shoot.

B, C, Sporophylls bearing sporangia, which in C have opened.

D, Spore showing the two spiral bands of the perinium.

E, Dry spores showing the expanded spiral bands.

(A, F, reduced. B, C, D, E, enlarged.)

The corn horsetail *E. arvense*, one of the commonest species, is a troublesome weed in clayey cornfields (see fig.). The fructification appears in March and April, terminating in short unbranched stems. It is said to produce diarrhoea in such cattle as eat it. The bog horsetail, *E. palustre*, is said to possess similar properties. It grows in marshes, ditches, pools and drains in meadows, and sometimes obstructs the flow of water with its dense matted roots. The fructification in this species is cylindrical, and in that of *E. limosum*, which grows in similar situations, it is ovate in outline. The largest British species, *E. maximum*, grows in wet sandy declivities by railway embankments or streams, &c., and is remarkable for its beauty, due to the abundance of its elegant branches and the alternately green and white appearance of the stem. In this species the fructification is conical or lanceolate, and is found in April on short, stout, unbranched stems which have large loose sheaths. Horses appear to be fond of this species, and in Sweden it is stored for use as winter fodder. *E. hyemale*, commonly known as the Dutch rush, is much more abundant in Holland than in Britain; it is used for polishing purposes. *E. variegatum* grows on wet sandy ground, and serves by means of its fibrous roots to bind the sand together. The horsetails are remarkable for the large quantity of silica they contain in the cuticle (hence their value in polishing), which often amounts to half the weight of

the ash yielded by burning them; the roots contain a quantity of starch.

HORSHAM, a market town in the Horsham parliamentary division of Sussex, England, 38 m. S. by W. from London by the London, Brighton and South Coast railway. Pop. of urban district (1901) 9446. It is pleasantly situated in the midst of a fertile country near the source of the Arun. A picturesque avenue leads to the church of St Mary, principally Early English and Perpendicular, with remains of Norman work, having a lofty tower surmounted by a spire, and containing several fine monuments, tombs and brasses. Other buildings include the grammar school, founded in 1532 and rebuilt in 1893, a town hall and corn exchange, erected in 1866 in Italian style, with an assembly room. In the vicinity are several fine mansions. The buildings of Christ's Hospital (*q.v.*) at West Horsham were opened in 1902, the school being removed hither from London. The town has industries of tanning, founding, carriage-building and flour-milling.

Some neolithic remains have been found at Horsham. The town is not mentioned in Domesday Book, but the Rape of Bramber, in which it lies, belonged at that time to William de Braose. His descendants held the borough and the manor of Horsham, and through them they passed to the family of Mowbray, afterwards dukes of Norfolk. There are traces of burgage tenure at Horsham in 1210, and it was called a borough in 1236. It has no charter of incorporation. Horsham sent two representatives to parliament from 1295 until 1832, when the number was reduced to one. In 1885 it was disfranchised. In 1233 Henry III. granted William de Braose a yearly three-days' fair at his manor of Horsham. In the reign of Edward I. William de Braose claimed to have a free market on Wednesdays and Saturdays. Fairs are held on the 5th of April, 18th of July, 17th of November and 27th of November. Market days are Monday and Wednesday. "Glovers" of Horsham are mentioned in a patent roll of 1485, and a brewery existed here in the time of Queen Anne.

HORSLEY, JOHN (*c.* 1685-1732), British archaeologist. John Hodgson (1779-1845), the historian of Northumberland, in a short memoir published in 1831, held that he was born in 1685, at Pinkie House, in the parish of Inveresk, Midlothian, and that his father was a Northumberland Nonconformist, who had migrated to Scotland, but returned to England soon after the Revolution of 1688. J. H. Hinde, in the *Archaeologia Aeliana* (Feb. 1865), held that he was a native of Newcastle-on-Tyne, the son of Charles Horsley, a member of the Tailors' Company of that town. He was educated at Newcastle, and at Edinburgh University, where he graduated M.A. on the 29th of April 1701. There is evidence that he "was settled in Morpeth as a Presbyterian minister as early as 1709." Hodgson, however, thought that up to 1721, at which time he was residing at Widdrington, "he had not received ordination, but preached as a licentiate." Even if he was ordained then, his stay at the latter place was probably prolonged beyond that date; for he communicated to the *Philosophical Transactions* (xxxii. 328) notes on the rainfall there in the years 1722 and 1723. Hinde shows that during these years "he certainly followed a secular employment as agent to the York Buildings Company, who had contracted to purchase and were then in possession of the Widdrington estates." At Morpeth Horsley opened a private school. Respect for his character and abilities attracted pupils irrespective of religious connexion, among them Newton Ogle, afterwards dean of Westminster. He gave lectures on mechanics and hydrostatics in Morpeth, Alnwick and Newcastle, and was elected F.R.S. on the 23rd of April 1730. It is as an archaeologist that Horsley is now known. His great work, *Britannia Romana, or the Roman Antiquities of Britain* (London, 1732), one of the scarcest and most valuable of its class, contains the result of patient labour. There is in the British Museum a copy with notes by John Ward (*c.* 1679-1758), biographer of the Gresham professors. Horsley died of apoplexy on the 12th of January 1732, on the eve of the publication of the *Britannia Romana*. He also published two sermons and a handbook to his lectures on mechanics, &c., and projected a history of Northumberland and Durham, collections for which were found among his papers.

J. P. Wood (d. 1838) (*Parish of Cramond*, 1794, and *Anecdotes of Bowyer*, 1782, p. 371) says that his wife was a daughter of William Hamilton, D.D., minister of Cramond, afterwards professor of divinity in Edinburgh University, but probably the John Horsley in question was

another, the father of Samuel Horsley (*q.v.*).

HORSLEY, JOHN CALLCOTT (1817-1903), English painter, son of William Horsley, the musician, and grand-nephew of Sir Augustus Callcott, was born in London, on the 29th of January 1817. He studied painting in the Academy schools, and in 1836 exhibited “The Pride of the Village” (Vernon Gallery) at the Royal Academy. This was followed by numerous *genre* pictures at subsequent exhibitions up to 1893, the best known of these being “Malvolio,” “L’Allegro and il Penseroso” (painted for the Prince Consort), “Le Jour des Morts,” “A Scene from Don Quixote,” &c. In 1843 his cartoon of “St Augustine Preaching” won a prize in the Westminster Hall competition, and in 1844 he was selected as one of the six painters commissioned to execute frescoes for the Houses of Parliament, his “Religion” (1845) being put in the House of Lords; he also painted the “Henry V. assuming the Crown” and “Satan surprised at the Ear of Eve.” In 1864 he became R.A., and in 1882 was elected treasurer, a post which he held till 1897, when he resigned and became a “retired Academician.” Mr Horsley had much to do with organizing the winter exhibitions of “Old Masters” at Burlington House after 1870. When, during the ’eighties, the example of the French Salon began to affect the Academy exhibitors, and paintings of the nude became the fashion, he protested against the innovation, and his attitude caused *Punch* to give him the punning sobriquet of “Mr J. C(lothes) Horsley.” He died on the 18th of October 1903. His son, Sir Victor Horsley (b. 1857), became famous as a surgeon and neuropathologist, and a prominent supporter of the cause of experimental research.

HORSLEY, SAMUEL (1733-1806), English divine, was born in London on the 15th of September 1733. Entering Trinity College, Cambridge, he became LL.B. in 1758 without graduating in arts, and in the following year succeeded his father in the living of Newington Butts in Surrey. Horsley was elected a Fellow of the Royal Society in 1767; and secretary in 1773, but, in consequence of a difference with the president (Sir Joseph Banks) he withdrew in 1784. In 1768 he attended the eldest son of the 4th earl of Aylesford to Oxford as private tutor; and, after receiving through the earl and Bishop Lowth various minor preferments, which by dispensations he combined with his first living, he was installed in 1781 as archdeacon of St Albans. Horsley now entered in earnest upon his famous controversy with Joseph Priestley, who denied that the early Christians held the doctrine of the Trinity. In this controversy, conducted on both sides in the fiercest polemical spirit, Horsley showed the superior learning and ability. His aim was to lessen the influence which the prestige of Priestley’s name gave to his views, by indicating inaccuracies in his scholarship and undue haste in his conclusions. For the energy displayed in the contest Horsley was rewarded by Lord Chancellor Thurlow with a prebendal stall at Gloucester; and in 1788 the same patron procured his promotion to the see of St David’s. As a bishop, Horsley was energetic both in his diocese, where he strove to better the position of his clergy, and in parliament. The efficient support which he afforded the government was acknowledged by his successive translations to Rochester in 1793, and to St Asaph in 1802. With the bishopric of Rochester he held the deanery of Westminster. He died at Brighton on the 4th of October 1806.

Besides the controversial *Tracts*, which appeared in 1783-1784-1786, and were republished in 1789 and 1812, Horsley’s more important works are:—*Apollonii Pergaei inclinationum libri duo* (1770); *Remarks on the Observation ... for determining the acceleration of the Pendulum in Lat. 70° 51′* (1774); *Isaaci Newtoni Opera quae extant Omnia*, with a commentary (5 vols. 4to, 1779-1785); *On the Prosodies of the Greek and Latin Languages* (1796); *Disquisitions on Isaiah xviii.* (1796); *Hosea, translated ... with Notes* (1801); *Elementary Treatises on ... Mathematics* (1801); *Euclidis elementorum libri priores XII.* (1802); *Euclidis datorum liber* (1803); *Virgil’s Two Seasons of Honey*, &c. (1805); and papers in the *Philosophical Transactions* from 1767 to 1776. After his death there appeared—*Sermons* (1810-1812); *Speeches in Parliament* (1813); *Book of Psalms, translated with Notes* (1815); *Biblical Criticism* (1820); *Collected Theological Works* (6 vols. 8vo, 1845).

HORSLEY, WILLIAM (1774-1858), English musician, was born on the 15th of November 1774. He became in 1790 the pupil of Theodore Smith, an indifferent musician of the time, who, however, taught him sufficient to obtain in 1794 the position of organist at Ely Chapel, Holborn. This post he resigned in 1798, to become organist at the Asylum for Female Orphans, as assistant to Dr Callcott, with whom he had long been on terms of personal and artistic intimacy, and whose eldest daughter he married. In 1802 he became his friend's successor upon the latter's resignation. Besides holding this appointment he became in 1812 organist of Belgrave Chapel, Halkin Street, and in 1838 of the Charter House. He died on the 12th of June 1858. Horsley's compositions are numerous, and include amongst other instrumental pieces three symphonies for full orchestra. Infinitely more important are his glees, of which he published five books (1801-1807) besides contributing many detached glees and part songs to various collections. His glees, "By Celia's arbour," "O nightingale," "Now the storm begins to lower," and others, are amongst the finest specimens of this peculiarly English class of compositions. Horsley's son Charles Edward (1822-1876), also enjoyed a certain reputation as a musician. He studied in Germany under Hauptmann and Mendelssohn, and on his return to England composed several oratorios and other pieces, none of which had permanent success. In 1808 he emigrated to Australia, and in 1872 went to America; he died in New York.

HORSMAN, EDWARD (1807-1876), English politician, was the son of a well-to-do gentleman of Stirling, and connected on the mother's side with the earls of Stair. He was educated at Rugby and Cambridge, and was called to the Scotch bar in 1832, but then took to politics. He was elected to parliament as a Liberal for Cockermouth in 1836, and represented that constituency till 1852, when he was defeated; in 1853 he was returned for Stroud, and sat there till 1868; and from 1869 till he died he was member for Liskeard. He was a junior lord of the treasury in Lord Melbourne's administration for a few months during 1841, and became prominent for attacking Lord John Russell's ecclesiastical policy in 1847 and subsequent years. In 1855, under Lord Palmerston, he was made chief secretary for Ireland, but resigned in 1857. He gradually took up a position as an independent Liberal, and was well known for his attacks on the Church, and his exposures of various "jobs." But his name is principally connected with his influence over Robert Lowe (Lord Sherbrooke) in 1866 at the time of Mr Gladstone's Reform Bill, to which he and Lowe were hostile; and it was in describing the Lowe-Horsman combination that John Bright spoke of the "Cave of Adullam." Horsman died at Biarritz on the 30th of November 1876.

HORST, the term used In physical geography and geology for a block of the earth's crust that has remained stationary while the land has sunk on either side of it, or has been crushed in a mountain range against it. The Vosges and Black Forest are examples of the former, the Table, Jura and the Dôle of the latter result. The word is also applied to those larger areas, such as the Russian plain, Arabia, India and Central South Africa, where the continent remains stable, with horizontal table-land stratification, in distinction to folded regions such as the Eurasian chains.

HORT, FENTON JOHN ANTHONY (1828-1892), English theologian, was born in Dublin on the 23rd of April 1828, the great-grandson of Josiah Hort, archbishop of Tuam in the 18th century. In 1846 he passed from Rugby to Trinity College, Cambridge, where he was the contemporary of E. W. Benson, B. F. Westcott and J. B. Lightfoot. The four men became lifelong friends and fellow-workers. In 1850 Hort took his degree, being third in the classical tripos, and in 1852 he became fellow of his college. In 1854, in conjunction with J. E. B. Mayor and Lightfoot, he established the *Journal of Classical and Sacred Philology*, and plunged eagerly into theological and patristic study. He had been brought up in the strictest principles of the Evangelical school, but at Rugby he fell under the influence of Arnold and Tait, and his

acquaintance with Maurice and Kingsley finally gave his opinions a direction towards Liberalism. In 1857 he married, and accepted the college living of St Ippolyts, near Hitchin, in Hertfordshire, where he remained for fifteen years. During his residence there he took some part in the discussions on university reform, continued his studies, and wrote essays for various periodicals. In 1870 he was appointed a member of the committee for revising the translation of the New Testament, and in 1871 he delivered the Hulsean lectures before the university. Their title was *The Way, the Truth, and the Life*, but they were not prepared for publication until many years after their delivery. In 1872 he accepted a fellowship and lectureship at Emmanuel College; in 1878 he was made Hulsean professor of divinity, and in 1887 Lady Margaret reader in divinity. In the meantime he had published, with his friend Westcott, an edition of the text of the New Testament. The Revision Committee had very largely accepted this text, even before its publication, as a basis for their translation of the New Testament. The work on its appearance created an immense sensation among scholars, and was vehemently attacked in many quarters, but on the whole it was received as being much the nearest approximation yet made to the original text of the New Testament (see BIBLE: *New Testament*, "Textual Criticism"). The introduction was the work of Hort, and its depth and fulness convinced all who read it that they were under the guidance of a master. Hort died on the 30th of November 1892, worn out by intense mental labour. Next to his Greek Testament his best-known work is *The Christian Ecclesia* (1897). Other publications are: *Judaistic Christianity* (1894); *Village Sermons* (two series); *Cambridge and other Sermons*; *Prolegomena to ... Romans and Ephesians* (1895); *The Ante-Nicene Fathers* (1895); and two *Dissertations*, on the reading μονογενὴς θεός in John i. 18, and on *The Constantinopolitan and other Eastern Creeds in the Fourth Century*. All are models of exact scholarship and skilful use of materials.

His *Life and Letters* was edited by his son, Sir Arthur Hort, Bart. (1896).

HORTA, the capital of an administrative district comprising the islands of Pico, Fayal, Flores and Corvo, in the Portuguese archipelago of the Azores. Pop. (1900) 6574. Horta is a seaport on the south-east coast of Fayal. It is defended by two castles and a wall, but these fortifications are obsolete. The harbour, a bay 2 m. long and nearly 1 m. broad, affords good anchorage in 5 to 20 fathoms of water, but is dangerous in south-westerly and south-easterly winds. It is the headquarters of profitable whale, tunny, bonito and mullet fisheries. Its exports include sperm-oil, fruit, wine and grain. Between 1897 and 1904 the port annually accommodated about 140 vessels of 220,000 tons, mostly of British or Portuguese nationality.

HORTEN, a seaport of Norway, in Jarlsberg-Laurvik *amt* (county), beautifully situated on the west bank of the Christiania Fjord, opposite Moss, 38 m. by water and 66 by rail S. of Christiania. Pop. (1900) 8460. It is practically united with Karl-Johansvaern, which is defended by strong fortifications, is the headquarters of the Norwegian fleet, and possesses an arsenal and shipbuilding yards. There are also an observatory and a nautical museum.

HORTENSIUS, QUINTUS (114-50 B.C.), surnamed Hortalus, Roman orator and advocate. At the age of nineteen he made his first speech at the bar, and shortly afterwards successfully defended Nicomedes III. of Bithynia, one of Rome's dependants in the East, who had been deprived of his throne by his brother. From that time his reputation as an advocate was established. As the son-in-law of Q. Lutatius Catulus he was attached to the aristocratic party. During Sulla's ascendancy the courts of law were under the control of the senate, the judges being themselves senators. To this circumstance perhaps, as well as to his own merits, Hortensius may have been indebted for much of his success. Many of his clients were the governors of provinces which they were accused of having plundered. Such men were sure to find themselves brought before a friendly, not to say a corrupt, tribunal, and Hortensius,

according to Cicero (*Div. in Caecil.* 7), was not ashamed to avail himself of this advantage. Having served during two campaigns (90-89) in the Social War, he became quaestor in 81, aedile in 75, praetor in 72, and consul in 69. In the year before his consulship he came into collision with Cicero in the case of Verres, and from that time his supremacy at the bar was lost. After 63 Cicero was himself drawn towards the party to which Hortensius belonged. Consequently, in political cases, the two men were often engaged on the same side (*e.g.* in defence of Rabirius, Murena, Publius Cornelius Sulla, and Milo). After Pompey's return from the East in 61, Hortensius withdrew from public life and devoted himself to his profession. In 50, the year of his death, he successfully defended Appius Claudius Pulcher when accused of treason and corrupt practices by P. Cornelius Dolabella, afterwards Cicero's son-in-law.

Hortensius's speeches are not extant. His oratory, according to Cicero, was of the Asiatic style, a florid rhetoric, better to hear than to read. He had a wonderfully tenacious memory (Cicero, *Brutus*, 88, 95), and could retain every single point in his opponent's argument. His action was highly artificial, and his manner of folding his toga was noted by tragic actors of the day (Macrobius, *Sat.* iii. 13. 4). He also possessed a fine musical voice, which he could skilfully command. The vast wealth he had accumulated he spent on splendid villas, parks, fish-ponds and costly entertainments. He was the first to introduce peacocks as a table delicacy at Rome. He was a great buyer of wine, pictures and works of art. He wrote a treatise on general questions of oratory, erotic poems (Ovid, *Tristia*, ii. 441), and an *Annales*, which gained him considerable reputation as an historian (Vell. Pat. ii. 16. 3).

His daughter HORTENSIA was also a successful orator. In 42 she spoke against the imposition of a special tax on wealthy Roman matrons with such success that part of it was remitted (Quint. *Instit.* i. 1. 6; Val. Max. viii. 3. 3).

In addition to Cicero (*passim*), see Dio Cassius xxxviii. 16, xxxix. 37; Pliny, *Nat. Hist.* ix. 81, x. 23, xiv. 17, xxxv. 40; Varro, *R.R.* iii. 13. 17.

HORTENSIUS, QUINTUS, dictator of Rome 286 B.C. When the people, pressed by their patrician creditors, "seceded" to the Janiculum, he was commissioned to put an end to the strife. He passed a law whereby the resolutions of the multitude (*plebiscita*) were made binding on all the citizens, without the approval of the senate being necessary. This was not a mere re-enactment of previous laws. Another law, passed about the same time, which declared the *nundinae* (market days) to be *dies fasti* (days on which legal business might be transacted), is also attributed to him. He is said to have died while still dictator.

Aulus Gellius xv. 27; Pliny, *Nat. Hist.* xvi. 15; Macrobius, *Saturnalia* i. 16; Livy, *Epit.* ii.

THE FULL PROJECT GUTENBERG LICENSE

PLEASE READ THIS BEFORE YOU DISTRIBUTE OR USE THIS WORK

To protect the Project Gutenberg™ mission of promoting the free distribution of electronic works, by using or distributing this work (or any other work associated in any way with the phrase “Project Gutenberg”), you agree to comply with all the terms of the Full Project Gutenberg™ License available with this file or online at www.gutenberg.org/license.

Section 1. General Terms of Use and Redistributing Project Gutenberg™ electronic works

1.A. By reading or using any part of this Project Gutenberg™ electronic work, you indicate that you have read, understand, agree to and accept all the terms of this license and intellectual property (trademark/copyright) agreement. If you do not agree to abide by all the terms of this agreement, you must cease using and return or destroy all copies of Project Gutenberg™ electronic works in your possession. If you paid a fee for obtaining a copy of or access to a Project Gutenberg™ electronic work and you do not agree to be bound by the terms of this agreement, you may obtain a refund from the person or entity to whom you paid the fee as set forth in paragraph 1.E.8.

1.B. “Project Gutenberg” is a registered trademark. It may only be used on or associated in any way with an electronic work by people who agree to be bound by the terms of this agreement. There are a few things that you can do with most Project Gutenberg™ electronic works even without complying with the full terms of this agreement. See paragraph 1.C below. There are a lot of things you can do with Project Gutenberg™ electronic works if you follow the terms of this agreement and help preserve free future access to Project Gutenberg™ electronic works. See paragraph 1.E below.

1.C. The Project Gutenberg Literary Archive Foundation (“the Foundation” or PGLAF), owns a compilation copyright in the collection of Project Gutenberg™ electronic works. Nearly all the individual works in the collection are in the public domain in the United States. If an individual work is unprotected by copyright law in the United States and you are located in the United States, we do not claim a right to prevent you from copying, distributing, performing, displaying or creating derivative works based on the work as long as all references to Project Gutenberg are removed. Of course, we hope that you will support the Project Gutenberg™ mission of promoting free access to electronic works by freely sharing Project Gutenberg™ works in compliance with the terms of this agreement for keeping the Project Gutenberg™ name associated with the work. You can easily comply with the terms of this agreement by keeping this work in the same format with its attached full Project Gutenberg™ License when you share it without charge with others.

1.D. The copyright laws of the place where you are located also govern what you can do with this work. Copyright laws in most countries are in a constant state of change. If you are outside the United States, check the laws of your country in addition to the terms of this agreement before downloading, copying, displaying, performing, distributing or creating derivative works based on this work or any other Project Gutenberg™ work. The Foundation makes no representations concerning the copyright status of any work in any country other than the United States.

1.E. Unless you have removed all references to Project Gutenberg:

1.E.1. The following sentence, with active links to, or other immediate access to, the full Project Gutenberg™ License must appear prominently whenever any copy of a Project Gutenberg™ work (any work on which the phrase “Project Gutenberg” appears, or with which the phrase “Project Gutenberg” is associated) is accessed, displayed, performed, viewed, copied or distributed:

> This eBook is for the use of anyone anywhere in the United States and most other parts of the world at no cost and with almost no restrictions whatsoever. You may copy it, give it away or re-use it under the terms of the Project Gutenberg License included with this eBook or online at www.gutenberg.org. If you are not located in the United States, you will have to check the laws of the country where you are located before using this eBook.

1.E.2. If an individual Project Gutenberg™ electronic work is derived from texts not protected by U.S. copyright law (does not contain a notice indicating that it is posted with permission of the copyright holder), the work can be copied and distributed to anyone in the United States without paying any fees or charges. If you are redistributing or providing access to a work with the phrase “Project Gutenberg” associated with or appearing on the work, you must comply either with the requirements of paragraphs 1.E.1 through 1.E.7 or obtain permission for the use of the work and the Project Gutenberg™ trademark as set forth in paragraphs 1.E.8 or 1.E.9.

1.E.3. If an individual Project Gutenberg™ electronic work is posted with the permission of the copyright holder, your use and distribution must comply with both paragraphs 1.E.1 through 1.E.7 and any additional terms imposed by the copyright holder. Additional terms will be linked to the Project Gutenberg™ License for all works posted with the permission of the copyright holder found at the beginning of this work.

1.E.4. Do not unlink or detach or remove the full Project Gutenberg™ License terms from this work, or any files containing a part of this work or any other work associated with Project Gutenberg™.

1.E.5. Do not copy, display, perform, distribute or redistribute this electronic work, or any part of this electronic work, without prominently displaying the sentence set forth in paragraph 1.E.1 with active links or immediate access to the full terms of the Project Gutenberg™ License.

1.E.6. You may convert to and distribute this work in any binary, compressed, marked up, nonproprietary or proprietary form, including any word processing or hypertext form. However, if you provide access to or distribute copies of a Project Gutenberg™ work in a format other than “Plain Vanilla ASCII” or other format used in the official version posted on the official Project Gutenberg™ website (www.gutenberg.org), you must, at no additional cost, fee or expense to the user, provide a copy, a means of exporting a copy, or a means of obtaining a copy upon request, of the work in its original “Plain Vanilla ASCII” or other form. Any alternate format must include the full Project Gutenberg™ License as specified in paragraph 1.E.1.

1.E.7. Do not charge a fee for access to, viewing, displaying, performing, copying or distributing any Project Gutenberg™ works unless you comply with paragraph 1.E.8 or 1.E.9.

1.E.8. You may charge a reasonable fee for copies of or providing access to or distributing Project Gutenberg™ electronic works provided that:

- You pay a royalty fee of 20% of the gross profits you derive from the use of Project Gutenberg™ works calculated using the method you already use to calculate your applicable taxes. The fee is owed to the owner of the Project Gutenberg™ trademark, but he has agreed to donate royalties under this paragraph to the Project Gutenberg Literary Archive Foundation. Royalty payments must be paid within 60 days following each date on which you prepare (or are legally required to prepare) your periodic tax returns. Royalty payments should be clearly marked as such and sent to the Project Gutenberg Literary Archive Foundation at the address specified in Section 4, “Information about donations to the Project Gutenberg Literary Archive Foundation.”

- You provide a full refund of any money paid by a user who notifies you in writing (or by e-mail) within 30 days of receipt that s/he does not agree to the terms of the full Project Gutenberg™ License. You must require such a user to return or destroy all copies of the works possessed in a physical medium and discontinue all use of and all access to other copies of Project Gutenberg™ works.

- You provide, in accordance with paragraph 1.F.3, a full refund of any money paid for a work or a replacement copy, if a defect in the electronic work is discovered and reported to you within 90 days of receipt of the work.

- You comply with all other terms of this agreement for free distribution of Project Gutenberg™ works.

1.E.9. If you wish to charge a fee or distribute a Project Gutenberg™ electronic work or group of works on different terms than are set forth in this agreement, you must obtain permission in writing from the Project Gutenberg Literary Archive Foundation, the manager of the Project Gutenberg™ trademark. Contact the Foundation as set forth in Section 3 below.

1.F.

1.F.1. Project Gutenberg volunteers and employees expend considerable effort to identify, do copyright research on, transcribe and proofread works not protected by U.S. copyright law in creating the Project Gutenberg™ collection. Despite these efforts, Project Gutenberg™ electronic works, and the medium on which they may be stored, may contain “Defects,” such as, but not limited to, incomplete, inaccurate or corrupt data, transcription errors, a copyright or other intellectual property infringement, a defective or damaged disk or other medium, a computer virus, or computer codes that damage or cannot be read by your equipment.

1.F.2. LIMITED WARRANTY, DISCLAIMER OF DAMAGES - Except for the “Right of Replacement or Refund” described in paragraph 1.F.3, the Project Gutenberg Literary Archive Foundation, the owner of the Project Gutenberg™ trademark, and any other party distributing a Project Gutenberg™ electronic work under this agreement, disclaim all liability to you for damages, costs and expenses, including legal fees. YOU AGREE THAT YOU HAVE NO REMEDIES FOR NEGLIGENCE, STRICT LIABILITY, BREACH OF WARRANTY OR BREACH OF CONTRACT EXCEPT THOSE PROVIDED IN PARAGRAPH 1.F.3. YOU AGREE THAT THE FOUNDATION, THE TRADEMARK OWNER, AND ANY DISTRIBUTOR UNDER THIS AGREEMENT WILL NOT BE LIABLE TO YOU FOR ACTUAL, DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE OR INCIDENTAL DAMAGES EVEN IF YOU GIVE NOTICE OF THE POSSIBILITY OF SUCH DAMAGE.

1.F.3. LIMITED RIGHT OF REPLACEMENT OR REFUND - If you discover a defect in this

electronic work within 90 days of receiving it, you can receive a refund of the money (if any) you paid for it by sending a written explanation to the person you received the work from. If you received the work on a physical medium, you must return the medium with your written explanation. The person or entity that provided you with the defective work may elect to provide a replacement copy in lieu of a refund. If you received the work electronically, the person or entity providing it to you may choose to give you a second opportunity to receive the work electronically in lieu of a refund. If the second copy is also defective, you may demand a refund in writing without further opportunities to fix the problem.

1.F.4. Except for the limited right of replacement or refund set forth in paragraph 1.F.3, this work is provided to you 'AS-IS', WITH NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE.

1.F.5. Some states do not allow disclaimers of certain implied warranties or the exclusion or limitation of certain types of damages. If any disclaimer or limitation set forth in this agreement violates the law of the state applicable to this agreement, the agreement shall be interpreted to make the maximum disclaimer or limitation permitted by the applicable state law. The invalidity or unenforceability of any provision of this agreement shall not void the remaining provisions.

1.F.6. INDEMNITY - You agree to indemnify and hold the Foundation, the trademark owner, any agent or employee of the Foundation, anyone providing copies of Project Gutenberg™ electronic works in accordance with this agreement, and any volunteers associated with the production, promotion and distribution of Project Gutenberg™ electronic works, harmless from all liability, costs and expenses, including legal fees, that arise directly or indirectly from any of the following which you do or cause to occur: (a) distribution of this or any Project Gutenberg™ work, (b) alteration, modification, or additions or deletions to any Project Gutenberg™ work, and (c) any Defect you cause.

Section 2. Information about the Mission of Project Gutenberg™

Project Gutenberg™ is synonymous with the free distribution of electronic works in formats readable by the widest variety of computers including obsolete, old, middle-aged and new computers. It exists because of the efforts of hundreds of volunteers and donations from people in all walks of life.

Volunteers and financial support to provide volunteers with the assistance they need are critical to reaching Project Gutenberg™'s goals and ensuring that the Project Gutenberg™ collection will remain freely available for generations to come. In 2001, the Project Gutenberg Literary Archive Foundation was created to provide a secure and permanent future for Project Gutenberg™ and future generations. To learn more about the Project Gutenberg Literary Archive Foundation and how your efforts and donations can help, see Sections 3 and 4 and the Foundation information page at www.gutenberg.org.

Section 3. Information about the Project Gutenberg Literary Archive Foundation

The Project Gutenberg Literary Archive Foundation is a non-profit 501(c)(3) educational corporation organized under the laws of the state of Mississippi and granted tax exempt status by the Internal Revenue Service. The Foundation's EIN or federal tax identification number is 64-6221541. Contributions to the Project Gutenberg Literary Archive Foundation are tax deductible to the full extent permitted by U.S. federal laws and your state's laws.

The Foundation's business office is located at 809 North 1500 West, Salt Lake City, UT 84116, (801) 596-1887. Email contact links and up to date contact information can be found at the Foundation's website and official page at www.gutenberg.org/contact

Section 4. Information about Donations to the Project Gutenberg Literary Archive Foundation

Project Gutenberg™ depends upon and cannot survive without widespread public support and donations to carry out its mission of increasing the number of public domain and licensed works that can be freely distributed in machine-readable form accessible by the widest array of equipment including outdated equipment. Many small donations ($1 to $5,000) are particularly important to maintaining tax exempt status with the IRS.

The Foundation is committed to complying with the laws regulating charities and charitable donations in all 50 states of the United States. Compliance requirements are not uniform and it takes a considerable effort, much paperwork and many fees to meet and keep up with these requirements. We do not solicit donations in locations where we have not received written confirmation of compliance. To SEND DONATIONS or determine the status of compliance for any particular state visit www.gutenberg.org/donate.

While we cannot and do not solicit contributions from states where we have not met the

solicitation requirements, we know of no prohibition against accepting unsolicited donations from donors in such states who approach us with offers to donate.

International donations are gratefully accepted, but we cannot make any statements concerning tax treatment of donations received from outside the United States. U.S. laws alone swamp our small staff.

Please check the Project Gutenberg web pages for current donation methods and addresses. Donations are accepted in a number of other ways including checks, online payments and credit card donations. To donate, please visit: www.gutenberg.org/donate

Section 5. General Information About Project Gutenberg™ electronic works

Professor Michael S. Hart was the originator of the Project Gutenberg™ concept of a library of electronic works that could be freely shared with anyone. For forty years, he produced and distributed Project Gutenberg™ eBooks with only a loose network of volunteer support.

Project Gutenberg™ eBooks are often created from several printed editions, all of which are confirmed as not protected by copyright in the U.S. unless a copyright notice is included. Thus, we do not necessarily keep eBooks in compliance with any particular paper edition.

Most people start at our website which has the main PG search facility: www.gutenberg.org.

This website includes information about Project Gutenberg™, including how to make donations to the Project Gutenberg Literary Archive Foundation, how to help produce our new eBooks, and how to subscribe to our email newsletter to hear about new eBooks.