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THE  
**CHURCH OF ENGLAND MAGAZINE.**

UNDER THE  
SUPERINTENDENCE  
OF  
CLERGYMEN



OF THE UNITED  
CHURCH OF ENGLAND  
AND  
IRELAND.

"HER FOUNDATIONS ARE UPON THE HOLY HILLS."

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VOL. X. No. 263.

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## THE CHRISTIAN'S OBLIGATION TO SEEK THE SPIRITUAL BENEFIT OF OTHERS.

BY THE REV. THOMAS BISSLAND, M.A.,  
*Rector of Hartley Maudytt, Hants.*

There are some hearts little, if at all, impressed by the solemn requirements of the Almighty; so dead, in fact, to everything which relates not to the objects of time and sense, that they are unaffected by the scenes of vice and of the misery which is its consequence, every where presented to their notice. It is not until the mind is under the gracious influence of the Spirit of God, that men feel any anxiety to stop the torrent of evil, and endeavour to become the humble instruments of converting the sinner and saving his soul. Many, in fact, who feel deeply interested in their neighbours' temporal comforts and prosperity, feel little anxious to supply their spiritual wants; and to this may be traced the opposition which is not unfrequently made, even by professing Christians, to institutions which have a direct tendency to improve the moral and spiritual condition of the human race.

Now there are many reasons which induce a truly converted man to labour for the spiritual benefit of others. First, there is the dishonour which men, in an unconverted state, cast upon God. This feeling operated on the mind of the psalmist, when he exclaimed (Ps. cxix. 53), "Horror hath taken hold of me, because of the wicked who forsake thy law." For when men forsake God's law, they declare that they are little impressed with a sense of the divine majesty and infinite goodness of the Almighty; that they are not anxious to know his will; that his threatenings alarm them not; that his promises in no way affect their hearts; that, in fact, they are not desirous of that favour which rests upon those only who walk in the path of his commandments. The psalmist's zeal and jealousy for the glory of God were fully manifested by his anxiety to erect a house, in some respects suitable for the divine worship; by his earnest expressions, that the divine glory should be made known throughout the world, as when he exclaims "Tell it out among the heathen, that the Lord reigneth;" and this holy desire rendered every action, by which there was the most slight appearance of dishonour being cast upon Jehovah, abominable in his sight. When he reflected on his own departure from the law of his God, on those acts which had caused the enemies of the truth to blaspheme, he was indeed filled with horror. The language uttered, when from the depths he supplicated the divine forgiveness, powerfully demonstrates the agony of his soul—convinces us that his repentance was sincere, and that he was anxious that in every action of his life he might for the future glorify that Being whose gracious hand had conducted him through his earthly pilgrimage—whose favour had raised him to the throne of Israel—the light of whose countenance had cheered him in many a dark and dreary hour—and whose comforts had refreshed his soul, when in the multitude of the thoughts within him he became dispirited and perplexed. The first and great commandment is, "Thou shalt love the Lord thy God with all thy heart." The psalmist loved God, and on this account he was desirous that he should be had in reverence of all his intelligent creatures. He loved God; he was seized with horror when he beheld myriads uninfluenced by this principle, living in disobedience to this first commandment. [18]

Sin is too often viewed by us merely with respect to its baneful influence on the happiness of society. It is condemned by us, and it is punished by us, not so much as it is the transgression of the law of God, as it has a tendency to produce evil in the world. And hence there are many offenders in God's sight who by their conduct cast dishonour upon his name, who yet maintain a fair and respectable character when weighed in the world's balance, nay, even are regarded with reverence and esteem. We punish the murderer, the thief, the robber, the perjured person. It is right that we should do so. The welfare of society demands it. But do we punish the man who lives in adultery, in drunkenness, in sensuality? Do we punish the man who is a swearer, a gambler, a blasphemer, who habitually neglects the sanctuary of the Lord, and does his own pleasure on the sabbath-day? Human laws take no cognizance of these crimes. They are, however, as dishonourable to God as others which are punished by man. They are quite as detrimental to man's best interests; and fearful must be the account rendered for their commission before that equitable tribunal, where the children of men must answer for all their offences against the majesty of heaven.

But there is a second reason why the true Christian will labour for the conversion of others, namely, the reflection that the sinner is ensuring his own destruction while he is at enmity against God; and this induced Jeremiah to exclaim (ix. 1), "O that my head were waters, and mine

eyes a fountain of tears, that I might weep day and night for the slain of the daughter of my people." How strong is the expression—"the slain." The prophet knew full well the misery of transgressing God's law. Tremendous, indeed, is the reflection, that the path of sin inevitably leads to the regions of darkness—those regions where there is "weeping and gnashing of teeth," where "their worm dieth not, and the fire is not quenched." Whence is it, then, that, without any apparent concern, we behold myriads of immortal creatures fast hastening to these regions of destruction? Whence is it that there is so much apathy, lukewarmness, and indifference to a brother's eternal welfare. Is it not too often, perhaps, that there is a latent scepticism which induces us to disbelieve the solemn declaration of the Omnipotent—even when he swears by himself—that every jot and tittle of his threatenings shall be accomplished? Surely were it not for some such spirit, we should never rest satisfied with the feeble efforts we may have made to lead the sinner back to his offended God; we should esteem no sacrifice too great, whether of time, or influence, or money, or talent, which could in any way promote a brother's spiritual welfare. But we are too apt to forget, if not to disbelieve, the solemn declarations of the bible; and forgetfulness to all practical results is as pernicious as downright infidelity. The man who forgets God is as little influenced by his law as the fool, who in his heart says there is no God at all. Now, this forgetfulness paralyzes our energies, damps our zeal, checks our benevolence. We do not consider that sinners are heaping up wrath against the day of wrath; and, though they may now enjoy an unhallowed prosperity, and now in an unbridled licentiousness derive happiness from the indulgence of fleshly lusts, yet that these war against the soul, against its present peace, and its ultimate felicity, and that ruin and destruction inevitably await them. Were our spirit that of the psalmist, or that of the prophet referred to, our feelings would be more lively, our endeavours to promote the good of mankind be more energetic. Looking not every one to his own, but on his brothers' good, we should be anxious to direct their feet into the way of peace.

How beautifully was this spirit manifested by St. Paul, when he exhorted the converts of Philippi to be followers of himself—"For many walk," says he, "of whom I have told you often, and now tell you even weeping, that they are the enemies of the cross of Christ; whose end is destruction, whose God is their belly, and whose glory is in their shame; who mind earthly things." The apostle, indeed, appears to have been influenced by the same anxiety as the psalmist and the prophet; for the glory of the Redeemer, as well as the eternal welfare of their souls, was dear to his heart, and he could not refrain from weeping when he viewed the dishonour cast upon his adorable Lord by these enemies of his cross; when he beheld them following divers lusts and pleasures, even boasting of their recklessness of God's judgments; and when he carried his thoughts forward to that day when the terrors of the Lord would fall on all the children of disobedience, or those who neglected the great salvation. This spirit is, in fact, no bad test whereby we may try the state of our hearts and affections. If we are really desirous for the advancement of God's glory, and deeply interested in the welfare of our fellow-creatures, our feelings will be very similar to those of the holy men of God referred to. We shall not view, without the very deepest concern, that inattention which is everywhere paid to the solemn requirements of the Almighty; we shall at least make the attempt to stop the sinner in his career of guilt and folly, that his soul may be saved from destruction in the day of the Lord.

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Melancholy is the reflection, indeed, that neither God's invitations on the one hand, nor his threatenings on the other, appear to affect their hearts; they are neither constrained by love nor fear. "Wide is the gate, and broad is the way that leadeth to destruction, and many there be that go in thereat."

There was one that wept over the rebellion of man, and one infinitely greater than David, or Jeremiah, or St. Paul—and that one was the ever-adorable Saviour; who, beholding the guilty race of man altogether gone out of the way, descended from the mansions of glory, became a partaker of human impurity, and opened through his blood a new and living way, whereby the guilty sinner might return in peace to his God. How touching the description of the evangelist—"And when he came near, he beheld the city and wept over it, saying, If thou hadst known, even thou, at least in this thy day, the things which belong unto thy peace, but now they are hid from thine eyes." Jesus wept at the grave of Lazarus, for Lazarus was his friend; he sympathised deeply with Martha and Mary, for he loved them as he did their brother; but far more bitter were the tears he shed, when he reflected on the waywardness of that people whom he would have gathered to himself; the guilt of that city which had killed the prophets; when he thought of those days of divine vengeance, when its enemies should cast a trench about it, and compass it round, and keep it in on every side, and should lay it even with the ground, and its children within it. And did not this feeling operate when, even amidst the agonies of a crucifixion, his mind rested on the sufferings of others, and not on his own? "Daughters of Jerusalem! weep not for me, but weep for yourselves and for your children." And shall we not, in this as in every other respect, seek to imitate our adorable Lord? Shall we not feel deeply interested in the spiritual welfare of our fellow-men? If we do not, it is, alas! a fearful, a decisive proof, that the flame of holy love, of devoted zeal, has not been kindled in our bosom; that we do not feel the importance of that salvation which is offered us so freely in the gospel; that we are not duly impressed with a dread of that woe unspeakable, that shall be the portion of those whose souls shall be for ever lost.

# CONTRIBUTIONS TO THE NATURAL THEOLOGY OF THE VEGETABLE KINGDOM.

By ROBERT DICKSON, M.D., F.L.S.

No. XI. Pt. 1.

“Lo! the oak that hath so long a nourishing  
From the time that it 'ginneth first to spring,  
And hath so long a life, as we may see,  
Yet at the last wasted is the tree.”

CHAUCER.

While the actions which lead to the various effects on the external appearance of a tree, described in the former paper, are going on, many important changes occur in the internal parts, producing alterations not less admirable, whether in respect of the tree itself, or of the ends to which it may be rendered subservient. The base of an exogenous tree is not merely widened by the superposition of annual layers of wood over the first shoot, by which it gains greater mechanical power to support the extending head of wide-spreading branches, but the central portion is, in most cases, progressively rendered more and more solid by the deposition in it of various secretions prepared by the leaves, and transmitted from them through the medullary rays into this part as their ultimate resting-place.

The fibres descending from the developing buds on the stem, and passing between the plates of cellular tissue, which constitute the medullary rays, and the cells of which have a horizontal direction, are but the basis of the vegetable fabric. The stem of an exogenous plant has been compared to a piece of linen, of which the weft is composed of cellular tissue, and the warp of fibrous and vascular tissue—crossing each other. Now, after the portion is once formed, which is woven every year by the wondrous machinery set to work for this purpose, it receives no fresh texture, yet each fibre remains a conducting tube to transmit the sap upwards, or, in the course of time, becomes charged with various principles, prepared, as already stated, by the leaves, and returned to the central part by that apparatus or system of canals for their transit inwards, the medullary rays, and at last are obstructed, so that no passage of fluid is effected through the inner layers of wood. But for every layer that is thus blocked up, a new one, which will continue pervious, is formed exterior to those already existing, so that a constant provision is made for carrying on the vital processes; to accomplish which, a free channel from the points of the roots to the surface of the leaves is absolutely necessary. The outer strata, produced by a tree of considerable age, are observed to be thinner than those formed at an earlier period, and become successively thinner and thinner, so that ultimately, if accident should not have previously caused it, the death of the tree is inevitable. The portions which are obstructed constitute the *duramen* or heartwood, the pervious portion the *alburnum* or sapwood. The original tissue is colourless; but according to the nature of the secretions deposited in it, the heartwood is either of a deeper colour, sometimes party-coloured, or at least of a much greater specific gravity than the sapwood. The removal of the juices by any solvent restores the wood to its primitive hue, and renders it again light. The difference of weight of a cubic foot of wood depends not merely on the different quantity of vegetable tissue compressed into a given space, in the first construction of the tree, but also on the quantity and quality of the secretions ultimately lodged in it. The same species of tree will present a difference in this respect, according to the country or situation where it grew, and also according to the character of the seasons during the time it flourished. According to the nature of the tree, if placed in favourable circumstances in reference to soil and weather, it invariably prepares and lodges in the stem those principles which it was designed to elaborate—the oak preparing tannin—the sugar-maple preparing its saccharine juice. That the primary object of these was some advantage to the tree itself can scarcely be doubted, but the secondary applications of which they are capable, give reason to suppose that these also were contemplated in their formation. The consideration of the means by which they are formed, and the direct consequences of their formation on the air, by abstracting certain elements from it, and supplying others, belong to the subject of leaves; it is the object of the present paper to view them as formed, and to show their amazing utility.

[20]

The mechanical properties of the stems of trees, both exogenous and endogenous, render them extremely serviceable to mankind. The uses to which a single species of plant may be put are numerous and important, of which the reed (*arundo phragmites*) is an example, for after the root has assisted in binding and consolidating the soil, the stem is susceptible of the most varied applications[A].

In a low state of civilization the palm, or a palm-like grass, supplies all that man requires; of the former of which, the *Mauritia flexuosa*, or sago-palm of the Oronooko, and still more the *cocos nucifera*, or cocoa-nut palm; and of the latter, the bamboo (*bambusa arundinacea*, and other species) are proofs. The bamboo suffices for all the needs of the humbler Chinese; even their paper, as well as their abodes, are made of it; and from the materials furnished by the cocoa-nut tree, not merely food, as shall be afterwards noticed, but larger and more elegant houses, with all their appurtenances, are constructed at Goa and other places. The obligations of the Guaraons to the *Mauritia flexuosa* cannot be expressed[B]. In proportion as man rises in civilization, the importance of timber becomes greater, being a material for which no adequate substitute can be found. It combines lightness with strength, elasticity with firmness, and possesses in many instances a durability rivalling, or even surpassing, that of the rocks yielded to us by the solid

substance of the globe. The adaptation of timber to the numerous wants of civil life is too familiar to require exposition; but in addition to all the ends it serves in these points, we have an interesting view presented to us in considering what a vast quantity of timber is required for the construction of our shipping, from the countless boats and small craft employed in our coasting trade up to the larger ships, which are so many floating towns or communities. These conduce to the accomplishment of objects of the most momentous nature. Were it not for our shipping we should still be in the condition described by the Romans, as Britons cut off from the rest of the world.—But by their means we now visit without restraint,

“Earth’s farthest verge, and ocean’s wildest shore,”<sup>[C]</sup>

and though, in times past, they have been too often used as engines fraught with destruction, directed by man against his fellow man, let us hope that they may be required in future only to convey in amicable interchange the produce of one country to another, or to bear to his destination the missionary bent on extending the blessings of that religion whose spirit is “peace on earth, good will among the children of men<sup>[D]</sup>.”

As a means of supplying fuel, without which man must remain constantly in the savage state, wood is of inestimable value. In the process of combustion, the elements of the trees enter into new combinations, evolving both light and heat, which at once maintain life and render it a state of enjoyment and usefulness. For this purpose in Britain, we chiefly employ fossil fuel, stored up in the secret places of the earth, and, therefore, we attach less importance to recent wood; but other parts of the world are not so favourably situated, and to the inhabitants of these places fresh, or but lately felled, wood is necessary for their existence. Even in France, though partially possessed of coal, it is estimated that the quantity of wood employed to supply heat, whether for comfort, cooking, or in manufactures which require a high temperature, amounts to seven-tenths of the entire consumption. The superiority of wood fuel, whether fossil or recent, over every other material resorted to with a like intention, shall be shown in a subsequent part of this paper. I therefore pass on at present to demonstrate the utility of vegetable substances in affording the means of subsistence to man and animals.

[21]

In the observations I am about to make, it is impossible to avoid anticipating some of the remarks which belong to the subject of fruits and seeds as articles of food, since the same principles of nutriment are found in the stems of certain plants as are deposited in the fruits or seeds of others.

Though man is omnivorous, and can subsist either on animal or vegetable food—an arrangement which fits him to dwell in any part of the habitable globe,—yet he is subject, with regard to the actual material of his diet, in a remarkable manner, to the influence of climate, since a particular kind of aliment, which is very appropriate in one country is improper in another; thus, as we advance from the equator towards the poles, the necessity for animal food becomes greater, till, in the very north, it is the sole article of subsistence. Animal food, from containing nitrogen, is more stimulating, and, therefore, less suitable for hot climates, where, on the contrary, saccharine, mucilaginous, and starchy materials are preferred; hence, in the zone of the tropics, we find produced in abundance rice, maize, millet, sago, salep, arrowroot, potatoes, the bread-fruit, banana, and other watery, or mucilaginous fruits. Quitting this zone, we enter that which produces wheat, and here, where the temperature is lower, providence has united with the starch of this grain a peculiar principle (gluten), possessing all the properties of animal matter, and yielding nitrogen and ammonia in its decomposition<sup>[E]</sup>. Thus, by a gradual and almost insensible transition, nature furnishes to man the food which is most appropriate for him in each region. In the subtropical zone vegetable diet is still preferred, but, in chemical constitution, the favourite articles approximate animal substances. This holds also in the temperate zone, not only in respect of wheat, but also in the chesnut, which is almost the sole means of subsistence in some of the mountainous regions of France, Italy, and Spain, though, instead of the gluten of wheat, this seed contains albumen, the relation of which to animal food is even closer than that of gluten. In reviewing the geographical distribution of the cereal grains<sup>[F]</sup>, we find that starch nearly pure is produced in the greatest abundance in the hottest parts of the world, particularly in rice and maize; it becomes associated in the subtropical regions with an equivalent for animal food; and in still colder regions, where wheat fails, oats and barley take its place. These, though possessed of less gluten than wheat, are, nevertheless, more heating, and, therefore, better calculated for northern latitudes. The inhabitants of Scotland and Lapland, with their oaten and barley or rye bread, are thus as thoroughly provided with the best food, as the Hindoo with his rice or Indian corn<sup>[G]</sup>.

It would be impossible to enumerate the plants which furnish starch in large proportion, but a few may be given as illustrative of the above positions. The chemical analysis of those proximate principles of plants which are mere combinations of water with carbon (hydro-carbonates or hydrates of carbon) has been already given, but must here be repeated:—

	100 parts consist of	
	Water.	Carbon.
Gum (pure gum-arabic)	58.6	41.4
Sugar (pure crystallized)	57.15	42.85
Starch	56.00	44.00
Lignin	50.00	50.00

These are so many mutually convertible products, of which gum may be looked upon as the basis; indeed gum is that organizable product which exists most universally in the proper juices of plants. "There are some instances in which sugar appears to be the first organic compound formed by the combination of the external elements, as when abundantly existing in the ascending sap of trees—the maple, for example. Starch may be considered as little else than gum divided into minute portions, each of which is enclosed in a membranous cell (and containing some incidental particles, which, when starch is burnt, leave about .23 per cent. of residuum, consisting entirely of phosphates); and, in this state, it appears to answer very important ends in the vegetable economy. It is remarked by Decandolle, that, 'while gum itself may be considered the nutrient principle of vegetation, diffused freely through the structure of the plant, and constantly in action, starch is apparently the same substance, stored up in such a manner as not to be readily soluble in the circulating fluids,' thus forming a reservoir of nutritious matter, which is to be consumed, like the fat of animals (which it closely resembles in structure), in supporting the plant at particular periods[H]."

This view explains the fact of starch being found accumulated in amazing quantity in some plants, more particularly at certain periods of their existence, as in the cases I am now to cite. The fertility of some palm-trees is very great, and to furnish nutriment to the flowers, fruit, and seeds, an enormous supply of starch is needed; accordingly, in these we find the stem a complete storehouse of this essential principle. Thus the several palms and palm-like plants, which yield sago, such as the *sagus Rumphii*, *cycas circinalis*, *C. revoluta*, *corypha umbraculifera*, *caryota urens*, and *phoenix farinifera*—trees which are mostly confined within the tropics, at the moment when the spadices or sheaths containing the bunches of flowers are visible but not unfolded, furnish an immense portion of the food of the natives. The *sagus Rumphii*, which abounds in the islands of the Indian Archipelago, and though one of the humblest of the palm tribe, seldom exceeding thirty feet in height, is yet, except the gomuto, the thickest and largest, alone yields a quantity of nutritious matter far exceeding that of all other cultivated plants, inasmuch as a tree in its fifteenth year produces 600 lbs. of sago, which word, in the language of the Papuas, signifies *bread*, being the staple food of the islanders. To obtain it, the tree must be cut down, and the stem divided into pieces, from which the flour is beaten and washed out[I]. After being cut down, the vegetative power still remains in the root, which again forms a trunk, and this proceeds through its different stages, until it is again subjected to the axe, and made to yield its alimentary contents for the service of man. Nor is the extraordinary productiveness of a single tree the only point worthy of notice, for, being endogenous plants, devoid of branches, an unusual number of them can grow in a small space. Mr. Craufurd calculates that an English acre could contain four hundred and thirty-five sago trees, which would yield one hundred and twenty thousand five hundred pounds avoirdupois of starch, being at the rate of more than eight thousand pounds yearly. Besides the farina or meal, every tree cut down furnishes, in its terminal bud, a luxury which is as much prized as that of the *areca oleracea*, or cabbage palm of the West Indies, and which is eaten either raw as a salad, or cooked. Further, the leaves afford so excellent a material for covering houses, that even in those hot and humid parts of the world, where decomposition goes on so rapidly, it does not require to be renewed oftener than once in seven years.

[22]

The *Mauritia flexuosa*, or fan palm of the Oronoco, is of still greater utility to the natives of South America. It is a social palm, abounding in the marshes, and having a geographical range of very vast extent. The whole northern portion of South America, east of the Cordilleras, appears to be possessed of this gorgeous palm; from the mouth of the Oronoco to the river Amazon, and through the whole of Guiana, through Surinam and the northern part of Brazil, and in very various places along the river Amazon, even to its source on the eastern declivity of the Cordilleras, this palm is found, constituting forests of greater or less extent. Its smooth grey stem rising often 100 feet, forms groups that, in the northern part of Brazil, resemble the pallasades of some gigantic fortress. The produce of these lofty cylinders is very great, not merely of sago, which is procured only when the process of flowering is about to occur, but many trees being cut down before this event, a juice is obtained from them, which forms, by fermentation, a sweet wine; while those that flower, after which no good sago can be got, furnish an extraordinary quantity of fruit, hanging in bunches many feet in length, which is as agreeable as ripe apples, the taste of which it resembles. The other products of this tree are numerous[J].

It would lead beyond just limits, were we to notice in detail, the plants which yield starch suitable for food, only after undergoing a process of art, by which an acrid principle is driven off, and a bland, wholesome substance remains behind. Such is the Janipha (or Jatropha) Manihot, which yields the Mandioca, Tapioca, or Cassava, an article not only of great consumption in, but also of considerable export from, Brazil (see Spix and Martius' Travels, and Lib. of Enter. Knowledge, Vegt. Sub. Food of Man, p. 152), which, when raw, is poisonous both to man and cattle, though it becomes safe and agreeable by the application of heat. So likewise the large tubers of several *Arums*, such as *A. Macrorhizon*, *A. Colocasia*, *Caladium acre*, and which are cultivated with great care in tropical and subtropical countries, particularly in the Sandwich and South Sea islands. All of these excite inflammation and swelling of the mouth and tongue, even to the danger of suffocation, but which are disarmed of their virulence, and converted into an article of daily consumption, by fire. Even yams and sweet potatoes, which are naturally mild, are less articles of consumption in the south sea islands, than the Tarro, as these tubers of the *arums* are designated.

I omit all other plants to fix attention on the potatoe, which is not only the source of the purest starch of all, but has many interesting points connected with its history and habitudes, peculiarly

connected with my subject. No plant has contributed more to banish those famines which were formerly of so frequent occurrence in Europe, and all the dire train of suffering and disease consequent upon them. Yet did it, in many instances, require royal edicts to induce some nations to cultivate what is now regarded as one of the prime blessings of Providence, from nearly one end of the earth to the other; the potatoe being raised from Hammerfest, in Lapland, lat. 71° north, through all Europe, the plains of India, in China, Japan, the south-sea islands, New Holland, even to New Zealand. What renders it so peculiarly valuable is, that in the seasons when the corn crop fails, that of potatoes is generally more abundant; thus furnishing a substitute for the other, which proves defective from atmospheric conditions, which have little influence over the potatoe, placed as it is underground, and secure against extremes of temperature. The potatoe is not a root, as commonly supposed, but an underground collection of buds, having a quantity of starch accumulated around them, for their nourishment when they begin to grow. The quantity of starch varies greatly with the kind of potatoe cultivated, the mode of cultivation, the time of setting, and above all, with the season of the year when the analysis is made. Potatoes in general, afford from one-fifth to one-seventh their weight of dry starch<sup>[K]</sup>; besides some other nutritive materials. The quantity of starch seems to be at its maximum in the winter months; as 100 pounds of potatoes yield in August about 10 lbs., in October nearly 15 lbs., in November to March 17 lbs., in April 13¾ lbs., and in May 10 lbs. Nor is the quantity of starch alone diminished in spring, but the nitrogen which belongs to some of the other nutritive principles, likewise suffers a deduction; as fresh, not dried potatoes, contain 0.0037 per cent. of azote, while potatoes ten months old contain only 0.0028, causing a sensible difference in their power of imparting nourishment. The starch is withdrawn from the tubers of the potatoe, precisely in the same way that it is transferred from the root, stem, or seeds of other plants, for the service of the young shoot; but the mode in which it is accomplished is but of recent discovery, and constitutes one of the most beautiful instances of design which the whole vegetable kingdom can unfold; "that man's scepticism must be incurable who does not perceive, and acknowledge, that the means now to be detailed were created for the express accomplishment of the ends<sup>[L]</sup>."

[23]

Starch has been described above as consisting of a multitude of little cells or vesicles, having an envelope, insoluble in water, formed of a kind of organized membrane, and containing within it a substance which is soluble in water, termed amidin. This soluble material is the nutritive element on which the young shoot, proceeding from every eye or bud of the potatoes, is to subsist, till it has developed roots, and unfolded its leaves to prepare additional alimentary substance. But if this soluble material be enclosed in an insoluble membrane, how are the contents to be made available for the growth of the plant? It is true, indeed, that water of the temperature of 160° Fahr. can rupture this tegument, as occurs in the process of boiling potatoes; but the water diffused through the earth in the neighbourhood of the growing tuber, never reaches such a height. How then is the difficulty obviated? This is effected by a secretion called *diastase* which is found in the tubers in the immediate vicinity of the eyes or buds. "It is stored up in that situation for the purpose of being conveyed, by the vessels connected with the bud, into the substance of the tuber, when the demand for nutrition is occasioned by the development of the shoot. It is probable that the secretion of *diastase* takes place in every instance in which starch previously deposited is to be re-absorbed<sup>[M]</sup>." It is not to be found before grains or tubers begin to sprout, yet, "such is its energy, that one part of it is sufficient to render soluble the interior portion of two thousand parts of starch, and to convert it into sugar<sup>[N]</sup>." Strong as is the analogy between starch and gum, yet *diastase* does not convert gum into sugar; the one being as completely soluble as the other, its intervention is clearly unnecessary. Neither does it act on sugar. It is found, and exerts its powers, only where it is required. Nor does it come into play one moment before the necessity for it occurs. While the potatoe is in its state of winter repose, and no vegetative process going on, the elements of which the *diastase* is formed, are equally quiescent, but no sooner does the season recur when an augmented temperature rouses the slumbering energy of the tuber, than this potent principle exhibits its efficacy, and changes the insoluble starch into the nutritious sugar. Who, that can read, or reading reflect and ponder on these things, but must conclude that the laws which regulate the whole actions were impressed upon their subjects by a Creator infinite in design, in wisdom, and in power? If such insight into his doings are permitted to us now, what may we not hope for when we no longer "see as through a glass darkly<sup>[O]</sup>?"

The insolubility of the starch in cold water, affords a convenient means of separating the flour from the other materials, by which it may be abstracted from the tubers when in the greatest abundance, and be preserved unchanged for the use of man. This is done by simply rasping down the potatoes over a seirce, and passing a current of water over the raspings. The water passes through the seirce milky from the starch suspended in it. The starch is allowed to fall to the bottom, and is two or three times washed with pure water; it is then allowed to dry<sup>[P]</sup>. If this process be followed in the winter months, when the quantity of starch is greatest, the result is, a sixth portion of the weight of the potatoes employed, in a condition fit not only for immediate use, but capable of preservation for years. "To those who live solely, or even principally, on potatoes, it must be of immense importance to have the nutritious part preserved when in its greatest perfection, instead of leaving it exposed to injury, decomposition, or decay<sup>[Q]</sup>."

It is unnecessary to enlarge upon the sources of starch and its obvious utility to mankind. Previous to its being consumed by the plant in which it is amassed, it is by various means, but chiefly by *diastase*, transformed into sugar. Following this natural transition, I shall next consider sugar as an article of diet. In temperate climates, sugar is regarded as a luxury, one indeed which is nearly indispensable, but in tropical countries it is a universal article of subsistence, partly as real sugar, and partly, and more generally, as it occurs in the cane. It is inconceivable what

enormous quantities of the sugar-cane is consumed in this way; vast ship-loads arrive daily in the market at Manilla, and in Rio Janiero; in the Sandwich Islands and other places, every child is seen going about with a portion of sugar-cane in the hand. It has been called "the most perfect alimentary substance in nature," and the results, in the appearance of the negroes, during the cane-harvest, notwithstanding the increased severe toils of that season, seem to confirm the statement. They almost invariably become plump, and sleek, and scarcely take any other food while the harvest lasts; even the sickly revive, and often recover their health.

The chief source of sugar is large grass (*saccharum officinarum*), of which there are several varieties, differing essentially in productiveness, but the best of which is the Otaheita cane, the stem of which is higher, thicker, and more succulent than the Creole cane, and which yields not only one-third more of juice than the Creolian cane on the same space of land; but from the thickness of its stem, and the tenacity of its ligneous fibres, it furnishes much more fuel. One variety was known in India, in China, and all the islands of the Pacific ocean, from the most remote antiquity; it was planted in Persia, in Chorasán, as early as the fifth century of our era, in order to obtain from it solid sugar. The Arabs carried this reed—so useful to the inhabitants of hot and temperate countries—to the shores of the Mediterranean. In 1306, its cultivation was yet unknown in Sicily, but was already common in the island of Cyprus, at Rhodes, and in the Morea. A hundred years after it enriched Calabria, Sicily, and the coasts of Spain. From Sicily the Infant Henry transplanted the cane to Madeira; and from Madeira it passed to the Canary islands. It was thence transplanted to St. Domingo, in 1513, and has since spread to the continent of South America, and to the West Indies, whence the chief supply for Europe is obtained.

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The vast circuit which it has described in these successive transplantations attest the sense which mankind had of the benefits it bestowed in its course. The introduction of the Otaheita cane is another proof of the obligations which modern times are under to navigation, as we owe this plant to the voyages of Bougainville, Cook, and Bligh[R].

The sugar-cane requires for its perfection, a temperature of considerable elevation, and succeeds best where the mean temperature is 24° or 25° (of the centigrade thermometer), yet it will prosper, though with less produce, where it only reaches 19° or 20° (centigrade). Its cultivation extends from the verge of the ocean, where the canes are often washed by the waves[S], to localities on the mountains 3,000 feet above the sea; and even in the extensive plains of Mexico and Colombia, where, from the reflection of the sun's rays the heat is greatly increased, to 4,000, 5,000, 6,000, though the mean temperature of the city of Mexico be only 17° (centigrade), yet sugar is procured at 6,600 feet.

The fertility and productiveness of the sugar-cane is immense, second only to the sago-palms. "The first sugar-canes planted with care on a virgin soil, yield a harvest during twenty to twenty-five years, after which they must be replanted every three years." In the island of Cuba, instances are known of a sugar-plantation existing for forty-five years. To procure new plants, the tedious process of sowing seeds is not necessary. The practice is followed of taking cuttings, and the stools, or scions, which spring from the joints (*nodî*) of the old plant, are fit to be separated in fourteen days; these, in the course of a year, are so well grown that they may be cut down, and submitted to the sugar-mill. An English acre under culture for sugar, in Java, yields 1285 pounds avoirdupois of refined sugar, and the produce at Cuba is nearly the same.

Let not the thought arise, on the perusal of these statements, that the gifts of Providence are distributed with partiality, as nothing could be more unfounded. Independent of the destruction of the plantations which tropical hurricanes so often occasion, an insect of the locust kind, more particularly in the East Indies, produces such fearful devastation as to realize the scene described by the prophet Joel—"A fire devoureth before them, and behind them a flame burneth: the land is as the garden of Eden before them, and behind them a desolate wilderness; yea, and nothing shall escape them[T]." From such visitations, northern latitudes are generally exempt, and the constant struggle which man has had to maintain with the elements and a churlish soil, has so whetted his faculties as to render the return for his labour not only more certain, but even more abundant[U].

As if to shew that "the earth full of the riches of the Lord," in parts of the world where the low temperature is an obstacle to the profitable cultivation of the sugar-cane, a substitute is found for it in the *acer saccharinum*, or sugar-maple, which presents the great peculiarity of the ascending sap being charged with sugar to such a degree as to be then fit for the manufacture of this valuable substance. There results from this circumstance a most important advantage to the inhabitants of the northern regions, where this tree grows, that the juice is extracted early in spring, a time when the rigour of the season condemns the labourer to inactivity. Besides, the sugar-maple grows spontaneously, and requires no care, till it is fit for tapping; and when deprived of its juice, and incapable of yielding more sugar, its wood is applicable to a far greater number and variety of uses than the bruised cane, since as fuel the maple is most valuable; and its ashes yield, from their richness in the alkaline principle, four-fifths of the potash exported to Europe from Boston and New York. The timber of the sugar-maple is also highly prized, both for common and ornamental purposes—as the beautiful bird's-eye maple is obtained from this tree.

"The sugar-maple begins a little north of Lake St. John, in Canada, near 48° of north lat., which, in the rigour of its winter, corresponds to 68° of Europe. It is nowhere more abundant than between 46° and 43° of north lat., which space comprises Canada, New Brunswick, Nova Scotia, the states of Vermont and New Hampshire, and the district of Maine. Farther south, it is common only in Genessee, in the state of New York, and in the upper parts of Pennsylvania. It is estimated



by Dr. Rush, that in the northern part of these two states, there are 10,000,000 acres which produce these trees in the proportion of thirty to an acre. The process of making maple-sugar is commonly begun in February, or in the beginning of March, while the cold continues intense, and the ground is still covered with snow. The sap begins to be in motion at this season, two months before the general revival of vegetation. The sap continues to flow for six weeks; after which it becomes less abundant, less rich in saccharine matter, and sometimes even incapable of crystallization. In this case it is consumed in the state of molasses; or exposed for three or four days to the sun, when it is converted into vinegar by the acetous fermentation: a kind of beer is also made of it. The amount of sugar produced by each tree in a year varies from different causes. The yearly product varies from 2 lbs. to 4 lbs. for each tree<sup>[VI]</sup>." The sap is most abundant from young trees, but less charged with sugar. The average produce is five per cent. of sugar. The richer the sap is in saccharine matter, it is so much the more profitable to extract it, as in such a case it is nearly pure from all mucilaginous matter, or free acid, and may be consolidated by the action of cold alone by merely freezing it, thus rendering boiling unnecessary.

Sugar exists in many other plants, such as the beet-root, from which it is extracted; and also the stem of the maize, or Indian corn, is charged with an extraordinary quantity of sugar, and it may either be brought to the state of a honey-like sugar, or the juice pressed out of the stalk, and fermented, forming the *pulque de mahio*, or *pulque de Flaolli*, in Mexico<sup>[VII]</sup>.

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Gum has been already stated to be the basis of all the other organizable products, and it is found not only in almost all plants, but in nearly all parts of them. In a pure or nearly isolated state, it exists chiefly in the inner bark of vascular and especially exogenous trees, and is preserved in the interior with the greatest care: its escape externally results either from disease, as in the case of plum and cherry-trees, from the puncture of insects, cracks in the bark, or by artificial incisions. The death of the tree soon follows the loss of this important juice, and thousands of trees of the genus acacia are annually sacrificed in different parts of Africa to procure the gum-arabic of commerce. It is only in a few genera and tribes of trees, that it exists in so concentrated a state as to assume the solid form on exposure to the air, but in some of these the quantity is amazing. Hot countries are the chief abodes of such trees. Thus, besides the immense quantity obtained from the acacias, the *anacardium occidentale* (cashew-nut tree) in America, has furnished from a single tree a mass weighing forty-two pounds. Gum is mawkish, insipid, and generally unpalatable, yet highly nutritive; and the Africans, during the harvest of gum at Senegal, live entirely upon it, eight ounces being the daily allowance for each man. In general they become plump on this fare; and such should be the result, if the calculation be correct, which assigns as great nutritive power to four ounces of gum as to one pound of bread. This concentration of nourishment renders gum a peculiarly suitable food for lengthened journeys through the deserts, as it occupies small compass, and a little suffices to stay the cravings of hunger. Thus, upwards of a thousand persons may occupy more than two months in a journey from Abyssinia to Cairo without any other kind of food<sup>[X]</sup>. Its bland, demulcent properties fit it to correct the acrimony of the secretions formed under the influence of a tropical sun and torrid air, with a scanty and irregular supply of water. Plants, likewise, are preserved in a vegetative and living state, mid sandy and arid wastes, by the quantity of gum stored up in them. Hence succulent plants, such as cacti and others, may be found in the steppes and sandy plains of South America, verdant and healthy, though no rain may fall to convey fresh sap into them for months, or even a year. In the form of mucilage, *i. e.*, gum in a state of solution, it is found in a very large number of plants, and thus contributes to the maintenance of man and animals. In these it is generally associated with some other principles, which render it either more palatable or more easily digested. A very large number of our esculent vegetables owe their nutritive properties to the gummy matters with which they abound, and the favour with which they are regarded to the other matters united with it. Those which have a bitter principle are very excellent, when this is in small proportion; and as, in most of them, the gummy matter is prepared first, requiring for its formation only a moderate degree of light and heat, while the bitter, or other principle, is added at a later period, under the influence of stronger light; such plants, when young, are tender and agreeable; nay, even very poisonous plants, when very young, are wholesome and pleasant, which, at a more advanced season, are virose and disagreeable. Thus, the peasantry of France and Piedmont eat the young crowfoots (*ranunculus*) and poppies, after boiling them, and find them safe and nourishing. The same result follows exclusion of light, as in the process of blanching, by which means celery, sea-kale, and other vegetables, are rendered esculent, which in the wild state are poisonous or repulsive. In northern latitudes, the light being intense for a short time only, many plants are used there which, in the southern, are dangerous or destructive, such as hemlock and monkshood. A moderate degree of bitterness is a very useful accompaniment of the gum, which alone is cloying and even oppressive to the stomach. The presence of a bitter principle in many lichens promotes their digestion, and thus even the tough and leathery ones, called tripe of the rocks, can be eaten, and sustain life amid great privations and sufferings. The rein-deer moss (*cludonia rangiferina*) is another lichen of great utility: it is not much employed as human food, but it is the main support of the rein-deer for a great portion of the year, and thus renders Lapland a fit abode for man.

A peculiar modification of gum constitutes *pectine* or vegetable jelly; and this occurs in fruits, such as the orange, currant, and gooseberry, &c., also in many of the algae or sea-weeds, which are, or ought to be, much employed as a delicate article of nourishment. The edible swallow's nest, so greatly esteemed by the Chinese, is an alga, gathered by the birds. The Ceylon moss (*Gigartina lichenoides*), and the carrageen or Irish moss (*Chondrus crispus*), with many others, might be made to contribute largely to the subsistence of man. Not merely earth, from its fruitful bosom, but the vast ocean, offer their rich produce to nourish and sustain the only intelligent

occupant of the globe, who should ever remember the declaration of the psalmist, "O Lord! how manifold are thy works! in wisdom hast thou made them all: the earth is full of thy riches; so is the great and wide sea!" (Ps. civ.)

## FOOTNOTES:

- [A] The Greeks used to say that reeds had contributed to subjugate a people, by furnishing arrows; to soften their manner, by the charm of music; and to develop their intelligence, by offering them the instruments proper for the formation of letters.—*Humboldt's Personal Narrative*.

"The reed presents itself as an object of peculiar veneration, when we reflect that it formed the earliest instrument by which human ideas, and all the charms of literature and science were communicated, and which has handed down to us the light of religion and the glow of genius from the remotest ages."—*Drummond's First Steps to Botany*.

- [B] "The Guaraons, a free and independent people, dispersed in the Delta of the Oronooko, owe their independence to the nature of their country; for it is well known that, in order to raise their abodes above the surface of the waters, at the period of the great inundations, they support them on the cut trunks of the mangrove tree, and of the *Mauritia flexuosa*."—*Humboldt, Personal Narrative*, vol. iii. p. 277. The same people make bread of the medullary flour of this palm, which it yields in great abundance, if cut down just before going to flower.—*Ibid.*, vol. iii. p. 278. To these circumstances Thomson alludes:—

"Wide o'er his isles the branching Oronooque  
Rolls a brown deluge, and the native driven  
To dwell aloft on life-sufficing trees,  
At once his home, his robe, his food, his arms."

- [C] The connection of navigation with the progress of civilization is most intimate, as may be understood from the following passage:—

"Among the circumstances which have contributed to retard the progress of civilization in Africa, one of the most important and influential is the compact and undivided form of the African continent, and the natural barriers which render access to the greater regions of the interior so remarkably difficult. It has been observed by Professor Ritter, that the civilization of countries is greatly influenced by their geographical forms, and by the relation which their interior spaces bear to the extent of coast. While all Asia is five times as large as Europe, and Africa more than three times as large, the littoral margins of these larger continents bear no similar proportion to their respective areas. Asia has seven thousand seven hundred geographical miles of coast; Europe four thousand three hundred, and Africa only three thousand five hundred. To every thirty-seven square miles of continent in Europe, there is one mile of coast; in Africa, only one mile of coast to one hundred and fifty square miles of continent. Therefore the relative extension of coast is four times as great in Europe as in Africa. Asia is in the middle between these two extremes. To every one hundred and five square miles, it has one mile of coast. The calculation of geographical spaces occupied by different parts of the two last-mentioned continents, is still more striking. The ramifications of Asia, excluded from the continental trapezium, make about one hundred and fifty-five thousand square miles of that whole quarter, or about one-fifth part. The ramifications of the continental triangle of Europe form one-third part of the whole, or even more. In Asia the stock is much greater in proportion to the branches, and thence the more highly advanced culture of the branches has remained, for the most part, excluded from the interior spaces. In Europe, on the other hand, from the different relation of its spaces, the condition of the external parts had much greater influence on that of the interior. Hence the higher culture of Greece and Italy penetrated more easily into the interior, and gave to the whole continent one harmonious character of civilization, while Asia contains many separate regions which may be compared, individually, to Europe, and each of which could receive only its peculiar kind of culture from its own branches. Africa, deficient in these endowments of nature, and wanting both separating gulfs, and inland seas, could obtain no share in the expansion of that fruitful tree, which, having driven its roots deeply in the heart of Asia, spread its branches and blossoms over the western and southern tracts of the same continent, and expanded its crown over Europe. In Egypt alone it possessed a river-system, so formed as to favor the development of similar productions. Die Erdkunde von Asien, von Carl Ritter. 2. Band. Einleitung. §24, 25. Berlin, 1832."—*Pritchard, Researches into the Physical History of Mankind. Third Edit.* Vol. ii., p. 354.

- [D] "Was it not for the manifestation of this brighter era, and the realization of its promised blessings, that all else which preceded it was overruled by divine Providence, as subservient and preparatory? All things being now ready, there began to spring up in the bosom of the British churches, a wide and simultaneous sense of the solemn responsibility under which they had been laid by the events of Providence, to avail themselves of so favorable an opening for the diffusion of the gospel throughout the eastern world. Men, qualified to undertake the high commission, must be sent across the ocean—and have not the toils, and perils, and successes, of Vasco de Gama, and other navigators, opened up a safe and easy passage? That their labours might pervade the country, and strike a deep and permanent root into the soil, they must be delivered from the caprices of savage tyranny, and the ebullitions of heathen rage; and have not our Clives and our Wellingtons wrested the rod of power from every wilful despot; and our Hastings and our Wellesleys thrown the broad shield of British justice and British

protection alike over all? In order that they might the more effectually adapt their communications to the peculiarities of the people, they must become acquainted with the learned language of the country, and through it, with the real and original sources of all the prevailing opinions and observances, sacred and civil. And have not our Joneses and our Colebrookes unfolded the whole, to prove subservient to the cause of the Christian philanthropist? In this way have our navigators, our warriors, our statesmen, and our literati, been unconsciously employed, under an over-ruling Providence, as so many pioneers, to prepare the way for our Swartzes, our Buchanans, our Martins, and our Careys.”—*Duff’s India and India Missions*.

- [E] The relative proportions of starch and gluten in rice, wheat, and other seeds, not only confirm the views respecting design, in determining their geographical distribution, but merit notice, as influencing their nutritive qualities, and fitness or unfitness as food in different countries.

			Starch.	Gluten.
Wheat,	according to	Proust	74.5	12.5
—	—	Vogel	68.0	24.0
Winter wheat	—	Davy	77.0	19.0
Spring wheat			70.0	24.0
Spelt	—	Vogel	74.0	22.0
Barley	—	Davy	79.0	6.0
Rye	—	Do.	61.0	5.0
Oats	—	Do.	59.0	6.0
Rice Carolina	—	Vogel	85.07	3.60
Maize	—	Bizio	80.92	0.
Tartarian buckwheat			52.29	10.47

Not only do the relative proportions of starch and gluten vary in the same seed when grown in different countries, but even when grown in the same country, according to the kind of manure put on the soil, a point of great importance to agriculturists, when known and attended to.

- [F] See “Church of England Magazine,” vol. vii. p. 52-3-4.

- [G] “I have been informed by Sir Joseph Banks, that the Derbyshire miners, in winter, prefer oat-cakes to wheaten bread, finding that this kind of nourishment enables them to support their strength and perform their labour better. In summer they say oat-cake heats them, and they then consume the finest wheaten bread they can procure.”—*Sir H. Dacy’s Agricultural Chemistry, 5th edit., p. 143*.

The propriety and advantage of this practice is established by the recent investigations of Boussingault, who found that oats contain more than double the quantity of nitrogen which exists in any of the other cereal grains.—*See Annales de Chimie et de Physique, tom. lxxvii. p. 408-21*.

- [H] Carpenter’s “General and Comparative Physiology,” p. 272 and Dr. Prout’s “Bridgewater Treatise,” book iii.

- [I] See Forrest’s “Voyage to the Moluccas;” Craufurd’s “Indian Archipelago, or Library of Entertaining Knowledge, Vegetable Substances, Food of Man,” p. 171.

- [J] “In the season of inundations, these clumps of the *Mauritia*, with their leaves in the form of a fan, have the appearance of a forest rising from the bosom of the waters. The navigator in proceeding along the channel of the delta of the Oronooco at night, sees with surprize the summits of the palm-trees illuminated by large fires. These are the habitations of the Guaraons (see Sir W. Raleigh’s *Brevis Descript. Guianæ, 1594, tab. 4*), which are suspended from the trunks of trees. These tribes hang up mats in the air, which they fill with earth, and kindle on a layer of moist clay the fire necessary for their household wants. They have owed their liberty and their political independence for ages, to the quaking and swampy soil which they pass over in the time of drought, and on which they alone know how to walk in security to their solitude in the delta of the Oronooco, to their abodes on the trees, where religious enthusiasm will probably never lead any American Stylites (*see Mosheim’s Church History*). This tree, the tree of life of the missionaries, not only affords the Guaraons a safe dwelling during the risings of the Oronooco, but its shelly fruit, its farinaceous pith, its juice, abounding in saccharine matter, and the fibres of its leaves, furnish them with food, wine, and thread proper for making cords and weaving hammocks. It is curious to observe in the lowest degree of human civilization, the existence of a whole tribe depending on one single species of palm-tree, similar to those insects which feed on one and the same flower, or on one and the same part of a plant.”—*Humboldt, Person. Narrative, vol. v. p. 728*.

- [K] Davy’s *Agricultural Chemistry, p. 133*.—According to Mr. Knight the best potatoes, such as the Irish apple, possess much greater specific gravity than the inferior sorts, and this variety yields nearly 20 per cent. of starch; while five pounds of the variety called Captain Hart, yields 12 ounces of starch, and the Moulton White nearly as much, the Purple Red give only 8½, the Ox Noble 8¼. There is much more profit in cultivating the former than the latter sorts; but even the best kinds degenerate, and new sorts must be procured, as if to stimulate the ingenuity of man, by preventing his enjoying the gifts of God, without constant exertion, and observation of the laws which the Creator has impressed upon his productions. See the *Observations of Thomas Andrew Knight*, and the experiments now making by Mr. Maund, of Bromsgrove.

- [L] Duncan. *Sacred Philosophy of the Seasons*.

- [M] Carpenter’s *Physiology*.

- [N] Thomson's Chemistry of Organic Bodies: Vegetables, p. 667.
- [O] Vere magna et longe pulcherrima sunt etiam illa profundissimâ sapientiâ hic exstructa opera tua, O Jehovah! quæ non nisi bene armatis nostris oculis patent! Qualia autem erunt denique illa, quæ sublato hoc speculo, remotâ mortalitatis caligine daturus es tuis Te vere sincero Pectore colentibus? Eheu qualia! Hedwig.
- [P] Thomson's Chemistry. Vegetables, p. 630.
- [Q] On the Culture and Uses of Potatoes, by sir John Sinclair, bart. This is a subject becoming every year of greater moment, and attention to it a national benefit. The reduction of bulk alone, facilitating the transport from one place to another, is an essential gain. The produce, from a certain number of acres of this valuable esculent, may be greatly augmented by planting the potatoes whole, at a great distance between each, and hoeing freely between them—See *Knight's Papers in Horticultural Transactions, and Payen et Chevalier, Traité de la Pomme de Terre. Paris, 1826, p. 17.*
- [R] Humboldt. Personal Narrative, vol. iv. p. 84.
- [S] "Among the plants cultivated by man, the sugar-cane, the plantain (*musa*), the mammee-apple (*mammea*), and alligator-pear-tree (*laurus persea*) alone have the property of the cocoa-nut-tree, that of being watered alike with fresh and salt water. This circumstance is favorable to their migrations; and if the sugar-cane of the shore yield a syrup that is a little brackish, it is believed at the same time to be better fitted for the distillation of spirit, than the juice produced from the canes of the interior."—*Humboldt.*
- [T] "The quantity of these insects is incredible to all who have not themselves witnessed their astonishing numbers; the whole earth is covered with them for the space of several leagues. The noise they make in browsing on the trees and herbage may be heard at a great distance, and resembles that of an army in secret. The Tartars themselves are a less destructive enemy than these little animals. One would imagine that fire had followed their progress. Wherever their myriads spread, the verdure of the country disappears; trees and plants stripped of their leaves and reduced to their naked boughs and stems cause the dreary image of winter to succeed in an instant to the rich scenery of spring. When these clouds of locusts take their flight, to surmount any obstacles, or to traverse more rapidly a desert soil, the heavens may literally be said to be obscured by them."
- [U] "As the native of a northern country, little favoured by nature, I shall observe that the Marche of Brandebourg, for the most part sandy, nourishes, under an administration favourable to the progress of agricultural industry, on a surface only one-third that of Cuba, a population nearly double."—*Humboldt, P. N., vol. vii. p. 156.*
- [V] Loudon's Arboretum Britannicum, vol. i., p. 412.
- [W] For an interesting account of sugar, see Humboldt, *Nova Genera et Species Plantarum*, vol. i., p. 243.
- [X] Haselquist's Voyage.

## THE SECURITY OF GOD'S PEOPLE:

A Sermon,

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ROMANS VIII. 28.

"And we know that all things work together for good to them that love God."

Amongst the observations most frequently heard in the world, is that made on the undeserved prosperity of the wicked, and the many seemingly uncalled-for trials of the righteous. Experience will indeed tell us, that neither of these opposite conditions is uninterrupted; neither is it all sunshine in the most prosperous worldly lot; nor is it all gloom—far from it—in the Christian's portion on earth. Experience will also go further, and will abundantly prove the saying of the wise man, that "the prosperity of fools shall destroy them." Such success has a tendency first to deceive, then to corrupt, and lastly to betray men into utter destruction. But the text will lead us still further; it will teach us, that the trials of the righteous preserve them—yea, work for good; and that "all things," and, therefore, even the greatest trials, "work together for good to them that love God."

The text represents them as workmen. They work together for good; they are constantly at work for that purpose, whether as instruments in God's hands, or as in a degree self-moving for that end; they are constructing as it were a building, or they are laying a foundation; and that which they lay—that which all things befalling a Christian are ever laying for him—is a ground for his substantial, necessary, and eternal benefit. "We know that all things work together for good to them that love God."

This, then, it will be, with God's blessing, my humble endeavour to show in the following discourse: first, premising the sense of the word "good," in all just and reasonable acceptation; next, showing more fully how all things may be thus said to "work for good to them that love

God;" finally, pointing out some of the many things which will be found by experience to work in this very manner.

I. The term "*good*," it must be said in the first place, is very different, both in the language of the bible and in the estimation of the truly wise, from what it usually represents in the language and opinion of the world. The bible teaches us to view all things in their consequences, and in their real and essential nature. View things in their consequences, in their final end and issue, if you would view them at all justly or wisely. Ease, and health, and worldly wealth, and success may be good, just as the plentiful feast is good, provided a man has temperance and soundness of constitution properly to partake of it; but, if he is likely to indulge to a surfeit, or if every morsel is food to some mortal disorder, and every cup adds strength to a fever that is raging in his veins, no one in reason would call such an entertainment good to such a man. And just so with the good things of this present life: the Christian does not unreasonably deny that prosperity is pleasing, health desirable, friends and relations deeply attaching to us, and the smiles of social endearment or public favour greatly captivating; but neither does he, like the world, consider them to be necessarily all they seem to be, good to all persons, and under all circumstances; he does not forget that earthly and bodily good is just what it becomes in the use of it; that many times the use can hardly be separated from the abuse; that lawful things, when unlawfully or idolatrously used, are just as evil as unlawful ones—nay, rather, that for a few comparatively who have perished from a hardened course of forbidden pleasure, multitudes have been for ever lost by allowed indulgences. Till he sees, then, the application made, and the resulting consequences of any worldly boon, he does not call the possessor happy, nor the possession good, nor very eagerly or supremely does he desire it either for himself or others.

But, again, the things *really and essentially good* in their very nature and inseparable qualities are those which, in the estimation of the mere world, are held in no account whatsoever. What the bible chiefly esteems, and the world wholly neglects, are spiritual blessings,—the good things of the soul of man, "the precious things of heaven, even of the everlasting hills." Those precious things, the goodwill of him who is the great I AM—the peace of God which passeth all understanding—the luxury of promoting the good of man and the glory of God;—still more, the pardon of sin, through faith in the atonement of Jesus Christ—a gradual advancement in true holiness—a growing fitness and longing desire for the future blessedness of the saints, and a final admission and "abundant entrance into the everlasting kingdom of our Lord and Saviour," the "inheritance incorruptible, undefiled, and that fadeth not away;"—these are truly to the world but as a dream, a fancy, a cunningly-devised fable; but, to the mind of the Christian, stand for everything truly and substantially good. They are in all his plans first and foremost, and nearest and dearest to his heart. They are as necessary to him in his calculation and account of human happiness, as profit and pleasure are to his neighbours around. "Eye hath not seen, nor ear heard, nor the heart conceived, the things which God hath prepared for them that love him." But God hath revealed to *him* by his Spirit, these very things, as his chief good, his measure of all true happiness. Wealth may be good, health still better, kindly affections and attached friends the best of earthly boons; but the favour of God, the acquisition of his image, the means of grace, and the hope of glory, are to him sovereign and above all. While many ask, amidst the increase of their corn, and wine, and oil, "Who will show us any good?" he exclaims, "Lord, lift thou up the light of thy countenance upon me"—"in thy presence is the fulness of joy; at thy right hand are pleasures for evermore." He weighs well the nature, and "remembers the end" of all that is called good, and so "does not amiss."

II. For, secondly, he finds that, while we so do, and so consider, "all things work together for good to *those that love God*." There is, first, on the mind of the Christian that secret influence in the very disposition of love to God, which will *of itself* turn to good every thing that comes from the God whom we love, and the Saviour on whom we fully and implicitly rely. And there is, secondly, a full disposition on the part of *our heavenly Father* so to order and direct every event which befalls his loving and attached children, as shall be found at last to have answered the ends of sovereign wisdom and divine mercy.

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In the first instance, the tendency, *on our own part*, of love to the great and good God will be this, namely, to turn all that befalls us to an instrument of good. As, in the healthy body, food of very different descriptions may yet all turn to nourishment, and minister to health and bodily strength; so, in the healthy mind, purified and strengthened by the grace of God's Holy Spirit, every thing that meets it is converted to its advantage, and adds in some way to its improvement and its happiness. There is ever a colour cast upon outward circumstances from the complexion of the inward soul. The vain man, on his part, the ambitious, the sensual, the gainful, well know how to turn all to the advancement of their sinful objects; and no less does the good man turn all to the enlargement of his goodness, and the lover of his God to the increase and exercise of that love. Viewing every thing in the glass, or by the lamp of God's word, he ingeniously, so to speak, finds in every thing a reason for loving and fearing, serving and obeying God. Every event works for his good, because he is resolved it shall do so; and every result satisfies, pleases, rejoices him, because he is persuaded it ought to do so. Loving God, he has a confidence that he is beloved of God; and then, feeling himself in a world made by God, and proceeding forward under his guidance and permission, he never will believe that any thing falls out in it but what is intended to make him both good and happy. Happy then he will be, if God intends he should be so; and holy he will be encouraged to become, under the consciousness that God intends his holiness.

Dispositions like these will indeed work for their possessor even upon the hardest materials, and will, by the very force of a new and spiritual nature, convert all into "servants to righteousness

unto holiness." Faith will be a hand, bringing together the events of life and the framer and guide of all life and all existence; and the result will be a solemn and heart-satisfying conviction, that "all things work together for good to them that love God."

Nor, next, will such a faith prove to be groundless; for surely there is a *power engaged*, there is a pledge in the gospel, a sure word of promise, and even of covenant, that all things shall be ours;—"All are yours, and ye are Christ's, and Christ is God's." The trial of our faith lies indeed very much upon this one point. Can we, for a moment, believe that God permits all the disorder and confusion which appears to us in the world—the prosperity of wickedness, the trials and adversity of the righteous, in order to raise a doubt on our minds whether he be not absent all the while—whether he bears or not any share in the world he created, or in all those moving causes that owe their activity and life to himself alone? God is surely present; he is powerfully operating; he is the supreme controller, and the almighty director; he is fully aware of those adverse appearances, and is no less deeply engaged in the final issue of all events, to render them consistent with the ends of justice and mercy, than as if we saw him at work with our bodily eyes: or, as if we then could fully know the mind of the Lord, or be his counsellors to instruct him.

The expressions of scripture are too strong, and too agreeable to the very nature of God and of his works, to make us doubt for a moment of his providential care and unceasing watchfulness. "He is not far from every one of us; for in him we live, and move, and have our being." To the true disciple saith Christ himself, "The very hairs of your head are all numbered;" and yet more strongly, "If a man love me, he will keep my words; and my Father will love him, and we will come unto him, and make our abode with him." Promises, these, which have been ever realized in the history of the saints in all ages who have walked with God—Enoch, Noah, Abraham, and the patriarch Jacob—none more tried than he—yet we read *his* testimony to "the God, which fed me all my life-long unto this day; the angel which redeemed me from all evil."

Keeping in view the notion of what is truly good for this state of trial, and for the soul as well as for the body, there is no time and no extent to which we shall not find the promise sure, and the fulfilment exact, where God is pledged for the supply of his servants that trust in him: his eye is ever open, his ear ever attentive unto them. The petition he denies is able to operate as powerfully and as favourably on their behalf as that which he grants; merciful alike in the gift which he bestows and which he withholds, and wise alike in the evil which he permits, and which he restrains.

There is nothing more important to the believer's faith, than to apprehend that there is no uncertainty, nothing imperfect or weak in the dispensations of God, as they respect the final issue of the Christian's trials. Either God is wholly absent and forgetful of his daily wants, or else he is wholly and for ever at work on his behalf. If he were wholly absent, well might his servants doubt that, after all their endeavours to that end, they should be able to turn to good all the events of this mortal life. If *he* do not temper the trials of his servants, how in truth shall they overcome them? If *he* do not controul their enemies, how shall they ever escape them? Figure to yourself any place, or time, or circumstance, where God is not, or where he *can* be spared from the concerns of his people, either temporal or spiritual: but, if none can be imagined or assigned, then is it but justly and essentially true, that, by his especial order and his immediate appointment, "all things work together for good to them that love God."

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III. But we may proceed, lastly, to show, in a practical manner, *some of those very things* which shall thus work together for good. Take the most unpromising and most unfavourable case, for instance, that of *great prosperity*. None will deny it to be a case of many others the most trying to the graces of the true Christian. Yet even shall the temptations arising from worldly honours and successes, to a man armed with the love of God, work together for good. Graces rarely exercised in exalted stations, shall be found to shine the more conspicuously in his instance. The grace of humility, and tenderness of spirit, shall be the more eminently illustrated in that station, where, too often, there is only pride and hardness of heart. If he be found, in a sober, self-denying spirit, setting little value on those things so commonly called good amongst mankind—using this world without abusing it—shall not the grace of God be more abundantly magnified? When not overcome, as Agar feared he might be, saying, "lest I be full, and say, who is the Lord?"—but rather, when led by fulness to more gratitude, and by a lofty station to deeper humility, and to a more lowly submission to God, and meekness to man—how will he by such prosperity as this testify to the reality of Christian principles: how will he, in giving freely where he has freely received, esteeming even his highest gains as loss for Christ's sake, and returning upon others all that mercy which has been exercised towards himself, prove that *he* has not received the grace of God in vain; but that even prosperity has "worked together for good to them that love God."

Or, suppose the case of *deep adversity*—suppose the Christian stripped, like Job, of great honours and possessions at a single stroke; betrayed and sold like Joseph, even by brethren, into bondage and exile; or lying like Lazarus at the gate of the rich man, diseased in body, and suing for the crumbs from off his table; or suppose him, as St. Paul himself, in peril of foes, and even doubtful of friends; in weariness and painfulness oft, in hunger and thirst, in cold and nakedness. These last were exactly the circumstances under which the very text was indited by the apostle himself: he saw, what you may see, that trials like these, when tempered by the presence of the God he loved, were good, not, I would say, in proportion to their weight, but according to the patience which they exercised, the faith they strengthened, the experience of divine support they afforded, the hope they brightened, the crown they were preparing; yea, the exceeding and eternal weight of glory which they must eventually be working out. The apostle had "heard of the patience of Job," and had "seen the end of the Lord, that the Lord is very pitiful, and of tender mercy." The

trials of Joseph had even led that servant of God, by degrees of painful progress, to the honour of a prince, and a chain of gold. The “evil things” of Lazarus—good they might have been called—had led him to still higher honours, and had prepared him to be carried by angels into Abraham’s bosom. Every individual circumstance of this nature, as it passed in review before the apostle in the text, had led irresistibly to the conclusion he so strongly expresses. Could he distrust the same arm, disbelieve the same promises; or rather saying with David—“Our fathers trusted in thee, and were delivered,” would he not add—I will trust as they did; I will be “in subjection to the Father of spirits, and live?” Let me feel only the “profit, that I may be partaker of his holiness;” and then, “though no affliction for the present is joyous, but grievous,” it shall surely hereafter yield the peaceable fruit of true righteousness; and “all things,” adversity itself, “shall work together for *my* good.”

*Temptation*, verily, shall be among the “things working together for good to them that love God.” Such indeed is our state of trial upon earth, that every successive arrival at our doors comes to us in some shape or other of temptation to sin. But take the strongest and most pressing incitements to the corruptions of the heart, and the evil of our nature. Even of *these* must it not be said, that the temptation, and the tempter himself, may be turned into a worker for good, when that promise is brought forward, and brought home to the heart, “God is faithful, who will not suffer you to be tempted above what ye are able, but will with the temptation also make a way to escape, that ye may be able to bear it?” Another apostle had a like meaning when he said, “My brethren, count it all joy when ye fall into divers temptations.” Every enemy opposed to the Christian warrior affords him fresh opportunity for a sure victory in the strength of Christ. Every obstacle in his path is that which faith regards as a trial prepared for his soul; but hope and joy carry him over, to the glory of his sovereign Upholder. In evil company, which he seeks not, his courage is honourably put to the test, and abides it; amidst a world of licentiousness and excess, which he desires not to approach, he still trusts, through grace, that he shall not be found wanting. In a season of provocation his meekness is tried, and it prevails; and in the moment of fear, and the threats of alarm, “his heart standeth fast, trusting in the Lord;” “nay, in all these things he is more than conqueror through him that loved him.”

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If his very *sins* are in one sense his shame, and the source of his bitter tears and saddest recollections, still those tears and recollections shall prove among the workers for his good, if they lead him more closely to the throne of mercy, and to the fountain of eternal strength. If any experiences of past weakness make him more watchful, sober, and diligent for the future—if they direct him to the vulnerable points in his armour, to the “sin that easily besets him”—if, in the very moment of his conscious frailty and heart-overwhelming struggle, he is enabled to exclaim, “Rejoice not over me, O mine enemy; though I fall I shall arise; though I sit in darkness the Lord shall be a light unto me:” then shall he know that “*all things* work together for good to them that love God.”

I conclude with a single word of remark on the expression in the text, “We *know* that all things work together for good.” It expresses the *personal experience* of the Christian. It answers to a similar expression of the same apostle to the Philippians—“I know that this shall turn to my salvation through your prayer, and the supply of the spirit of Jesus Christ.” But to whom is this knowledge vouchsafed? To whom is it a safe and a sure conviction—an “earnest expectation and hope,” so “that in nothing we shall be ashamed?” Truly, to those only who “*love God*”—to those who are “the called according to his purpose.” His purpose is our sanctification, and that we should be “conformed to the image of his Son.” To such truly, to such only does that blessing apply, so frequently indeed, and but too rashly, appropriated by many others, “All is for the best.”

Let the careless rather tremble, those as yet not effectually called into the gospel vineyard, at such an appropriation of the text. To them it may be only a savour of death unto death, a deadly security, a hope that “*maketh* ashamed, because the love of God is *not* yet shed abroad in their hearts.”

Gain rather in prayer, in secret meditation and much retirement from the presence and the love of this world, the true love of God which is in Christ Jesus our Lord. Then being first transformed yourself, you will be enabled, by a divine power, to transform everything around you; you will receive all things as from the hand of the Father whom you love, the Benefactor and Friend whom you wish and aim to serve. Your willing and noble obedience to him will render, then, prosperity a new advantage to you by awakening your gratitude, and adversity a blessing, by exercising and perfecting your patience. You will have a fence around you, an armour of divine temper to fortify you in the presence of every temptation, and to turn the very weapons of your adversaries into your own instruments of victory, the trophies of your triumph. Sin will have its struggles within you, but will not gain dominion over you, while every deviation from God’s righteous will is mourned in secret, and restored through grace; and while it brings you the more urgently and constantly to the foot of the cross, where hung the Saviour whom you love, whose favour and forgiveness you implore; and you shall be enabled to close the volume of your experience in the concluding words of the chapter, and with the apostle himself: “Who shall separate us from the love of Christ?... I am persuaded, that neither death, nor life, nor angels, nor principalities, nor powers, nor things present, nor things to come, nor height, nor depth, nor any other creature, shall be able to separate us from the love of God which is Christ Jesus our Lord.”

# THE GLORY OF THE SAVIOUR'S TRANSFIGURATION. [Y]

“And was transfigured before them, and his face did shine as the sun, and his raiment was white as the light.”

There never existed in this world a person in whose life there was a greater variety of incident than in the life of Jesus. He passed through scenes of the most peculiar and diversified description, to which we can find no parallel in the history of man, the effect of which no ordinary mind could have borne. These were, in general, connected with that lowliness and debasement to which he submitted for the benefit of our sinful race; but occasionally, as at his birth, his baptism, and transfiguration, there burst forth some bright rays of glory from behind the dark cloud of his humanity, which proved his possession of a nature that was divine.

It may have a good effect in strengthening our gratitude for the Saviour's mercy, to remember that every complexion of circumstance was freely and voluntarily submitted to, not merely for his own satisfaction or benefit, but principally for the good of man. Jesus never lost sight of his representative character. He always remembered those whose cause he had espoused: and, whether he was led by the Spirit into the wilderness, to be tempted of the devil—or into the garden of Gethsemane, to sustain his more fierce and violent assaults—or to the mountain, to put on for a season the habiliments of light and glory—his chief object and desire was to effect the redemption, and to revive the hopes of weak and fallen man.

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We are now supplied by the Holy Spirit with a very brief account of the transfiguration itself. Before, however, we make any remark upon this description, or refer, as we desire to do, to the uses which this transaction was intended to serve, we must direct our attention for a few moments to the important preparation which the Saviour made for it. And here there are, perhaps, many who may be disposed to ask, had there not been sufficient preparation already? had not the Saviour endured much physical fatigue in accomplishing the wearisome ascent of the mountain? and had not the time, the place, and the spectators, been carefully selected by himself? Let it however be remembered, that in addition to all this, there was a necessary and absolutely indispensable preliminary, not to be omitted even by the Son of God, and that was prayer. It is said, by St. Luke, in the twenty-ninth verse of his ninth chapter, that “as he prayed, the fashion of his countenance was altered, and his raiment was white and glistering.” Let us learn from this, that not all the labour, mental or physical, which we can possibly exert, can ever bring us into the enjoyment of one momentary smile of God's countenance, if we neglect prayer. We may diligently peruse the records of redeeming mercy which the sacred page of scripture contains; we may place ourselves under the pastoral care of some faithful and devoted minister of Jesus; we may enjoy the high advantage of intercourse and communion with many spiritually-minded followers of the Saviour; yet, after all, we shall find no benefit from these distinguished privileges if we neglect to pray. How many Christians there are, who often wish they had a Luther for their minister, because they feel dissatisfied with their spiritual progress under him to whose charge they may have been entrusted by the great Head of the church! And yet the cause of this may be traced to their own want of constant and of earnest prayer. Prayer is the key that unlocks the holy place where Jesus meets his people at the mercy-seat, to dispense the gifts which have been purchased by his precious blood. And when the united petitions of ministers and people ascend in an unceasing stream of sacred incense to a throne of grace, blessings may be expected to descend in rich abundance on the church.

But perhaps it may be considered that we have digressed from our subject. We return, then, to the circumstance which more immediately claims our attention. We are informed that Jesus was praying when he was transfigured; nay, it is remarkable that St. Luke represents his special object of ascending the mountain to have been in order to devote himself to this sacred engagement. “It came to pass about an eight days after these sayings, he took Peter, and John, and James, and went up into a mountain to pray.” Prayer was as much the Saviour's duty, as it is the duty of any of his people. He had been expressly commanded by his Father to ask of him to give him the heathen for his inheritance, and the uttermost parts of the earth for his possession. All his works, whilst he was tabernacling in the flesh, were accompanied with prayer; and his present exaltation at the right hand of his heavenly Father, instead of suspending, rather imparts a more sublime intensity of fervour to his petitions. In vain had he shed his blood without this; for his prayers are as essential for the salvation of sinners, as his sufferings on the cross for their redemption; and therefore the apostle, in the twenty-fifth verse of the seventh chapter of the epistle to the Hebrews, connects the unlimited ability of Jesus to save, not only with his having offered himself as a sacrifice, but also with his ever living to make intercession for us. O! how welcome and delightful must be the accents of supplication to the ears of the Lord God of Sabaoth, when he withholds blessings, even from his well-beloved Son, until he ask for them! And how necessary is prayer, when Jesus cannot obtain blessings without it! There is a reserve manifested by the Holy Spirit in this, as in other instances, as to the contents of our Saviour's petitions. Most probably they had some reference to that splendid scene in his earthly history, into which he was about to enter. We may imagine him to have addressed his heavenly Father in language somewhat similar to that which he employed when he was about to devote himself as a spotless victim on the cross: “Father, the hour is come; glorify thy Son, that thy Son also may glorify thee. Father, I will that they also whom thou hast given me be with me where I am, that they may behold my glory which thou hast given me: for thou lovedst me before the foundation of the world.”



But we must pass on to the description which is given of the transfiguration of Jesus. "His face did shine as the sun, and his raiment was white as the light." On this we can say but little, for no imagination can conceive, nor can words express the exact nature of that splendid scene which is here so slightly glanced at. The Holy Spirit has employed the most concise mode of description in order to restrain our fancy within proper limits. We are, therefore, altogether incompetent to expatiate on a subject so sublime, for we know nothing, beyond what is written, of the glory which is associated with spiritual bodies. When Paul was led to speak of a state of future enjoyment, he could only express himself in the language of conjecture, and say, "I reckon that the sufferings of this present time are not worthy to be compared with the glory that shall be revealed in us." And when, on another occasion, he was anxious to comfort the church by a description of the resurrection-body into which the Saviour shall change the vile bodies of his people, he could only describe it by the use of words which merely implied a direct contrast between what we now are and what we shall be. Our present bodies are earthly, natural, mortal, and corruptible; our resurrection bodies shall be celestial, spiritual, immortal, incorruptible: but these latter expressions are only negations of the former; as to any positive apprehension of the nature of glorified bodies, "it doth not yet appear what we shall be." And there is much wisdom in this reserve: there is enough told us upon the subject to encourage us to persevere in our endeavours to attain to the joy that is set before us, but not as much as would, in the meantime, render us too much discontented with our present state.

We must, however, carefully note that the Holy Spirit, in so far describing the Saviour's transfiguration, has given a literal account of a real transaction. There is no cunningly-devised fable here. There was nothing visionary in the exhibition itself; there is nothing fanciful in the description of it. Jesus was actually metamorphosed; "his face did shine as the sun, and his raiment was white as the light," and, as on all ordinary occasions in the days of his flesh he was God manifest in the nature of man, so, during the continuance of this splendid scene, he exhibited his human nature manifested in and encompassed by the brightness and glory of his Godhead.

But it may be profitable to inquire into some of the uses of this great transaction, for such an occurrence could not have taken place without some important object. It was intended to prepare the Saviour for his approaching sufferings; to shew the interest which heaven took in his sacrifice; to be a source of strength and comfort to the church, by giving a type and specimen of that high degree of glory to which the nature of man is destined to be exalted in consequence of the Saviour's dying love. But the leading object of this event was to give a representation of his second coming in majesty at the last day. It is not by any gratuitous assumption that we maintain this, but on the sure ground of strong scriptural testimony. We find St. Matthew representing the Saviour as promising some of his disciples that they should not taste of death till they saw him "coming in his kingdom;" and in the parallel passage in the ninth chapter of St. Mark, he is represented as saying that there were some standing with him who should not see death until they had seen the kingdom of God "come with power." Now the apostle Peter combines the substance of these two declarations, in a manner which distinctly shews that he considered them as having a reference to the future advent of the Redeemer. "We have not followed cunningly-devised fables, when we made known unto you the power and coming of our Lord Jesus Christ;" and he speaks of "majesty," "honour," and "glory," which are the appendages of a kingdom, and are to be the characteristics of the second advent of Jesus, in contrast with the meanness, poverty, and degradation of his first appearance in our world. Those, therefore, who say that the transfiguration had a typical reference either to the effusion of the Spirit on the day of pentecost, or to the destruction of Jerusalem, are greatly in error. It was meant to be a specimen and earnest of our Lord's appearance hereafter in glory, when he shall come to be admired in all them that believe, and to establish his everlasting kingdom of righteousness and peace in the earth. The use of a type is to arrest and embody in a kind of visible indication the prominent features of its antitype; and, accordingly, if we examine the leading circumstances of the transfiguration, we shall find such a resemblance between it and the second coming of our Saviour, as will clearly establish such a relationship between these two events. Jesus appeared in literal human nature on the mountain; so shall he come again, as the Son of man, possessing the same nature with his people; for the apostles were informed when he ascended, that the very same Jesus who had been taken up from them into heaven should even so come in like manner as they had seen him ascend into heaven. He appeared in glory, and not in humility; such as he shall descend hereafter, when he shall come with all his holy angels and sit upon the throne of his glory. As he was visible on the mountain, so, when he shall come again, every eye shall see him, and they also which pierced him; and all kindreds of the earth shall wail because of him. As he was encompassed by a cloud on the summit of Tabor, so shall he come hereafter in the clouds of heaven, with power and great glory. As he stood in majesty upon the mountain, so according to the declaration of the prophet, his feet shall stand, when he comes again, upon the mount of Olives. And as Moses and Elias appeared in glory with the Saviour, so shall he bring his people with him on his return to our world, for, when Christ who is our life shall appear, then shall we also appear with him in glory.

Such we believe to have been the great primary object of this interesting event. How full of consolation and encouragement must it appear in this important view to every believer who is still struggling with the infirmities and trials of his earthly pilgrimage. It directs the attention of such to the crown of righteousness that awaits him, and says, "Be ye stedfast, immovable, always abounding in the work of the Lord; forasmuch as ye know that your labour is not in vain in the Lord."

## FOOTNOTE:

[Y] From a scriptural small work, with the style and spirit of which we are much pleased, "The Transfiguration," an exposition of Matt. xvii. i. 8, by the rev. Daniel Bagot, B.D., minister of St. James' chapel, Edinburgh, and chaplain to the right hon. the earl of Kilmorrey. Edinburgh, Johnstone: London, Whittaker, Nisbet: Dublin, Curry, jun., Robertson.

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## The Cabinet.

NO SALVATION WITHOUT AN ATONEMENT.—But let me turn your attention to the sad effect which a denial of the Saviour's Deity has upon the prospects of man for eternity. It is a truth written, as with a sunbeam, upon every page of scripture, that man is by nature a fallen, a guilty, a condemned creature, obnoxious to the righteous judgment of God. We are told, that "the heart is deceitful above all things, and desperately wicked;"—that "all have sinned, and come short of the glory of God:" Jehovah himself is represented as looking down from heaven upon the children of men, to investigate their characters with that omniscient ken by which he explores the utmost boundaries of the illimitable universe, and pronouncing this solemn verdict—"There is none righteous; no, not one:" and the apostle Paul, when reminding the Ephesian church of their past unregenerate condition, says that they were "children of wrath, even as others." If man, then, be in a guilty and condemned state by nature, it is an awful and important question, how shall he obtain pardon and justification with God, on account of his past transgressions? and how shall his sinful and unholy nature be sanctified and prepared for admission into the realms of everlasting glory? Can personal repentance, on the part of the sinner, obliterate the crime of which he has been guilty, so as to reinstate him into the condition of a sinless and unfallen being? Unquestionably not. For whatever act has been performed by God, or angels, or by man, must remain for ever written upon the pages of eternity, never to be erased; and, therefore, no subsequent repentance on the sinner's part, no tears of sorrow or contrition, can ever blot out his past transgressions; nor even could the united tears of angels erase the record of those offences for which man is brought in guilty before God! Can, then, subsequent obedience achieve the work of the sinner's justification? This, alas! will prove as ineffectual as repentance; for though we should render to God a perfect obedience for the remainder of our lives, still the sin we have committed is sufficient to procure our conviction and condemnation; for the wages of sin is death! Shall we, then, have recourse to the abstract mercy of God, as the foundation upon which to rest our hope of pardon? This is the Unitarian's plea: "I believe," he says, "that God is merciful; and I repose in his kindness, and trust he will have compassion on me." Alas, my friends! it was bad enough that Mr. Porter should have yesterday adopted the algebraic principle of neutralizing one text of scripture by another; but to carry up this principle to a contemplation of the character of God, and to bring it into collision with the attributes of Jehovah, and thus to set his mercy against his justice—his compassion against his truth—his grace against his holiness, and thereby to neutralize and annihilate one class of attributes by another, is a guilt that is direful, blasphemous, and indescribable.—*From speech of the Rev. Daniel Bagot, at the Belfast Unitarian [Socinian] discussion.*

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## Poetry.

[32]

### LAYS OF PALESTINE.

No. IX.

(*For the Church of England Magazine.*)

By T. G. NICHOLAS.

"She hath given up the ghost; her sun is gone  
down while it was yet day."—JER. xv. 9.

"Turn us again, O Lord God of hosts, cause thy  
face to shine, and we shall be saved."—Ps. lxxx.  
19.

'Tis eventide; the golden tints are dying  
Along the horizon's glowing verge away;  
Far in the groves the nightingale is sighing  
Her requiem to the last receding ray;  
And still thou holdest thy appointed way.  
But Salem's light is quench'd.—Majestic sun!  
Her beauteous flock hath wandered far astray,  
Led by their guides the path of life to shun;  
Her orb hath sunk ere yet his wonted course was run.

In ages past all glorious was thy land,  
And lovely were thy borders, Palestine!  
The heavens were wont to shed their influence bland  
On all those mountains and those vales of thine;  
For o'er thy coasts resplendent then did shine  
The light of God's approving countenance,  
With rapturous glow of blessedness divine;  
And, 'neath the radiance of that mighty glance,  
Bask'd the wide-scatter'd isles o'er ocean's blue expanse.

But there survives a tinge of glory yet  
O'er all thy pastures and thy heights of green,  
Which, though the lustre of thy day hath set,  
Tells of the joy and splendour which hath been:  
So some proud ruin, 'mid the desert seen  
By traveller, halting on his path awhile,  
Declares how once beneath the light serene  
Of brief prosperity's unclouded smile,  
Uprose in grandeur there some vast imperial pile.

O Thou, who through the wilderness of old  
Thy people to their promis'd rest did'st bring,  
Hasten the days by prophet-bards foretold,  
When roses shall again be blossoming  
In Sharon, and Siloa's cooling spring  
Shall murmur freshly at the noon-tide hour;  
And shepherds oft in Achor's vale shall sing<sup>[Z]</sup>  
The mysteries of that redeeming power  
Which hath their ashes chang'd for beauty's sunniest  
bower.<sup>[AA]</sup>

Thou had'st a plant of thy peculiar choice  
A fruitful vine from Egypt's servile shore  
Thou mad'st it in the smile of heav'n rejoice;  
But the ripe clusters which awhile it bore  
Now purple on the verdant hills no more,  
The wild-boar hath upon its branches trod;  
Yet once again thy choicest influence pour,  
Transplant it from this dim terrestrial sod,  
To adorn with deathless bloom the paradise of God.  
*Wadh. Coll. Oxon.*

## FOOTNOTES:

<sup>[Z]</sup> Isaiah xv. 10.

<sup>[AA]</sup> Isaiah lxi. 3.

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## Miscellaneous.

**INFLUENCE OF RELIGION ON A STATE.**—Religious faith is necessarily and unavoidably political in its influence and bearings, and eminently so. Christians are generally well informed—and knowledge is power. They have there in Christian countries, as citizens and subjects, directly and indirectly, a large share of influence in the state. In most Christian states, if not in all—for a state could hardly be called Christian, if it were not so—Christianity is made a party of common law, and, when occasion demands, is recognised as such by the judicial tribunals. It is eminently so in Great Britain; it is so in America; and generally throughout Europe. It is also, to a great extent, established by constitutional law, and thus incorporated with the political fabric, furnishing occasion for an extended code of special statutes. The great principles of Christianity pervade the frame of society, and its morals are made the standard. The second table of the decalogue is adopted throughout as indispensable to the well-being of the state; and a thousand forms of legislation are attempted to secure the ends of the great and comprehensive Christian precept—"Thou shalt love thy neighbour as thyself." More especially is it deemed the highest perfection of civilized life and manners, in the code of conventional politeness, to exemplify this latter divine injunction. Otherwise life would be much less comfortable—hardly tolerable.—*A Voice from America to England.*

**DUTY OF SUBJECTS.**—We ought not only to look at the queen's duty, but recollect also what is our own; for the prosperity of a nation consists, not only in having a religious governor, but also an obedient people. The events which have passed before our eyes during the few last years, may

serve, I think, to convince us of the truth of such an inference. Can we look back on the loss of human lives, the almost paralyzing alarm excited by the threats of an infuriated populace, and the absolute destruction of property which took place during the riots in the city of Bristol, and not see that all those calamities sprung out of a want of obedience to the existing authorities? Nor was that the only occurrence of the kind which has taken place. What repeated acts of incendiarism have we as a nation suffered from, as well as from the still more recent riots which have arisen in our south-western and other counties? and may we not ask, whence have those scenes of strife, discontent, and tumult, sprang, but from the cause I have already referred to?—want of subjection and obedience to the government of our kingdom. What were the scenes of misery and horror which broke out from time to time, when internal wars and insurrections so greatly depopulated our land? Cast your eye up and down our country, and view the still remaining barrows—those unsculptured, unlettered monuments, which cover the slain of our people—and ask, are these Britons slain in their own land, a Christian land, a land where (to remind you of the present privileges of her constitution) we have a national established church, of sound scriptural and protestant faith, and a preached gospel?[AB]

#### FOOTNOTE:

[AB] From "The Liturgy of the Church of England, Catechetically explained, for the use of children, by Mrs. S. Maddock. 3 vols. London: Houlston and Co." These volumes seem well adapted to explain to those for whose use they have been published—the liturgy of our church. The catechetical form in which the subject is treated, rather, however, detracts from their value, and should the authoress be called on for a new edition, we should advise her to publish in a different form.

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#### Transcriber's Note

The masthead in the original referred to Vol. IX., although this issue is in fact part of Vol. X. of this publication. This has been corrected.

A table of contents has been added for the convenience of the reader.

Minor punctuation errors have been repaired.

Archaic spelling is preserved as printed. Please note that Orinoco is spelled variously as Oronooco and Oronooko.

The following typographic errors have been fixed:

Page 20—servicable amended to serviceable—"... both exogenous and endogenous, render them extremely serviceable to mankind."

Page 21—organisable amended to organizable, for consistency—"... indeed gum is that organizable product which exists most universally ..."

Page 23—productivenes amended to productiveness—"... of which there are several varieties, differing essentially in productiveness, ..."

Page 23, fourth footnote—Hedwiz amended to Hedwig—"Eheu qualia! Hedwig."

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