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THE

PALACE OF THE GREAT KING:

OR,

THE POWER, WISDOM, AND GOODNESS OF GOD,
ILLUSTRATED IN THE MULTIPLICITY AND
VARIETY OF HIS WORKS.

BY

REV. HOLLIS READ,

AUTHOR OF "GOD IN HISTORY," "INDIA AND HER PEOPLE,"
"COMMERCE AND CHRISTIANITY," ETC.

"Who by searching can find out God."



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P R E F A C E .



IN offering to the public another volume, the writer would fain acknowledge the generous reception which his former publications have met. If these gleanings from a Pastor's study—of which the present volume is another instalment—have not the merit of illustrating some of the great themes and principles which most vitally concern man here and hereafter, and which display the wonder-working hand of Infinite goodness, skill and wisdom, then let them die the death—of all abortive books.

The present volume is the result of long and careful investigation—a patient collocation of facts from a great variety of sources—an attempt so to combine amusement and instruction, the useful and the entertaining, as to challenge the lovers of fiction to the field of facts as not the less marvellous. He believes he has collected, within a tangible compass, an amount of varied and interesting knowledge on the subjects treated which will spare the reader the trouble and expense of searching through more libraries and books than are likely to fall in his way. The writer will esteem it recompense enough, if he may contribute any appreciable amount of influence to arrest the current of the reading world in its strange revellings in

the mazes of romance. He has endeavored to make a readable book of FACTS, which "are stranger than fiction."

It is a book *from* the world and *for* the world we live in—conducting the reader through the museum of the Great King—contemplating the Monarch on his throne—his royal attire—the crown-jewels in all their beauty—the concave of his Palace studded with ten thousand gems—the robes of glory he wears—his footstool wrought in all the skill and wisdom and variegated beauty which can please the taste or minister to the pleasure or profit of man.

But we have done more than to survey the exterior of the Temple. We have essayed to enter the audience-chamber of the Great King, to search out God in the holy of holies of the upper Sanctuary. Who is this God that worketh so wondrously? Can we form any conception of such mental resources—of such sleepless activities—of such power, benevolence and skill? In our profoundest searches, when we have seemed to discover much, a voice from the inner Temple seems, in contempt of all human knowledge, to respond: "Lo! these are but parts of his ways; but how little a portion is known of him."

The character of the writer's books already before the public and the success they have secured, he fondly hopes, will bespeak for the forthcoming volume the same generous regard.

CRANEVILLE, N. J., Sept., 1859.

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THE
PALACE OF THE GREAT KING.

CHAPTER I.

Crystal Palaces—The Universe a Magnificent Palace—Endless Variety of the Divine Workmanship—No two Objects alike—The Insatiable Desires of the Mind—Its Love of Novelty and Variety.

THE present is the age of Crystal Palaces. The people of one nation are vying with those of another which shall raise the most magnificent dome and construct the most superb palace for the “exhibition of the skill and industry of all nations.” As you pass through one of these stately edifices, you are astonished at the skill and power as seen displayed in the structure and dimensions of the building itself; and yet more at the variety and multiplicity of the objects it contains. Here are the products and specimens of the skill not only of all nations, but of every variety and degree of individual taste and talent. Here are met the most rare, the most ingeniously wrought, and the most valuable, useful and ornamental fabrics that are to be found on the face of the earth, or made by the hand of man: “Shawls from India, robes from Russia, and the *bornoose* from Africa, and linens, and silks, and fabrics of the finest texture and the most wonderful workmanship.”

The Universe is the Palace of the Great King. The skill and power engaged in the rearing and fitting up of this wonderful palace as far surpasses all human skill and power as the Creator surpasses the creature. This is Heaven's exposition of arts for all nations—and for all the principalities and powers—for all the orders of intelligent beings which inhabit the Universe. In beauty, variety and multiplicity of objects; in exuberance of the imagination, and in the exquisiteness of the workmanship, it surpasses the utmost stretch of all human conception.

We invite the reader to accompany us into this august Palace, and to contemplate some of its wonders. As we enter the great Temple, we find ourselves encompassed on every side by the works and productions of Nature in forms infinitely diversified. It would seem as if even Divine skill had been exhausted in the formation of the multiplicity and variety of objects produced.

In our proposed visit to the Palace, we will make the special object of our researches *the variety of the Divine Workmanship*. As we pass from one department to another, we shall meet nothing more profoundly to admire than the endless variety which pervades the whole.

We contemplate with wonder the *magnitude* of the works of the Great Architect; or the *multiplicity* of these works; or we penetrate into the wonders of the microscopic world, and we are filled with wonder no less profound. Indeed, I scarcely know whether the student of Nature the more profoundly admires the magnitude, the multiplicity or the minuteness of the Divine workmanship. In the contemplation of either he can only wonder and adore, but cannot comprehend.

Directing his thoughts to the *vastness of the material universe*, to the inconceivably great quantity of matter which composes the countless number of worlds which fill infinite space, he finds himself conducted to the outermost limit of human observation, and even of human conception ; yet he meets no evidence that he approaches any limit of creation. We can form no adequate idea of material existences. When he has traversed space as far as he can by the aid of the most powerful telescope ; and when he has exhausted all his capabilities of calculation, he seems scarcely to have crossed the threshold of God's great material Temple. He can make no adequate estimate of the amount of material which God has called into existence. Were he to travel through space millions of millions of miles, and take his station on the remotest star, the least twinkling ray of which reaches us, he would see space beyond him equal to that which he had already traversed, and equally radiant with shining worlds. His own native earth is in comparison but as a grain of sand on the sea-shore. He can form no conception of a Being possessed with power adequate first to bring into existence, and then to reduce to law, and govern so many and such vast worlds.

But if we pass from the magnitude to the minuteness of God's works, we are, if possible, lost in still greater wonder. It comports more readily with our preconceived notions of the Infinite One, that he should do magnificently great things than that he should do exquisitely little things. We expect Omnipotence to exert great power, and to work on a magnificent plan. But when we descend into the microscopic world, and contemplate the teeming, countless millions of minute living beings, and animalcules, so minute that myriads are not

larger than a grain of sand, and may inhabit a drop of water, —and when we see these minutest of all living atoms, finished with a most exquisite touch of skill and beauty, our admiration of the Divine workmanship is, if possible, raised still higher. We now become sensible of a skill and delicacy of workmanship which transcends all our highest conceptions of the Great Architect.

The microscope reveals to the astonished eye an invisible world of living beings ; and all these, though their existence may not be detected by the naked eye, are endued with organs for locomotion, for hearing and seeing ; with nerves and blood-vessels, and the means of procuring and digesting their food and reproducing their species. And they present every conceivable variety of motion, form, size and color. How wonderful the skill that decked the wing of one of these marvellously minute little atoms of creation, and set the blood coursing in its veins.

And wonderful as the discoveries of the microscope are, there is no intimation that they approach a limit. As at the other extreme of creation, every new power added to the telescope opens new fields of space still radiant with shining worlds ; and then beyond the scope of telescopic vision lie untraversed fields, which, if viewed with a more powerful telescope, would reveal new systems and groups of worlds ; so no power that has hitherto been applied to the microscope has failed to reveal new worlds of animalcules. Every new discovery only serves to confirm the conjecture that a more powerful instrument would unfold new worlds of wonder beyond.

While we mean by the Universe, which we have called the Palace of the Great King, the grand summary of all the worlds

which God has made, and all the endless multiplicity of objects, animate and inanimate, vegetable and mineral, with which the Great Architect has furnished these worlds, yet we do not propose to launch forth into so boundless a field for illustrations of our present theme, but shall confine ourselves chiefly to one small world, and for obvious reasons we shall select the planet with which we happen to be the best acquainted. The globe, called Earth, shall serve as the Palace through whose strangely diversified products of art and skill we will make a few desultory excursions, seeking illustrations of the wisdom, goodness and power of God: not so much from the magnitude and minuteness of his works as from their multiplicity and *endless variety*. Yet we shall not overlook the broad, starry concave of this earthly palace—the great dome of Heaven, studded with ten thousand stars, and thence stretching off into boundless space as far as thought can travel.

As we compare the heavenly bodies, system with system, star with star, and planet with planet, we shall discover the same infinite variety pervading the whole.

The field of illustration is as broad as the entire arena of nature's works. The mineral, the vegetable, the animal worlds, are replete with examples to our purpose; so is the condition and history of man, the ordinary dispensations of Providence, and the means of man's recovery from the fall. All indicate the profuse expenditure of the Divine goodness so to diversify and beautify his works and to vary his ways, as the most effectually to secure the happiness of his intelligent creatures. Who but God would have *thought* of the ten thousand ways he has adopted by which to make man happy?

Our subject is a pleasant one, and well suited to minister

to the *entertainment* of the observant mind. But we have, in the following chapters, a higher aim. We hope to raise the mind to Nature's God, and to present him as a kind, benevolent, infinitely wise, and wonder-working Father, who is ever busy, even in the most inconceivably minute, and apparently insignificant domains of creation. We most devoutly wish to leave impressed on the mind of the reader the sentiment that *such* a God is worthy of the profoundest homage, of unbounded admiration and unfeigned love. Such contemplations on the workmanship of the Divine hand can scarcely fail to give us the most exalted idea of the skill, and wisdom, and benevolence of the great Author of creation. He not only makes and finishes every thing with an exquisite touch, which will bear the closest scrutiny, and creates an endless number of objects, from the most inconceivably minute to the most stupendously grand, but he makes all things in such strange and endless *diversity*. No two objects have ever been found to be alike. And not only no two objects that exist at any one time are alike, but judging from the only premises we have on the subject, we may reasonably raise the query whether any two objects that *ever* existed from the beginning of creation, or that ever shall exist, are precisely alike. So exhaustless are the conceptions of the Divine mind, and so boundless his skill and power, that no two individuals of any species of animals, vegetables, or minerals, or any created existences, are ever found to be alike. In the human race, for example, though so marked uniformity everywhere characterizes the race that there is no fear of mistaking the human animal for an animal of any other species, yet no two individuals that now live, or ever did, or ever shall live on the globe, are alike. And,

perhaps, if due examination could be made, it would be found that in no one *particular* are they alike—in no organ, or feature, or member, or development of mind, or of moral qualities or affections. And such being the fact in respect to all the races of beings with which we are acquainted, we are justified in the inference that it is so throughout the boundless realms of creation. Variety is an essential characteristic of the works of the Divine hand. It equally decks the wing of the tiniest insect that sports in a single drop of water, and is met in the form, and motion, and magnitude of the hugest orb that rolls through space.

But what an idea does this give us, at the very outset, of the exhaustless resources of the Divine mind! The Author of the whole magnificent machinery of nature, and He that upholds and directs the whole, and makes all its numberless parts, the minutest as well as the mightiest, to harmonize, must at the same moment have the whole, in all its infinite details, present to his mind. We wonder at the capabilities of the man who can with ease attend to all the details of a great business—who can plan, meet contingencies the most unexpected, direct the minds and labors of a great number of men, and make agencies the most various and apparently adverse all harmonize to achieve his one great aim—who can, at the same time, dictate a correspondence to agents abroad, and foresee there the casualties of business or trade, and meet contingencies which may occur thousands of miles distant—who has within his own measure a sort of omniscience and omnipotence. His active, busy, intelligent mind is the main-spring that sets in motion and directs every wheel of the great manufactory, or that guides, in all its thousand details, the great

mercantile house. It is his mind that guides the hand of every clerk, agent or workman. By night and by day, whether corporeally present or absent, his power is felt, his watchful eye is there—he has, as it were, diffused himself through the whole. But all comparison fails to illustrate the never-ceasing, the infinitely comprehensive activity of the Divine mind.

The globe which we inhabit is but one of a countless number of similar globes, some of which (as Jupiter) are fourteen hundred times larger than ours; or if compared with the sun, or some other fixed star, its magnitude falls into insignificance, the sun being one million three hundred thousand times larger than the earth. Yet for a moment suppose our globe the only world which God has made, still what an idea do we get of the Eternal Mind.

We select the period when he was about to enter upon the creation of our world. A perfect conception of the whole scheme must have lain in the mind of the Eternal One: the exact quantity of matter of which it was to consist; the structure of the whole, so as to form the dry land and the ocean, the river and the mountain, the plain and the valley, all in their relative proportions and influences on one another; the placing of every particle, even the minutest, so as to form the rock, the soil, the endless variety of trees, shrubs, plants, grains and grasses; as also, the mineral, the metal, and the precious stone. He must, too, at the same time, have seen and determined the shape of every leaf, the tint of every flower, the form, and size, and properties of every particle of inanimate matter, and the number and variety, the organs and functions of all grades of animal life—all were vivid and per-

fect conceptions in the mind of the Creator while as yet they were not made.

We are lost in utter amazement when we attempt to form any idea of God as the author and the controller of the wonderful system of nature. Both in their original creation and in their subsequent control, what a vast multiplicity of objects required a constant attention; what nice calculations to have adjusted in their respective places every body that rolls in grandeur over the boundless fields of ether, and every minute speck that floats in the air; and to have adapted each to the other, so as to secure the balance of the whole, and preserve the harmony of the universal system. For the size and weight of the tiniest flower that decks the solitary glen, and the number and dimensions of the minutest insect, as well as the location of a mighty river, or the structure of the loftiest mountain, or the hollowing out of the channel of the sea, are equally the work of the Almighty, and equally require his sleepless care. Nothing short of Omnipotence and Omniscience could do either.

And what a boundless field has God opened in the infinite diversity of his works for the unrestricted scope of mind, whether in the present state of existence or in the next! He has been pleased to *vary* his works so as to please the eye, to gratify, to regale the mind, and to improve the heart. Variety, I have said, everywhere characterizes the Divine workmanship. The number of species and sub-species, where there is a marked difference, is immense; but the moment you attempt to search out varieties of the *same* species you find yourself treading on the confines of infinitude. Here there will be found no two objects alike, not two blades of grass from the same root, or

two leaves of the same tree, or two peas from the same stock. So endlessly diversified are the most common objects of nature, that you may ransack the three kingdoms without finding two the same. Variety is the order of all things.

And *love of variety* is but coextensive with the endlessly diversified means and objects of its gratification. There is the love of variety in taste, in seeing, in hearing, in smelling and in touch. How would either of these senses tire with sameness? Who could endure seeing, tasting, smelling or touching the same objects perpetually? But there can be no such satiety. The provisions for the gratification of the senses are as varied as their wants. The eye which is never satisfied with seeing, is regaled with a succession of diversified objects; the taste with every needed variety. And so we may say of the *ear* or of any other organ of sense. Sounds are vastly more diversified than even the objects which produce them: as the same object may generate different sounds as well as different degrees of sound. Indeed, the mind, through the organs of sense, may expatiate forever amidst new natures, combinations and relations, and never return and retrace its steps for the want of new objects. Nor need we stop here. We may pass from man's circumscribed and transient state here to his higher and holier state hereafter, and we shall probably find the same principle not the less delightfully operative. The anthem sung in those blessed mansions, is, "Great and marvellous are thy *works*, Lord God Almighty."

And not only is it probable that no two objects belonging to our little planet are alike, but the same strangely wondrous feature, doubtless, characterizes the boundless fields of creation. God probably never cast two things in the same mould.

And, as a divine arrangement, this love of variety in the future world and the provisions made for its gratification, are certainly not less interesting than that of which I have spoken. Indeed, it is but the exact and beautiful counterpart of that variety. Man, both as to his mind, and his moral tastes and aspirations, is so constituted as to be continually reaching after some new thing. He feels an insatiable desire for novelty. And this propensity is observed to increase in proportion as man advances in civilization and knowledge. The untutored savage has very little of it. Its development is sometimes denominated *curiosity*—sometimes *inquisitiveness*, or the love of knowledge. It is the natural outgoing of the mind for some new thing. This was a characteristic of the refined *Athenians* and of the “strangers”—the philosophers and literati per chance—that resorted to this renowned spot of ancient civilization and learning. “They spent their time in nothing else, but either to tell, or to hear some new thing.” The desires of the mind are insatiable, and increase in proportion to their gratification. When it has traversed one field, however immense and varied that may be, it instantly craves another. The acquisition of one science or an acquaintance with one art only sharpens the mind for another; and the greater its acquisitions, the stronger its desires for further conquests. Bacon or Newton had a thousand ungratified desires in respect to the acquisition of knowledge, where the mere ignoramus has one. And we are constrained to believe that the same increased and inciting desires characterize the highest created intelligences in the universe, and the same boundless fields invite their eternal researches.

This reaching forward continually after some new thing or

something not yet attained to—this dissatisfaction with any present acquisitions or enjoyments—this love of variety, is a constituent element in the mental and moral constitution of all intelligent beings, both men and angels—an essential part of their being; and it forms for man a connecting link between his present and his future state of being. And not only so, but it indicates what shall be the mental, and (if I may say so) the physical character and condition of that state of being, and what, in fact, the enjoyments and employments of the blessed above. Through all the endless multiplicity of objects here the mind may wonder and the heart expatiate and return dissatisfied. Were it possible that a single individual of our race should visit every nation and tribe—every nook and corner of our globe, and become perfectly acquainted with the geography, the history, the botany and mineralogy of each—in a word, were he to know *all* of every science and art, and of *every* thing that may be known in this mundane sphere, and in this corporeal state, would the eye be satisfied with seeing, or the ear with hearing? would the mind be satisfied, and the aspirations of the soul find their fulness? Or rather, would not such a mind feel that all its past acquisitions were no more than preliminary to the acquisitions to be made in the boundless field of eternity? At every step of his stupendous progress till he reached the grand acme of all possible human knowledge, his desires for something unattained were sure to keep in advance of his acquisitions, so that when he had arrived at the grand climacteric of *all* that *may* be known on this earth, these longings for new fields of knowledge were found to be increased in a ratio equal to all former acquisitions.

It is only in the future abode of the blessed that all these

desires can be gratified, and the soul, so singularly capacitated, shall find a boundless range for its expanded and ever expanding faculties and susceptibilities.

But will the spirit, thus endowed, when emancipated from the disabilities of earth and time, have a *field* for the further expansion and the perfect gratification of these insatiable desires for something new? The following pages, we trust, will afford at least a partial answer to this interesting inquiry. The great theme of contemplation and research and admiration among the blissful inhabitants of heaven, is the "works" and the "ways" of God; or rather God as seen and known in his works and ways. In proportion, then, as our facts and reasonings go to show that the works of the Divine hand are boundless in extent, and strangely and *endlessly diversified*, they will furnish a pleasing evidence of the benevolence and wisdom of the Deity; first, that he should so singularly endow the human mind, and then, that he should, with such exhaustless liberality, fit up the universe with such a rich and boundless profusion of objects, and in all that unending variety, which can, to endless ages, give to the mind its full fruition of knowledge and bliss.

But, as a matter of fact, does the human mind in its present condition, give signs of being possessed of faculties which shall require any greater range for its employment and gratification than it now has? It undoubtedly does. We have only to reflect for a moment *how much* the mind of the intelligent man and the advanced scholar *does* grasp and retain in his present condition. When he has traversed in his investigations all the nations and countries on the face of the earth, and has stored his mind with ten thousand facts and ideas relating to

the history, traditions, manners, customs of every nation and tribe, and has become acquainted with the whole circle of human sciences, arts, literature, inventions and discoveries, he feels no confusion—no repletion—no lack of capacity for more knowledge. All he has acquired has only sharpened his appetite, and enlarged his capacity for still greater supplies. From all we know and can discover of its capacities here, we can conceive of no limit beyond which the human mind may not go. Such capacities can find their counterpart only in the infinite multiplicity and the endlessly diversified character of the entire creation; and with an endless duration for their study.

Ask Newton, Locke, Edwards, if, in their respective fields of research, and after their vast accumulations of knowledge, they seemed to be nearing a boundary beyond which they did not care to pass, or beyond which their exhausted capacities did not seem sufficient to carry them. They will rather tell you that they seemed scarcely to have embarked at all on the boundless ocean. They stood upon the shore, surveyed the illimitable expanse before them—were impelled by increasingly strong desires to launch away; and never before did they feel themselves so capable of adventurous voyage. They needed only to be emancipated from the bondage of corporeity, in order to enter upon their eternal range in fields which know no bounds.

I design in the present essay to speak of varieties geological and geographical; varieties physical, mental and moral. Man, in his diversified relations and conditions, will furnish a rich and interesting field of illustration. The whole boundless world of life, animal and vegetable, is as varied as it is extensive. The “ways of God”—another name for Providence—

are, as we shall see, as varied as his works. And varieties astronomical will not form the least interesting portion of our assigned task. Heaven's star-spangled concave is set with gems, which, in their sublime variety, equal the whole number of stars that shine in the firmament.

And not the less to be admired, as we shall see, are the *means* which the God of Nature has provided for the production and support of variety both in the mental and moral as well as in the animal and vegetable worlds. Different soils and surfaces, different climates and conditions of the earth, all combine to produce such a variety of vegetation ; and this variety of vegetation, combined with soil, surface and climate, goes, in turn, to increase animal varieties. And not only variety is a characteristic of all created things, but we everywhere discover a singular *tendency* in nature to produce variety.

We shall begin with varieties geological.

CHAPTER II.

VARIETIES GEOLOGICAL:—The nice adjustment of particles composing the Earth such as to secure all our various Soils—Productions—Minerals and Metals—Coal, Iron—Iron annihilated, and what then ?

WHEN we speak of the creation of our world, and the fitting it up for the habitation of man, we may still have very inadequate notions of the work in question ; and we are perhaps in more danger of overlooking the *wisdom* and *benevolence* involved in the plan than we are the power engaged in the execution. All had to be formed with the nicest regard to proportions, adaptations and adjustments. We admire the skill of a mechanist who can so arrange even a few scores of wheels as to secure some unusually beneficial end. Such a machine may extend over a few square perches of ground and may accomplish eminently beneficial purposes. How much profound thinking—how many nice calculations—how many experiments has our machinist been obliged to perform, and how many failures to experience, before he could bring his work to any thing like a tolerable state of completeness. At its best estate it would have no perfection ; and the power and the quantity of matter employed, would be but as a grain of sand compared to the power and quantity of matter employed in the structure and motions of the earth only. But what is this when compared with the structure and successful operation of a

machine as boundless and complicated as the whole MATERIAL UNIVERSE!

The exact size, weight, motion, velocity and density of every star and planet, and every particle of matter, however small, were all calculated and determined on before a single thing could be created—the exact distance of one from another, and the precise relation of every separate particle to another and to the whole—how many particles should compose the leaf of the violet—what should be the precise mechanism of the eye of the molecule, or what the dimensions of the planet Jupiter. A failure of any single part, however minute, would derange the entire system.

But we propose to ourselves in the present chapter no such adventurous range. Not the structure of the Universe, but the structure and some of the compositions of the earth, will suffice for our present illustration.

Had the earth, all below the surface, been formed one homogeneous mass, and the surface one uniform soil, and its position in its orbit, and the inclination of its axis to the equator been such as to produce but one uniform season, however salubrious that season might be, and however rich that soil, and however precious the material of which the bulk of the earth should be composed, the earth would be almost a useless and altogether an uninteresting ball. Very few of the purposes served by the earth now would be realized at all. A few beasts and birds and insects might roam over the earth and find an abode and food congenial to their several species. And a sparse human population of savage men might live a meagre life, but could never attain to a state of civilization. Arts, sciences, commerce would be almost, if not entirely unknown.

There could be neither the resources nor the inducements for commerce; and where men and manners and soil and scenery and productions were all of the same uniform stamp, there would be as little inducements to travel. Uniformity in the structure and composition of the earth, and uniformity of seasons and climates, would produce an equally uniform stagnation in all human affairs.

But how different the result of the actual condition of the earth. And this result is secured by the endlessly diversified character of its workmanship. Variety in structure, in composition and arrangement has produced all our varieties of soils, of climates and seasons; of minerals, metals and precious stones; of trees, fruits, plants and vegetables; of animals of every size, grade and condition; and these in their turn furnish the materials and wants of commerce, and the inducements to travel.

As we look over the *surface* of the earth, the first thing that arrests our attention is its *inequalities*. It is everywhere singularly variegated. It is thrown into ridges, hills and mountains, or scooped out in deep ravines and gentle valleys. It is intersected by rivers and streams, and dotted with lakes and smaller reservoirs of water. You may travel the world over, and everywhere meet with landscapes to admire, yet no two of these shall be alike—not even two features shall be the same. Each has its peculiar beauties and deformities—its own peculiar features—its peculiar shape, contour and composition—each affords a distinct lesson of study for all who “take pleasure” in the “manifold works of the Lord.”

But if we direct our attention to the *material* which composes the surface itself, we discover still clearer marks of a be-

nevolent design by a wise designer. The surface of the earth is the soil which gives birth and nourishment to all the endless varieties of vegetation which compose the vast vegetable kingdom. The surface of the earth, and to a considerable extent below, seems everywhere strongly instinct with vegetable life—contains the vegetable principles or stamina of vegetable life: so that if the entire vegetation of the earth were cut off and quite annihilated, and all present seeds destroyed, there is that in the surface of the earth, and often found at a considerable depth under the surface, which would vegetate and deck the earth again in her varied robes.

But it is the singular composition of the soil which demands our attention at present. For it is this which is one of the chief causes of the singularly diversified vegetation of which we speak. Like all the other works of God, the soil of all portions of the earth presents a general uniformity of character. It is everywhere composed of essentially the same earths and mineral substances, and possesses the same general properties, to administer to the vegetating process and the growth and maturity of plants. Yet these same materials (the earth, the clay, sand, lime, marl, iron and various other ingredients) are skilfully mixed, and all their proportions so nicely compounded and varied, as to produce every conceivable variety of soil. What consummate wisdom, so to compound essentially the same ingredients as to form a soil of so diverse a character, and capable of giving existence to, and nourishing so diversified productions! And this endlessly-diversified vegetation, in turn, gives support to, and is, in a sense, the *cause* of, the equally diversified races and species of animals. A little change in the composition of the soil—a little difference

in the proportions of lime, or clay, or sand, or iron, produce a soil as differently adapted to vegetation.

We cannot here too profoundly admire the wisdom and beneficence of the Author of this arrangement. It is the basis of a scheme of arrangements in the animal kingdom, and in its bearings on the progress and happiness of the human race, which we shall have occasion yet more profoundly to admire.

In the first place, this variety of soil, in connection, as we shall see, with differences of climate, fills the earth with God's riches. It supplies, in the greatest profusion and variety, all God's great family of living beings with food, apparel, shelter and luxuries. And not only does it supply these means of subsistence and comfort on the spot where they are needed and indispensable to the support and comfort of life, but, in connection with a kindred variety of composition met in the earth below the surface, it lays the foundation and supplies the resources of all our *commerce*, and of the intercourse of the people of one nation or tribe with those of another. Commerce, which has been called the "great civilizer," and which is certainly one of the most influential agencies of human progress, is, in its simplest idea, no more nor less than the great exchange-trade of the world, which could have no existence except in the diversified productions of the earth. Its most simple idea is that of the exchange of the productions of one part of the globe for those of another. But of its reasons and advantages we will defer the consideration to its proper place.

But we should quite overlook a very essential cause of Nature's profuse and varied vegetation, if we did not allude, at least, to the wonderful arrangement of evaporation. It is this which gives vitality, growth and vigor to every vegetable pro-

duction ; and which in turn secures, not only the continuance and prosperity, but the very existence of all animal and vegetable life. But for this stupendous circulation of the watery fluid through every vein and artery of the great body we call our globe, no vegetating process would be possible, no combinations of soils, no conditions of climate, could produce even the most stunted vegetation, or the most dwarfish animal existence. In vain would you select the most favored soils, and consult never so wisely the character of climates, and sow your seed and cultivate with the most sleepless care, if the waters above and the waters beneath did not constantly minister to your aid. You would soon learn that it is only "through the scent of water it will bud and bring forth boughs."

But this healthful, life-giving arrangement is wholly dependent on another, not the less wonderful. It is evaporation. The rivers run into the sea, yet the sea is not full. For, by a process as wonderful as it is grand, these same waters return, drawn up into the atmosphere by means of evaporation, saturating the whole expanse of the atmosphere in the form of vapor, and after serving essential and beneficial purposes to animal and vegetable life in their vaporous state, they descend in refreshing showers on the earth, prepared, after having performed their benevolent mission here, to repeat their beneficent circuit through ocean, air and earth to the end of time.

The magnitude and extent of this singular arrangement, as well as its godlike beneficence, is but imperfectly understood and but scantily appreciated. "From the whole surface of the ocean," says Dr. Dick, "there arises, every twelve hours, no less than thirty million cubic feet of water, which is more than sufficient to supply all the rivers on the earth. This immense body

of water is formed into clouds, and carried over every part of the continents; and again it is condensed into rain, snow or dews, which fertilize the earth. Should this process pause, we might wash our clothes, but centuries would not dry them, for evaporation alone produces this effect; vegetation would wither; rivers would swell the ocean; the operations of nature would cease." So close is the connection between this process and vegetable and animal life. "Praise the Lord, for he causeth the vapors to ascend from the ends of the earth."

But it is time that we go *below* the surface—yet we no sooner descend than we meet, in depths "which no fowl knoweth and which vulture's eye hath not seen," the same characteristic. Out of a few simple elementary substances the Divine Architect has formed the richest variety of minerals and metals for the use of man. At one moment you strike on a rich bed of *coal*, extending over acres, and in some parts of the world, as in America, over hundreds of square miles, and containing enough of this truly valuable substance to supply the demands of the whole world, for fuel, and all the purposes of manufacturing and locomotion for ages to come. Next you hit upon a bed of *iron*, which being, like coal, a substance indispensable to the comfort and advancement of man, and demanded in exhaustless quantities, is found very universally diffused, and in the greatest abundance.

Another of earth's great internal varieties we meet in the shape of stones and rocks. These are yet more common than either of the substances named, and of the most varied and extensive use to man. And, different from coal or iron, stone exists in almost every conceivable variety, from the hardest, the quartz, the flint, the granite and the marble, down through all

grades and qualities, to the soft soap-stone, the fibrous asbestos and the singularly lamellated mica, all useful in their way, and capable of being used in a great variety of ways—for building and ornamental carved work—for fences and furnaces—for roads and bridges—for paving and flagging walks and streets—as a flux for the fusing of metals—a manure for the soil—for the construction of a great variety of vessels and utensils in daily use, and for numberless and nameless purposes in the common pursuits of life. And the *quantities* found in the earth, and in those colossal mountain-piles above the surface, are wisely proportioned to the extensive demand.

We scarcely need enumerate the various other useful substances which are discovered to exist in the same earth, and which have all been found there, and carefully stored away and from the beginning kept in reserve for the use of *civilized man*; and many of them kept in reserve for man when he shall arrive at a higher state of advancement than he has yet reached. Lead, copper, tin, zinc, sulphur, mercury—gold, silver, diamonds and precious stones—all these and numerous others, are met as the varied forms into which matter has been moulded by the plastic hand of Nature for the service of his creature man. And, no doubt, *new* substances remain yet unrevealed in the *arcana* of nature, which, when brought to light, shall as effectually minister to the same purpose. Nor would we omit to notice the wise regard had throughout the whole to the *different quantities* which has been provided of each kind—how the quantity is proportioned to the demand, or the need man has of it. If gold or silver had been made as abundant as iron or coal, it would have been of very little service. You could neither use it for fuel, nor convert it into steam, nor give it

shape or form for building pavements, roads or bridges. Or if iron and coal had been formed only in the limited quantities in which silver and gold exist, it would be, if possible, still more disastrous. It would be practically the same as if they did not exist at all; and man in such a case could not have advanced beyond the rude condition of the savage.

We cannot even form any probable estimate of the whole amount of coal or of iron which the entire earth actually contains. Yet we are able to say from facts already known, that the amount is enormous. It is, we believe, well ascertained that there are, in the United States of America, at least, 163,000 square miles of coal fields. And as geological surveys and mineralogical researches are extended from year to year, the area, vast as it already is known to be, is continually enlarging. The quantity of coal which lies beneath the surface of a single square mile, or even a square acre, is vastly more than one would at first suppose. To say nothing of the great coal fields of Pennsylvania, Ohio, Illinois and Missouri, which abound in coal, beyond any credible estimate that we can make in tons or car-loads, we are astonished at the estimates which we see made, from time to time, of the amount of this article contained in some particular field of quite limited extent. Such an estimate we recently saw made of the quantity of coal contained in two counties in Virginia. Mr. Ridgeway, civil engineer and geologist, estimates the amount of merchantable coal in Hampshire and Hardy counties at 1,560,000,000 tons at the lowest calculation. And within the same area of coal-grounds, he locates 375,000,000 tons of "nodular argillaceous iron ore ; besides 135,000,000 tons of the siliceous fossiliferous" variety of iron ore found in the rocks of the Knobby Mountains.

What is noticed here in reference to the comparative extent of coal and iron fields—the two occupying nearly the same extent—is found to be true in reference to most of our coal and iron grounds. They are not only nearly similar in extent; but, what is worthy of notice as another instance of benevolent design, they are, to a considerable extent, identical. Coal and iron are generally found in the *same* fields—an arrangement not only favoring the easier transportation of the two articles to all parts of the country and of the world—the same facilities of conveyance serving for the two—but, in the absence of other fuel, the coal becomes invaluable for smelting the iron and otherwise preparing it for use.

There is infinite wisdom and benevolence in so *proportioning* these various substances precisely as to meet our wants. There is no useless profusion of silver or gold or precious stones; there is no lack of the substances which we need in the greatest abundance. The one we have by the acre and the mile; the other, by the pound and the pennyweight.

We have seen how the diversified character of the earth's surface becomes the means of feeding, clothing, housing, and in every way administering to the necessities and luxury of God's great and varied family of living things; and we have seen, in a like diversified character of the many useful substances found in the bowels of the earth, the materials, and the means of carrying on, and, in a sense, the origin of every useful trade and handicraft of man—of every human improvement—of the whole manufacturing interests of the world—and of a great part of human activity. How soon would the din of the world's business be hushed and the ponderous wheel of human activity be arrested, if the earth should for a single

year refuse to yield her useful minerals and metals. Indeed, what disaster would follow, if a single one should be refused. The great machine would be deranged, if not effectually stopped, if but *one* were wanting. We select *iron*, the most useful and therefore the more striking, yet but *one* of the many useful ingredients which the earth yields for man. Yet were some convulsion in nature to annihilate our coal, or copper, or lead, or zinc, we should, in like manner, find ourselves brought to a complete *nonplus* in the great arena of life's business. So familiar are we with the use of iron, as an article that abounds almost as a matter of course, that we are scarcely in a position fully to estimate its value; yet we can easily see that without it man could scarcely take the first step towards civilization.

Suppose for a moment, then, that some mighty magician had the power, by one motion of his wand, to annihilate all the iron, of every kind and combination, now in use or in the mine, in the whole world—that henceforth iron should be no more; what would be the consequence? The disaster would doubtless be vastly more extensive and calamitous than you may at first suppose.

You are a hardware merchant, or a machinist; or you have an interest in a mine, or a foundery, or a railroad, or a steamboat—or may belong to almost any craft, or trade, or calling. You have, as we will suppose, of an evening, made your last entry in your book of accounts, and are complacently giving yourself up to a pleasant revery on the progress and prospects of the age: “It is a wonderful age! What vast mechanical operations now keep the world in motion!—what stupendous manufactures!—what an array of shipping begirds our great emporiums of trade!—what majestic steamers plough our inland waters and

bridge our oceans!—what a wonderful concatenation of railways checker our land in every direction!—with what lightning speed news is communicated a thousand miles distant!—what mining and smelting, and casting of metals, and hammering into every conceivable article of use or ornament!—and what crowded warehouses! It is a wonderful age!” But your pleasant reverie is suddenly disturbed:

A messenger hastily enters and announces that every manufactory of the world, of every size and power, has ceased to act, and ceased to be. All their varied and costly machinery has vanished into air, and those huge structures are dismantled and tumbling to the ground. The 30,000,000 cotton spindles of the world have forever ceased to twirl—all the great and all the small manufacturing interests of the world have died, not to be revived—every wheel turned by steam or made of iron has stopped, and the wheel is gone. All our thousand and one labor-saving machines are no more—already is the dial of human advancement turned back some centuries. And what has caused this disaster? Nothing, nothing except the failure of the IRON, of which all this vast array of machinery is composed. This one article subtracted, and all the machinery in the world would fall into ruins.

While he was thus speaking, there came another, who declared that the 25,000 miles of railroads in America, and the 30,000 miles in England and on the Continent, are divested of their rails and become useless—that all our long trains of richly-laden and heavy-burdened trains shall be seen winding their way, as a vast thing of life, no longer—that all our commodious, beautiful cars, and powerful locomotives, outstripping the wind in their speed, have fallen to the ground

—that all our canal-boats and steamships are only confused masses of planks and timbers, with no connecting bolts or bands or stanchions—that not a carriage, or wagon, or dray or barrow, remains for the locomotion of man or freight, but all things are thrown back into the savage state, when men moved from place to place on foot, and transported whatever was to be moved on their backs. And again, why all this? Nothing has disappeared but that very common and cheap article called *iron*. Without this, railways are nothing; cars, carriages, sailing vessels and steamers, can have no existence without the strong bands and bolts of iron.

While he was yet speaking, there came also another, who said that all our 100,000 miles of telegraph lines, divested of their connecting, intelligence-conveying wires, stand useless and alone; that the boon we had hoped for from the genius of a Morse, should never be realized.

But the calamity stops not here. While the last bearer of sad tidings was yet speaking, there came another also, who said that all the tools, and utensils, and labor-saving contrivances of the farmer and the mechanic had instantly disappeared—axes, saws, planes, chisels, augurs; hoes, shovels, ploughs, harrows; chains—all had gone except their handles or frames; and henceforth agriculture could be pursued no further than could be performed by the unassisted hand, or by rude implements of wood; and the mechanic would be aided only by such tools as could be wrought out of stone.

While he is yet speaking, another, with saddened visage, enters to proclaim that the desolating calamity has entered our houses, and spread its ruin about our firesides—that most of our cooking vessels have vanished, that our stoves are no more,

that our knives and our forks, our pocket-knives and our razors, and most of the furniture of our houses—that our weapons of war and implements of peace are nowhere to be found; yea, more frightful still, the doors of our houses are falling down for the lack of hinges, the floor-boards are springing from their fastenings, the boards falling from their sides, and the shingles flying from the roof.

All these things, and vastly more, would follow were we deprived of the use of iron. The world would at once seem to be brought to a dead stand—at least would be thrown back into a state of barbarism. Nothing would remain that would deserve the name of agriculture, or manufacture, or commerce. Navigation would be unknown; the art of printing, a very meagre affair; and the mechanical arts nothing worthy the name. And all this for the lack of iron.

And so we might say, though in a different degree, of other metals and minerals. Copper, lead, zinc, lime, granite, and, more than all, *coal*. Each holds a place as an agent of human advancement, which, if left vacant, human affairs would be thrown into the saddest disorder, if not arrested. Without coal, iron would to a great extent be useless; and without lime, and granite, and marble, and the harder and softer strata of rocks, many other resources of nature would exist in vain.

Nothing less than Omniscience could have so anticipated the wants even of the present advanced condition of the world, and have provided iron, and coal, and stone, in such superabundant supplies as to meet such a demand; and not only this, but to meet the vastly increased demand of a coming age. Such fields of coal and of iron as are met with in America; and such mines of lead, and copper, and zinc; and such piles of

marble, and granite, and other valuable stone as our lofty mountains contain, fully bespeak the foresight and the benevolent design of God. He delights in the prosperity of his people, and he has undoubtedly provided every resource which the race can need as it shall exist in a vastly advanced condition.

CHAPTER III.

VARIETIES GEOGRAPHICAL: Cosmogony—The Earth as a Uniform Lump—The Earth as Variegated: Land, Water, Mountains, Plains—How many things a Man requires in the Common Affairs of Every-day Life: Food, Apparel, House, and Implements of Labor.

A GEOGRAPHICAL survey of the earth equally impresses on the mind an idea of the singularly diversified character of Nature's works. As the eye glances over the surface of our globe, it sees it beautifully diversified with sea and land, mountain and plain, hill and valley, river and lake; and we at once discover such an arrangement to be replete with that benevolence which the Creator has everywhere shown towards his creatures. And the result of such an arrangement is, that boundless variety of vegetable productions and animal life, which everywhere regales the eye of man with an endlessly variegated scenery—that administers to the varied tastes and supplies the numerous wants of all living creatures—that occupies the mind on a thousand different objects, and continually presents new scenes of pleasure and new reasons for praise.

Had it been the design of the Former of the earth simply to have added another to the countless number of worlds which previously existed—a globe that, like other planets, should run its destined rounds about the sun, reflecting the light of that luminary, and blending its own with the stars of the fir-

mament—there had been no need that the earth should be more than a mass of one uniform substance, the sea and the dry land mingled in one chaotic mass; no need that the waters should be gathered together in one place, and the dry land appear. All might have been one uniform, unbroken, dead lump, without hill or valley, lake or river, shrub or tree, flower or fruit; without soil, climate, or atmosphere; without mineral or metal. It could still have performed its journeys about the sun, and twinkled as a star in the heavens. But it was the design of Infinite Benevolence to make the earth a fit habitation for an inconceivable variety of living beings; and especially to carry out purposes of infinite moment in respect to his creature—man. Hence the profuse expenditure of the Divine skill in fitting up the earth as we now find it. In the one case, the earth would have been one unbroken desolation. No towering mountain or fertilizing river would have broken the monotony of the view; no sloping hill or smiling valley could have greeted the eye; no tribes of animals gambolled over the fields, or animated the crust of the earth, or sported in the waters. No living verdure could have smiled in the meadows, and no gushing plenty been poured into the lap of every living thing.

Such seems to have been the condition of our earth when first brought to notice by the sacred historian. It “was without form and void, and darkness was on the face of the deep.” Yet it was probably as well fitted then as it is now to act its destined part as a planet in the great system. It then possessed the same bulk and weight, and the same motion and velocity in its orbit about the sun. But the Sovereign Ruler had other designs: He would fit up the earth to be a suitable habitation

for man, and make it, too, the theatre for the most wonderful display of his wisdom and goodness as a creator and governor, and his superabounding mercy as a Saviour.

Our idea may be presented thus: A highly intelligent stranger from a neighboring world visits our planet at the two different periods referred to. We will suppose him endowed with such locomotive powers that he may with ease transport himself almost instantaneously to any portion of the earth's surface, and whose organs of vision are such that he can, from any one point, survey at the same moment a whole continent.

Our heavenly visitant shall first alight upon our earth at the close of the "first day." Heretofore it had been one chaotic mass, "without form and void;" waste and empty, and darkness covered its unseemly face. This darkness had now been scattered, and the waste and dreary ball was now revealed to the light of heaven. But what a scene to behold! What a field to traverse! He wanders from equator to pole, and from pole to equator, and all is but one dead lump of uniformity. There is no sea, no dry land; no rivers or mountains, no gushing streams or smiling fields; no sporting animals or singing birds; no forests or cooling shades, or fragrant flowers; no picturesque landscape or change of scene; no busy towns and pleasant villages; no din of busy men or children playing in the streets—though possibly there might be a few stunted, monotonous shrubs, and a few dwarfish, starveling animals to browse upon the tasteless herbage, and to drag out a cheerless life; and a few tribes of more dwarfish, savage men, to starve out a miserable, monotonous existence on what they might, with their hands as their only weapons, seize of these famishing animals; yet such a covering of the

earth, such animal existences, would do little to gratify the eye of the spectator. All would be dreariness and desolation. No pleasant landscape would greet the eye, no sweet music the ear; nothing to gratify the taste, and no varied objects over which the mind might expatiate, and reason, and compare. And for food, no more than the scantiest pittance which could possibly meet the sheerest necessity. The whole surface of the earth was then a "desolate, dreary, hideous waste, without order or beauty, inhabitants or furniture."

Yet in this chaotic mass lay mingled all the elementary principles, all the essential ingredients out of which have been formed all the boundless multiplicity of objects which now minister either to the wants or the luxuries of God's great family of living beings. But what a change the moment this huge lump of clay was taken in hand by the Divine Potter! Wonderful indeed is the transformation now effected by the skill and the benevolence of the Great Architect! What shapes and forms of matter, and what modes of life; what exhaustless provision made for the sustenance and happiness of every grade of life; what wise and benevolent adaptations of one thing to another; and out of a very few elementary or simple substances, what a countless number of objects have been formed, and into what an inconceivable variety of animal, and vegetable, and mineral, and metallic existences has matter been moulded! Now we see it shaped into a colossal mass and piled up in the form of a huge mountain that towers above the clouds; now it gilds the wing of the smallest insect. In one instant it is moulded into the framework, and muscles, and sinews of the huge elephant; in another circulates in the invisible minute particle of blood that circulates in the veins of

the millions of monads that sport in a single drop of water or recline beneath the shade of the down of the rose-leaf. Water, air, gases, odors, perfumes, are but different forms or combinations of matter—of a few elementary substances; yet what can differ more than a metal dense as gold or a rock as hard as granite, and the perfume from a single particle of musk, which is so subtle as to fill a room for years.

But we will accompany our illustrious stranger, as he deigns his second visit to this terrestrial ball. Time had rolled on—the earth as impelled by the hand of Omnipotence, had been performing his annual rounds, and, as he had been witness, the Divine Architect had all this time been moulding and shaping, creating and transforming, till the earth was made to exhibit its present and beautiful aspect. By means of some mighty convulsion, of which we can form no adequate idea, the waters had been gathered together in one place, and formed the sea; the lofty mountains had ascended from beneath, and the hills and the valleys were formed; and by a series of commotions which agitated every separate particle of matter, rocks, soil, every species of earth, mineral and metal, were formed, particle finding its kindred particle, while a stupendous chemical process was going on; and all in obedience to the Divine fiat—even the minutest process is watched over by the Omniscient eye. The result of the process is the incomprehensible variety which characterizes every created thing.

We will first survey the expanse of waters; and what wisdom at once appears in their *distribution*. Though there be essentially but one body of water, yet how is this one great body divided into oceans, seas, lakes, creeks, bays, harbors, rivers; and all these so disposed of and arranged in reference

to the land as to subserve the most effectually the purposes of evaporation, irrigation, and commerce.

Not only is the ocean itself one of Nature's great varieties, but it is in all its details full of beauty and variety. The element that composes the ocean—its general characteristics—the color, motions and phosphorescent appearance of the ocean—its tides, and rolling billows when agitated—the beauty and singularity of many portions of its bottom, especially where ornamented with coral formations—the unique mode of travel on water—and the altogether novel world of living beings which are met in the deep, distinguish the great water-world from the dry land. Here we meet a new order of life, new modes of subsistence, of habitation, and of locomotion. And though the ocean contains caverns deep and dark, into which no human eye has penetrated, and which are full of the monsters of the sea, and of every living thing that swims or creeps, both small and great; and though from the nature of the case we can know very little of the inhabitants of the deep, yet we know enough to be able to affirm that the same love and law of variety governed the Divine mind in the creation of the sea and in all that pertains thereunto, as in the creation and the fitting-up of the dry land. Life appears here likewise in the greatest possible variety, and in the most lavish profusion.

But we will rather betake ourselves to the dry land, where we shall meet a more familiar, if not a more obvious illustration of our theme.

As we pass from the equator to either pole, we meet a climate varying with every successive degree of latitude, and we meet correspondingly changing seasons, vegetation and animal life. And man, too, though a native of all lands and climates,

differs in a thousand peculiarities as you meet him in different latitudes : it may be only in stature, or the color of the hair, or hue of the skin, or contour of the face. We see the different portions of land, continents and islands, so shaped and so arranged in their relation one to the other, and to the surrounding waters, and so curiously scalloped with capes, and promontories, and peninsulas, and so tastefully intersected with rivers and streamlets, and dotted with lakes and lesser reservoirs of water, as to excite a never-ceasing admiration. All is constructed with a singular love of variety.

Nor does the interest cease when we come to inspect the several continents separately. Not a square rood of the whole—not a square yard that does not present a thousand varieties. We are at first struck with the variety of the external features of a continent as a whole. It is diversified with mountains and hills, and gentle risings of every conceivable length, height and declivity. Some towering above the clouds and clad in everlasting snow ; some belching forth, in terrific grandeur, volumes of fire and smoke, and rivers of liquid rock ; some clothed in trees of evergreen and waving gracefully to the breeze ; others as bleak and rude as if beaten by the storms of a thousand winters. Some are covered to their very summits with the rich products of the husbandman, and, sloping beautifully to the plain, bear on their bosom fertile fields and richly-laden orchards. It is, too, diversified with plains and valleys, groves and forests, rivers, creeks and streamlets of every possible description ; with cascades, lakes and ponds ; and with a soil and productions as various as climate and latitude. Tropical grains, fruits, flowers, spices ; vegetables, minerals and metals, are succeeded by their kindred varieties in a

temperate zone ; while, as we pass further northward, we are again greeted with new varieties not less pleasing or useful.

Again, we find each continent divided into a number of states or kingdoms, and inhabited by different tribes of men. All these nations and tribes differ in respect to government, laws, institutions and political economy. Perhaps no two of them speak the same language : at least they differ in dialect, in the tone of the voice, in the features of the face, and in the hue of the skin. And they differ more in manners and customs ; in their food and the manner of preparing it, and of taking their meals ; in the style and material of their clothing ; in the fashion and workmanship of their habitations ; in their occupations and ways of working ; in their modes of thinking, and the manner of expressing their thoughts ; and in their religion and modes of worship.

Some people have their food served on a table spread with dishes—sit in chairs, and eat with knife, fork and spoon ; others sit upon the ground, and eat from the common dish, or trencher, or loaf, with their fingers. Some eat with silver forks, others with steel forks, and a vastly greater number eat with no forks at all. They deem it more sensible to use the more flexible forks which nature has very kindly appended to the end of their hands. Some people sit in chairs, others sit on their heels, others sit cross-legged, others don't sit at all, but recline. Some men wear hats, of every conceivable shape and size ; some wear caps as 'multiform ; and more wear turbans.

Or if the inquiry turn on the vegetable, mineral or animal productions of the different portions of a continent, we shall discover the same varied profusion, to meet the wants and to minister to the tastes and luxuries of man. Each climate ha.

its own peculiar productions, differing from those of any other climate. Were we able to enumerate all the various kinds of grains, meats, vegetables and fruits which compose our diet, and the variety of drinks which we may enjoy as the indigenous productions of our own soil, we should have some faint idea of Heaven's bounty towards his creatures. And we get the same impression when we contemplate the boundless profusion which God has created by which to supply the wants of man in respect to clothing, habitation, and the various means of improvement. How many different fabrics, suited to the different seasons of the year, and to his convenience, comfort or luxury, are provided in a single region of country; and how many different materials for the construction of his house; and how many more for weapons of defence and the implements of his craft, and for all his labor-saving machines.

And if we here bring into the account the idea of the *exchange of commodities*—the idea of a commerce, which adds to the productions of each individual country the productions of every other country, we then get a vastly enlarged idea of the profuse benevolence of Heaven towards man.

Except it be on mature reflection, we have but a very inadequate conception of the multiplicity of productions and materials which we use in our common every-day life; and of the varied labor and skill which are forced into our service either to supply our necessities or to minister to our luxuries. It is, however, only for the *civilized* and more advanced state of man that the Universal Father has provided such bountiful and varied resources. Man in his savage condition needs little, and appropriates little to his use. Had Providence had respect to man only in his barbarous condition, and had he been

pleased that he should remain in that condition, he would have formed neither the mine nor the quarry, the field bearing its rich and varied harvests, nor the cattle on the hills; nor would he have endowed man with such diversities of gifts, and with such a versatility of genius and talent. So multiform and so multifarious, indeed, are the supplies provided for all man's wants and wishes, that the most fertile imagination can scarcely conceive of one which Nature has not provided for, either in the shape of a direct product, or in the inventive genius, or the artistic skill of some secondary agent who can produce it.

We will call up a few instances by which to illustrate the thought. We will take for our first example a common laboring man, a mechanic or a farmer; and we shall see that his simple wants imply an amount and variety in the provisions God has made for his support, which we did not at first anticipate. And, further, we will suppose this individual to need only a house and its furniture, food and apparel, modes of conveyance, and the tools and implements of his calling. Yet we shall see how he seems to be taxing the industry and skill of the world to supply only a part of his wants. I shall not attempt to enumerate all the ways and means by which these wants are supplied, but may name enough to give force to the above remarks. We will first take the man, *cap-à-pie*, as he stands; and then, as he eats, sleeps and works.

We begin with his *hat*: how many materials enter into its fabric—its body of fur and wool—its lining of silk, leather and paper—its sizing, band and buckle, of materials brought from different quarters of the globe. How many persons are engaged in trapping the beaver, and preparing the fur—how many in growing the wool (after that pastures had been made

by the Hand divine with a befitting soil to rear the grass that fed the sheep), and in carding and preparing the wool for the felt—how many in cultivating and feeding silk-worms, and winding and weaving and coloring the silk—how many persons engaged and how many materials used in tanning, dyeing, and preparing the leather, and in making the paper. And when all the materials for the structure are made ready, then how many operations are performed, and how many persons employed in the manufacture itself: to say nothing of the different minerals and metals and woods used either in dyeing and manufacturing, or in the form of implements, vessels and tools.

In the preparation of his *coat* a like variety of agents and materials are employed: the growing of the wool, the carding, spinning and weaving—the fulling and dressing of the cloth, and the cutting, sewing and making the garment. And to all these we have to add, as not the least in the account, all the metals and minerals, and the numerous other substances which compose the *machinery* used for the various manufacturing operations to which I have referred. Could we annihilate every field, and mine, and quarry, and every substance which contributes to the structure of a man's coat, we should at once put out of existence most of the great motive powers that keep the world in action. We should produce a chasm—a great gulf, which human progress could never pass. Almost every clime has made its contribution to form the coat. A suitable soil, the product of the Divine skill, fed the sheep that gave the wool that made the coat. Coal, iron, lead, tin, zinc, and I know not how many other substances and agents, combined to form the garment.

And so we may say of the cotton and linen garments

which go to make up the remaining portion of his wardrobe. The materials were cultivated in lands on the other side of the globe, and could not serve their present purpose until they had been transferred here—not till the large merchantman or the steamer had been constructed out of materials that again taxed every field and forest and mine, and employed a great amount and variety of skill and labor for its construction and outfit. His shoes, also, were not fitted to his feet till the materials of which they were made had passed through a great variety of operations, and a yet greater variety of materials were employed.

And if we put into his pocket a watch, a knife and a pencil, we shall meet in his garb a still further representation of the exuberant provision which nature has made for the comfort of man. Every continent has contributed, and every substance ministers to his well-being.

But he must be housed—he must eat, sleep, move from place to place, and work. How many kinds of wood enter into the structure of his house ; how many metals and minerals—common stone and marble, clay, sand, lime, hair ; glass, paint and cordage. And his furniture is composed of a still greater variety of materials. We should find no end in an attempt to trace out, and trace up to their origin, all the substances used by the cabinetmaker, the upholsterer, the carpenter, the carpet-maker, and the various artificers of all the woollens and linens and cottons and silks ; of the china and glass and porcelain ; and of kitchen utensils, stoves, and all manner of implements, vessels and appurtenances, in and about his house, good and bad, clean and unclean.

But his *food* levies, perhaps, a still more extensive contri-

bution on the productions of the whole world, than either his house or his apparel. Though each individual country furnishes to its respective population all the absolute necessities of subsistence, yet the comforts of the civilized man's table, and especially his luxuries, are the product of every land. How many fields and grazing grounds supply his breadstuffs and meats. Seas and rivers yield him fish. Tropical lands supply tea, coffee, sugar, sweetmeats and spices; and temperate climates, a great variety of delicious fruits and vegetables. The forests afford him game; the sea, salt; and every land, something that ministers to the palate.

Again, would we know what a variety of materials are requisite to enable a man to move from place to place in a carriage, railway car, or a steamship, we must first be able to analyze the structure of one of these locomotive conveyances, and to enumerate the number and variety of materials, metallic, animal and vegetable, which enter into the structure. And in like manner we might speak of the implements with which the man works, and the various devices by which he saves muscular labor.

Until we descend to particulars, we have but a very inadequate conception of the immense multiplicity of things which God has made, and of the immense number which we use in the common affairs of life. "Oh Lord, how manifold are thy works; in wisdom hast thou made them all: the earth is full of thy riches."

We may here quote the glowing language of another.* "Wherever we turn our eyes in the world around us, we be-

* Dr. Dick, in the "Philosophy of Religion."

hold innumerable instances of our Creator's beneficence. In order that the eye and the imagination may be gratified and charmed, he has spread over the surface of our terrestrial habitation an assemblage of the richest colors which beautify and adorn the landscape of the earth, and present to our view a picturesque and diversified scenery which is highly gratifying to the principle of novelty implanted in the human mind. On all sides we behold a rich variety of beauty and magnificence. Here spread the wide plains of fertile fields, adorned with fruits and verdure; there the hills rise in gentle slopes, and the mountains rear their snowy tops to the clouds, distilling from their sides the brooks and rivers which enliven and fertilize the plains through which they flow. Here the lake stretches into a smooth expanse in the bosom of the mountains; there the rivers meander through the forests and the flowery fields, diversifying the rural scene, and distributing health and fertility in their train. Here we behold the rugged cliff; there we are charmed with the verdure of the meadow, the enamel of flowers, the azure of the sky, the gay coloring of the morning and the evening clouds. In order that this scene of beauty and magnificence might be rendered visible, He formed the element of light, without which the expanse of the Universe would be a boundless desert, and its beauties forever veiled from our sight. It opens to our view the mountains, the hills, the vales, the woods, the lawns, the flocks, the herds, the wonders of the mighty deep, and the radiant orbs of heaven. It paints a thousand different hues on the objects around us, and promotes a cheerful and extensive intercourse among all the inhabitants of the globe."

A geographical survey of the earth introduces us at once

into the exhaustless storehouse of Nature's riches. We can never cease to admire the unbounded liberality of the Divine hand when employed to supply the wants of man through the varied resources which the earth is made to produce. The strangely varied surface of the earth which geography presents; diversified climates and soils; the different elevations and depressions of land; mines of every metal and mineral; and, indeed, all the singularly varied productions of the land, and the sea, and the inhabitants of the air—all conduce to magnify the wisdom and skill of the wonderful Architect; and to direct all eyes, and to raise all hearts to the great bountiful One who opens his hands and all the wants of all his creatures are liberally supplied.

These thoughts are but the echo of the inspired utterances of the royal Psalmist. In the one hundred and fourth psalm, he celebrates the glorious attributes of Jehovah, as displayed in the *creation* of this globe, both land and water—the stocking the land and the sea, respectively, with a superabundance of living creatures—the provision made for their subsistence both as to food and water, and the arrangement made, by means of day and night, for the labor, refreshment and protection of man. “He sendeth the springs into the valleys which run among the hills. They give drink to every beast of the field: the wild asses quench their thirst. By them shall the fowls of the heaven have their habitation, which sing among the branches. He watereth the hills from his chambers: the earth is satisfied with the fruit of thy works. He causeth the grass to grow for the cattle, and herbs for the service of man: that he may bring forth food out of the earth; and wine that maketh glad the heart of man, and oil that maketh his face to shine,

and bread which strengtheneth man's heart. The trees of the Lord are full of sap, the cedars of Lebanon which he hath planted, where the birds make their nests. The hills are a refuge for the wild goats and the rocks for the conies." How strangely benevolent all these arrangements, by which the wants and conveniences of all his creatures are so timely and bountifully provided for. Who has not admired the provision made to supply animals of every grade and clime with *fresh water*? The great reservoir is *salt*, yet it sends forth sweet streams into every nook and corner of the earth. The Great Architect has perforated this ball in every conceivable direction with water-courses, through which he sends to every door the needed fluid. The inhabitants of the wilds, the rovers in the desert, the tenants of the rocks, all receive in due time their supply of this indispensable beverage.

CHAPTER IV.

THE ELEMENTARY PARTICLES of Things—Varieties Chemical—The same law of Variety pervades the Atomic World—"Ultimate Molecules," or Elementary Particles—The Particles composing a Ray of Light or a Drop of Water.

"MEASURED on the vast scale of the universe, the globe we inhabit appears but an atom; and yet, within the compass of this atom, what an inexhaustible variety of objects is contained! what an endless diversity of phenomena! what wonderful changes are occurring in rapid and perpetual succession! Throughout the whole series of terrestrial beings, what studied arrangements, what preconcerted adaptations, what multiplied evidences of intention, what signal proofs of beneficent design exist to attract our notice, to excite our curiosity, and to animate our inquiries!"* We are amazed at the monuments of the divine power and wisdom which we behold in the boundless firmament of the heavens. No human intellect can comprehend such grandeur; no imagination can measure it. Yet not the less wonderful are the manifestations of the same divine attributes, as seen displayed in the less magnificent and the more minute operations on our own planet.

We have taken a hasty survey of our world as a whole, and as seen through the eyes of the geographer. We have seen

* Bridgewater Treatise, by Peter Mark Roget.

into how many tens of thousands of shapes, and forms, and natures, matter has been moulded, so as to produce a countless number of objects, all fitted to gratify the taste, to please the eye, to minister to the appetite, and to meet the wants and necessities of man. This will appear still more obvious, as we shall, in a subsequent chapter, consider more in detail the vegetable and animal kingdoms.

But let us pause here for a few moments and humbly seek admittance into Nature's secret laboratory, and try to gain some little acquaintance at least with the *primordial materials*—the *elementary particles* of which all this singularly diversified world of beings is made. While the telescope has thrown open to our view illimitable fields of space before untraversed, all radiant with sparkling worlds, and beyond these, still unexplored fields, of whose extent we can form no conception, the microscope, on the other hand, has brought within our range of vision “the more diminutive objects of creation, and revealed to us many of the secrets of their structure and arrangement.” But our concern at present is not with structures or arrangements, however inconceivably minute these may be. There is not a grain of sand, there is not an animalcule so small that it has not its component parts, and is made up of original materials. We are here conducted back a step beyond any structure or organization of matter; and here open to our view wonders more wonderful, if possible, than we get by any survey we are able to take of the vastness of the starry heavens.

Philosophy teaches that “there exist worlds far removed from the cognizance of every human sense, however assisted by the utmost refinements of art; worlds occupied by the elemen-

tary corpuscles of matter, composing, by their various configurations, systems upon systems, and comprising endless diversities of motions, of complicated changes, and of widely extended series of causes and effects, destined forever to remain invisible to human eyes and inscrutable to human science."

All matter, whether it be moulded into a metal or a mineral, or whether it compose a vegetable nature, or the bone, muscle, blood-vessel or vein of a living thing, is composed of an infinite number of molecules. As an instance from the mineral kingdom, Dr. Thomson has shown that an ultimate molecule of lead cannot weigh more than the $\frac{1}{310,000,000,000}$ of a grain; and the ultimate molecule of sulphur no more than the $\frac{1}{2,015,000,000,000}$; and that the *size* of a molecule of lead cannot exceed $\frac{1}{888,492,000,000,000}$ of a cubic inch.

The vegetable kingdom presents us with examples of the extraordinary divisibility of matter quite as remarkable. But we pass by these that we may quote a paragraph to illustrate the same idea from the animal kingdom.*

"Animalcules have been discovered whose magnitude is such that a million of them does not exceed a grain of sand; yet each of these creatures is composed of members as curiously organized as those of the largest species; they have life and spontaneous motion, and are endowed with feeling and instinct. In the liquids in which they live, they are observed to move with astonishing speed and activity; nor are their motions blind and fortuitous, but evidently governed by choice, and directed to an end. They use food and drink, from which they derive nutrition, and are therefore provided with a digestive apparatus. They have great muscular power and are provided with limbs and muscles of strength and flexibility. They are susceptible of the same appetites, and obnoxious to the same passions. Must we not conclude that these creatures have

* Dr. Wm. Prout's "Bridgewater Treatise," pp. 23, 24.

hearts, arteries, veins, muscles, sinews, tendons, nerves, circulating fluids, and all the concomitant apparatus of a living organized body? And if so, how *inconceivably minute* must these parts be. If a globule of their blood bears the same proportion to their whole bulk as a globule of our blood bears to our magnitude, what power of calculation can give an adequate notion of its minuteness."

But we are not at present concerned with the *formations* of things, however infinitesimal these may be, and however much, by their inimitable skill and strange variety they may enhance our admiration of the Great Architect. We are now concerned with the *elementary particles* out of which all things, even the minutest structure or organization, is formed.

Though we shall find enough to excite our profoundest wonder and devoutest adoration when we shall attempt to enter the great storehouse of Nature, and contemplate the immense number and variety of objects which God has made, from the hugest globe that rolls through interminable space, to the minutest molecule that forms a grain of sand; and our arithmetic shall fail in the attempt to enumerate even the *manufactured* articles which the eye, aided by the telescope on the one hand and the microscope on the other, is able to survey; yet we shall not be the less amazed as we attempt to examine the *raw material*, if I may so speak, out of which all these things are made. Here we find ourselves amidst worlds of wonders yet more incomprehensible. If we shall be able, in any degree, to look in upon the great universe of primordial particles (the atomic chaos of things), we may gain some more definite idea of those wonderful operations which first gave to matter its present endlessly varied forms; and the no less wonderful operations which are constantly taking place in every particle of matter

about us. Such a view will introduce us into what Paley calls the "concealed and internal operations of the machine."

We ask what is matter in its original form, in its elementary principles or particles? and whence and by what means all these endless forms and shapes, and all these endlessly varied natures and conditions in which we find matter at present?

We have referred to a globule of the blood which flows in the veins of one of those living atoms, a million of which sport in a drop of water. Now we know that blood is a substance—a compound substance—and that each of its component parts is in turn composed of an infinite number of "ultimate molecules," or elementary particles. We cannot conceive of the existence of an object so small as one of the myriads of original particles of a globule of human blood; what then must be the *size* of one of the indefinite number of particles which form a globule of the blood of one of the animalcules referred to above, a "million of which are not larger than a grain of sand;" or of one of those *monads* which have been brought to light by the microscopic researches of Professor Ehrenbergh. According to his computation, a cubic line, which is about the bulk of a drop of water, contains 500,000,000. Each one of these he represents as endowed with organs of life, of motion and digestion—has muscles, veins, arteries, sinews, and nerves. We ask not what is the size of a globule of their blood, but of one of the immense number of particles of which that globule is composed.

Light and heat are now conceded to be substances, every ray of which is composed of an infinite number of particles. And how minute indeed must be the particles of light, that, though they come from the sun with a velocity equal to 200,000

miles in a second of time, yet, notwithstanding this tremendous velocity, they strike harmless on an object delicate as the human eye. Were not the particles almost infinitely small, the strongest eye could not endure the light for a moment. Had particles of light been made of such a size that a million should equal a small grain of sand, they would probably, with such a velocity, pierce the eye with the most excruciating pain. And not only so, but such rays would perforate the very crust of the earth, and tatter to atoms every living thing. And so subtle are the particles of this form of matter that it readily passes through certain solid substances, some of them the most solid. It passes through one of the densest bodies with perfect ease. And heat, so minute are its elementary particles, that it readily insinuates itself through the densest forms of matter, not excepting gold, acting on every separate particle of whatever body it pervades, and expanding the whole. Heat is possibly a compound substance, a union, as some affirm, of electricity and magnetism. And what are electricity and magnetism? If they are material, what can estimate the size of their elementary particles?

And if Newton's hypothesis of light be the true one, its composition exhibits an exquisitely ingenious variety of workmanship. According to this hypothesis, "the molecules of light may be regarded as *little magnets*, revolving rapidly around their centres while they advance in their course, and thus presenting alternately their attractive and repulsive poles." That is, every elementary particle of light is a sort of infinitesimal miniature and representative of those great stellar bodies in the concave of the heavens that revolve about their axis, and at the same time move on in their respective

orbits with the most astonishing velocity! Were our sun the *only* fountain of light for the universe, we should still attempt in vain to form any conception of the infinite divisibility of matter, and the exquisitely beautiful workmanship implied in the idea above. But when we come to reflect that boundless space is thickly studded with these great light and heat-giving bodies—millions of fixed stars or suns; and that every ray of light which emanates from each one of these immense bodies is composed of millions of normal atoms, each one of which is itself, as it were, a sun revolving about its axis, and at the same time moving on its course at the rate of 200,000 miles in a second of time, we find ourselves attempting to get an idea of the handiwork of God, which surpasses all description or conception.

The reflection contained in the following paragraph is sufficiently apt, and the remarks and assertions respecting the elementary particles of light are, at least, sufficiently wonderful, to be appended to what has just been said. The theory seems not to differ essentially from that of Newton; but the theory is supposed to be verified, in the manner which exceeds all human conception; and, to the untaught in the wonders and mysteries of creative wisdom and skill, it transcends all human credibility.

“What mere assertion will make any one believe that in one second of time, in one beat of the pendulum of a clock, a ray of light travels over 192,000 miles, and would therefore perform the tour of the world in about the same time that it requires to wink with our eyelids, and in much less than a swift runner occupies in taking a single stride? What mortal can be made to believe without demonstration that the sun is almost a million times larger than the earth? and that, al-

though so remote from us that a cannon-ball shot directly towards it, and maintaining its full speed, would be twenty years in reaching it, yet it affects the earth by its attraction in an inappreciable instant of time? Who would not ask for demonstration, when told that a gnat's wing, in its ordinary flight, beats many hundred times in a second; or that there exist animated and regularly organized beings, many thousands of whose bodies, laid close together, would not extend an inch? But what are these to the astonishing truths which modern optical inquiries have disclosed, which teach us that every point of a medium through which a ray of light passes, is affected with a succession of periodical movements, regularly recurring at equal intervals, no less than five hundred millions of millions of times in a single second! That it is by such movements communicated to the nerves of our eyes that we see;—nay more, that it is the difference in the frequency of their recurrence which affects us with the sense of the diversity of color. That, for instance, in acquiring the sensation of redness, our eyes are affected four hundred and eighty-two millions of millions of times; of yellowness, five hundred and forty-two millions of millions of times; and of violet, seven hundred and seven millions of millions of times per second! Do not such things sound more like the ravings of madmen than the sober conclusions of people in their waking senses? They are, nevertheless, conclusions to which any one may most certainly arrive, who will only be at the trouble of examining the chain of reasoning by which they have been obtained."

A drop of water appears a very simple thing; yet the gentlemen of the microscope discover it to be made up of twenty-six millions of primary particles, among which play an incredible

number of animalculæ. The snow-flake appears as an object scarcely less simple. The casual observer is satisfied when told that this snow-flake is congealed or crystallized particles of water in the vapor state. But the philosopher sees in it a world of interest beyond this. He sees the water indeed beautifully crystallized; but when he comes to apply a magnifying power, he lays open to his vision a singular display of beauty and variety. The particles assume every conceivable form.

The vapor, which when frozen, produced the snow, is water whose particles are separated and diffused by heat. A flake of snow may therefore be regarded as a collection of these diffused particles of water frozen and crystallized: each particle forming a distinct crystal, and the several crystals displaying as many distinct and beautiful varieties.

Captain Scoresby, who gave much attention to this subject, has given a delineation of a great number of these crystals. While each is exquisitely beautiful, no two are alike. Or if the water of the atmosphere be condensed into drops, and in its descent congeals and falls in the shape of *hail*, a somewhat similar phenomenon is observed. These hail-stones assume an endless variety of forms—endless, as far as human observation extends. Some are round, others angular, or pyramidal, or flat; sometimes they are stellated with radii; and it is yet to be discovered if there be two hail-stones of precisely the same size or shape.

But we would pass from the great chaotic mass of unwrought material to the ingenious working-up of this material by the plastic hand of Nature. But before we would quit Nature's great storehouse and pass on to Nature's great workshop, we would raise a single suggestive inquiry. It relates to the

size and form of the primordial particles of which all existing things are made. Are they all of the same uniform size and form, as some have affirmed; or does not this vast and limitless primordial universe of which we have been speaking, present the same wonderful diversity of dimensions and shapes as the microscopic or the telescopic universe of *made* objects does, or as does the visible world about us?

To assume that the same law of variety does *not* pervade the whole atomic world, is to presume that the original, and the most wonderful, and most numerous portion of God's works is not in analogy with all his other works with which we are acquainted; for, in all things which fall within unassisted human vision, and as far as telescopic or microscopic vision extends, there is no exception. Variety is there the order of creation. And we are probably safe in the conjecture that if microscopic vision shall ever be able to examine the forms and dimensions of the primary particles of things, these will be found to be subjected to the same general law of variety. The idea is perfectly incomprehensible, yet incomprehensible only because we cannot comprehend *infinity*. We readily admit the idea that infinite skill and power can create objects in infinite number and variety, though we cannot comprehend how much is included in the term infinite variety. So that however beyond human conception it may be, yet it may nevertheless be true that of all the countless number of particles that compose the universe, *no two are alike*. However great this number may be, it is something less than *infinite*. If infinite variety be possible, certainly the variety in question is at least as possible. We can form no definite conception how the particles composing a drop of water should contain twenty-six million

varieties, and that there should exist in that drop five hundred millions of monads, containing as many more distinct varieties. And more difficult is it to conceive that each of the sixty-two millions five hundred thousand of teeth that lock together the five millions of fibres which compose the crystalline lens, (the hard central part of a codfish's eye,) should be formed of an indefinite number of molecules; and that these should constitute so many varieties, that no two should be alike. And yet more difficult is it to comprehend how no two particles of light, which emanate from the sun, and which in all past time have, or in all future time shall, emanate from our sun, and not only from our sun, but from all the suns that shine in the universe, are alike. This is a step further in advance towards infinity than we are able to go; yet our surmise here has to plead for itself the analogy of all we *do* know of the Divine workmanship.

The foregoing illustrations find confirmation in the philosopher's well-known doctrine of "Infinite Divisibility." Every substance is doubtless divisible (in theory) till we arrive at the primordial particles of which it is composed. This is to us at least, infinite. The following paragraphs from the "Scientific American" give some just idea of the subject we are considering:

"Divisibility is a property possessed by all bodies, and means their capability to be separated into parts.

"It was formerly a question among philosophers whether matter was capable of being divided *ad infinitum*, or whether there was a limit beyond which matter could not be divided. The question is incapable of direct solution, and fortunately science does not require that it should be known; but the extent to which subdivision has been carried in the arts is prodigious. In the gilding of buttons, five grains of gold, which is applied as an amalgam with mercury, is

allowed to a gross; so that the coating left must not be more than the 110,000th part of an inch in thickness. If a piece of ivory or white satin be immersed in a solution of nitro-muriate of gold, and exposed to a current of nitrogen gas, it will be covered with a surface of gold not exceeding the ten-millionth part of an inch in thickness.

“A single grain of blue vitriol will give an azure tint to five gallons of water. In this case, the copper must be attenuated ten million times, and yet there is sufficient in each drop of water to give it color. Odors are capable of still further diffusion; a single grain of musk has been known to scent a room for twenty years.

“Animal matter, likewise, exhibits many instances of wonderful subdivision. The milt of a codfish, when it begins to putrefy, has been estimated to contain a billion of perfect insects, so that thousands of these little lives could be lifted on the point of a needle. One of the infusorial animalculæ found in duck-weed is ten million times smaller than a hemp seed; and another, discovered in ditch water, appears in the field of a microscope a mere atom, endowed with sentient life, and millions of them play, like sunbeams, in a single drop of liquid.”

“Among the curiosities shown at Alnwick Castle, in England, is a vase, taken from an Egyptian catacomb. It is full of a mixture of gum, resins, &c., which give forth an agreeable odor to the present day, although probably fully 3,000 years old!”

But enough of this great chaos of atoms—of this endlessly multitudinous universe of molecules. We now enter the great workshop and try to catch a glimpse of how things are made, as well as out of what they are made.

The idea which has been advanced is, in the language of Dr. John Pye Smith, that “the original act of creation provided the primordial particles, by a combination of which all material and all organized matters have been formed.” These particles, then, mingled together in one great chaotic mass—a great dead globular lump, empty and waste, “without form and void”—were, at the period when Moses commences his history, endowed

with certain "repellant and adhesive forces," perhaps assisted by, if not composed of electricity and magnetism, which in their singular action worked out all the formations of things as we see them. We call these forces, with which every particle of primeval matter is endowed, and which seem to act on every particle separately, "the laws of nature." Through the mighty agency of these forces—forces so quiet in their operation, and so invisible to the eye of art or science, that we know of them only by their agency—He that said "Let there be light, and there was light," holds at ready command every separate particle of matter in the universe.

We may at least suggest the inquiry whether, when God said "Let there be light," this was not the fiat which sent on their mission the potent energies of light and heat (including electricity and magnetism) in the first great moulding process among the heretofore chaotic elements of nature. The great forming and vivifying agency was now set in motion, and henceforward matter is seen to assume endlessly varied forms. And as these mysterious forces (the laws of nature) are kept in action under the guidance of Omniscient benevolence, they produce all those endless changes, forms, varieties, natures and conditions, and all the multiplicity of objects which constitute the entire universe of matter, and determine the condition of the whole world of life.

The Creator and constant controller of all things, can have occasion to form nothing so subtle or minute, nothing so huge or ponderous which he cannot form out of such material. Did he foresee that the comfort and future progress of his creature man would require an ocean here and a river there; here a bay, or a creek, or a refreshing stream, and there a mountain,

a valley or a meadow, he had only so to control these forces at his command, as to produce the desired end, and it was done. When the vivifying and all-adjusting Spirit moved on the face of the chaotic mass ; when the Creator took in hand first to fit up this globe of ours for the habitation of man, or to readjust its surface at the time of the deluge, he made just such an allotment of particles as was needful to form the waters and the dry land in due proportions, and ordered just such a retreat of the waters after the flood, and such a subsidence of solid matter—such elevations and depressions of the land as should secure the location of every river, lake, sea or streamlet in precisely the right place. And so in the formation of every conceivable variety of soil, of every meadow, forest and mine—of every metal or mineral, and of every living thing. It was Omniscient forethought that brought together just the right particles to form in its respective place the diamond, the silver, or the gold ; the iron, the coal or the precious stone ; or to give being to the monster of the deep, or to the tiniest mite that lives.

One adjustment of particles produces a hard body, another a soft, or a porous, or an elastic body ; one, a ductile, another, a malleable body. One arrangement produces a body which will freely transmit the rays of light, as glass ; another construction produces a translucent body which transmits rays but imperfectly. An ingenious composition of particles in one body reflects only the *red* rays of light, and consequently the body appears red. Others reflect only the *blue*, or the *green*, or the *violet* rays, and appear of a corresponding color. Some reflect *all* the rays, and are consequently white ; others reflect no rays, and are *black*. We here discover the causes of all the

varied colors and tints of color which please the eye and beautify the landscape; and of all the fragrant odors by which we are regaled, and all the sweet flowers and delicious fruits which we enjoy, and the endless varieties of food which the earth yields us—and of all different natures and varieties of every created thing. All is the result of that Omniscient forethought and exhaustless benevolence which orders precisely such a collection of every individual particle as is needful to produce such a result. Whence the pure white of the lily, the blush of the rose, or the tinge of the apple? Whence the gold, the diamond, the plumage of the peacock, or the gilding of the insect's wing? It is the peculiar *composition* of those substances which makes them capable of reflecting the right sort of rays to produce these colors. Not the minutest particle took its place in that rose-leaf, or in that insect's wing, by accident.

But we would present the thought in one other aspect. We refer to the regard had in the moulding of things into their destined forms, to *quantities* and *qualities*. A due adjustment of these to each other, we at once perceive is of essential importance; and such an adjustment as actually exists, could have been the result of nothing short of Infinite Wisdom. In all the countless multitude of things which God has made, there is found to be the most exact regard had to the quantities and qualities of matter which enter into each. If these were varied from what they are in the least possible degree, the thing made would be another thing from what it is. What is a good now would be an evil. How different, and indeed how disastrous, if the component parts of water, or of air, had been different from what they are?

Had there been in air a greater proportion of oxygen (the

very principle of flame), the atmosphere might ignite, and the whole earth be encircled in a conflagration ; or were the oxygen of the air to be diminished in any considerable degree, it would not be capable of supporting life or flame at all ; and not only so, but the nitrogen of the atmosphere, if increased above what it is, would be altogether destructive to life ; and in like manner in relation to water. If the ingredients were not compounded in precisely the quantities they are, this element would subserve none of its present purposes. It would not be *water*. By reducing the quantity of oxygen, it would become inflammable ; and by increasing its hydrogen, if nothing more disastrous, its specific gravity would become such as to make it of no use in navigation, and probably as useless for any other practical purpose. Similar remarks might be made in respect to any, or all created things ; but for the nicest calculation in respect to the exact number and character of primordial particles that enter into the composition of each, it would not be what it is, but something else.

And there is a like dependence on the *quality*. Suppose the familiar substances referred to, air and water, were to change as to their component natures, what calamities would follow ? Were, for example, the important fluid, water, to become sour or sweet, heavier or lighter, or any thing but what it is ; or were the air of the atmosphere to acquire odor or color, or to become opaque : by either of such changes, slight as they appear, the whole of the present economy of nature would be changed. Again, “if the qualities of the acid existing in the common salt of the ocean were to become so modified as to quit the alkali with which it is at present associated, and to combine with the limestone composing our rocks,

while the carbonic acid, thus set free, was diffused through the atmosphere : in such a case a large part of the solid crust of our globe would rapidly disappear and become dissolved in the waters of the ocean, which would thus be totally unfitted for their present purposes, while the liberated carbonic acid would instantly prove fatal to animal life." Such are but specimens of the disastrous results from changes apparently the most trifling ; and we can scarcely conceive of any change which would not produce similar results. Our very useful article called common salt, owes its utility and its existence to the fact of its being a composition of two ingredients in precisely the proportions in which we find them. The excess of the one over the other would entirely change it, and make it any thing but common salt. Were water either of a greater or less specific gravity, it would be of no use in navigation. If water were a lighter substance, vessels would not float ; if heavier, no power of wind or steam would propel them through it. In like manner, marble, coal, iron, gold, silver would instantly lose their identity and cease to be of service, if the character of their structure were changed.

We can scarcely contemplate the God of Nature in a more interesting light than when we regard him as the original Creator of all matter and as the great Architect. He first, out of nothing, called into being the material—not in masses or tangible forms as we now see them, but infinitesimal molecules or primordial particles—*monads* infinitely small and infinitely numerous, and probably of infinite variety—and out of these he made an endless variety of objects, mineral, vegetable, and animal ; and these are endowed with natures and properties, and are adapted to uses and modes of existence and life the

most diverse conceivable. In the view we have now been taking, we approach the wonderful Architect in the great laboratory of Nature's Temple, and as we contemplate his incomprehensible skill, wisdom, and power in his primordial creations, and then witness the exuberantly varied and seemingly opposite results which the plastic Hand produces, by the compounding and organizing into every conceivable shape and size what has been significantly termed the "ultimate molecules" of the original creation, we are overwhelmed at the idea which it gives us of the capabilities of the eternal Godhead. We can only praise, and adore, and wonder, but we cannot comprehend.

The view we have been taking of the nature and structure of the material creation, suggests a reflection as to the formation and development of the new spiritual creation or the spiritual life. Is the origin of the new life in the soul, its growth and maturity, and final perfection; is it absolutely, on the part of the Omnipotent Spirit, a new and positive creation, or is it a bringing together and concentrating, and giving life to moral influences and impressions which before existed?—the germination of seed previously sown, the quickening into life of agencies and influences before existing? While this detracts nothing from the power and necessity of the quickening Spirit, it is analogous to the working of the same creating and all quickening Spirit in the creation of the natural world. But not to insist on this idea, the analogy appears more obvious as we contemplate the growth and maturity of Christian character, and the fitness for citizenship in heaven. Here the whole spiritual structure is made up of *little things*. The little events of every-day life, the little impressions and

influences which act on the mind or heart ; the numberless little opportunities and circumstances for the benefit of others or for self-improvement, or for self-discipline, are, when collected, combined and moulded by the plastic hand of the life-giving Spirit, the primordial elements which make up the sum total of a man's character, and determine his eternal destiny. Death works no change in character ; nor is the future destiny of the soul determined by a few great leading religious or irreligious acts, but by the whole web of life—which web is made up of ten thousand little shreds of every-day character.

CHAPTER V.

The Vegetable Kingdom: No two Trees, Plants, Shrubs alike—No two Leaves, Flowers, Seeds, or Fruits.—The Natures, Qualities, and Uses, how different.—The Abundance of Vegetable Productions.—All formed of a few Elementary Substances.

It would seem but an obvious inference from what has been already said that God never made two objects alike. For whether it be things earthly or heavenly, or things under the earth—whether we ascend to the boundless regions of the telescopic universe, or descend to the innumerable millions of living things and of primordial molecules, which form the no less wonderful microscopic universe, we find no two objects alike.

We turn to the vegetable kingdom, and what endless varieties meet us here. How many kinds of trees, shrubs, plants, vines! The earth is constantly yielding her endlessly varied productions. What a variety of foliage, flowers, and fruits regale the eye with their varied beauties, and gratify the taste. How many kinds of grasses and vegetables all variegate the same little spot of ground, and all contributing to the subsistence, the health, and luxury of a correspondingly diversified family of living creatures. Not less than 100,000 species of plants and vegetable productions are enumerated by naturalists; including individuals or real varieties amounting to many millions. And then if we admit into the account the

fact that each of these individual varieties contains its unknown number of varieties, the aggregate will be inconceivable.

We take for an example a single apple-tree, which is but one of the varieties named. No two apple-trees are alike. There are consequently as many varieties of this species of tree as there are individual trees. And not only so, but there are no two leaves, or buds, or blossoms, or fruits, or seeds of an individual tree that are alike. Our arithmetic would seem to falter before we should arrive at the number of varieties which grow out of a *single species* of plants; and much less can we form any just conception of the number of actual varieties which result from the 100,000 species of vegetable productions. If we can form no definite conception of the number of varieties which range under *one* species, but find ourselves lost in the calculation in what to us is *infinity*, then we can only set down the whole grand aggregate of all the vegetable varieties at 100,000 infinities.

But we have no need to generalize or deal in incomprehensibles. We may come to matters of every-day observation. It will add interest to our contemplations of the subject before us, if we bear in mind while contemplating it, that all plants, all vegetable organizations, are compositions of nearly the same component substances; and these are very few and very simple. All the endless varieties which exist are produced by changes, apparently slight, in the amount and arrangement of the original particles. The principal and almost the only ingredients which enter into the composition of all the vast multiplicity of vegetable productions which cover the earth, are oxygen, carbon, and hydrogen. All plants owe "their peculiar character essentially to carbon, and their endless varieties to

the differences in its quantity, and to the modifying influence of the hydrogen and oxygen with which it is associated." The gnarled oak—the hardest wood or the rankest plant that grows, is formed of essentially the same materials as the most delicate flower that blossoms. The difference is in the infinite skill and taste employed in the workmanship of the two. One collocation of particles has formed the giant tree; another, the modest violet, or the down on the most minute and delicate flower.

It is quite impossible for us to conceive how, simply by a little change of arrangement, and a little variation in the amount and proportions of materials, such an endless multitude of objects, and such a countless variety, can be produced—objects, though all composed of the same three or four simple substances, yet so differ in appearance and composition as to seem to have little or nothing in common.

We have no need to go into any nice physiological examination of the vegetable world. Were we to attempt to search out all the various compositions, natures, properties, functions, and uses of plants, we should almost at the outset find ourselves overwhelmed in infinitude. We could not number one of a thousand of the varieties which would press upon us. The most superficial view—a glance of the eye or the use of the taste or the touch—will verify the remark. You open your eyes on a landscape, and what variety meets you simply in the external forms of things—in size, shape, and color. We select the single property of *color*. We can scarcely meet a more beautiful illustration of our subject. The prevailing color of the whole landscape is *green*. But how many shades of green do you at once discover? You begin to

compare the green of one species of tree with that of another; of one shrub, or vine, or creeping plant with another. You fix on a grass plot and say it is *all* green; or you contemplate the leaves of a single tree, and declare that each leaf is surely of the same shade of green; and equally positive are you that every spire of the same species of grass on the same little plot is the same green; yet as you examine a little more minutely, you begin to doubt the perfect identity of color even here; and as you bring a glass to the aid of your vision, you soon discover that the color of no two leaves of the same tree, and no two spires of grass on the same patch is precisely the same; and we know that there are not two of the same form. The same remark would doubtless be found true of any other color. You would find no end to your attempt to enumerate all the different shades of red, or black, or yellow, or orange, or violet, as they are found blended in the same scene. It is quite possible that you would discover as many varieties of color as there were number of objects contemplated.

And the *taste* and *touch* may be found to detect another series of varieties in the same landscape, scarcely less limited. Select either of the three qualities expressed by the terms sweet, sour, bitter, and apply the taste, and you will detect every conceivable variety of the quality in question, if not a different variety in every leaf of the same tree, (which is not impossible if the taste were sufficiently delicate to discriminate;) yet every different species of plant will offer a different degree of sweetness, acidity, or bitterness.

Nothing sooner arrests the attention of the observer than the *abundance* of vegetable productions—the exuberant provision, in every conceivable variety, which God has made to supply

every possible want of man or beast. The whole face of the earth, and almost every object which belongs to the earth, is strangely instinct with vegetable life. And most of this vegetation is spontaneous. Cultivated or uncultivated, sown or not sown, the mountains and the prairies, the hills and the valleys, and every crevice, nook and corner, will be found covered with verdure. And not only where there is a soil will there be vegetation, but the rock, the bark of the tree, the rail of the fence, and the roof and sides of the old building, if undisturbed by friction, will put forth their verdant crop. And not only do the moss, the fungi, and the vegetable mould find place and nutriment on the rock or on the wood, but some species of plants vegetate on the surface of the water, and others on the surface of the *snow*, and others, again, on the bodies of some kinds of animals. The *red snow*, which is sometimes met in the arctic regions, is found on examination to be not snow of a crimson color, but Nature, true to her own law, "be fruitful and multiply," produces, under circumstances so hopeless, a minute and singular vegetation, causing it to take root, without soil or genial sunshine, and to derive its nourishment from the cold surface of the snow; and what is yet more remarkable, brick walls, tiled roofs, and even glass, when not kept constantly clean, afford, if not a soil, a surface for the growth of vegetation. The first plants that gain a footing on these surfaces usually look like a green or yellow powder. These in time decay, forming a little soil, on which others of a little less diminutive growth take root and find nutriment; and so one generation succeeds another till a sufficient portion of soil has accumulated to afford life and growth to more per-

fect plants. And, at length, if the surface be large enough, shrubs and trees will succeed to the places of their diminutive progenitors.

Placing under your microscope a piece of vegetable *mould*, you behold a forest of beautiful trees, every plant of which is several hundreds of times smaller than a fine needle. We may assume that one of these *minim* trees, the tallest branch of which does not tower high enough to overlook the finest silken thread, stands at the lowest extreme of vegetable organization. From this point we ascend through every imaginable grade of vegetable life, from plant, shrub, flower and tree, of every possible form, size and color, to the sturdy oak, the princely pine, and the goodly cedar; and thence again through less numerous but more noble races to the august monarch of the great vegetable empire. In most imposing contrast to our little tree of mould, sits, like a monarch of oriental magnificence and slothful ease, the majestic *banyan tree*.

This noble tree, whose broad and wide-spread top is beautifully interlaced with a thousand branches, and roofed with a thick and heavy foliage, and laden with fruit that serves as food for various tribes of animals, rests upon one main trunk of great size, while its broad branches are supported by a great number of lesser trunks: some of the latter being as large as common forest trees. The whole covers some acres of ground, and an army of seven thousand men have been known to encamp under it. One of these trees, on the banks of the Narbuddy River, is said to inclose a surface of two thousand feet in circumference when measured round its principal branches. The large trunks of this tree are three hundred and fifty, while the

smaller ones exceed three thousand. This is Nature's noblest specimen of workmanship in the vegetable kingdom.*

But we were speaking of the prodigality of Nature in the profuseness of her productions. Production is her law; and in obedience to this law (if not an attempt to overstep it) we meet a tendency in vegetable life to extend itself, which has not left uninvaded the domains even of animal life. Some species of plants, as I intimated, find a foothold on the bodies of animals, and derive their nourishment from the same. They have been found, in the West Indies, vegetating on the bodies of living wasps. This was formerly believed to be a fact only in reference to the bodies of dead animals. It is now admitted that several kinds of plants of the mushroom species, vegetate on the bodies of living insects—and not on the wasp alone, but on the sphynx and the May-bug. And other kinds of plants have been known to vegetate in the stomachs of living

* The trunks of the banyan tree are matters of much curiosity. The main trunk occupies the position and serves the purpose of the trunk of any tree. And when the tree is young and small it is the only trunk. But as the branches begin to extend and need a support they let down little strings like roots, which continue to descend till they reach the ground. There they take root, grow with the growth of the branch they are to support, and at length become a collateral trunk. In like manner every principal branch lets down its support—and each branch, as it *extends* and requires it, supplies itself with a supporting trunk.

Around the imperial banyan, the pride of the luxuriant East, we may range the stately pine, the noble oak, the teak, the maple, the walnut, and a liberal variety of flower and fruit-bearing trees, all generously contributing to the use and luxury of man; some for ornament, some for food or fuel, and all for purposes which enter substantially into the great business of human progress.

animals. An instance of this kind was singularly illustrated some years ago in the case of a codfish. There were found in its stomach three gneiss pebbles, on each of which was found growing a plant of the fucus kind, of a deep green, and nearly two feet long; on another, a plant one-third as long was growing; and another of three inches in length.

Though we can make no definite estimate of the actual number of real varieties in the vegetable kingdom, we may adopt a mode of illustration not the less pleasing and much more satisfactory. We may contemplate the diversified character of the Divine workmanship in its relation to the convenience and comfort of man. We shall here see the whole arrangement to be fraught with Heaven's beneficence.

Next after the singular *profusion* which everywhere abounds, the *manner* in which such rich profusions are made to meet the wants and wishes of man, attracts attention.

Every season produces a peculiar variety—so does latitude, or elevation above the sea. The hill and the valley, the dry land and the marsh, the sandy and the clayey soil, each gives life and growth to a vegetation peculiar to itself. Or the latitude and elevation may remain the same, yet a difference of soil will produce a different vegetation. It is interesting to follow up the vegetable products of the season. From the early spring to late autumn, what a delightful succession and variety—we will say first of *flowers!* We should impose on ourselves a task if we were to attempt simply to enumerate but the various *species* which appear in beautiful succession, week after week, during the season, and in a single locality. From the first welcome of the dear little violet to the blushing adieu of the last rose or dahliah, we are never left a day or an hour with-

out these delightful summer visitors. And not only have we occasion to admire in what beautiful variety one generation after another joyfully passes before us, but when we stop to *contemplate* individual varieties we find we had not numbered one of a thousand. We look upon a bed of carnations or violets and we count it as one variety; but as we begin to examine and compare, we find no two individual blossoms alike; and we soon make the discovery that there are as many varieties as there are individual flowers. Or we look in upon the great and beautiful family of *roses*, and we not only meet scores of varieties, but every individual of the same variety differs from his fellow. We go into the fruit orchard when in full blossom, and admire a scene so beautifully variegated by the blossoms of the apple, the pear, the peach, the cherry, the plum; but we no sooner begin to discriminate than we discover that each individual apple, or peach or plum-tree presents its own peculiar beauties; and when we come to apply a yet nicer discrimination, we are still more surprised to find that no two of the ten thousand blossoms on the same tree are alike. This multiplies varieties beyond all conception.

But we stop not here. Though not one blossom in ten, and often not one in a hundred or a thousand, produce seed or fruit, but are merely the lovely expression of the Divine Goodness in adorning the fields and groves, and perfuming the air for the happiness of man, yet there follows a corresponding succession and variety of *seeds and fruits*. In our temperate climate, from the first welcome of the delicious strawberry to the final exit of the late pear and the frost-peach, we have a pleasant and continuous succession of summer fruits. Strawberries, cherries, raspberries, harvest pears and apples, currants, gooseberries,

plums, and a great variety of melons, and the whole series of summer fruits, supply our tables in their season; and then follow, during the autumn and winter, a no less rich, and a yet more permanent supply of apples. Or if we extend our views within the tropics, a new world of floral beauty and variety, and new and yet more profuse supplies of fruits, regale the taste. Every country, every section, according to its latitude or height, has its own peculiar flowers and fruits.

And if what was asserted of flowers be true (as it undoubtedly is) of fruits and seeds, then we may expect to find no two apples, or peaches, or cherries on the same tree alike; and we again have varieties which no man can number.

“The vegetable kingdom,” says the author of the “Sacred History,” “expands everywhere before us an immense portraiture of the Divine Mind, in its contriving skill, profuse imagination, conceiving genius and exquisite tastes; as well as its interesting qualities of the most gracious benignity and the most benevolent munificence.” We cannot too profoundly admire “that exuberance of imagination and taste, and the sense of eloquence and beauty,” which are displayed by the Maker in forming and diversifying the vegetable world. All these wondrously strange diversities of organization are “entirely the creation of his choice—the inventions of his rich and beautiful fancy. Their attractive shapes and quantities, and the abundant gratifications and important uses which we and our fellow-animals derive from them, explicitly show that kindness as well as goodness actuated his mind when he projected and made them. They have been all individually designed: and special thought must have been employed on each; both in fixing their specific differences of form and

products, and in perceiving what particular combinations and variations of arrangement would effect in every one its appointed end and use."

But the Divine Goodness is not exhausted when He has supplied man with a choice variety of luxuries. What has been said of flowers and fruits, may apply with equal truth to Nature's varied supplies of *grains, vegetables, nuts, spices, aromatics and narcotics*; some of which are produced in nearly all countries, and others, the products of their respective regions, according to their distance from the equator or their elevation above the sea. Not only are man's wants liberally supplied and a never-failing provision made for his domestic animals, and for the wild tenants of the forest and all the winged tribes of the limitless domains of the air, but his table may be spread with a luxurious variety. Every demand of necessity would have been heeded if but *one* kind of grain, and but one vegetable had been provided for him. But, instead of this, his Heavenly Parent has been at the utmost pains to provide for him every variety which even taste can crave, and pleasantly to season the whole with spices and salt—and withal to perfume the air about him that he may be happy and gratified in all his lawful desires.

And not only has the Great Benefactor provided man *food* in such varied abundance, and provided for his luxuries—"wine that maketh glad the heart of man, and oil to make his face to shine"—but he has been in like manner bountiful, in the provision made in vegetable organizations, for his *clothing*, for his dwelling, and for the various purposes of every day life. The fibre of one plant supplies his linen, that of another, his

cordage.* One tree produces a beautiful fibrous substance, which, when spun and woven into a great variety of fabrics, serves a thousand purposes in the domestic economy; while from another exudes a gum, which, when melted and prepared, furnishes us shoes to protect our feet from the wet and cold; and serves many very important purposes in the arts of life. Other trees yield pitch, resin, gums; some for medicines, some for luxury, or suited to be used in the arts. From one tree exudes a healing balsam; from another a saccharine juice called sap, which is boiled down to a palatable sugar. The *cow-tree* of South America yields a substance, when the tree is gashed, which resembles and which is used for *milk*. The juice of one plant produces indigo, that of another, sugar; and others yield all the varieties of essences. And what a variety of oils have we from the olive, the palm, the castor bean, and the peanut. Nor are vegetable *lard* and *butter* unknown.

Whether for food or clothing, for medicine or luxury;

* It is a matter of no ordinary interest to watch the appearance of the *new substances* which, from time to time, are added to the number of articles already in use, as new substances for *fuel, light, food and clothing*. As an instance of the latter, I may refer to a report which recently appeared of a very "timely discovery" of Mr. John Blanc, of New Orleans. He has "discovered a process of converting thirty different varieties of plants, which grow wild in enormous quantities in different sections of the Union, into *flax* of great strength and beautiful texture." He makes "flax" from the stalks of the cotton plant—from the century tree or wild Manilla of Florida—from the wild holly-hock, which supplies a fibre of ten or fifteen feet long—from the golden nankeen, which is a natural nankeen color, and from more than a score of others. The process of preparation is represented as "simple and effectual, preserving all the strength of the staple."

whether to be used in the arts or in the prosecution of science, or merely to gratify the taste or please the eye, the Great Architect has so strangely compounded the few simple materials of which all vegetable organizations are formed, and given them so many different forms and natures, as scarcely to leave a want of man unheeded. We betake ourselves to the forest, and here we meet the same wisdom and benevolence in Nature's adaptation to meet the varied wants of man. If one forest were but a vast collection of stately pines; another, of oaks or maples, or sycamores or cedars; however useful each might be in its place, yet how completely would such an arrangement fail to meet man's necessities and convenience—and how much would it detract from the present beauty of our forests.

But how variegated and beautiful our woodlands, as Nature has formed them. One tree is clothed in a robe of blossoms more gorgeously arrayed than Solomon in all his glory; another yields you a pleasant gum, or a healing balsam, or a refreshing beverage, or a delicious fruit; another, sturdy and gnarled, shall form the rib of some noble ship; or tall and straight and branchless, shall proudly carry the top-mast-sail. Another is fitted to cheer the winter's evening as it blazes on the domestic hearth. Here are met trees and shrubs of every degree of hardness, and softness, and elasticity, suited to be wrought into all sorts of utensils, vessels and furniture, as needed in every imaginable department of common life. What an endless variety of woods!—what diversities of forms, of foliage and colors!

One of the most beautiful scenes in nature, and one which as beautifully illustrates my idea, is the variegated foliage of

an American forest after the first frosts of autumn. The nameless varieties of colors, and the inimitable blending together of every imaginable tint, extending over a vast forest, presents to the vision a view which is indescribably beautiful.

Or I might refer, as another matter of pleasing interest, to the great variety of ways in which the *seeds* of plants are matured and preserved, and then dispersed so as to reproduce all the present varieties of plants. What we term *fruits*, are but the different contrivances of Nature to protect, or aid in the dispersion and the future germination of the seed. Seeds are produced in every variety of form, size, color, taste and consistence. But what is a matter of yet greater interest, is the great variety of ways in which they are protected and scattered. Some are singly ensconced in a hard, ligneous shell, secure from all but a few species of depredators. Others, including nearly the whole variety of our fruits, are incased in a pulpy substance of greater or less bulk and consistence, which, when matured, falls to the ground and forms of itself a sort of mould in which, without the aid of man, it takes root and reproduces its kind. The seeds of others are inclosed in a very light ball which is tossed about by the wind; and others are furnished with winged appendages, or attached to a downy substance, or strung on fine hairs, by which they are wafted abroad; and others still are found in seed vessels, or pods, or a bristly burr, which, on becoming dry, burst open with a force that scatters them around.

Both for the purpose of appropriating an additional authority to confirm what has been said in the present chapter, and to add further illustrations, I shall transcribe a paragraph or two from Dr. Dick's excellent book, entitled the "Christian

Philosopher." Of the great number of species of plants which are known, and, as he suggests, of the perhaps greater number in regions unexplored, yet to be classified, he says :

"Every one of these species of plants differs from another, in its size, structure, form, flowers, leaves, fruits, mode of propagation, color, medical virtues, nutritious qualities, internal vessels, and the odors it exhales. They are of all sizes, from the microscopic mushroom, invisible to the naked eye, to the sturdy oak, and the cedar of Lebanon, and from the slender willow to the banyan tree, under whose shade 7,000 persons may find ample room to repose. A thousand different shades of color distinguish the different species. Every one wears its peculiar livery and is distinguished by its own native hues ; and many of their inherent beauties can be distinguished only by the help of the microscope. Some grow upright, others creep along in a serpentine form. Some flourish for ages, others wither and decay in a few months ; some spring up in moist, others in dry soils ; some turn towards the sun, others shrink and contract when we approach to touch them. Not only are the different species of plants and flowers distinguished from each other, by their different forms, but even the different individuals of the same species. No two flowers can be found in which the shape and shades are exactly similar. Of all the hundred thousand millions of plants, trees, herbs, and flowers, with which our globe is variegated, there are not, perhaps, two individuals precisely alike, in every point of view in which they may be contemplated ; yea, there is not, perhaps, a single leaf in the forest, when minutely examined, that will not be found to differ, in certain aspects, from its fellows. Such is the wonderful and infinite diversity with which the Creator has adorned the vegetable kingdom.

"His wisdom is also evidently displayed in the vast profusion of vegetable nature—in adapting each plant to the soil and situation in which it is destined to flourish—in furnishing it with those vessels by which it absorbs the air and moisture on which it feeds ; and in adapting it to the nature and necessities of animated beings. As the earth teems with animated existence, and as the different tribes of animals depend chiefly on the productions of the vegetable kingdom for their subsistence, so there is an abundance and variety of plants adapted to the peculiar constitutions of every in-

dividual species. This circumstance demonstrates, that there is a precontrived relation and fitness between the internal *constitution* of the animal and the *nature of the plants* which afford it nourishment; and shows us, that the animal and the vegetable kingdoms are the workmanship of *one* and the same Almighty Being, and that, in his arrangements with regard to the one, he had in view the necessities of the other."

Every year is enlarging the domains of the great vegetable world—not only in bringing new species and new varieties to our acquaintance, but teaching us new *uses* of those already known. Substances once considered useless, if not poisonous, are now numbered among the useful articles; and some of them have been installed among the essential articles of every day life, either for food, clothing, or in the useful arts.

We may close this chapter with a reference to a very singular species of tree found on the island of Goa near Bombay. It is, in some of its characteristics, quite unique. It is called the "sorrowful tree," because it only flourishes in the night. At sunset no flowers are to be seen; and yet, half an hour after, it is quite full of them. They yield a sweet smell; but the sun no sooner begins to shine upon them than some of them fall off, and others close up; and thus it continues flowering in the night the whole year. "Grace in the soul of the believer," says one, "is just such a flower. In the dark night of affliction it is fresh and fragrant, puts out its bloom and seems full of immortality; but when the sun of prosperity arises and shines upon it, and it is surrounded by earthly comforts, then for the first time its divine life withers; it collapses and shuts up its leaves."

CHAPTER VI.

THE ANIMAL KINGDOM—The *Scale of Life*—The “Vast Chain of Being”—The Animal World a Counterpart of the Vegetable.

IN the brief survey taken of the vegetable kingdom we have seen how, by the most singular variety and profusion, the great Parent has provided for all the varied wants and happiness of his creatures. And not only is vegetable life met in every region of the earth, and in every nook and corner where animal want, or appetite, or pleasure can require it; but such is the exuberance of vegetable nature that “heaths, deserts, uninhabitable islands, and mountains,” have been made to produce their peculiar vegetation—though such vegetation may contribute, at present, little or nothing to either the wants or pleasures of man or beast.

But as we turn to the vast arena of *living* things we shall discover *reasons*, not only for the exhaustless profusion and the endlessly varied character of vegetable life, but for a no less intense admiration of the correspondingly profuse and varied productions of *animal life*. Every department of vegetation is to be regarded as the very counterpart of, and as suited to its respective tenants. The verdant field is the pasture-ground of flocks and herds, and of all the teeming armies of insect-life that feed on its surface. Every forest is the roaming ground of its own wild tenants. “The trees of the Lord

are full of sap"—full of foliage and flowers and nutritious fruits for the use of man and beast, bird and insect—"the cedars of Lebanon which he has planted, where the birds make their nests." Every leaf is a play ground and a pasture ground for the numerous tribes that roam and feed and sport on its surface. Every flower, vocal with the songs of its merry tenants, is the resort or the residence of numerous families of living creatures that seek pleasure or perfume or nectarine sweets, or a floral shade or shelter, in its soft and quiet bosom. Every variety of flower has its own peculiar inhabitants that seek in it protection, food or pleasure. Indeed, we shall everywhere discover a beautiful correspondence between the animal and the vegetable worlds. The one is made for the other.

We may here remark, once for all, that while the laws of Nature have been so framed by the Great Architect as to secure a *specific variety* throughout the wide domains of all organized beings, it is a fact, not the less interesting, that the same laws as certainly secure a *general uniformity* throughout the entire range of animal and vegetable life. There everywhere appears a unity of design and composition. Every species of animals or of vegetables is made after the same model, yet how unlike! Every tree or plant has the same general form, structure and functions of life and growth. Every member of the great family of man, every individual horse, sheep, or dog, conforms to one original pattern. A deviation from this makes a monster. And not only does every individual of every species bear the unmistakable mark of a general uniformity, but every member and function presents the same marks. Though the ears, nose, eyes or hands of no two individuals are alike, yet no two vary so much that you are in the

least danger of mistaking them as the corresponding members of any other animals, or to lead to doubt whether they are shaped after the same model. We are in no danger of mistaking the nose of a dog or a pig for that of a man. Nature's laws of uniformity are as rigidly adhered to as those of variety.

In the contemplation of *animal life*, the first thing that arrests the attention is the *gradation of being* which we at once discover. This in itself presents another very interesting and extensive series of varieties, and may claim some special consideration.

“Vast chain of being! which from God began,
Nature's ethereal, human, angel, man,
Beast, bird, fish, insect! what no eye can see,
No glass can reach; from infinite to thee;
From thee to nothing.”

Our capacities are at present too limited, and our field of observation too narrow, to attempt to comprehend such a chain or scale of being as is here suggested. Should we take our position at the point or link marked “man,” and attempt to look downwards through every descending grade of being to the most imperfect specimen of life—to the scarcely organized and the scarcely vital monad, which forms the last link of animate existence; and from the same point were we to attempt to reach upwards, through all the principalities and powers, and thrones and dominions, and whatever grades and orders of intelligences there may be between man, the first in order among intelligent creatures, to the last and highest of finite beings—to the great chasm which separates the finite from the Infinite, we should seem to stand between two in-

finites : the infinitely high and the infinitely low. Yet neither is infinite, except to our lack of comprehension. Either end of the "vast chain" lies within the boundaries of the finite ; though probably no human conception, in its present range at least, is able to reach to either end. The researches of naturalists assure us of the existence of such a continuous chain of being, though it is interrupted by chasms, produced perhaps by the extinction of certain species, or quite as often by our ignorance of the existence of the apparently missing links. Certain it is that the number and the length of these chasms are diminishing with every new discovery into the great universe of life.

But we will take our position at the foot of the scale, or as near the foot as the present state of microscopic research will allow, and try to get at least some imperfect idea of the gradation up as far as Man. And what an illimitable field of varied life here stretches out before us. He that sung so well of man has expressed it thus :

"Far as creation's ample range extends,
The scale of sensual, mental powers ascend ;
Mark how it mounts to man's imperial race,
From the green myriads in the peopled grass."

But we must not forget that the great chain of being does not end when we arrive at the lowest link of *animal* existence. Animal and vegetable life singularly interlace. There are connecting links which join the two. And then when we have traced down every grade of vegetable life from the most perfect to the least perfect, we shall, at the lower end of the chain, again find our connecting links uniting the vegetable and mineral kingdoms.

“The smallest microscopical objects which can be supposed to be organic are points, or gelatinous globules, or threads in which no distinct organs, interior or exterior, can be discovered.” We thence ascend to a class of zoophytes* which bear distinct marks of organization, called *porifera* or the sponge-makers, or a slightly higher order still, called polypé, which construct the coral. Both of these bear strong resemblance to vegetable growths. From this point of half animal half vegetable organization we may ascend the scale through every conceivable grade, from the senseless polype that vegetates rather than lives, to the most perfect human organization and intelligence. We shall see how, in form, size, organization, activity, instinct and intelligence, these rise in beautiful order, one above the other.

Passing by the teeming worlds of microscopic life, in which, did the present state of science admit of the requisite investigation, we should doubtless meet the same gradation of being, from the little invisible speck which is half monad half molecule, to the equally invisible mite of exquisite form, organization and color, and full of activity and pleasure, we need only trace up the gradation from the lowest form of visible life—from the torpid, senseless, shapeless muscle to the perfectly organized, the active, intelligent being called man. As we ascend through all the numberless grades of creeping things; through all the aquatic and insect tribes, and through all the varieties of birds and beasts of every wing and hoof till we arrive at the eagle, the dog, the monkey, the beaver, and the

* “A term expressing animal plants or vegetating animals, and defined to mean composite animals efflorescing like vegetables,” as the sponge, coral, and polypus.

elephant, we shall find we have passed every imaginable grade of animal life in reference to form, size, physical organization, locomotive capabilities, sagacity, instinct and intelligence, and we pass on to *man*, who stands at the head of all mundane beings, the most perfect in all physical and mental endowments, and yet doubtless constituting the lowest link in the chain of intellectual and immortal beings.

The gradation in question admits of a wide range of illustration. Take hearing, seeing, instinct, strength of muscle, activity—whatever attribute of life or endowment you will, and the gradation appears in all these respective lines :

“What modes of sight betwixt each wide extreme,
The mole’s dim curtain and the lynx’s beam :
Of smell, the headlong lioness between
And hound sagacious on the tainted green :
Of hearing, from the life that fills the flood
To that which warbles in the vernal wood.”

And what different degrees of *instinct* guide the brute creation until, in some animals, it seems scarcely inferior to human reason. Or take hearing, seeing, power of muscle, or what attribute of life or animal endowment you will, and you may trace a gradation in each respective line. It is instinct that guides the half-vegetable polyp to deposit his secretion so as to form the coral or the sponge. It is instinct, in its higher office, that teaches the bird to construct her nest. More skilful yet, the bee, moved by the same singular impulse, builds her cells and deposits her honey. And, in a yet higher function, instinct impels the beaver, with a sagacity and calculation almost human, to construct his dam and to erect his house.

We have alluded to *connecting links*—how the mineral and

the vegetable kingdoms so interlace: one species of the one so running into a species of the other, that you can scarcely determine where the one ends and the other begins. Some vegetables contain mineral substances; others appear like mineral bodies. Some minerals possess certain forms and properties of vegetable productions: coral is an instance of the former. Though while in the art of forming it presents a rare connection of the animal and mineral kingdoms, yet when constructed and examined as a mineral substance, it presents some striking points of resemblance to the vegetable organizations. The coral often takes the form of trees, groves, gardens, flower-beds, and almost every sort of vegetable organization. There is a liberal interchange of properties between vegetables and minerals. The former become petrified, and the latter are converted into soils, and become incorporated with animal life.

But if we look at the other end of the chain of vegetable productions, we shall be still more impressed, as we approach the uncertain line of demarcation between the vegetable and the animal kingdoms, with the very accommodating dispositions of the two. We speak not now of the well-known near approach of certain species of vegetables to certain species of animals in point of form and organization, but rather of a singular sort of interchange of productions between the two kingdoms; or, at least, of attempts on the part of the lower kingdom to overstep its bounds, and to usurp the province of its superior; an aspiration not unnatural, of the lower order to occupy a higher position in the scale of being. Hence certain vegetables are found to yield animal products, and thus to take the place of the animals whose peculiar properties they

assume. We have vegetable milk, butter, lard, oil, wax, wool, leather. The palo de vaco has undertaken to play the cow; the myrica to imitate the bee; a tree in Guayaquil to produce wool; other trees yield oil, lard, and other animal substances.

Nor do we meet these singular interlacings of different natures only on the confines of the two kingdoms, but between different species of the same kingdom. They are discovered to exist between fishes and quadrupeds; between fishes and birds; between quadrupeds and birds; and between the brute species and man. The frog, the turtle, the alligator, may be cited as instances of nature's attempts to make the fish personate the quadruped; the flying squirrel, the bat, and the flying opossum indicate the aspirations of legs to become wings. And the same lofty aspirations have possessed certain of the finny tribes, as is seen in the case of the flying-fish. Dragons occupy the transition ground between birds and reptiles. On the other hand, we meet with birds, as the ostrich, the cassowary and the dodo, which, in their nature and habits, approximate to quadrupeds. Though furnished with wings they can scarcely fly at all, but walk or run like the horse or dog. Other animals, some in one respect, and some in another, essay to overstep the boundaries which separate *rational* and *brute* natures. The elephant invades the territories of man in his "half reasoning" capabilities; the monkey in his organization and some of his habits and instincts; the beaver and the dog, in respect to sagacity and social proclivities.

Or we might select a single species and we should not lack examples by which to illustrate our idea of a continuous scale of being. Take the horse, the dog, the cat, or any species of our domestic animals, and what different degrees of

sagacity, instinct and activity! One is stupid and comparatively senseless; another shows a degree of intelligence that is scarcely less than human. But the scale is more distinctly marked, and vastly more extensive, in the animal *man*. He being an animal capable of indefinite improvement, and endowed with reason, and possessed of an indefinite number of wants which science and civilization and his social habits induce, and having a vastly wider scope for the exercise of his powers, physical and intellectual, presents a correspondingly wide diversity in all the developments of his mind and in his physical condition. There are, consequently, almost as many grades of men as there are individuals of the race.

We begin at the foot of the scale; where we meet the Esquimaux or the Hottentot, the most besotted savage, and from this point we ascend, through every degree of advancement, to the climax of human culture and elevation. Wealth, position, mental culture, society and civilization, fortune or personal enterprise and industry, or the cultivation of the moral affections, or all these combined, have ranged men in every imaginable grade in the scale, from the most beggarly elements of humanity which form the lowest state of the race, to man in the highest type of his earthly development. The eminent Christian philosopher occupies such a position; whose mind and heart are together cultivated in the highest degree, and whose well-sustained position gives him power among men. What a vast chasm between our savage and such a man as Moses, Luther, Newton, Wilberforce, Washington; or rather the man who should combine in one (as is possible) the peculiar excellences of all these men. Not till we shall be able to count up every intermediate link—trace out and define, and

assign a place in the scale to every individual man, from the lowest to the highest, may we know the number of the links or the length of the chain when contemplated only within the sphere of human life.

Regarded as a Divine arrangement designed to produce results of the most useful and benevolent character, we cannot too profoundly admire this gradation of being. We see all things and beings most beautifully fitted, each to its place and work ; all alike necessary to make up the great whole, and to accomplish the great ends of their Divine Author. The endless diversities of gifts, graces, endowments ; capabilities, powers, susceptibilities, as secured by the singularly diversified character and condition of man, are but so many different adaptations to fulfil the equally varied duties of life: each infinitely varied, yet all beautifully harmonious in the accomplishment of the same wise purposes.

But does the gradation cease when it has passed from man into the regions of celestial life? Shall we not find those beings of a higher intellectual grade, rising, in ascending scale, one class above another? And where is the upper end of this chain? To believe that all those higher Intelligences, which we are wont to call by the general term of *angels*, are all of the same order and station, and that glorified men differ not in this respect, would be to contradict the whole analogy of things known. And more than this, we have intimations in the sacred Word, that the same analogy *does* run through all the heavenly hosts. We read of angels, archangels, principalities, powers, thrones, dominions, seraphim, cherubim, and the "mighty angels"—all which seem to be distinctions of grade. The names of a few angels are given from which we seem to

get a clue also to the orders that exist among them. *Gabriel* means the *power* of God ; which seems to designate him as the one approaching nearest to God in respect to power. *Michael*, means *Who is like God* ; pointing out perhaps some more general resemblances in his character to the high and holy One. Speaking of the inhabitants of that blessed world, the Apostle says there is one glory of the sun, another glory of the moon, another of the stars, and that one star differeth from another in glory.

Here are *distinctions* obviously recognized, different degrees of excellence—which would seem to imply distinctions of office and rank.

Yet we have a still stronger probability, in the nature of the case. All these higher and holier beings are *intelligent creatures*. They have minds that are doubtless subject to the general laws of mind. They have duties and employments—are continually putting forth activities and employing their vast energies of mind ; and, like all intelligent beings, derive their happiness very much from the exercise of their mental powers. Without a succession of new objects, new scenes, new trains of thought, the mind would sicken with satiety and disgust. But the different degrees of mental power and capability is but a different degree of capacity for action ; and this the only true foundation of a difference of rank. Once put the inhabitants of the celestial world on a level as to powers of mind and capabilities of action, and you would probably hush, into one dead monotony, the infinitely varied praises of heaven and arrest the ten thousand times ten thousand holy activities in which the inhabitants of that blissful world are engaged. One class of those wonderful beings are, perhaps, distinguished by

their extraordinary locomotive powers, by which they may be able to visit with the celerity of light the remotest star that sparkles in the universe. Another class may as far excel in astronomical investigations, or the knowledge of other worlds, so that they may guide the researches of others as they essay to search out the "marvellous works" of God, and make these the theme of eternal praise. Others, possessed of a taste and capability, not so much to gauge the dimensions of other worlds, and to grasp the magnitude of the material universe, as to search into the *nature*, and to study the *design*, the uses and adaptations of things, unfold, in other interesting aspects, the wonders of creative skill and power. While another class are employing the vast powers of their minds in studying the wonders of Providence: or, with some peculiar qualifications for the delightful task, the endless, exhaustless theme, they launch forth on the boundless field of the "manifold grace" of God, and from age to age of duration eternal, penetrate into the mysteries of redemption.

What various labors of love are to be performed; what errands of mercy to be executed; what various works of praise to be performed; what Divine truths and heavenly sciences to be studied; and how are all the "ways" and the "works" of God to be searched out, and lessons of heavenly wisdom, and motives for praise and adoration, to be deduced from them!

These are some of the surmises, founded however on the analogy and the nature of things, which induce the belief that the same scale of being which we discover to extend up from the most imperfectly formed mineral substance to the connecting links which unite the mineral and vegetable kingdoms, and thence through all the whole range of vegetable life; and by

an easy transition into the great world of animal existence, and thence onward through a regular ascending gradation to man, is continued from the lowest in the scale of superhuman intelligences to the most highly endowed Being that surrounds the throne or falls at the feet of the Great I AM.

But beyond this our surmises may not attempt to reach. Here we suppose this wonderful chain of being ends. Yet here we find ourselves involved in a singular kind of mystery. We may not for a moment compare finite with Infinite. Here is a chasm, an impassable gulf—that they that would pass may not. Yet there has been a singular interchange of the Divine and human natures. The Man of Nazareth was God. The Man at God's right hand sits as God's coequal, to receive and to take to the throne with himself men of an earth-born race. They are, in a sense, while yet in the flesh, "partakers of the Divine nature," and are destined to become such in a much higher sense. We are left here to an interesting conjecture as to how much is implied in the promise of *heirship with God*, and joint heirship with Christ—how much is implied in the idea of being *like Christ, and of being perfect as God is perfect*. We do not know what relations there may be between the finite and the Infinite. Though the finite can never reach the Infinite, yet we know not what approximations may be made to it. When we connect the idea here suggested with the fact (a fact, at least, as far as we know) that the human mind is capable of infinite progress, we are lost in our conjectures as to what, after the lapse of countless ages of eternity, may be the final destiny of man.

Divine Inspiration affords occasional hints of something very much like what I have here intimated. "In Christ

dwelleth all the fulness of the Godhead bodily;" and of all the adopted sons of God, it is said, "of his fulness have we all received." "Ye are *complete* in him who is the head of all principality and power." In another place the same Apostle, speaking of such as are "strengthened with might by his Spirit, according to the riches of his glory—in whose hearts Christ dwells by faith—rooted and grounded in love; that is, all true believers," he says, are "filled with the fulness of God." The expression here used, the fulness of God, may fail, like all other terms used to describe the future blessedness of the saint, to convey a full and definite idea to the mind as at present capacitated. It conveys a higher idea than we can at present comprehend—an idea in respect to the relation of glorified humanity to God, as glorious and ecstatic as it is mysterious and indefinite. He that leaned on Jesus' bosom reached after the identity, and his faith seemed to grasp it, yet, while imprisoned in the clay, he could not gauge the height and the breadth and the length of the riches and honors and pleasures reserved in heaven for the righteous. "Behold," says he, "what manner of love the Father hath bestowed upon us, that we should be called the sons of God. It doth not yet appear what we shall be: but we know that when he shall appear, we shall be like him; for we shall see him as he is." A most extraordinary announcement, intimating, no doubt, the wonderful, the unutterable destiny of poor fallen humanity.

CHAPTER VII.

THE ANIMAL KINGDOM: Species of Animals—Individual Varieties—Organs of Locomotion—Legs, Wings, Eyes, Ears, Noses—Clothing—Habitations—Weapons of Defence—The Feathered Tribes.

IN our visit to Nature's great Museum we have allowed the eye to take a cursory glance over the whole "vast chain of being," from the most imperfectly formed object to the noble creature man, and thence onward through all the orders of higher intelligences to the highest and holiest angel that bows before the throne of the Great ETERNAL. We will now turn aside and look in upon a single department of the great Palace. We recur to the animal kingdom, and limit ourselves at present chiefly to the brute creation.

As we traverse this wide field of research we shall, as we pass from object to object, especially note, as displaying the peculiar beauty of the Divine workmanship, the singular *variety* which characterizes the whole. We have seen what a beautiful succession and gradation of life there is from the most imperfectly organized, jelly-like polype to the noble elephant, or the sagacious dog or monkey; each seeming to rival, in sagacity and reason, man himself. Every link in this vast chain is a variety. But this is but the beginning of animal varieties—scarcely more than a variety equal to the number of species.

But the moment you descend to sub-species and individuals, the number of varieties are multiplied beyond all computation.

Here we might spend our threescore years and ten, regaling each successive moment with some new variety. Not less, all told, than 250,000* species of living animals, exclusive of fossil species, have been enumerated, including, in all, some billions of individuals or actual varieties. Man alone, in each successive generation, affords a specimen of 800,000,000 individual varieties. And were we to descend to details, this immense number would need to be increased by the aggregate of all the varieties of each individual man; physical, mental, moral, social; varieties of form, structure, size; of taste, temperament and condition; of genius, habit and aptitude. Suppose the entire race of *quadrupeds* only, were for a moment to occupy the field of our vision, what an idea should we get of the manifold wisdom of God in moulding matter into so many living forms. Allow the mind to run down through all the

* It is estimated that there are 20,000 *vertebrated* animals; there are probably 2,000 species of mammals, 6,000 of birds, and 2,000 of reptiles. There are probably 8,000 or 10,000 species of fishes, and more than 15,000 of mollusks. It is difficult to estimate the number of species of *articulated* animals; it is supposed there are from 60,000 to 80,000 species of insects alone, and at least 100,000 of all the species belonging to this department, including microscopical animals, while some estimate it at double that number. Of the *radiata*, or fourth great division of the animal kingdom, there are about 10,000 species, making about 250,000 species of living animals, to say nothing of fossil species. In the gallery of zoology of the *Jardin des Plantes* at Paris, it is estimated that there are more than 200,000 specimens of the animal kingdom, among which are 2,000 of the mammalia of 500 different species, and 5,000 of fishes of about 2,500 species.

intermediate grades, from the huge, "half-reasoning" elephant to the insignificant mole, contemplating their respective form, size, color, nature, habits, dispositions and uses, and what an idea will you get of the diversified character of the Divine workmanship!

But would we avail ourselves of the happiest illustrations of our subject, we must descend to *species*, *sub-species* and *individuals*. In almost any race of animals we meet a great variety of forms, statures, colors, but they are the most numerous in the *domesticated* animals. Take for examples, the dog, the horse, the ox, goats and swine. The dog affords a fine specimen, not only of the usual variety in animal life, but, being as he is the companion of man in all lands and latitudes, he affords an equally good specimen of the tendency of providential arrangements to produce variety. The hairless, smooth, unctuous-skinned dog of Egypt is scarcely more like the shaggy fur-clad dog of the cold regions of the north, than the northern sheep is like the southern goat. Whoever will have the curiosity to run down the line of *dogs*, from the bloodhound to the lady's pet-dog or poodle, inclusive, he will not lack an interesting illustration of our theme.

But a cursory survey of this kind would at once lead us into the inquiry as to the *origin* of dogs, whether from some one species, as the shepherd's dog, the present varieties originating in climate, condition, usage, circumstance; or whether their origin shall be traced to the fox, the jackal or the wolf, or to each of these sources.

But whether the original type be one or many, no animal offers more varieties. The water dog is covered with curly hair almost as thick as the fleece of a sheep; the Turkish dog, like

the Egyptian, is totally destitute of hair. Then there is the gaunt greyhound, with long and slender nose and legs, and remarkable for his swiftness and the quickness of his scent. Another species of hound is of a thick, robust form, with a short, obtuse nose, less swift, but not of a less keen sense of smell. But we should not soon find an end of the varieties of this species of animal. In form, size, color, dispositions, aptitudes, and the various ways in which they serve man, they bear a no slight resemblance to our own race.

The *horse* and the *ox* kinds furnish exceedingly interesting varieties. Between the noble Arab and the contemptible pack-horse of Northern Germany or South America, how varied the gradations. In size, form, structure, qualities, capabilities, color, temperament, how varied.

We meet the long-legged ox of the Cape of Good Hope and the short-legged cattle of England—cattle with long horns and short horns—with all sorts of horns and no horns. In Crete and Sicily, the cattle and sheep differ from those of most other countries in the number and size of their horns. In Paraguay we meet a breed of oxen without horns. A writer (Azara) has stated that the lack of horns in the bovine kind, is sometimes compensated by the fact that *horses* are sometimes seen rearing above their ears a pair of horns. In India, we have often seen sheep furnished with *four* horns each.

The *goat* tribes furnish fine specimens of variety. A breed near Jerusalem, presents a grotesque medley of color, as black, white, gray, with ears remarkably long. About Aleppo are two kinds of goats, one like the English, and the other somewhat larger, with ears a foot long and proportionally broad.

In few races of animals has Nature been more lavish of her

ingenuity in variegating her works, than in the *swine* tribes. This very common and numerous species of animal, was unknown in America till after its discovery by the Spaniards, yet already, how one breed differs from another, and how all differ from the original stock. The European swine which were first carried by the Spaniards to the Island of Cologna, degenerated into a monstrous race, with toes which were half a span in length. The hoofs of swine elsewhere, have been found divided into five clefts. While, on the other hand, swine with *solid* hoofs were known to the ancients, as they are found to this day, in some parts of England. And different breeds of sheep afford varieties equally remarkable. Some have a coating of wool as fine as silk, others, a covering as coarse as hair. Some have two horns; some, as the Icelandic, three, four, and even eight; and more have none at all. And these horns assume every conceivable form. And what variety in the appendages called *tails*. Some range within reasonable limits of such appendages; others are hugely large. The Syrian sheep drag after them a caudal weight of fifteen pounds, and sometimes five times that weight.

The *domestic fowl* is a good example. It is large or small, tall or dwarfish—single or double-combed—of every conceivable color and plumage—tufts of feathers on its head—yellow, white or black legs, or legs covered with feathers or bare, and rumps or no rumps.

The *coverings* and *habitations* of animals furnish another pleasant variety in their history; among the most obvious of which we meet hair, wool, fur, bristles, feathers, quills, scales and shells; and we find them constructing for themselves, or appropriating to their use, every imaginable form and kind of

dwelling: some dig burrows in the earth; others seek a habitation in the clefts of rocks, or in the cavities of decayed trees, and others absolutely construct cabins or houses with no inconsiderable skill and labor. The subject is a very curious one and worthy of some reflection. The various skill employed, the various materials used, and the various structures produced, affords an apt illustration of our general idea. We can name but a few instances.

The beaver is perhaps one of the most extraordinary. These wonderful animals, at present scarcely known in our latitudes, yet still inhabiting more northern regions, collect in communities of 200 or 300 in the month of June or July, pouring in from every quarter, as to an appointed rendezvous, by some common summons or by some singular impulse. The place of assemblage is always the bank of some water. If it be a lake or pond, and not subject to risings or fallings above a common level, they make no dam, but immediately set about constructing their habitations. If a dam be needful, they betake themselves to its construction in a manner quite astonishing. First, they fell a large tree across the stream as the basis of their work, and then by the aid of smaller trees, cut to the right length, and boughs and earth, or stones, they construct a dam which, for strength and solidity, is all but incredible. This being accomplished, the community at once divide themselves into separate families, each constructing for itself a domestic dwelling, which they build near the margin of the pond, on piles driven down for the purpose. On these they erect a round or oval house of great solidity; one, two and sometimes three stories high, with two doors, the one affording a passage to the land and the other to the water.

The varied styles of architecture employed by different species of birds in the construction of their *nests*, the different materials used, and the different locations and positions selected, have been greatly admired. No two species construct their nests of precisely the same material. Some use mud or clay; some sticks, grass, hair, moss, feathers, or bones cemented together; and no two build in the same place. Some choose the cavities of trees, or the branch, or some slender twig of a tree, or the trunk of the tree; others select the cleft of a rock, or build in some sheltered place on the ground, or attach their nests to a wall or chimney, or the rafter of a barn, or the cross-piece of a bridge. The kingly eagle selects the lone peak of some lofty mountain, constructs a substantial platform, designed to last for years, of sticks of five or six feet long, supported at each end by a rock or tree, and covered with successive layers of heath and rushes. The surface which contains the eggs is flat, not hollow like the nests of other birds. Quite in contrast to this, the magpie and the titmouse build nests which are not only hollow like the nests of most birds, but are protected by a curiously wrought dome, and entered by an opening in the side. "Some form their pensile nests in the form of a purse, deep, and open at the top; others, with a hole in the side; and others, still more cautious, with an entrance at the very bottom, forming their lodge near the summit." The tailor-bird, not willing to trust its nest even at the extremity of a twig, fixes it to a leaf. It picks a dead leaf, and with its bill for a needle and some fine fibres for thread, sews it to a living leaf, which, lined with feathers, gossamer and down, serves as a nest.

The mason-bee constructs its cells and covers them with a

rough, substantial mortar, composed of sand and a secretion from its own body. The bee called the wood-piercer perforates a dry or decayed tree, first in the direction of the heart, and then extending twelve or fifteen inches at right angles upwards. These long holes are subdivided by partitions composed of particles of wood cemented by a secretion from the animal's mouth. In each compartment an egg is deposited, together with the necessary provision for the young one when hatched. Another species of these "solitary bees" construct cells somewhat similar under ground, and having in like manner provided for their future offspring, leave them, as in the case above, to take care of themselves.

Most people are aware of the ingenious devices by which various kinds of *wasps* construct their habitations, build their cells and provide for their young; all, however, are surpassed by the skill and sagacity of the *honey-bee*. The various species of *ants* have each a style of architecture, and use a species of building material peculiar to itself. Some construct a habitation below the surface of the earth; some drill holes in trees and form their nests there; others build on the trunks or branches of trees; while others still, as the *termites*, erect palaces, partly below ground, yet extending above the surface twelve or fifteen feet. These "ant hills," met in tropical regions, are built with an astonishing degree of skill and labor. They contain a great variety of apartments, and, as seen from a distance, might be taken for the huts of the natives.

As nearly related to the above, we have the various modes in which different animals nourish or provide for their offspring. The mammalia nourish theirs from their own body. The domestic fowl *scratches* for hers. Most birds bring food to

their young in their bills. Bees and wasps of different kinds provide stores for their young beforehand. The wood-piercer, to which I have referred, builds the cell and fills it with provision for the young ones, deposits her eggs, and exercises no further regard for either eggs or young ones. The young of some species are from the very first capable of providing for themselves.

Again, we discover among animals a curious variety in modes of procuring their food. Some seek it, labor hard for it, and prepare it at great expense; others have it brought to them all prepared, without any care or trouble to themselves. The *toad* patiently waits till the heedless fly comes within the influence of its *suction*, when it is drawn in and devoured. The chicken, with his delicate nippers, picks up the seed or bug it has disinterred with its claws. The domestic animals depend for their supplies on the care of man. The tenants of the forest and the birds of the air procure their daily supplies in all sorts of ways and by all sorts of means.

And there is also as great a diversity in modes of appropriating food or bringing it to the mouth. Most animals have no other prehensile organ but the mouth itself, whether it be a bill, or jaws, or snout or proboscis. A few, as the squirrel, the monkey, can bring their food to their mouth by their fore-paws acting as hands. Some animals, by means of their claws and bill or teeth, first tear their food and separate it into small portions and then convey it to the mouth; others can appropriate nothing except what they can swallow whole; some are supplied with a spoon, or a knife, or a fork, or a hook; others, as the elephant, with a flexible arm. The wood-pecker darts his long tongue into a crevice of the wood, and thence extracts his

food. Some tribes of animals, as vinegar eels, having no mouth, seem to take their food by absorption.

There is also a like variety in *modes of vision*. Some see through eyes, some without them. And there is no stereotyped fashion in the matter of eyes. In few things has Nature's love of variety been more capriciously displayed. Most animals have eyes which are so numerously supplied with delicate muscles that they may fix on almost an infinite number of points in more than half a hemisphere, without changing the position of the head. Some have eyes in different parts of the body. One species of butterfly, and that by no means among the largest, is reported by the wise men of the microscope to have "nearly 35,000,000 eyes." These are distributed over every part of the body, and thus, whatever may be the position of the insect, "no danger can approach unperceived, as a sentinel keeps watch in every quarter."

Other insects, as the beetle, the silk-worm, and several kinds of flies, have two *fixed* eyes or protuberances, which are supplied, some with two, some with eight, some with a hundred or a thousand *lenses*, which are capable of seeing in every direction. The whole surface of these protuberances, as seen in the fly, is covered with a multitude of small hemispheres, placed with the utmost regularity in rows, crossing each other in a kind of lattice-work. These little hemispheres have each of them a minute transparent convex lens in the middle, each of which has a distinct branch of the optic nerve ministering to it; so that the different lenses may be considered as so many distinct eyes. Mr. Lewenhock counted 6,236 in the two eyes of a silk-worm when in its fly state; 3,180 in each eye of the beetle; 8,000 in the two eyes of a

common fly. Mr. Hook reckoned 14,000 in the eyes of a *drone fly*, and in one of the eyes of a *dragon-fly* there have been reckoned 13,500 of these lenses; in both eyes 27,000; every one of which is capable of forming a distinct image of any object, in the same manner as a common convex glass. There are 27,000 images formed on the retina of this little animal.* Mr. Lewenhock having prepared the eye of a fly for the purpose, and so adjusted it in respect to his microscope that he could look through both, in the manner of a telescope, looked at the steeple of a church, which was 299 feet high, and 750 distant. He could plainly see through every little lens the whole steeple inverted, though not larger than the point of a needle. When he directed it to a neighboring house, he saw not only the front, but the doors and the windows; and could discern whether the windows were open or shut. "Such an exquisite piece of Divine mechanism transcends all human comprehension."

Similar remarks might be made in respect to the *teeth*, ears, noses, and snouts or bills of animals. Some have teeth both on the upper and lower jaw; others only on the lower. In some each stands separate; in others they stand continuous and united. Some teeth are straight, others hooked; some slender and pointed for tearing, biting, or holding only; others firm and blunt, for chewing and grinding. The palate of some fishes is nothing else than a bony plate studded with points which perform the office of teeth.

And more curiously varied yet would be the portraits of the *ears* and *noses* of every species of animal. But to pass that singular appendage called the ear, wondering how it were possible

* Dick's Christian Philosopher, pp. 80, 81.

there could be *so many distinct patterns* of one and the same thing, we will pause a moment at that anterior extremity of the animal called the nose, snout, or bill. And what an endless variety in shape, structure and use. There is the proboscis of the elephant; the snout of a certain fish; the *rooter* of the swine; the peculiar bill of the stork; the *spoon* of one bird and the drill of another. And so we might go through the whole catalogue of beasts, birds, fish and insects; we should recognize in this curious variety, the wise and benevolent provisions by which every species of animal is fitted to its place and mode of life.

The same benevolent arrangement appears again in the diversified predilections of different animals for different kinds of food and different modes of life. Perhaps there is not a substance, either vegetable or animal, dead or alive, which does not serve as food for some species of animals. Every kind of flesh, fish, fowl and insect, is peculiarly adapted to the taste of some animal. Even what is poison to one is food for another. What is avoided and rejected by one is sought and eagerly devoured by another. Some carnivorous animals will feed on nothing but dead carcasses; others select some particular part of the fresh carcass; others will appropriate no part but the blood. Infinitely diversified as are the productions of vegetable nature, there is probably not a grain, fruit, leaf, grass or plant, which is not adapted to meet some animal want. And so we may say of all kinds of flesh. There is no such thing as a *useless* order of beings, whether herb, insect or larger animal. Each has its place and use in the great system of life and activity—though it be the most noisome insect or the bitterest herb. Strike one from existence and you have not only

mutilated the great machine, but you have annihilated a whole order of beings by annihilating its means of subsistence. And the annihilated order, serving, as it did, as the sustenance of another order, that is in turn annihilated; and so on from order to order, till the whole vast series would at length disappear.

Open the volume where you will, the wonders of Philosophy afford profuse examples of a character such as are adduced above. I quote the following: "The polypus, like the fabled hydra, receives new life from the knife which is lifted to destroy it. There are 4,041 muscles in a caterpillar. Hook discovered 14,000 mirrors in the eyes of a drone; and to effect the respiration of a carp, 13,300 arteries, vessels, veins and bones, &c., are necessary. The body of every spider contains four little masses pierced with a multitude of imperceptible holes, each hole permitting the passage of a single thread; all the threads, to the amount of a thousand to each mass, join together when they come out, and make the single thread with which the spider spins his web; so that what we call a spider's thread consists of more than 4,000 united. Lewenhock, by means of microscopes, observed spiders no bigger than a grain of sand, which spun thread so fine that it took 4,000 of them to equal in magnitude a single hair."

Again, we discover, as we allow the eye to pass over Nature's great Menagerie, curious varieties in modes of *locomotion*. Some walk upright, some on two, four or more feet—some hop—some crawl. Others move by continued contortions of the body and spinal motions, propelling the body forward, as the serpent; some move by elevating the centre of the body, drawing up the hinder part, and then protruding the forward part

of the body. Some are rowed by fins; others soar on their wings as borne on the air. Some roll as a wheel. Others, as the nautilus and the argonaut, are able to raise a sail and make the wind their locomotive power. Or the apparatus that at one time serves as a sail, may be gathered up and used as an oar.

Dr. Nordmann, in his curious examinations of animalcula, speaks of one species which he discovered in the intestinal canal of a very singular little insect that infests the *eye* of the perch, as possessed of a very unique locomotive power. When separated from the membrane which inclosed them, they immediately turned round on their axis with great velocity, and then jumped a certain distance in a straight line, when they again revolved, and again took a second leap.

The oyster, till recently supposed to be without the power of locomotion, manages to change locality, though at a very indifferent speed, by squirting water from his shell, by which means he agitates the water about him, and thus propels himself forward. Another bivalve, the muscle, moves itself by a sort of *tongue*, capable of contraction and elongation, and serves as an arm and a foot. The *snail*, with his house on his back, moves on at a pace and in a manner peculiarly his own.

And the *organs* of locomotion exhibit an equally interesting variety: legs of every shape and structure, and in all numbers; fins of every conceivable pattern; and wings from the mere extension of the skin of the bat, or the flying-squirrel, to the long, perfect wings of the swallow, or of the noble eagle. Some animals are furnished with two legs, some with four, some with twenty, a hundred or a thousand. And some wend their way over the earth with great swiftness without

legs. Some, as I have said, move over the face of the water by means of *sails*.

There is a single instance of a species of insects called Molluscans, which have but *one* leg. But this one leg serves the purpose, too, of a hand; which, at one time, spins the fine silken thread by which it is attached to the rock, or it serves as an auger to bore the rock and prepare its lodgment there, or it is used for certain purposes as a trowel. Some animals are prepared with organs for climbing, others for burrowing, others for perforating trees for food or a habitation: or for ensnaring an enemy, or tearing to pieces a victim.

The varied structure, uses and adaptations of *legs*, is a curious affair. The legs of insects that swim are peculiarly fitted to it, either by being expanded somewhat like an oar, or by having a dense fringe of hair upon them. The water-boatman swims on his back by means of singularly formed legs. The little whirligig swims by the help of his legs, which are paddle-shaped. Some insects, by means, it may be, of some peculiar secretion which repels water, are able to walk on its surface as readily as upon a solid substance. Another class have legs of so peculiar a structure that they can fold them upon each other and pack them into a very small surface. This is particularly the case in a species of woodlouse, which rolls itself up into a ball precisely resembling a bead or a pill. But the delusion is easily detected, as the girl learned, when having found in the garden, as she supposed, a large number of round, black, shining beads, streaked with white, undertook to form them into a necklace. The point of her needle soon brought out a protruding head, which quite spoiled the rotundity of the bead.

Indeed, we can scarcely contemplate a subject of more pleasing interest than the *motions* of animals—by what organs performed and to what end—and how varied. Now we see various species of living beings, hugely great and beautifully small, gliding through the waters, with an ease, rapidity and grace quite astonishing. Then we behold the bird of every wing, with equal ease and grace, sailing through the air; ascending above the clouds, or diving to the earth, or poising itself in mid-heaven—to say nothing of all the endlessly varied motions of all that creep or walk or run upon the face of the earth, or under the earth.

But our wonder is vastly increased when we attempt to enter the interior of one of these living machines, and examine the singularly varied arrangements and provisions by which these endlessly diversified motions of sentient beings are produced. Every motion of every hand, foot, finger, joint, eye or tongue; of every fin, wing, paddle or sail, is produced by its own peculiar set of joints, muscles and tendons, according to the species of the animal and the character of the action to be produced. Hundreds of muscles are employed in the motions of the eye alone. In moving it up or down, or to either side; in dilating or contracting the pupil; or adjusting the eye for a near or remote vision, different sets of muscles are employed: and so in all the various and peculiar motions of the fingers and wrists of the human body—or in the more delicate (and sometimes involuntary) motions of breathing, tasting and smelling. Every distinct motion has its peculiar organs. What forethought, contrivance and skill are displayed in this matter of vital activity! What nice calculations as to bones, nerves, muscles, tendons, joints, and all the varied apparatus

which secures, or directly produces motion. We admire the genius that contrives, builds and successfully sets and keeps in motion a great and complicated piece of machinery. How many wheels, and bands, and wires; cogs, coils, screws, pins, loops, and all sorts of appurtenances of all forms, sizes and uses, are combined to secure the successful working of the whole machine.

But what is this compared to the mechanism of an animal body, which secures, with perfect ease, and oftentimes by contrivances inconceivably delicate, the ten thousand motions of the living machine. It is a "harp of a thousand strings." Strange that it keeps in tune so long.

Again, as we look over the great arena of animal existence, we discover a variety none the less interesting in modes and instruments of *attack* and *defence*. Among the more obvious and powerful weapons of warfare with which nature has furnished its creatures, we see horns, hoofs, antlers, teeth and claws. Bees, wasps, and some other insects are armed with a sting. The king of the feathered tribes smites his enemy with his *wing*. The monarch of the deep strikes with his *tail*. With this mighty weapon he might sink a ship. The king of the woods awes into obedience the tenants of the forest, or executes vengeance on his enemies, or siezes and tears his victims of prey, by means of claws and teeth. One kind of fish, called the sword-fish, is furnished with a weapon of defence or attack in a long sword-like snout. The cuttle-fish eludes the pursuit of his enemy, by enveloping himself with a black fluid which he has the power to emit from his mouth. Cattle when attacked by a bear or other rapacious beasts, will form a close phalanx and show a formidable array of horns. Under similar

circumstances, horses will form a close line and give an enemy a broadside of heels.

Some animals, as the porcupine and hedgehog, are defended by a singular coat of armor. They are armed on their sides and back with spines or quills, which prove formidable to dogs, wolves or any animal that should attempt to capture them. These animals, too, have the power to roll themselves up like a ball, and in this form they present a phalanx of spears which no animal will knowingly attack.

The defence and security of some animals lie in their strength; of others, in their swiftness; of others, as the fox, in their cunning. Many seek protection by burrowing in the earth. Oysters, clams, and all the various species of shell-fish, are furnished with a hard, calcareous covering, within which they have the power to ensconce themselves and remain secure from every attack. The spider ingeniously weaves his web, and not only sits in the centre secure from harm, but entraps his unwary victim. The ant digs a hole in the sand and then conceals herself in the bottom till her prey falls in, and she devours it. Other animals have the power of slaying their prey by infusing a poison into their veins and producing almost instant death.

But one of the most singular and effective modes of self-defence remains yet to be mentioned. It is that of the North American *skunk*. This animal, when attacked, or threatened with danger, is able to discharge on its assailants, "an intolerable stifling stench," which is quite sure to give the assailant the worst of the battle. Perfectly confident in the potency of his munitions of war and feeling quite safe behind his intrenchments, the skunk is one of the most fearless animals to be met.

So unsuspecting is he of danger, that he seems to invite attack; but woe to the assailant, man or beast, who dares to encounter the artillery of such a foe. Sometimes an inexperienced dog is seen to attempt to seize this formidable foe; he finds himself utterly discomfited, and runs away howling and endeavoring to thrust his nose into the ground.

I had designed to make a more special reference to the *feathered tribes*. This department of Natural History is everywhere rich in beautiful varieties. You may trace them up, through a most charming succession, all the way from the exquisite little humming-bird to the heaven-daring eagle—note the songsters of the morning, not only as to size, form and plumage, but as to the diversified character and sweetness of their notes, as in the compass of their music they pass through two, and sometimes three octaves. And how they differ in sprightliness, beauty, and a thousand distinctive characteristics. You may traverse, and search every meadow, river, island and shore, till you have seen every bird of every wing, and you will but find Nature's love for variety yet more and more beautifully illustrated.

“The feathered tribes form one of the most beautiful and striking features of creation. Their varied and often brilliant plumage, and infinite diversity of form and size and color, with their peculiar powers of flight, often accompanied with the precious gift of song, combine, with their habits, instincts and endearing associations, to render them objects of special interest.”

CHAPTER VIII.

The Animal Kingdom—The Microscopic World : Variety of Temperament—Sagacity
—Activity—Precocity—Productiveness—Migrations of Animals—Fishes.

WE have no need to stop at the boundary beyond which the unassisted eye cannot reach. We may plunge deep as we will into that world of wonderful workmanship which the microscope alone reveals, and survey its boundless domains of animal life, and we shall find that our principle will hold to the uttermost verge of microscopic vision. The same never-failing variety pervades all this exquisitely delicate workmanship.

In the brief survey already made in the field of animated existence, we have had occasion to admire, not only the “multitudinous races” that people every element and clime, and all the ever-changing, ever-varied forms and natures which meet the eye in every region of animal life, but we had occasion to admire no less profoundly the endless *profusion* of living beings with which every object teems. Earth, air, water, is instinct with life. Vegetables, flowers and animals themselves, both dead and alive, supply habitations and food for their various tribes of living beings. “What profusion of being is displayed in the wide expanse of the ocean, through which are scattered such various and such unknown multitudes of animals.” And in the yet broader and deeper expanse of the

atmosphere, what a boundless field of animal existence; and how varied and multitudinous, from the kingly eagle down through every imaginable diversity of form, size, habits, character and pursuits, to the minutest living speck that floats in the air. And if we traverse every region of the globe, "from the scorching sands of the equator to the icy realms of the poles, or from the lofty mountain summits to the dark abysses of the deep; if we penetrate into the shades of the forest, or into the caverns and secret recesses of the earth; nay, if we take up the minutest portion of stagnant water, we still meet with life in some new and unexpected form, yet ever adapted to the circumstances of its situation. Wherever life can be sustained, we find life produced. It would almost seem as if nature had been thus lavish and sportive in her productions with the intent to demonstrate to man the fertility of her resources, and the inexhaustible fund from which she has so prodigally supplied the means requisite for the maintenance of all these diversified combinations, for their repetition in endless perpetuity, and for their subordination to one harmonious scheme of general good."*

But the moment we pass the line which divides the visible from the invisible, and enter the domains of life revealed by the microscope, we find ourselves amid worlds before unknown. And nothing more astonishes us at the first discovery, than the strange *profusion* of life that now meets us at every turn. The microscope has here revealed worlds of wonders which a century ago were not suspected to exist. It is found that all things teem with life. "These less than the least of all

* Roget's Bridgewater Treatise. Vol. i., p. 25.

the creatures" that are visible to the unassisted eye, inhabit the water, float in the air, are found in the blood and fluids of the body, in the tartar of the teeth, in animal and in vegetable substances, in vinegar and in paste, in fruits, grains, seeds and flowers; in the dry sand, and on every green leaf.

And not only are tribes of living beings found in the blood, the brain and the intestines of larger animals, but other tribes have been discovered to inhabit the *eyes* of different animals and the gills of fishes. Quadrupeds, birds, reptiles and fishes have each their *eye-worms*. Dr. Nordmann, the German Naturalist already quoted, has made some very curious observations here—more especially his discoveries in the eyes of different species of the *perch*. In a single eye of this fish he sometimes discovered as many as 360 of these animalcula. So numerous a family feed, revel and rest in the single eye of a little fish. Other tribes make their habitations on the *gills* of fishes. The little minute speck of life which the Doctor discovered on the gills of the *bream* were not the less remarkable in respect to number and size, but more wonderful in relation to form and structure. Among the varieties of shapes, colors and structures of these *minim* hosts, he mentions a very singular one, to which he gives the name of Diplozoon, or *double animal*. Unlike the *compound* insects, which have several mouths protruding from one stem or body, giving it the appearance of a vegetable growth (another connecting link), these double animals, like the Siamese twins, are formed of two distinct bodies, united in the middle, so as to present the appearance of a St. Andrew's Cross, each half of the animal containing precisely the same organs.

Nor does the series of life in this singular locality stop here.

The same indefatigable observer has discovered that "these little pests, small as they are, have parasites of their own." He observed "little brown dots or capsules" attached to the intestinal canal, which, when opened, there issued forth living animalcula, which not only presented unique forms and structures, but were singularly curious in their modes of *locomotion*. As already noticed, when speaking of the *motions* of animals, they, on being set at liberty from the membrane that contains them, immediately turn round on their axis, then jump a certain distance in a straight line, when they again revolve and again take a leap.

So replete indeed is every thing with this animalcula life as to have given rise to the theory that, in like manner as the earth and every inanimate thing is formed of an endless number of infinitely minute particles, so every animal organization is constituted of living atoms; so minute indeed that millions might graze on a single leaf or revel in a drop of water.

But, as is known in reference to the *magnitude* of creation that no increased power of the telescope approaches any limit of creation in that direction, so, in relation to the other extreme, as, with microscope in hand, we plunge into the regions of invisible minuteness, no investigations have indicated any limit of creative power here. As the astronomer, with every new power of his instrument, finds himself introduced into new fields of ether, all resplendent with worlds, and sees evidence that illimitable fields lie beyond the reach of every increased power of his telescope, equally, no doubt, the habitations of worlds as mighty and resplendent as those within the range of his vision, so the practical naturalist informs us, that with every improvement of his microscope he is introduced into new

fields of life, and discovers new wonders of living minuteness ; and still “those that defy all present methods of assisting the sight and consequently remain undetected, may far exceed those we know.” And the same writer supposes these *minim* animals out-number, “beyond all statement of numbers,” the whole aggregate of all the other animals that people the globe—that they “probably enter into us, circulate in our blood, nestle between our teeth, are everywhere busy,” but they remained hidden from all human observation till the invention of the microscope raised the veil and introduced us to these new worlds of wonders.

But we are not at present so much concerned with either the *profusion* of created things, or with the minuteness and the exquisitively beautiful workmanship of the Divine hand, as we are with the *strangely diversified* character of these works. Of this we seem to have illustrations more and more profuse and beautiful, as we descend from the less to the more minute. The enthusiasm of naturalists, as they enter these enchanting fields, would lead us to suppose that all we have seen of variety in the larger types of animal life, as already referred to, afford, at best, but meagre specimens, compared with those furnished by the teeming millions of *insects* and animalcula which inhabit the crust of the earth, or by the *creeping things* of the ocean. These present a variety surpassing all our powers of conception—if regard be had only to color, size and form. But if all the marked diversities of adaptations, uses of parts, dispositions and activities be admitted in tothe account, the field is vastly widened. Astonishing discoveries have been made among the innumerable worlds of animalcula and ephemeral insects. Thousands have been discovered in a single drop of water, and tens

of thousands on a single leaf. Each is a *world* teeming with its own population. But what more excites our admiration is that all its puny tribes are distinguished by even a greater variety, if possible, than characterizes all other material things.

An ingenious naturalist gives the following result of his examination of a single strawberry plant: "The insects which I observed, were all *distinguishable* from each other, by their color, their forms and their motions. Some of them shone like gold, others were of the color of silver or brass. Some were spotted, some striped; they were blue, green, brown and chestnut. The heads of some were round like a turban; those of others were drawn out in the figure of a cone; here it was dark as a tuft of black velvet, there it sparkled like a ruby." The wings of some, he says, were "long and brilliant, like transparent plates of mother-of-pearl;" others, "short and broad, resembling net-work of the gauze."

Such may be taken as a specimen of the variegated inhabitants of those diminutive worlds, which, on account of their extreme minuteness, elude the naked vision of man.

Another ingenious observer, as he contemplates "the amazing varieties" of the microscopic world, says of the strangely diminutive forms of life which pass within the vision of his instrument: "One is a long and slender line; another, an eel or a serpent; some are circular, elliptical or triangular; one is a thin, flat plate; another, like a number of reticulated seeds; several have a long tail, almost invisible, or their posterior part is terminated by two robust horns; one is like a funnel; another like a bell, or cannot be referred to any object familiar to our senses." Other singular peculiarities are also described. Some of these *minims* of life possess the most wonderful con-

trol over their own size and forms. Some can change their figure at pleasure. They may extend themselves to an immoderate length, and then contract to almost nothing. Now they are seen curved like a leech, then coiled like a serpent; now inflated much beyond its usual bulk, then flaccid and almost vanished. Some are opaque, while others are so transparent as to be scarcely visible.

And the *motions* of these wonderful tribes, present varieties not the less interesting. Some are said to swim with the velocity of an arrow; others drag their bodies with seeming difficulty, and some seem to exist in perfect rest. One is seen to revolve on its centre, or the exterior part of its head; others move "by undulations, leaps, oscillations or successive gyrations." Indeed, it is affirmed that there is no kind of animal motion, or mode of progression that is not practised by animalcula.

We may indulge a moment's glance at another of these invisible worlds of beauty and variety—a world circumscribed within the limits of a single carnation, as laid open by the microscope and described by the pen of Sir John Hill. Distingishing the lower part of the flower, and, under a full light, adapting his microscope to take in, at one view, the whole base of the flower, he discovered "troops of little insects frisking with wild jollity among the narrow pedestals that supported its leaves, and the little threads that occupied its centre. The base of the flower had become a vast plain; the slender stems of leaves become trunks of so many stately cedars; the threads in the middle seemed columns of massy structure, supporting, at their top, their several ornaments; and the narrow spaces between were enlarged into walks, parterres and terraces. On

the polished bottoms of these, brighter than Parian marble, walked in pairs, alone, or in larger companies, the winged inhabitants. These, from little dusky flies (as seen by the naked eye) were raised to glorious, glittering animals, stained with living purple, and with a glossy gold that would have made all the labors of the loom contemptible in the comparison. "I could, at leisure, admire their limbs, their velvet shoulders, and their silver wings; their backs vying with the empyreal in its blue; and their eyes, each formed of a thousand others, out-glittering the little planes on a brilliant; above description, and almost too great for admiration."

Such pictures, to those not accustomed to look into those worlds of wonder through the microscope, may seem overdrawn. We are assured, however, by those who are in the habit of making such investigations, that the vegetable and animal world are full of just such scenes. And as world after world of these microscopic wonders pass in review before us, we know not which the most profoundly to admire, the power, skill and wisdom engaged in the creation, arrangement and control of the numberless and immense worlds that fill boundless space, or the beauty and exquisitely delicate workmanship of the infinitesimal tribes that inhabit the microscopic worlds.

We may institute no comparison between the most finished and delicate works of art and the common works of nature. No hand can paint like the hand divine—no colors are so brilliant and indelible—no texture so fine—no workmanship so exquisite. As we descend the scale into those wonderful worlds revealed by the microscope, we seem impressed with the idea that the God of nature has undertaken to exhaust his skill and power in the production of an endless

number and variety of infinitely small creations. As in point of duration God is from everlasting to everlasting, so in reference to power, wisdom and skill in workmanship, he works from infinite to infinite—the vastness of the material universe on the one hand stands over against the infinite variety and the endless profusion and the infinitesimal minuteness of his works on the other.

The moment we descend to details we are, in this respect, astonished at the investigations of the naturalist. There appears an exuberance of skill and workmanship which we were not prepared for. In confirmation of this we can scarcely quote the annals of natural history amiss. We may take the following: In the body of an insect about an inch in length, a French naturalist is said to have enumerated 306 plates composing the structure only of the outer envelop; 494 muscles for putting them in motion; 24 pairs of nerves and 48 pairs of breathing organs. On a single wing of a butterfly have been found 100,000 scales. So thin are the wings of many insects that 50,000 placed over each other would only be a quarter of an inch thick; and yet, thin as they are, each is double. The house-fly's wing has a power of 600 strokes in a second, which can propel it 35 feet, while the speed of a race-horse is but 90 feet a second. We well know what an exquisite piece of mechanism the *eye* is; and as two eyes seem quite sufficient for all the necessary purposes of vision, we are quite astonished to meet with small and insignificant insects with thousands of eyes, or rather, the protuberances called their eyes are found to contain thousands of lenses, every one of which is capable of producing a distinct image of as many objects at the same time. Why should the silk-worm, the

beetle, and the common fly have their six or eight thousand eyes; and the drone, the dragon and the butterfly more than twice as many?—why but for the love of infinite skill and power to extend itself? As in the works of grace, so in the works of nature there is a strange outflowing and overflowing of the Divine goodness.

We are amazed at the exuberance of the skill of workmanship displayed in some of these specks of life. But we have no need to dwell on the minute, nor to confine our remarks to variety in form, size or structure. There is among animals a no less striking variety of *temperament, sagacity, activity, precocity* and *productiveness*. How varied the natural dispositions of animals. Compare the tiger and the lamb; the vulture and the dove; the serpent and the fish. No two animals are *tempered* alike—not to say animals of *different species*, but individuals of the *same* species. How kind and pacific are some; how restive, fierce and refractory are others! But the distinction is more prominently marked in the creature *man*—at least it is more observable in him. Here no two are *attempered* alike. Some seem to have a similar disposition in some particulars, while in other respects they are totally unlike. They run parallel to a certain point, whence they diverge and perhaps do not meet again.

Animals differ no less remarkably in respect to *intelligence, sagacity, ingenuity* and *skill*. From the lowest grade of zoophytes or vegetable animals to the highest in the scale of intelligence there is every imaginable variety. It will serve our purpose quite as well to refer only to some of the higher orders, and those more familiar to the common reader.

What varied skill and ingenuity are employed by different

species of birds in the construction of their nests, and by different animals in forming their habitations. No two species of animals, birds or insects construct their nests or build their habitations of the same material, or in the same form, or after the same order of architecture. Though all mechanics of some craft, no two species are of the same craft. Some play the carpenter, some the mason or the woodcutter, miner or common laborer. The *wasp* is both a papermaker and a mason, and, at the same time, like the honey-bee, an excellent geometer and builder. Thin and frail as the paper layer of the wasp's nest is, it is constructed in a manner and of a material to make it water-proof.

But more remarkable still is the architectural skill and power of some kinds of ants, especially those called termites or *white ants*. These diminutive insects erect habitations which for dimensions and internal structure are quite wonderful. They show themselves well skilled in masonry—understand the construction of the arch, and know how to form a cement and mortar which is perfectly secure against all injury by water.

The ant-hill is a pyramid often ten or twelve feet high, the external covering consisting of a dome, “with a smooth surface of rich clay, excessively hard and well built.” The interior of the building, which is fitted up with great labor and skill, is divided “with wonderful artifice and regularity into a vast number of apartments”—labyrinths, galleries and subterraneous passages. In the centre and under the grand dome are the royal apartments, and about these nurseries, magazines for provisions, and various chambers for the accommodations of their gentry, soldiers, and different sorts of laborers.

Some one has pleasantly illustrated the various skill and aptitudes of different animals by characterizing their trades and mechanical operations somewhat as follows :

“Beasts, birds and insects are good *mechanics*, skilled in business and building operations ; and what they do is done with despatch and neatness. The caterpillar is a silk-spinner, far excelling any other in his line of business. Indeed, we could by no skill or art of ours supply the place of this wonderfully-endowed creature. The honey-bee is a professor of geometry. He constructs his cell so scientifically that the least possible amount of material is formed into the largest spaces with the least waste of room. Not all the mathematicians of Cambridge could improve the construction of his cells. Nor can the best hermetical sealers preserve provisions so well.

“The mole tunnels like a skilful engineer. The nautilus is a navigator, hoisting or taking in sail as he goes, or casting anchor at pleasure. The glow-worm is a lamplighter. The beaver is a wood-cutter, or builder, and a mason ; and a good workman at all these trades. He fells trees with his teeth, and, having built his house skilfully, plasters it with his tail-trowel. The swallow is a fly-catcher—singing birds are amateur musicians, excelling in harmony ; and the otter and heron are fishermen, though they use neither line nor net. The otter we seldom see, for he works his traps mostly under the water ; but the heron may be often seen standing with his long, thin legs in the shallow part of the stream, suddenly plunging his long bill below the surface and bringing up a fish. The marmot is a civil engineer. He does not only build houses, but constructs aqueducts and drains to keep them dry. The ant maintains a regular standing army.

Wasps are paper manufacturers. Caterpillars are silk-spinners. The squirrel is a ferryman. With a chip or piece of bark for a boat, and his tail for a sail, he crosses a stream. Dogs, wolves, jackals and many others, are hunters. The black bear and heron are fishermen. The ants are day-laborers. The monkey is a rope-dancer.

“The fox is a dealer in poultry, and sometimes a wholesale dealer ; as the farmers and farmers’ wives know to their cost. Not satisfied with chickens and ducklings, he must needs push on his trade among the full grown cocks and hens ; and many a good fat goose is carried to his meat-cellar.

‘A wily trader in his way
Is Reynard, both by night and day.’”

Other classes of animals show much sagacity in the precautions they use against danger. Among these are the marmot, the monkey of Brazil, and the wild horse. When grazing, or sleeping, or engaged in pastimes, they are known to place a sentinel to watch and give alarm against approaching danger. When the marmot sentinel perceives a man, an eagle, a dog, or any other foe near, he alarms his companions by a loud whistle, and is himself the last that enters the hole. Brazil monkeys are said quietly to sleep on the trees after having stationed one of their number as a sentinel to warn them of the approach of the tiger, or other rapacious animal ; and if this sentinel is found sleeping, his companions instantly tear him in pieces for his neglect of duty. And the same precautions are taken by troops of wild horses when sleeping. One of their number remains awake, and gives notice of any approaching danger.

We must be content with a single instance of the many we would like to quote, of the peculiar sagacity used by some classes of animals to entrap their prey. In Kamtschatka, an animal called the *glotton* employs a singular stratagem for killing the fallow-deer. He climbs up a tree, carrying with him a quantity of that species of moss of which the deer are very fond. When a deer approaches near the tree, the *glotton* throws down the moss. If the deer stops to eat the moss the *glotton* instantly darts down upon his back, and after fixing himself firmly between the horns, tears out its eyes, which so torments the animal, that, either to put an end to its torment or to get rid of its cruel enemy, it strikes its head against the trees till it falls down dead. The *glottons* on the river Lena sometimes kill horses in the same manner.*

The honey-bee is in many respects particularly a clever little animal. Both her social and civil relations abundantly imply this. Bees preserve a very perfect community, and maintain a no less remarkable form of government. And the skill with which they conduct their labors is proverbial. But nothing is more remarkable than the sagacity they show in discerning any approaching change of the weather. "More surely than the instruments of science" they descry the shower at hand, and hasten to the shelter of their home.

No animal, perhaps, has been awarded more credit for sagacity than the dog. He is capable of almost any training, and sometimes seems to dispute the province of rationality with man. To the many clever feats which are constantly detailed of this sagacious animal, the following, which recently

* Smellie's Philosophy of Natural History, p. 239.

came to my notice, may be added: Mr. Meriam, the celebrated meteorologist of Brooklyn, recently lost a valuable dog by death which he had taught to watch the striking of the clock at night, and wake him every hour for the purpose of making his hourly registrations of the barometer and thermometer.

Again, we discover in the *quantity of life* or activity of different species of animals or animals of the same species, another pleasant variety. The lowest animal matter is scarcely distinguishable from a vegetable mass. And after ascending several grades you still meet with animals of perfect organization, yet with scarcely vital energy or the principle of life enough to enable them to move from place to place. With little nerve or muscle, strength or activity, and capable of very little pleasure or pain, they have scarcely more than a vegetable existence; while sporting about them in all the smiling exuberance of vitality, are other tribes of animals, which *live more* in twenty-four hours than their sluggish, torpid neighbors do in a month. They use so much more nerve and muscle—enjoy or suffer so much more—burn in the lamp of life so much more of the oil of vitality. How much more of life is there about a tiger than a turtle—a humming-bird than a snail? M. Delisle tells us that he observed a fly not larger than a grain of sand, which ran three inches in half a second, and in that space made the enormous number of 540 steps. If a man were able to walk as fast in proportion to his size—i. e., able to take as many steps of two feet long in the same time, he would in the course of a minute run more than twenty miles, leaving express railroad engines far in his rear. The locust, the grasshopper and the flea can leap 200 times their length; the frog hops 250 times his length. Some spiders can leap

upon their prey two feet. Were a man of six feet in length to leap in proportion to the grasshopper, he might be seen striding over the earth at the rate of 400 yards at a stride.

Similar remarks apply to individuals of the same grade or species. What different degree of vital energy in two animals of the same class. One is so sluggish as to feel it a task to gather his own food; the other abounds in vitality, and leaps about spontaneously for no other reason than the pleasure of distending and contracting his own muscles.

Man, however, supplies the happiest illustration of this sort, for he is a mental and moral, as well as a physical being. Some persons have so little *life* about them as to be scarcely capable of self-preservation. When they have put forth the utmost stretch of their vitality, they can with difficulty perform acts which rank them among the *living*. This is one extreme, between which and the other there are many gradations or varieties, some putting forth more activity, accomplishing more labor—physical, mental or moral—in one day than others do in six. The mental energy of some men and the bodily vigor of others is prodigious, while the current of the vital energy runs so sluggishly in others that nothing moves them but compulsion, and this only while the coercive force is operative. Perhaps in nothing do men differ more than in the *quantity of life* which they possess.

The *diversified condition* of animal life, in its *infancy*, is worthy of remark. In some instances, as in the young of the robin, the sparrow or the human infant, there is scarcely more than life in the abstract, vigor, activity and intelligence being scarcely at all developed, and these are not all capable of self-preservation. Of this extreme, naturalists furnish more striking

illustrations that I have yet adduced. The American opossum is said often to produce sixteen young ones in one litter, which, when first born, do not weigh more than a *grain* each. Blind and almost shapeless, and perfectly helpless, they are now snugly stored away by the mother in a sort of *pouch* provided by nature for the purpose, where they are nourished till they attain the size of a mouse, which does not take place till they are fifty days old, when they begin to see. And it is some time after this before they wholly leave the pouch. The *kangaroo*, and the *koula* of New Holland, nourish their young in the same way.

On the other hand, we meet the young partridge, the offspring of the domestic fowl, and the foal of the horse, with their instincts and activities almost perfectly developed at a day old. The young partridge will not wait to divest itself of the incumbent shell before it seeks safety by flight, at the approach of danger.

Again, there is a striking difference in *the productiveness*, and in *the length of life* of different species of animals. Indeed, productiveness is somewhat in proportion to length of life and to size. The elephant may live 2, 3, and 400 years. Other tribes of animals are *ephemeral*—others flit through life in one hour—perhaps in a few moments.

In six years a pair of elephants might double their number—a pair of sheep become 64—and a pair of pigs 119, 160. The power of production in some of the smaller animals, especially of the finny tribe, verges on the incredulous. Naturalists tell us of the tench, the codfish, the shad, the house-fly, producing their hundred thousands—some, their millions yearly.

So prodigiously prolific are *herring*, pilchard and some other kinds of fish, that they are taken by the millions of millions annually, without the least sensible diminution of the supply. Twenty millions have been known to be taken at a single fishing. At a fishing-ground in Norway (Gottenburg) 700,000,000 have been taken in a single year. And this is but an item in the amount taken by the English, Dutch and other European nations.

But why such endless variety in animal life—why such exhaustless abundance? It is the provision which a benevolent Father has made for his creatures—especially for his creature man. What varied and superabundant provision for his food, his clothing, and for every possible want! But man would fail to realize the richness and fulness of these provisions, if his own skill and power, together with the instincts of certain animals, were not engaged to bring the various bounties of Providence to every man's door. But for commerce on the one hand, and the migrations of certain animals and fishes on the other, our supplies would still be comparatively limited. As an example of the latter, take the *herring*, the *shad* and various kinds of fishes, to say nothing of migrating birds and beasts, which, at certain seasons of the year, feel an irrepresible prompting to take up their line of march and to pass over large portions of country, everywhere made a prey, to minister to the wants of man and beast.

Our most abundant and valuable fish are the cod, the mackerel, the herring, the shad and haddock. These are all migratory fish. Impelled by a singular instinct, they are made to move forward in countless numbers, visiting the shores of various islands and continents, and offering them-

selves, as it were, in vast holocausts to the appetite of man. By means of this singular providential arrangement, immense quantities of food, delightfully variegating our bill of fare, are, at different seasons of the year, poured into our markets and introduced to our tables, which ordinary commerce could never bring. One of these vast migrating bodies after another pass along our coasts or ascend our rivers, linger for days, for weeks, perhaps, till they have regaled us with a pleasant variety, if not satiated our appetites; then they move on unconsciously but liberally, to serve the equally rapacious appetites of some other shore.

The migrating shoals of herring “consist of millions of myriads, and are many leagues in width, many fathoms in thickness, and so dense that the fishes touch each other.”

How truly wonderful are these great migratory expeditions, when contemplated simply as a providential device for distributing the bounties of Heaven to the different portions of his great family, not only supplying their wants, but spreading their tables with new and choice varieties.

CHAPTER IX.

MAN—His Physical Varieties—External Form—Color of Skin—Mechanism—The eye—Organs for Breathing; Digestion, Secretion; Nerves, Blood-vessels—Voice—Upright Position—The Wrist and Hand—Jenny Lind's Voice.

WE are now brought to a portion of our illustration which is both more familiar, and of higher interest. Man is not an exception to the universal variety which pervades all nature besides. While we met no lack of diversified workmanship or varied development in the lower grades of animal life, we may be sure of meeting more numerous and interesting varieties in the species, man. We have not found our interest decrease as we have descended from the larger and better known specimens of creative power and skill, to the most minute and the less known. The great monarch of the deep, whose play-ground is the ocean, is not more perfectly formed than the animalcule whose ocean is a drop of water. And the huge elephant does not exhibit a mechanism more highly wrought and admirable than the little tenant that sports unseen in the tiny flower.

As we pass into the domains of man we shall meet with illustrations yet more to be admired. For, of all animals, man is the most extraordinary, and furnishes the happiest illustrations of our theme.

In proportion as the endowments of man exceed those of

any other animal, and his relations are more extensive, and his duties more varied, and his moral wants and destinies of higher order, and as his needful training for his future state of being, implies exercises on his part and dispensations on the part of Providence very different from any thing known among the inferior races, in the same proportion we shall find man's history to be vastly more diversified in all its developments.

Man has not only a *physical* nature, more curious and complicated and variegated than any other animal, but he has an intellectual and a moral nature, which presents varieties of structure and endowments yet more interesting.

We shall take occasion to make each of these aspects of humanity topics of illustration. The first and most obvious view we can take is to consider man as a *physical* being. The most superficial glance is enough to indicate the field of illustration here open before us. What disparity in stature, in muscular development and in bodily organization. What variety in color, in tones of voice, in the contour of the face and the expression of the countenance: and how varied the general appearance, the gait and movements.

I spoke of color: the hue of the skin varies very nearly according to position on the globe; climate, elevation, soil, winds, temperature and exposure to heat, (natural or artificial,) food, habits, employments, have great influence in determining the color of the skin. Natural causes, of themselves, if given a sufficient time to act, seem quite adequate to produce the difference which exists. Widely as the African differs in his character from the European, we can conceive, from what we know, of similar changes produced in other races of men, when subjected to similar influences, during comparatively

short periods of time; of differences quite as striking as we meet here. Portuguese and Jews are found on the Malabar coast of India quite as black as the native Hindoos, though the former have been residents there scarcely more than three centuries. They have neither the thick lips, nor the crisped hair, nor the facial contour of the negro; yet these peculiarities of the negro, did the field admit of the needful investigation, would probably be found to be no more than legitimate effects of peculiarities of an African climate, soil, temperature and productions.

How unlike in a thousand respects are the different races of man! The Caucasian from the Malay or Chinese—the African from the European! Place by the side of the giant Patagonian the dwarf of Terra del Fuego, or the fair Briton by the side of the crisp-haired and thick-lipped African. But we shall find our subject amply illustrated if we confine ourselves to the *same* race. We can scarcely select examples amiss.

We will first look for a moment at the framework—the machine itself—of the wonderful structure of the human body. In many of its leading features it does not essentially differ from the organization of other species of animals. Like them it has flesh, bones and joints, and systems of nerves and blood-vessels. There is in all the properly-formed animals the most ingenious specimens of machinery; bones have their joints and hinges; blood-vessels their valves; the heart its forcing pump; the eyes their pulleys. It cannot but excite our amazement that a framework of so small dimensions as that of the human body should contain so much machinery; that so many different sorts of apparatus should, in so small a compass, be able to produce so many different ends. We not only meet with

hinges, joints, valves, the forcing pump and the pulley, but in the same frame we discover a most ingeniously contrived and constructed system of blood-vessels, and another system of nerves, and a third of secretive organs, all in the same body; then a complete and ingeniously contrived digestive and nutritive apparatus; then a no less wonderful apparatus for respiration; and finally, the yet more mysterious and delicate organs and capabilities of seeing, tasting, smelling, touching and feeling; all of which systems presuppose different sets of muscles, nerves, and other appliances more delicate and skilful than we can possibly conceive.

“How complicate, how wonderful is man!”

And what in these respects is true of man, is found to be true of an insect a thousand times less than man.

We cannot too profoundly admire these wise arrangements of our beneficent Creator. A mere glance at a few well known anatomical facts will serve further to illustrate the varied skill, the diversified workmanship, and the profuse benevolence which appear in the mechanism of the human frame. The support of this framework consists of 245 bones of various forms and uses, and all adapted to their respective purposes. Each bone has not less than forty distinct scopes or intentions. Variously attached to these bones are 446 muscles, by which the numberless motions of the body are produced; the same muscle, by means of its several intentions, producing as many different motions; and each standing ready every moment to receive the mandates of the will and to execute its appropriate function. “Every breath we draw, whether we be in motion or at rest, asleep or awake, a hundred muscles, at

least, are in constant action. In the act of breathing we respire at least twenty times every minute; the heart exerts its muscular force in propelling the blood into the arteries sixty times every minute; the stomach and abdominal muscles are every moment in action; and the curious little bones of the ear are ever ready to convey sensations of the softest whisper to the brain. So that, without a hyperbole, or the least extravagance of expression, it may truly and literally be said, that we enjoy *a thousand blessings every minute*, and consequently sixty thousand every hour, and one million four hundred and forty thousand every day.”*

Contemplated, simply as a complicated and delicate piece of machinery, the corporeal part of man is a matter of ceaseless wonder. The contrivance of the whole; the forethought and calculations needful to the construction of such a machine; the multiplicity and variety of the parts; all made so beautifully to fit and harmonize as to subserve purposes equally numerous and varied; and the exceeding delicacy of some of the parts exhibiting a skill and niceness of finish which as far transcends all human skill as the infinite is removed from the finite; these are some of the wonders which appear in man's earthly tabernacle.

What we are accustomed to call the human system is a series of distinct systems, each one perfect and independent in itself, yet acting in such perfect harmony with every other as to seem but a unit. At the same instant we find ourselves, almost without an effort, exercising all the complicated and varied organs needful to produce sight, hearing, smelling, the

* Dick's Philosophy of Religion, p. 43, Am. edition.

sensations of taste and touch, breathing, and I know not how many more interesting and curious functions. And so skilfully contrived and collocated are the multiplicity of bones, muscles, nerves, tendons and membranes requisite to the performance of these functions, that they are constantly performed, and many, and sometimes all of them at the instant, without the slightest confusion; and the whole may pass as the most commonplace occurrence, without a thought, or even consciousness on our part. But the moment attention is directed to the apparatus and the *modus operandi*, the means and the manner of either of these very common operations, we are not a little amazed at the ingenuity and benevolence therein displayed.

Before the image of a simple object can be painted on the retina of the eye and the object be seen, what a singular piece of machinery has to be constructed, and then by how many ingenious contrivances it is made to perform its office.

The eye has been justly esteemed the master-piece of mechanical skill. It is a little ball lying easily in its soft, oily bed, and safely esconced in its bony cavity, so supported by muscles as readily to retain its position, yet to turn in every direction. It is composed of different coats, humors, and lenses, and supplied with an endless number of minute nerves, veins and arteries, lymphatics, glands and other delicate contrivances—all so formed and adjusted as to admit, through a small aperture called the pupil, the countless millions of rays of light which proceed from the object viewed. So perfect is this little piece of machinery, that the rays of light from every point of every object in a landscape, miles in extent, enter the pupil of the eye all at precisely the same instant—are re-

fracted by the humors—converge on the retina (which is but an expansion of the optic nerve) where the image is formed, and all at the selfsame instant a picture of the object thus is conveyed to the brain ; that is, an act of seeing is performed.

And so perfect is the machinery that the eye passes from one object to another—from one broad landscape to another, and instantaneously and without the least perceptible effort—except simply moving the eye—excludes the existing image on the retina and the millions of rays which form it and admit as many more from the new series of objects, and by the same interesting process, paints a new picture.

But the most extraordinary part of the whole, is the mechanical arrangement—so subtle indeed as to elude the sight of the keenest research—by which the eye can instantly change from the sight of a distant object to that of one near. In other words, how the eye instantly adjusts itself to act as a telescope, or as a microscope. This is probably effected by some exquisitely delicate machinery, which renders more or less convex the cornea of the eye, as a near or remote object is to be viewed. Yet the moment we attempt to gain a conception of the apparatus by which such an optical phenomenon can be produced, we find ourselves at our wit's end.

Wonderful as is the act, and as complicated and exquisitely nice as is the machinery which produces vision, this is but one of the many mechanical processes which are constantly, and at the same instant, going on in the human frame. The exercise of the other four senses, the act of breathing, of digestion, of nutrition, the process of secretion, the circulation of the blood, and the mysterious workings of the nervous energy, all have a distinct series of apparatus, and their independent ope-

rations. And the greater portion of the machinery by which each of these operations are carried on, is too minute and subtle to come within the cognizance of the acutest human skill. We can form no adequate conception of the profuse and varied workmanship involved.

And not only so, but there are other provisions and adaptations equally wonderful, before one of these results can be realized. An ear, no matter how curiously wrought, not adapted to catch the sound from the vibrations of the external air, or an apparatus for breathing not fitted to inhale and receive the same atmosphere ; or an eye not adapted to the light, or the delicate organs of smell without the corresponding odor, would be of no account. What varied wisdom and skill were engaged in all those external contrivances, adaptations and provisions necessary to secure results so common as to seem to us but our own spontaneous acts.

But the design of this chapter was rather to treat of varieties of a more obvious character, illustrating not the less strikingly the manifold wisdom of the Creator.

In three particulars man differs in his structure from all other animals. These are his *upright position*, the *organs of speech*, and the peculiar structure of *the wrist and hand*: and these are the three things which give man the pre-eminence, and dominion over the brute creation, and give him control over the mineral and vegetable kingdoms.

Nearly all animals have the power to emit sounds as expressive of internal emotions, if not of thoughts ; and this faculty is exercised by organs strikingly analogous to those by which speech is produced by man. It might puzzle the anatomist to discover, by any examination he is able to make,

why the cat, the dog or the horse may not articulate as well as man. He detects no organ wanting, yet the brute cannot articulate.

Speech, whether it be of man, or its imitation by the brute, is produced by a wind-instrument called the trachea or wind-pipe, in connection with the act of respiration. It is a beautiful Eolian harp: its exquisitely delicate machinery is so adjusted in the aperture through which passes the vital breath, that it emits sounds more varied, more harmonious, and of a more living significancy than the most perfect human instrument. It discourses sweet music, or speaks in tones of joy or sorrow; in accents of manly eloquence, or scathing satire, or honeyed persuasion, or burning rebuke.

So delicately wrought and so readily modulated is this wonderful piece of mechanism, that it is fitted to express not only the greatest variety of *sounds*, but the greatest variety of thoughts and emotions; and so self-adjusting is some of the exceedingly delicate machinery attached to it, that it can almost instantaneously pass from the solemn to the gay—from anger to hilarity—it can express every imaginable shade of like or dislike, of pleasure or pain, of love or hate. Compared with this, what is the most perfect specimen of human skill? Man constructs an instrument, which, by means of a great variety of stops, keys, screws and various other ingenious appliances, produces a great variety of sounds, notes, high and low, gay and plaintive. But how inferior this to the production of the Divine Hand, which is so formed as instantly, by a self-adjustment, to produce such a variety of sounds.

The entire machinery employed to produce articulate sounds is very various and complicated. The tongue, the lips,

the jaws and teeth, the palate, the nose and throat, together with a great variety of muscles, bones, nerves, blood-vessels and secretions, and some of them more exquisitely delicate than it is possible for us to conceive, all lend their aid and beautifully blend their actions to produce the wonderful phenomenon. The difference in this respect between man and many kinds of animals, seems to be not that animals are destitute of organs of speech—for some of them do speak—but that man possesses these organs in greater perfection. There is, in the one case, a finish in the workmanship, a perfection of skill, which is wanting in the other. The one is a musical instrument with every key, screw, chord and string exquisitely formed and combined by a master's skill, and which, like a thing of life, utters the language of the soul; the other is an instrument of the same form and parts, yet of coarser finish, and so differently combined as to utter no intelligent sound.

We do not here forget that man has an intelligent soul, and that language is the utterance of *thought*. We speak now only of the *physical structure*, which we see admirably adapted, though at an infinite expense of skill and workmanship, to the great and benevolent end for which speech was given. Had we the exquisitely nice perception to discern the thousand little contrivances and adjustments in the form of muscles, nerves, bones and tendons which are so exactly adapted to the throat, the lips, the hollow of the mouth, the nose and all the parts which combine to form the human voice, and to produce articulate sounds of every conceivable variety, and were we able to compare these with the corresponding and less perfect organs of the inferior animals, we should gain some appreciation of the

exuberant skill displayed in this part of the physical structure of man.

A similar line of remark might have been pursued in relation to the machinery by which other functions are performed ; as the touch, taste, smell or hearing ; breathing, digestion, nutrition or any other function of the body. In vain do we essay to scan the wonderful apparatus by which offices so complicated and curious are performed. Such mechanism equally transcends all human conception of mechanical skill. Not less than 100 muscles are employed in the simple act of breathing.

Man's *erect posture* and the upright position of his face, is another peculiarity of his structure, to which we need but to allude. The advantages we possess on this account are abundantly obvious.

Other physical distinctions peculiar to man, and which give him the advantage over all other animals, is the structure of his *legs and feet* ; and more especially of the *hand and wrist*. The leg and foot are composed of bones, muscles and ligaments, so put together as to form just the requisite support to an erect body, and to give the ease and facility of action which the erect body requires, and secure variety and elasticity to all his movements.

The leg of no other animal is to be compared to that of man, for the universality and diversity of its actions. But we design no more than simply to direct attention to this point.

I named one other peculiarity of the physical man—the mechanism of *the wrist and hand*. Without this peculiarity, man might have the reason of an angel, yet his reason would be of no great practical benefit to him. He might possess wis-

dom and skill tenfold more than he now does, and, with only the hoof of the horse, or the claw of the eagle, or with the hand of the monkey, he could never rise above the condition of a better sort of brute.

The anatomy of the hand and wrist (and a similar, though less perfect structure of the ankle and foot) has not failed to attract admiration. The chief peculiarity of structure here, is met in the fact that each finger is formed of three bones instead of two—is furnished with a *nail* instead of a claw, and that each is so placed in relation to the thumb that it freely acts with the thumb. On this simple arrangement, apparently so simple, yet secured only by consummate skill and contrivance, depends the peculiar flexibility of all the motions of the fingers. It is only by this means that we can grasp an object—that we can lay hold of even the smallest object—that we can hold the pen, ply the needle, grasp the sword, use the mechanical instruments, strike the musical key, or cultivate any one of the useful or ornamental arts of life.

But this beautiful design, benevolent as it is, would be quite frustrated, were there not a like peculiar formation of the *wrist*. We need here only say that the bones are articulated, or connected together by two kinds of joints, the one called a hinge-joint, as the joint that enables us to move the hand upwards and downwards; and the other, the socket joint, formed by the insertion of the head of one bone in a socket of another. This joint is seen more perfectly in the wrist. It is this which allows us to move the hand from side to side, and to turn the palm upwards. The combination of these two kinds of joints in the one at the wrist, and a like combination at the shoulder, give all that variety and ease of motion to the arm, hand and fin-

gers which so happily distinguishes man from every other living animal, and, as an obedient and fit instrument, makes man lord of this lower creation.

Could we minutely inspect all the bones, joints, ligaments and articulations—all the mechanical powers and contrivances which make the human hand the organ it is, we should see reason as never before, to admire the workmanship of the Divine Hand. It is a most perfect specimen of mechanical skill.

But there is another class of varieties not to be overlooked here; more obvious than any we have named, yet not the less interesting. I refer to external features, organs and developments.

I have spoken of the marked variety which characterises *the human voice*. Articulation is produced by the same organic structure; yet you never heard two voices which did not differ. There is such a perceptible difference in the tone, the modulation, the quantity or quality of the voice, or in some indescribable something about the utterance or the mode of utterance, that it is oftentimes a more sure criterion by which to distinguish a person, than his form or features. And if I mistake not, a little attention to sounds, as uttered by *the brute animals*, would convince one that no two birds, even of the same species, sing alike, or two cocks crow alike, or two dogs bark or two horses neigh, in precisely the same tone of voice. And not only the voices of no two members of the human family are alike, but probably the voices of no two that ever lived were precisely alike. Of such variety we can form no conception, yet it seems but analogous with the order of the Divine workmanship, as far as we are acquainted with it.

Before dismissing the subject of the human voice, I had designed to refer to a familiar and very extraordinary instance of its mechanism. The voice of *Jenny Lind*, considered simply as a piece of mechanical skill, was a very extraordinary production. We may take it as an intimation in one line of the capabilities of humanity, its capabilities of *song*—a premature development of the music of the upper Paradise—a development analogous to the extraordinary productions occasionally met in the vegetable world, and as rarely met in other departments of the animal world.

The following curious and interesting article, on the "*Mechanism of JENNY LIND'S Voice*," is copied from a late English paper, but originally appeared in the *New York Tribune* :

"The voice of this great *cantatrice* is one of those wonderful natural gifts which Providence occasionally vouchsafes to a favorite mortal. Jenny Lind possesses what may be termed a *double voice*, the natural voice from grave to the acute, a range over three octaves; and she has the power and faculty of producing a *recurrent*, or backward voice into the lungs, upon the upper and lower notes in singing, which is purely ventriloquious, of which faculty her 'echo' song is a perfect illustration. Thus she is able to control her voice on the most difficult vibrations of the vocal chords, to be perfect in her intervals, and which renders her so surprising in the perfection of her intonations, that they ring upon the ear with an effect and a charm so indescribable and puzzling to the hearer. The peculiarity is, this ventriloquious power; and the wonderful part of her vocalization is, that her organization enables her to use those recurrent sounds the same as a person whistling executes sounds by the recurrent action or drawing in the breath while inspiring. This faculty Jenny Lind controls and manages with an ease, a grace, and with such masterly and artistical skill as almost to defy detection by the most refined and critical ear. By this recurrent or ventriloquial action, she has the command of the epiglottis and its parts, (the valve closing the laryngeal chamber when in the act of swallowing.)

—vibrating plates, similar to the plates forming the bronchial fissure of the larynx, which I have stated is the natural passage for the air forming the voice.

“In addition to the command over her vocal faculties, she sings from the larynx, while she throws the vocal force from the lungs and diaphragm, giving to it the strength, the fulness, the roundness, and the steadiness and endurance of the *grave*, or ‘chest voice.’ By this immensity of vocal power, by the contraction and diminution of the vocal chamber, she is enabled to trill and revel high into *alto*, without any detection from her hearers of any stop or of any change in her voice. Thus her intonations and modulations, by this peculiar organization, are rendered perfect, and her upper and lower notes are given with an inflexibility and softness of which her dying-away ‘echo’ tone is a practical illustration—

‘Linked sweetness long drawn out,’

as are also each cadenza, ‘run,’ ‘shake,’ and ‘trill,’ made upon her tones with a decision, flexibility, purity, and correctness that are only surpassed by the delicate yet magnificent swell and chaste *diminuendo* of her middle and lower tones, which has established that ‘indescribable peculiarity’ in her voice, and emphatically secured to her the euphonious title of ‘the Nightingale.’ Nor are these all. In her thrilling notes, she has the faculty of using the accessory recurrent notes. It is our opinion, that the exercising of these notes, and this ventriloquious faculty, by overtasking her powers, lost to Jenny Lind her voice for a period. These accessory notes, although dissimilar, are rendered artistically correct, and at once strike the mind and awaken attention and wonderment, both as to the cause and their execution. It is all-sufficient, however, that a pleasing charm of an exquisite novelty excites the admiration, and calls forth the spontaneous bursts of enthusiasm from her audiences, who have placed the great cantatrice, for these peculiarities, upon the pinnacle of fame, where she stands herself—alone—Jenny Lind.”

Superficial observation pronounces a thousand things to be like, which a little discrimination finds to be so unlike that the wayfaring man, though a fool, might have discovered it.

The *face*, the *form*, and *general movements* of man furnish

other examples. Nothing is more distinctive than the *human countenance*, yet nothing which exhibits more uniformity. It is rare, and indeed horrifying, to meet with a countenance which is wanting in any of the parts which go to make up the human face. Though alike in this respect, yet nothing is more unlike. Of all the vast population of the globe no two faces are precisely the same: probably the remark may be extended to all that have or shall live on the face of the earth. There is, even in cases of the nearest approximation, a diversity sufficiently marked for all the purposes of distinction. I have seen twin sisters, as nearly alike as two peas, yet in the family circle and among their intimate friends the distinction was abundantly obvious to prevent all mistakes. Nor do we stop here: the countenance may be unseen, the voice unheard, yet there is in the *form* those infallible marks of *distinction* or *variety* which enable us, almost without mistake, to recognize our friends. The same may be said of *general deportment*. The maxim is extensively true, *that every one has a way of his own*. *This way of his own* is a universal variety, characterizing the entire race.

And I am by no means certain that the same principle will not hold respecting variety in the countenance, form and general carriage of *brutes*—less striking, perhaps, though not the less real. A flock of sheep or a herd of cattle look alike, on the same principle that an assemblage of *Chinese* or *Africans* appear alike to a person unaccustomed to see men of their national peculiarities. The attention is, at first, fixed only on the *general likeness*. The thick lips and the curly hair of the one, and the long straight hair and the high cheek bones of the other are, perhaps, the only features contemplated. These

every member of the same class has in common. But the moment we look beyond these marks of uniformity we find as distinct marks of *variety* as in men of our own color and clime. So, no doubt, we should find it in reference to all those *animals* with whom we have not a familiar acquaintance.

Bodily organization affords further varieties: such as the greater or less predominance of the solids or fluids; the strength of the passions; the vigor of the nerves; and the greater or less acuteness of the senses.

And so it is with our *susceptibilities*. Some are susceptible of high pleasure or pain from objects which give none to others—not to mention all the intermediate degrees. Some have a high sense of honor or shame or propriety, where others are almost wholly destitute of it.

We select individual organs or features; the eyes, the nose, the ears; the color of the skin and the hair; the size, shape and expression of the mouth; the form of the lips and the contour of the forehead; the eye-brows, the eye-lashes; or whatever feature you please, and as you compare those of any number of individuals composing an assemblage ever so immense, you will find no two alike. Compare noses, a thousand, or a thousand myriads if you will; and though all are in general alike, yet every one is a distinct variety. Not only do you meet the Roman nose, the Grecian nose, the truly orthodox Jewish nose, the broad, flat nose, the pug nose, the evil-omened sharp nose, but, noses of the most approved patterns. Noses neither fantastically queer or ominously pointed, but seemingly run in the same sensible mould, are nevertheless as diversified as the faces to which they are attached are nu-

merous. Every man has his own nose, and no other man of the universal family has a nose like him.

A clever Quartermaster discourses thus learnedly on the form and philosophy of noses :

“ A first division of noses includes all that are in proportion to the face, too small, *i. e.*, all such as are decidedly less than one-third of the length of the face, or less long than the forehead is deep. The varieties of these are numerous in the snub, flat, retrousse, and up-turned, or celestial noses. The natural types to which they are generally referable are either the little noses of children, or the flat, broad noses of negroes ; and it is consistent with this that in men of civilized races all such noses indicate defective intellectual power ; and do so with a certainty of symbolism which nothing but excellence in the form of the head, as in the case of Socrates, can neutralize. They tell of an unfinished intellectual development ; and the lower and flatter, and more snub they are, the more certainly do they indicate feebleness and meanness of intellect, and of a mind in which bad temper more than good judgment will have sway.

“ It is not quite so with women. In them the whole organization, in its gradual development, diverges less than that of men does, from the almost similar form which they both have in early childhood. The retention, therefore, of the little child-like nose implies no such grave defect in the woman’s mind. If her head be well formed, such a nose may express *naïveté*, or perhaps smartness of wit and dexterous intelligence. But even in women such noses need to be associated with good features. If they are not, they add much to the expression of insignificance or even coarseness. The thicker and larger forms of snub nose in either sex commonly indicate the predominance of the material sensuous character ; and a turn-up nose with wide obvious nostrils is an open declaration (so far as nose can make one,) of an empty and inflated mind ; of a mind in which there is but the spurious imitation of that strength and loftier pride which the wide nostrils in a well-formed nose might indicate.

“ Large noses, in men, are generally good signs ; especially, they add emphasis to the good indication of a well-formed head ; but they must not be too fleshy or too lean. If they are long, (yet short of

being snout-like,) they mark, as prolongations of the forehead, the intelligent, observant and productive nature of the refined mind. If Roman, arched high and strong, they are generally associated with a less developed forehead and a larger hind-head; and they disclose strength of will and energy, rather than intellectual power; they show also the want of that refinement which is indicated by the straighter nose. The Jewish or hawk-nose commonly signifies shrewdness in worldly matters; it adds force to the meaning of the narrow concentrative forehead, symbolical of singleness of object; and its usually narrow nostrils wear the unfailing sign of caution and timidity. The Greek straight nose, 'indicates refinement of character,' love for the fine arts and *belles lettres*, astuteness, craft, and preference for indirect rather than direct action. 'Perpendicular noses—that is such as approach this form, suppose a mind capable of acting and suffering with calmness and energy.'

"A nose slightly befiend at its end, extends and corroborates the indication of the analytic forehead. Such noses, large and broad pointed, are frequent in men with acute practical knowledge of the world. The same befiend end is often seen in the cogitative or wide-nostriled nose, wide at the end, thick and broad, indicating a mind that has strong powers of thought, and is given to close and serious meditation. With these symbols, Lavater's *dicta* fall in: 'A nose whose ridge is broad, no matter whether straight or curved, always announces superior faculties. But this form is very rare.' And again, 'A small nostril is the certain sign of a timid spirit.' In a woman a large nose is of more uncertain augury; for it is apt to extend into caricature. If it be well-formed and finely modeled, a rather large nose, and especially one which is nearly straight, or slightly arched, is, in a woman, often characteristic of excellent mental power. But any of the more peculiarly male forms of nose, if large and coarsely formed in woman, denote a too masculine character; and those that are of ill omen in man, are much worse in woman; since the evil of being inappropriate is added to that of malformation."

And so it is of eyes, ears and every other feature named. The general form, size and structure of the eye in every hu-

man head are strikingly alike; yet when the eyes of any assemblage of people, however large, is examined with a little attention, every eye of every individual is found to have its distinctive variety. In color, form, expression, in something, every eye differs from every other eye. In form, size and general structure, nothing would seem to present more uniformity than the human *ear*. Yet when you may be sitting behind an immense concourse of people, you would be amused to allow the eye to take a glance of the array of ears before you—all alike—yet no two of the whole alike.

The eye affords as prolific as it does a beautiful illustration of our thought. Not only in form, size, color and general structure, does the eye present most interesting varieties, but still more in its *expression*. Some modern writer has furnished us a beautiful illustration in his delineation of a woman's eye. What strange emotions, what thoughts do we discover in this little mirror of the soul. There is the "glance, the stare, the sneer, the invitation, the defiance, the denial, the look of love, the flash of rage, the sparkling of hope, the languishment of softness, the squint of suspicion, the fire of jealousy, and the lustre of pleasure:" all but a mere specimen of the endlessly varied expressions of what the human eye is capable. There is probably not a thought, not an emotion of the soul which it may not mirror forth.

And in similar phrase we might speak of the form of the face, the general expression of countenance, the shape, size and expression of the mouth, and indeed every feature of the human face; and each class would present varieties perhaps not less numerous than we have seen in respect to the eye.

Nor is such endless variety a mere freak of nature—not

simply to display the consummate skill of the architect. It is a matter of great practical utility. It displays a rich exuberance of the Divine wisdom and benevolence. But for these distinctions, trifling as they may, at first, appear, men would lose their individuality—we should often be unable to distinguish our friends from strangers—the innocent would be arraigned and condemned instead of the guilty—instead of an absent child we might receive back a stranger who should happen to have a nose of the same form and size, or an eye of the same color or expression, the only marks of recognition which, after a long absence and the obliterating processes of time, might be supposed to remain. But a kind Providence has left us to no such confusion and chagrin. No two individuals of all the human race are allowed to have the same distinctive marks.

But what an idea does this give us again of the manifold wisdom of God!—of his exhaustless skill—of his “thoughts”—the wonderful contrivances—the infinite designs in the Divine Mind! It was when contemplating the wonderful workmanship of the Divine Hand something after this sort that David exclaimed, “O Lord, how great are thy works, and thy thoughts”—the contrivances and ideas of all existing things, made or to be made—“are very deep.” How precious thy thoughts unto me, O God, how great is the sum of them. If I should count them, they are more in number than the sand! Not a thing so minute is formed—not the color of a hair, or the form of an eye-brow, or the most trifling expression of a single feature of the face; no, not the shape, size and color of the tiniest flower, the conception of which is not an eternal idea or thought in the Divine Mind.

CHAPTER X.

Human Skill and Workmanship.

BEFORE proceeding in our survey of the department marked "Man and his varieties," we may turn aside a few moments to contemplate some specimens of the skill and workmanship of man. The digression may be more seeming than real. I have had occasion frequently to allude to the exquisite skill and workmanship of the Divine Hand as surpassing all wonder and comprehension. We may not compare the human with the Divine. We may not speak of the one as more than the remotest imitation of the other, yet there is something in the aspirations of the human mind to excel in skilful workmanship which cannot fail to excite our profoundest admiration—something which is divine. We trace these aspirations to a divine origin. "There is a spirit in man, and the inspiration of the Almighty giveth them understanding."

I do not now refer so much to the thousand ingenious and useful inventions and discoveries, which are the proud realizations of the human intellect, as to certain skilful executions of an extraordinary character. While some of these involve a high degree of mental acumen, they are more the objects of admiration as specimens of the extreme delicacy of workmanship, and in this respect bear a more striking resemblance to

the works of the Supreme Architect. The resemblance, however striking, sadly diminishes as each is subjected to a near inspection. The extremest microscopic view does but enhance, in the same proportion, the beauty of the executions of nature ; while the same close inspection quite mars the beauty and converts to roughness the most perfect work of human skill. Viewed "through the microscope, the finest and most costly fabric of the loom which has tasked the utmost reach of human skill, becomes hideous ropes and rags, while the beauty, grace and exquisite finish of the lily is infinitely magnified."

I shall quote but a few examples : most of which display more of the folly than of the wisdom of man, yet they exhibit a singular mechanical skill, and are worthy of notice as specimens of the diversified talent of man.

"The Emperor Charles V. after his abdication of the throne, amused himself in his later years by automata of various kinds.

"It was his custom after dinner, to introduce upon the tables figures of armed men and horses. Some beat drums, some played upon flutes, while others attacked each other with spears. Sometimes he let fly wooden sparrows, which flew back again to their nest. He also exhibited corn mills, so small that they could be concealed in a glove.

"The next piece of mechanism of the kind worthy of much notice, was constructed by M. Camus for the amusement of Louis XIV. when a child. It consisted of a small coach which was drawn by two horses, and which contained the figure of a lady within, with a footman and page behind. The machine was placed on a table at one extremity, when the coachman smacked his whip, and the horses set off, moving their legs in

a natural manner, drawing the coach after them. When the coach reached the opposite edge of the table it turned sharply round at a right angle and proceeded along the adjacent edge. As soon as it reached the place opposite where the king sat, it stopped, the page descended and opened the coach-door; the lady alighted, and with a courtesy presented a petition, which she held in her hand, to the king. After waiting some time, she again courtesied and re-entered the carriage. The page closed the door, and resuming his seat behind, the coachman whipped his horses and drove on. The footman, who had previously alighted, ran after the carriage and jumped up behind into his former place."

"The automaton peacock of Gen. Degennes, a French officer of the 17th century, probably suggested to Fancauson the idea of constructing his celebrated duck, which excited so much interest throughout Europe, and which was perhaps the most wonderful piece of mechanism ever made. This duck exactly resembled the living one in size and appearance. It executed accurately all its movements and gestures—it ate, and drank with avidity, performed all the quick motions of the head and throat peculiar to the living animal, and like it muddled the water it drank with its bill. It produced the sound of quacking in the most natural manner. Every bone in the real duck had its representative in the automaton, and its wings were anatomically exact. When corn was thrown down before it, it reached out its neck to pick it up. It swallowed it, digested it, and discharged it. The digestion was accomplished by a chemical solution, after which it was conveyed away by tubes. Beekman, who saw it long after, informs us that its ribs were of wire, and that the motion was communicated through the

feet by means of a cylinder and fine chains like that of a watch.”

“A microscopic photograph was recently exhibited at Manchester, England, of the size of a pin’s head, which when magnified several hundred times, was seen to contain a group of seven portraits, the likenesses being admirably distinct. Another of less size represented a tablet erected to the memory of a citizen of Manchester; it covered one nine-hundredth part of a superficial inch, and contained 680 letters, every one of which could be distinctly seen by the aid of the microscope.”

“In the olden times, people’s fancies ran into queer extremes, and set their ingenuity to work in odd veins, as useless as curious. For instance, there is a cherry-stone at the Salem (Mass.) Museum which contains one dozen silver spoons. The stone, itself, is of the ordinary size, but the spoons are so small that their shape and finish can only be well distinguished by the microscope. Here is the result of immense labor, for no decidedly useful purpose; and there are thousands of other objects in the world, fashioned by ingenuity, the value of which, in a utilitarian sense, may be quite as indifferent. Dr. Oliver gives an account in his *Philosophical Transactions*, by the way, of a cherry-stone, on which were carved one hundred and twenty-four heads, so distinctly that the naked eye could distinguish those belonging to popes, and kings, by their mitres and crowns. It was bought in Prussia for \$1,500, and thence conveyed to England, where it was considered an object of so much value, that its possession was disputed, and became the object of a suit in chancery. This stone Dr. O. saw in 1687.”

“In more remote times still, an account is given of an ivory chariot, constructed by Mermecides, which was so small that a

fly could cover it with its wing; also a ship of the same material, which could be hidden with the wings of a bee! Pliny, too, tells that Homer's *Iliad*, which is fifteen thousand verses, was written in so small a space as to be contained in a nutshell; while Elia mentions an artist who wrote a distich in letters of gold, and enclosed it in the rind of a kernel of corn. But the Harren MS. mentions a greater curiosity than any of the above; it being nothing more or less than the Bible written by one Petre Bales—a chancery clerk—in so small a book that it could be enclosed within the shell of an English walnut. D'Israeli gives an account of many other similar exploits to that of Bales."

"There is a drawing of the head of Charles II., in the library of St. John's College, Oxford, wholly composed of minute-written characters, which, at a small distance, resemble the lines of an engraving. The head and the ruff are said to contain the book of Psalms, the Creed, and the Lord's Prayer. Again, in the British Museum, is a portrait of Queen Anne, not much bigger than the hand. On this drawing are a number of lines and scratches, which, it is asserted, include the entire contents of a thin folio."

Such illustrations of genius and industry are scarcely more than melancholy tokens of perverted skill and assiduity. In modern days human genius has sought out a more excellent way for its development. Once it scarcely aspired to a higher honor or office than to amuse the curious, or to cater to the gratification of the great. Now it becomes the minister of human profit and of human progress. It enters into the very business of life—gives wings to commerce—teaches how to extract the metal and the useful mineral from the earth and to

fashion them into implements and agencies of profit to man—it gives power and skill to the mechanic, and ministers essential and timely aid to the farmer. Human skill, no longer satisfied to fill the office of a mere inventor and fabricator of toys, has become the handmaid of human improvement.

It is indeed singular how many “men have literally devoted the energies of their minds to perfecting toys, which, although displaying wonderful inventive powers, yet have never conferred any benefit on mankind, nor ever been even used for any other purpose than as a piece of amusement—the childish exhibition of masculine mind, the fame of foolery, and foolery of fame.

“Thus Jerome Faba, an Italian priest, and a native of Calabria, exercised himself in a species of industry, wonderful from its difficulty. He finished a work of box-wood, which represented all the mysteries of the Passion, and which might be put in the shell of a walnut. To him was attributed a coach, the size of a grain of wheat, within which there were to be seen a man and a woman, a coachman who drove it, and horses that drew it. These were presented to Francis I. and Charles the Fifth.

“In China, the tomb of Confucius has been made in small miniature, no larger than a nut, but wonderfully composed of precious metals, and adorned with a profusion of gems; but its value consists of the labor expended on its execution. Its landscapes, dragons, angels, animals, and human figures, would require several pages of description, which would, after all, without a view of the model, prove tedious and unintelligible.

“Charles V., of Spain, had a watch which was confined in

the jewel of his ring; and a watchmaker in London presented George III. with one set in the same manner. Its size was something less than a silver two-pence, and it contained one hundred and twenty-five different parts, and weighed altogether no more than five pennyweights and seven grains.

“The tomb of Raphael, executed by an Italian named Raccavalva, is indeed a wonder. It is only twelve inches in height, and from an inch to four inches in diameter. It is adorned with various architectural ornaments, in the richest style of Gothic, and also figures of the virgin and child. The work is said to be of unrivalled merit and beauty. The model is contained in a case of wrought gold, and is itself of box-wood. The general design may be regarded as architectural, embellished with several compartments of sculpture, or of carving, consisting of various groups of figures. These display different events in the life of Christ. Some of the figures are less than a quarter of an inch in height, but, though thus minute, are all finished with the greatest precision and skill; and what renders this execution still more curious and admirable, is the delicacy and beauty with which the back and distant figures are executed.

“A Polish gentleman in New York has transcribed the Holy Bible on a surface of about the size of a mantel pier glass, presenting at first view the appearance of a beautiful temple, but on close examination every part of the elevation, each window and doorway, and every thing about the picture, is found to be distinct and regular handwriting, not one word of the Bible being omitted, no sentence transposed, and the chapters following each other in proper order. The work required two years and seven months of constant labor. When he

commenced, he was entirely ignorant of the English language."

The *Birmingham Journal* says, "An extraordinary instance of industry in an humble way has recently come under our notice. A working tailor, named George Watts, residing at West Bromwich, has just completed a piece of fancy needlework, consisting of upwards of four thousand pieces of cloth, sewed together with different colored silk. There are three hundred figures formed by pieces of cloth upon this cover; amongst which are scenes illustrative of Paradise, the Death of Abel, the Crucifixion, &c. ; animals, flowers, ships, bridges and fortresses. The whole is the work of his hand, and occupied him for five years and nine months, from two to three days in the week having been devoted to its completion. It is valued at £300."

Or we might quote a no less extraordinary instance of ingenious mechanical execution, from another English paper. "A person," says the *Bradford Observer*, "brought to our office the other day, a polished hazel nut mounted with silver, and made to open on hinges, and close with a spring. On opening this diminutive casket, there lay upon crimson silk a silver tea-kettle, with hinged lid, all of the neatest and most perfect finish. This fairy apparatus, we were informed, was made from a fourpenny piece, by a working jeweller named Burton, in the employ of Messrs. Wilson & Fairbank, of this town."

We are justly amazed at the revelations of the microscope. It displays a minuteness and delicacy of workmanship in Nature's architecture often surpassing all credence. Yet we occasionally meet with imitations in art which scarcely amaze

us less. The following, in which we find the two species of workmanship coupled together, may be taken as a specimen of each: There is a shell, which, when examined with a microscope, displays a surface dotted over with minute protuberances, regularly arranged in rows, and lying so closely together that it would require 8,000,000 of them to fill the space of a sixteenth of an inch square. It is stated that a Mr. Nobert has succeeded in ruling a set of parallel lines occupying 112,603 to the inch. By crossing such lines with another set of equal fineness, the surface of one sixteenth of an inch square would be divided into 49,000,000 of parts! These lines are not only invisible to the naked eye, but the best microscope will scarcely discern them.

We are astonished at the ingenuity which can carve hundreds of heads, or thousands of letters on the surface of a cherry-stone. Yet how remote an imitation is this of Nature's painting! Every mountain, hill, dale, river, tree, plant, flower—every object in a landscape of miles in extent, is painted at the same moment on the retina of the eye. Yea, the whole broad concave of the heavens is reflected in a single dew-drop.

We may be indulged in adding one more specimen of the curious ingenuity of man. We select that of a wonderful clock. Toward the close of the sixteenth century, Jaquet Doros, a Swiss clockmaker, carried to Ferdinand, the Catholic, king of Spain, a clock, which was the wonder of all Europe. The king paid the large sum of 500 louis (about 2,200 dollars) for it; and when it arrived, he gathered his most illustrious noblemen to look at its marvellous works. The clock represented a landscape, and when it struck the hour, a shep-

herd issued from behind some rocks, and played six different tunes upon his flute; while his dog very naturally fawned upon him; and to the king the dog was faithful as well as affectionate. Doros told him to touch the fruit in the basket by the side of the shepherd. The king laid hold of an apple, and the dog at once sprung at his hand, barking so naturally that a spaniel in the room replied with great ferocity, and showed signs of fight. At this all the court left, crying out, "Sorcery!" and there was only left the king and the minister of the navy. The king asked the shepherd what time it was? The clockmaker told him that he did not understand Spanish, but if he would ask him in French he would reply. The king then put his question in French, when the shepherd instantly replied. This was too much for the minister of the navy, and he instantly ran away. The poor clockmaker was in danger of being burnt for a sorcerer; but he explained the wonder to the grand inquisitor, who was convinced that instead of being the work of evil spirits, it was only the result of great ingenuity.

But human skill and power are not the less worthy of notice, as they are employed in the control of the more potent agencies of nature, subjecting them to the use of man. While man on the one hand, is capable of employing a skill which is almost divine, he is on the other, allowed the control of powers or physical forces not the less extraordinary. The winds obey his behests, and bear his ships over oceans wide and boisterous. His mechanical skill and the power which he is able to call to his aid, constructs vessels which can breast the most tempestuous seas. Steam, wild and untangible and obstreperous as the whirlwind, is tamed and made a docile locomotive power. Water, fire, the vivid lightning, are made

subservient messengers and obedient agents to execute the varied purposes of man. As man wills, and calls into action the powers at his command, he achieves ends which as far transcend the powers of the wisest and most powerful irrational animals, as angels excel in wisdom and power the wisest and mightiest of mortals.

The following facts will serve to give some further hints as to the capabilities of man, in relation to the *expert use of the hand*. Man is distinguished from all other animals by the singular structure of the hand, and its capabilities of serving so many useful purposes; yet its higher capabilities are but seldom developed. In type-founding, for example, when the melted metal has been poured into the moulds, the workman, by a peculiar turn of his hand, or rather jerk, causes the metal to be shaken into all the minute interstices of the mould.

The heads of certain kinds of pins are formed by a coil or two of fine wire placed at one end. This is cut off from a long coil fixed in a lathe; the workman cuts off one or two turns of the coil, guided entirely by his eye, and such is the manual dexterity displayed in the operation, that a workman will cut off 20,000 or 30,000 heads without making a single mistake as to the number of turns in each. An expert workman can fasten on from 10,000 to 15,000 of these heads in a day.

The reader will frequently have seen the papers in which pins are stuck for sale; children can paper from 30,000 to 40,000 in a day, although each pin involves a separate and distinct operation.

In stamping the grooves in the heads of needles, the operative can finish 8,000 in an hour, although he has to adjust each separate wire at every blow. In punching the eye-holes of

needles by hand, children, who are the operators, acquire such dexterity as to be able to punch one human hair and thread in with another, for the amusement of visitors.

In finally "papering" needles for sale, the females can count and paper 3,000 in an hour.

Nor is the following unworthy of notice as a specimen of a somewhat similar ingenuity: "We were shown, this morning," says the *Buffalo Commercial*, "a curious specimen of chirography; the Lord's Prayer written in a single line, one inch and three quarters in length. The entire number of words is sixty-three, and the number of letters two hundred and forty-seven. The average number of letters to an inch is one hundred and forty, and the average number of words thirty-six. It adds to the wonder of this performance in penmanship, that it was written by a gentleman of this city, in the sixty-ninth year of his age, who, as he approaches the limit of threescore years and ten, is anxious to prove that his eye is not dimmed nor the cunning of his hand abated. The aid of a lens is required to read it."

Rev. Dr. Kirk, in a letter from Manchester, England, says: "I had, in the oldest factory of the town, a striking exhibition of the value of human art and labor. A pound of cotton was pointed out as worth a pound of gold. Its cost as crude cotton may have been eight cents. And, as a curiosity of art, I was shown a pound of cotton spun into a thread that would go round our globe at the equator, and tie in a good large knot of many hundred miles in length."

CHAPTER XI.

MAN: All sorts of Men to make a World—Characteristics and Idiosyncrasies.

BUT we propose to take a more practical view of man. We shall then see him in a yet stranger variety. Man appears before us in every possible condition of life, high and low, rich and poor, wise and ignorant, depressed and afflicted, prosperous and happy; he has mental aptitudes and endowments in the most varied measure and in the strangest variety, and we find him endowed with personal characteristics and idiosyncrasies as strangely diversified. The latter classes of varieties will abundantly serve our purpose in the present chapter.

It is an old adage that "it takes all sorts of men to make a world." We shall not venture to call in question the truth of this time-honored proverb, but shall rather undertake to verify its truth as a matter of fact, and as an arrangement of a wise and beneficent Providence. No one indeed who has had the opportunity for much observation, doubts the fact that the world *is* made up of men and women of every conceivable sort, kind and caste—of every possible shade and character, temper and disposition, taste and aptitude; of every intellectual grade; and men in every imaginable condition of life. But the wisdom and the *uses* of such providential arrangements are not always so obvious.

We should find no end were we to attempt to point out all the varieties to be met in the character and condition of man—all his diversities of gifts, graces, talents, accomplishments, capabilities, aptitudes and susceptibilities. In form and shape of body; color of skin; contour and expression of countenance; in color of eyes and hair; tones of voice; in the shape of the nose, ears, chin, or any other feature of the face; as well as in the general address and gait or movements of the locomotive members; or in all his intellectual qualities, acquirements and habits, and in moral and religious characteristics, we meet no two alike. I shall, however, at present, limit myself to three classes of varieties:

1st. Some obvious distinctions of general character, which I shall place under the head of *all sorts of folks*. 2d. Intellectual varieties and their *uses* and benefits; and, 3d. Varieties in conditions and social positions of men.

The limits of this chapter will allow us to characterize only a few of the first class: the “all sorts of folks” who go to make up a world. We meet men in all the varied conditions of life—in every possible aspect of intellectual and moral culture, in every social position, and in all the distinctions made by wealth, business, office, rank. Yet this is not precisely what we mean by our motto. There are other obvious distinctions of a general character—not easily defined, and with difficulty classified, yet easily recognized, which may be ranged under the above head. We shall try to find something unto which to liken them.

And, first, there’s your *iron* man; firm, determined, harder than the granite—unless you get him *heated*. Right or wrong, you may hammer at him as long as you please; it is no use,

if he only keep cool. Yet stern, frigid, unattractive as he may appear, he is your generally and most permanently useful man. The world might as well expect to get on without the use of iron as without this hardy, industrious, weighty class of men. Only engage their tenacity and hardness on the right side and they are the best men in the world.

Then there's your men of *steel*: possessing all the intrinsically excellent qualities of hardness and tenacity and durability and general usefulness of the class just named, and over and above these, they are fitted to serve some purposes which the iron man does not. They are more *elastic*—more delicate and flexible—yet abate not an iota of the tenacity and hardness of the man of iron (which they inherit as a birth-right). The truth is, they are the same in stamina and material, only *tempered* and *refined*, and made more pliable and useful in certain departments of life's business. They take a higher polish; and, like steel, that can be worked up into a great variety of utensils, vessels, tools, weapons of defence, and be used extensively for mechanical and for ornamental purposes, where iron would not do, this class of men, fill a place and exert an influence in human enterprise and progress where the rougher virtues of the other class do not reach. Where, in human activities, *sharp-edged* tools are needed; where keener perceptions and more delicate sensibilities are required; and yet nerves not the less firm, and resolutions not the less determined, men of steel are much better than your iron men. Both possess the same general substratum or basis of character; the one is the more generally useful and indispensably necessary, and the other the most highly useful in the particular sphere to which their activities are more especially adapted.

We have, too, our *silver* men : very useful in their way, because they occupy positions which make them useful. Silver is of little intrinsic value in itself. The commercial world have given it an importance by agreeing to use it to represent property as a circulating medium. And it is extensively and conveniently used for mechanical purposes, and for ornament. But differently from iron and steel, its use might be dispensed with, and other metals used in its stead. So our *silver* men and women are convenient, and often ornamental, and, from position, often very useful, but not, like our iron and steel men, indispensable. Their value is fictitious rather than real. We should esteem them because of the value we have agreed they shall represent, and the useful purposes to which we have assented to devote them. There would be left a great chasm in society if their places were vacated.

Claiming, and sometimes seeming to belong to the same class, are your *silver-coated*, *silver-washed* and *silver-plated* men. This kind of gentry are *alloys*, with a thin coating of a better metal ; yet not wholly worthless. Though their outside *shine* is the least of their worth, yet there is there a substratum of the baser metals, of some worth. To this class belongs the first layer of those interesting personages called *apers* and pretenders. They frequently pass for more than they are worth till the silver-coating begins to wear off, and then you *see what they are*.

Next comes your *gold* men : pure, genuine men of sterling worth. They have position, wealth, influence, and they know how to use them for the real good of society. Refined and intelligent, the heart right and in the right place, they are the pure gold of the earth. Though like gold scarce, yet like gold

of high value. In all the practical purposes of life; in all philanthropical enterprises, and in whatever goes to promote the real advancement of man, they are worth their weight in gold. But there are the *would-be's* of this class, too—*gold-fringed* men, gilt men; men and women of *glitter* and *gold tinsel*, and all the sickly silken sons and daughters of fashion and pleasure; no more like the real men of gold than the slightest possible *gilding* is like a lump of gold.

Then there are the men of *tin*: thin-lipped, sharp-nosed—neither very close-mouthed, nor safe-mouthed—a little tart, and not overburdened with the milk of human kindness or troubled with common sense; and withal a little pretentious, if not contentious—and, like tin when well scoured, making pretensions to be of the *silver gentry*.

Again, we meet a class that we can only liken to *lead*: heavy, dull—body, brains, arms and legs made about of the same material—mind, heart, pluck, made of the same dead, dull, dark, crocky, muddy substance—no more life or elasticity than a dead lump of lead.

As remotely akin to these are men of *stone*: rough, cold-hearted, hard-faced—and like stones, you tumble over in the street, or find troublesome in the field, you wish there were less of them; yet when you have succeeded in quarrying and cutting and polishing, they turn out sometimes useful and ornamental blocks.

In complete contrast to the two last, we have our *India Rubber* men: all elasticity. You may turn them, twist them, bend them any way you please—mould them into any shape—put them to any use—make *any* thing of them, or nothing as you will—make a *foot-ball* of them, which you may kick as

you choose—make a ball that will roll as well one way as another—all side and no side—a ball that you throw or toss, or make bound up or down. They are men of any opinion or principle, or of no opinion or principle; and as little scrupulous of any practice; as pliable as their very elastic prototype. And in nothing does the resemblance appear more striking than in the *elasticity of their consciences*. They can stretch their conscience, before it will give any compunctious signs of violence, as far as you can draw out a piece of India Rubber. They are all things in general and nothing in particular.

In contrast again with the last are your *men of glass*: open, frank, transparent sort of men—easy, good-natured bodies, without craft or disguise, whose thoughts lie outside—you can see right through them. They are quite at odds with the crafty and designing, and can present but a feeble resistance to the pressure of life's evils, and of course are but poorly fitted to meet the rough and tumble of the world. One good crash of adversity is enough to break them into a thousand pieces. They are very good sort of men, and fill many useful places, yet they are made rather for the sunshine of prosperity than for the hailstorm of adversity.

Other men that it takes to make a world, we may denominate *brass men* and *pewter men*. These are both compounds. Not exactly one thing or the other, but some of both. The first class, like brass its prototype, has some claims to be considered a finer metal. But people of this stamp generally put forward their claims with so much effrontery, if not arrogance, that their claims are resisted or grudgingly allowed. This class is distinguished for little else than their self-conceit and

impudence. They have too much *brass*. The *pewter* men are half *lead* and half *tin*, no fixed character : sometimes as dead as lead, and under other circumstances as biting and rasping as the rough edge of a sheet of tin.

Then comes, by way of contrast, your *wish-a-washy*, *linsey-woolsey*, *tow.string* men, all belonging to the same genus—half vegetable, half animal, yet neither so well developed that you are quite positive where to classify them. The head of each betrays a decided affinity to a vegetate nature, especially to that of the squash species ; while in other parts the animal decidedly predominates. This species is not generally *vicious*, or *rabid*, or *mischievous*, for the very good reason that they are not capable of putting forth any such positive symptoms of vitality.

Then we have men of *mercury*—quick, mercurial. These are your *quicksilvers*—*shiny*, *showy*—generally good metal—next to gold—though not quite so tangible—a little too slippery and rather fiery. These *quicksilvers* quite as often figure in female attire and rightfully belong to the sex. Though sometimes a little feared, and their currency occasionally questioned, yet they may be depended on as the *genuine coin*. Care must be taken, however, to distinguish this class from the *gunpowder*, and other *explosive* classes. The latter are never safe to bring about your domestic hearths, especially if you have a little too much *fire* there of your own.

Then, again, for variety's sake, we have our *gas* men, or *gaseous* men, who are inflated like an air balloon ; the one with gas, the other with vanity. They occupy considerable space during the inflation ; but cut the film that holds the gas and they vanish into desert air. These men's heads are

as hollow as their hearts are corrupt. Under the same genus we may class men of *froth* and *effervescence*, and all empty *wind* men.

Some men are rough, uncouth, growling, grumbling like the bear; others are *lion-like* or *tiger-like*, or *wolfish*, or *fox-like*. Some are timid as the deer, or gentle as the lamb, or possessed of the strength, beauty and alertness of the leopard. Others are morose and surly like mastiff, or arrogant and overbearing like the bull-dog, or snarling and snapping like the cur, forever barking, but never having the courage to bite.

So much in harmony with our present mode of illustration is the following paragraphs taken from Dickens' *Household Words* that I hesitate not to appropriate them. It would seem not improbable that it takes as many sorts of *women* to make a world as it does men. If "female faces" exhibit so singular, and sometimes so grotesque a variety, we might expect to meet as prolific display of variety in other features and female peculiarities. "I know a woman," says Dickens, in *Household Words*, "who might have been the ancestress of all the rabbits in the hutches of England. A soft, downy-looking, fair-faced woman, with long hair, lopping-like ears and an innocent face of mingled timidity and surprise. She is a sweet-tempered thing, always eating or sleeping, who breathes hard when she goes up stairs, and who has as few brains in working order as a human being can get on with. She is just such a human rabbit, and nothing more—and she looks like one. We all know the setter-woman—the best of the types—graceful, animated, well-formed, intelligent, with large eyes and wavy hair, who walks with a firm tread, but a light one, and who can turn her hand to any thing. The true setter-woman is always

married; she is the real woman of the world. Then there is the Blenheim spaniel, who covers up her face in her ringlets, and holds down her head when she talks, and she is shy and timid. And there is the greyhound-woman, with lantern jaws and braided hair, and her large knuckles generally rather distorted. There is the cat-woman; too elegant, stealthy, clever, caressing, who walks without noise, and is great in the way of endearment. No limbs are so supple as hers, no backbone so wonderfully pliant, no voice so sweet, no manner so endearing. She extracts your secrets from you before you know that you have spoken, and half an hour's conversation with that graceful, purring woman, has revealed to her every most dangerous fact it has been your life's study to hide. The cat-woman is a dangerous woman. She has claws hidden in that velvet paw, and she can draw blood when she unsheathes them. Then there is a cow-faced woman, generally of phlegmatic disposition, given to pious books and teetotalism. And there is the lurcher woman, the strong-visaged, strong-minded female, who wears rough coats, with men's pockets and large bone buttons, and whose bonnet flings a spiteful defiance at both beauty and fashion.

“I have never seen a true lion-headed woman, excepting in that black Egyptian figure sitting with her hands on her knees, and grinning grimly on the museum world, as Bubastis the lion-headed goddess of the Nile.”

There remains one other class of men which ought not to be passed unnoticed. It is a sort of hybrid race, mongrel, heterogeneous, anomalous, which we are at a loss where to classify. We refer to your *exquisites*, your *fancy gentlemen*, *gentlemen loafers*, and their yet *more exquisite counterparts* of the other

sex. These notables are not simple substances, but compounds—compositions—cosmetics of exquisite mixture—bitter, sweet, oily, odoriferous—rare and exquisite specimens of humanity. While we cannot form them into a *distinct* class, we cannot arrange them in any one class already named. They belong rightfully to at least three of the above specified classes. They belonged to the *silver-coats*—or are of the *gold-fringed* caste—gilt men—the gilding often as thin as the most delicate foil, and covering a mass of the basest sort of metal. Again, these exquisites show strong affinities to the class we denominated *gaseous*. Just perforate these bags of wind and discharge their *gas*, and they would collapse, and not *much* would be left of them. And another portion of this class bear quite as near an affinity to your *wish-a-washy*, dough-brained gentry.

But we need carry our comparisons no further. We see that if it were the design of Providence to make up the world with all conceivable specimens of humanity, it has doubtless been done. And if it were the design that the great family of man should exist in such an endless variety of character as to develop every passion of the human heart, good or bad; to exemplify every grace and virtue of life; to present every phase of human character; to illustrate every faculty of the mind; to do every duty and to meet every want of man; and to fill every supposable station in this present life, we see how, in the present diversified character of man, it has been done.

If, then, life is a great stage on which man is to *act himself out*, and to develop all there is *in* him and *of* him—to form character and to develop character; and all this in reference to a final accountability, and a future state of yet higher development, we need not wonder that human nature should be

allowed its developments in every imaginable variety of individual character. It is not, therefore, an *accident* that all sorts of people *do* make up a world ; but it is an essential part of the plan of the great and wise Architect, that human character and human conduct, good and bad, should be brought out and illustrated in every possible trait and feature.

Though we have not attempted to do more than to present, as specimens, a few of the endlessly varied characteristics of man, we have, doubtless, left the impression, at least, that, in the rearing of the great and fair fabric of humanity, there are worked in a great many very queer, odd, shapeless and hopeless blocks : and it is more than we can explain how such varied, confused and heterogeneous materials are fitted and shaped, compacted and cemented so as to make one great, beautiful and well-ordered structure : all fitted and formed one to another, and each to its place—some huge, rough, unwieldy blocks lie concealed in the foundation, main supports of the whole, yet unseen and unadmired ; others, cut and polished, adorn the comely front, admired of all. Some fill up the chinks or form the back walls ; others are carved into ornaments and serve both to strengthen and beautify the whole. Each fills its destined place, and each is needful to the completeness of the great whole.

CHAPTER XII.

VARIETIES INTELLECTUAL : Many Men of many Minds, or all sorts of Minds make a World.

SIMILAR ends are answered in the general economy of the great human family by the singular *intellectual varieties* which exist among men. There is originally, no doubt, every imaginable variety in the intellects of men. Educate any two minds precisely the same—submit them to the same discipline, and store them equally with knowledge, and each will show its own peculiar idiosyncrasy. The reasonings of the two from the same facts, and their conclusions from the same premises, would, in no two cases, be the same. There is as great a diversity of talents, taste and genius, as there are individual minds.

It would be quite impossible to enumerate the various capacities and capabilities of the human mind, even in its *original* state, before we come to the yet more remarkable diversities which have been produced by education, habit and society. To describe the latter would be to enumerate all the endlessly varied attributes and proclivities of all the minds of the entire race—all their various capacities, dispositions and capabilities.

While all human minds are essentially alike, each presents its specific varieties, which we may call its taste, talents or

proclivities. One has a talent for the acquisition and correct use of *language*. An inaccuracy in grammar would disturb such a one more than a deficiency of sense. Another has a *logical* mind—is argumentative, nice and accurate in its definitions and distinctions, and given to reasoning, and takes nothing for granted. One mind delights in *research*—is always digging—searching after things abstruse or hidden—tracing all things back to their origin, and never satisfied even with the fairest fabric unless it can see the lowest, rudest foundation stone. Another takes in things as it were by absorption—gathers facts as by intuition, and jumps at conclusions as if premises were of nothing worth. One takes the sober, serious, matter-of-fact view of things, and contemplates them in reference to their utility: another, at first view, seizes intuitively only on the *ludicrous* aspects of a subject, and contemplates it at first only in its fitness to administer to his *amusement*, or immediate gratification; only on second thought do its utilities and more substantial qualities appear.

Again, we meet with the huge, solid, cubic, *mathematical* mind, where all must be demonstrated by *figures*. Squares, cubes, triangles, right lines and equations, are as essential to the existence and health of such a mind as brick and mortar, wood and stone, are to the master builder. With him nothing is right, either in reason or in fact, if it be not mathematically right. Contrasted with this is the *poetic* mind, and all those intellectual tribes that write, read and live in the great world of fiction and romance. To the one reason and reality are every thing. To the other, the world and all that is therein, is *ideal*. They live in a world that has no existence; they move about among beings that are but the creatures of their own fancy.

They laugh at their own spectres; weep over sorrows that never were; rejoice and sympathise with friends and hate enemies which belong to a world that nowhere is.

Some minds are so constructed that they first see, and longest contemplate only the dark side of an object, or of life: others seize, as by intuition, on the bright features; laugh when and where they can, and leave the dark features to lower and brew the storm, till some propitious sun arise and chase away the darkness, and all become light together. Some minds are naturally *aspiring*, grasping after great things, and possessed of an immense scope of comprehension. They aspire to a knowledge of all sciences. They grasp to know all in this world, and fain would compass in their knowledge all things in all the worlds that sparkle in the vast universe. Other minds are as naturally drivelling and grovelling. Low, vulgar things and thoughts are the congenial occupants of such a soil.

Some minds, again, are naturally *philosophical*. They are forever searching into the properties of bodies, and the causes of events, and the reasons of things. They take nothing on trust, and scarcely know whether *any* thing is what it *appears* to be. They must know its *nature*, not only its nature as a compound, but they are not content till they have traced each component part down to its infinitesimal atoms, or primordial particles, a million of which are said not to be larger than a grain of sand. Others never feel any promptings to go beyond the surface of things, and never care to know whether an effect *has* a cause, or a compound any component parts.

In contrast with this, *taste*, graceful inmate of the human breast, is beautifully prolific of illustrations to our purpose.

Variety in taste itself is proverbial. Love of variety is one of the strongest as well as the most common elements of the human mind. The fact is too obvious to require comment—the field too broad for illustration. Yet we may allude to the singular productiveness of this variety-loving taste. The strong innate passion is constantly and infinitely embodying itself, in some way, in nature; thus multiplying variety beyond all conception. It originates variety in food, dress, pursuits, enjoyments. How it variegates the fabrics which cover and adorn our persons—which load our tables and minister to our ten thousand gratifications.

As a singular illustration of the numberless instances which may occur to the curious mind, I may allude to one where we should scarcely expect taste, with her most delicate tread, to intrude. It is taste in the *color of mourning dress*. In Western Europe and America, *black* only accords with the sombre, lugubrious feeling of the lacerated heart. The Chinese, the Japanese, the Siamese, select *white* for the same purpose; the Turks, *blue* and *violet*; the Ethiopians, *grey*; the Peruvians, *mouse color*; the Persians, *brown*; the Egyptians, *yellow*.

Other varieties of mental structure and furniture appear in connection with *memory, imagination, self-reliance*, trust and suspicion, belief and scepticism. Memory is a curious commodity, and perhaps no faculty of the mind presents more interesting diversities in its exercise. Not only is there every variety as to strength and retentiveness of memory, from the memory that almost literally retains every thing that was ever committed to it, to the memory that almost as literally retains nothing, but there is a variety in *quality* quite striking. Some have

a remarkable memory for names ; others for figures, dates and dry statistics. These latter may forget their own children's names, yet give you correctly the year and day on which Tom Thumb was born, or the year and day on which their grandfather sold the old horse : while others can scarcely remember an isolated fact at all, yet can call up almost any thing by association.

Some men are naturally *self-reliant*, expecting aid only through their own resources and exertions. They are the bold, the industrious, enterprising, and the finally successful. Others are as naturally timid, distrustful of self, and dependent on others. In like manner, one class is trustful, confiding, easy to believe—perhaps credulous. Such are neither capricious nor suspicious. Another has a strange proclivity to question, cavil, suspect, and to slide—if not to plunge—into scepticism and final infidelity.

Or we might refer to *aptitudes* of mind and diversities of *genius*, and we should have illustrations in point. Here we meet a *mechanical genius*—there a talent for *business*, or an aptitude to *teach*—or a “a musical talent” and taste. Then there are minds that are always on the wing of *adventure*, never satisfied to be circumscribed within the boundaries of the known, but forever prying and plunging into the unknown—lovers of travel, discovery and invention—seekers for, or inventors of some new thing.

We have minds that lead, and minds that must be led ; minds that creep and minds that soar ; minds that plunge into the dark and carry their own light with them ; and minds that can flourish only in the light of others : all sorts of minds ; and none so low, or small that is not filling some nook or corner, or chink or crevice in the great world of thought and

activity; and none so high and comprehensive that it does not find a field of action fitted to its scope and magnitude, and which is not subserving the great ends of humanity.

We would not here omit a reference at least to one other class of mental varieties. It is the "universal genius," or the man of such a versatility of talent, and accumulation of acquisitions, as to give a sort of universality to his genius. Such a mind is a rare variety in itself, and especially because it is a beautiful blending into one of a great number of other varieties.

We have spoken chiefly of *original* diversities of mind. If we here bring into the account, *culture*, *habit*, the *state* of *society* and the influence on mind of *human progress*, we shall find the number of diversities multiplied almost indefinitely—diversities of knowledge, of capacity, and of every conceivable development of mental resources. But we trench our next thought, viz :

The *use* of such variety in the world of mind—the practical benefits which accrue to human affairs from such a singular arrangement.

By means of the present diversified character of the human intellect every science is prosecuted, and every department of knowledge cultivated; every calling, trade or profession is brought into being, and its duties discharged; and every station in life filled. The resources of the earth are by this means developed, and every want of man met. The sciences are the legitimate fruits of these different proclivities of the human mind; and the arts are but the natural offspring of the sciences.

Theology, music, logic, rhetoric, furnish prolific illustrations

to our purpose. We call to mind such men as Whitefield, Edwards, Handel, and Sir Isaac Newton. But for such master-minds as Edwards and Chalmers, who would have so ably unfolded and defended the doctrines of natural and revealed religion, and shown the rock on which they stand? And while Edwards, by the exercise of a masterly intellect, was digging deep, and laying the foundations of modern theological science, Whitefield, and others mighty to speak and act, brought the living, burning truth home to the heart, and fixed it on the conscience. We may not say, who do the church the greater service, her scholars, her orators, or her writers. She can dispense with neither, and yet prosper. The one defend her from the attacks of the enemy, and rear her bulwarks high and strong. Others record her triumphs, and stereotype on the enduring page every fresh memorial of her covenant God. Others, in all the tenderness of love, and in all the pathos of sacred eloquence, urge her claims on the attention of dying men; or in the harsh thunders of Sinai, denounce the curse on the unbelieving.

Or we discover the same diversity of gifts by a reference to Whitefield and Handel. The one was in eloquence what the other was in sacred song; the one appealing, through the understanding to the heart and conscience, calling on men everywhere to repent and turn to God; the other drawing out and bearing upward, as a sweet incense before the altar of the upper sanctuary, the devout aspirations of the new-born soul. There was an "air, a soul, a *movement* in the oratory of Whitefield," which created indescribable emotions in his vast assemblies. Handel equally electrified the multitudes in Westminster Abbey. His power of song, while he performed the Messiah,

raised them to their feet. And yet greater wonders did Whitefield, when preaching the Messiah to the scores of thousands in Moorfields.

And here it will not be out of place to add, that Whitefield in another respect, furnishes a remarkable illustration of our theme. I refer now to a singular variety in the mode of presenting and enforcing the same Divine truth. Whitefield is said to have preached eighteen thousand sermons. "These," says his biographer, "were but so many variations on two key-notes: man guilty, and may obtain forgiveness; and man immortal, and must ripen here for endless weal or woe hereafter." Or, to reduce the whole to two words, it is SIN and SALVATION—guilt and condemnation under the law, and pardon through Christ, and heaven through his righteousness.

And what does not science and general literature owe to the same diversity of intellectual gifts and endowments. A Newton is propelled on, as by an irrepressible proclivity, to devote his days and nights for a long course of years to the higher branches of mathematics, and then to apply his vast attainments to his wonderful astronomical investigations and discoveries. Erenburgh, by a proclivity not less to be admired, plies his microscope, and lays open to view a universe of animalcula, not the less the wonder of the world. Franklin tames the lightning and brings it harmless to the ground; while Morse, inspired with the true spirit of modern science—the spirit to make all science practical and the real handmaid of art and human progress—made Franklin's tamed lightning the winged messenger to carry with lightning-speed intelligence around the world.

And while one class of men is thus impelled, as by a divine

impulse, to labor indefatigably and unceasingly to lay open to the gaze of man the boundless expanse of the heavens; and another, to reveal the wonders of the microscopic universe; and others, most enthusiastically to devote their untiring energies to the useful handicrafts of life,—a Milton, a Pollok, a Byron, create worlds of their own, and invite us to traverse lands which exist only in the airy dreams of fancy, and to view landscapes, and to visit great and gorgeous cities, and to converse with men who only move and act and speak in the imagination of the poet.

Variety, then, is something more than the “spice of life.” It is the very gist and essence of all practical life. But for the diversities of gifts, genius and talent, all but one of all the professions, trades, callings and pursuits of life would be at once annihilated. We might in such a case have philosophers, but no poets; historians without mathematicians or more than one kind of scholars. If all had a genius or talent for the same mechanical craft, or for the same sort of business, or the same profession; if all had a talent or taste for commerce, or agriculture, or manufacturing, where would be the scope for their enterprise—where, a market for their products? They must themselves be their only customers. Could we succeed, as some would wish, in bringing all minds to the same level and in shaping them in the same mould, so that all men should be of the *same mind*, all think alike, all have the same opinions, aptitudes and tastes, and the same degree of cultivation and improvement, we should, instead of a good, have produced an evil. We should at once destroy the whole web of human society, arrest all human progress, and bring all human affairs to a dead stand. It would be impossible then that man

should advance beyond the rudest state of barbarism. Suppose every man's genius should lead him to pursue the business of the agriculturalist; indispensable as this calling is, what then would be the condition of the world? Without the designing mind and the skillful execution of the mechanic and the artist, what sort of houses (if houses they would be) should we live in? What sort of furniture would adorn our houses and subserve our comfort and convenience? What sort of utensils should we work with, and what sort of machinery would minister to the supply of our wants? Who would build our ships, construct our railways, invent our telegraphs, smelt our iron, and mould, shape and hammer it into every conceivable form of utility? Where would be commerce, the great exchange trade of the world; and what would be the navigation of the world, beyond that of paddling a log canoe?

Indeed, were all men possessed of the same powers and aptitudes of mind, all the present beautiful diversity of character and pursuit which constitutes the main spring of society and civilization, would be almost entirely wanting. But happily there is, corresponding to the endless variety of services to be performed and avocations to be pursued, a like diversity in the talents and tastes of men, developing a most beautiful adaptation "between the objects of human knowledge and the powers of human knowledge." And we cannot here too profoundly admire, as a beneficent, providential arrangement, the *strong predilections* which men show for their own callings or pursuits; and their propensities to *magnify*, every man his own "office." Such predilections and propensities may often savor, disagreeably, of personal vanity; but their existence and exercise are most salutary and essential to the well-being

of society. Without this partiality of every man for his own profession or calling, no class of men would excel in any particular department of labor; most departments would not be pursued at all—the idea of a division of labor would soon be lost, and society would cease to advance and soon return to its normal state.

But by the singular distribution of her gifts among her children, and by men's equally singular proclivities, nature has provided for the highest welfare of man, by making them mutually dependent and mutually helpful.

This singular versatility of talent and genius, indeed, bears on it the stamp of divinity. So beautifully and aptly are all things provided and adjusted to meet all the varied wants of man, that we are in danger of overlooking the Divine wisdom in such arrangements—how one man is endowed with an extraordinary inventive genius, another with as extraordinary capabilities of execution, and a third with a spirit of daring enterprise. Of the two former we have a striking and well-known illustration in the case of a famous artificer mentioned in the chronicles of the house of Israel, during their wanderings in the Desert of Arabia.* It has been a matter of much speculation how such a structure as the Tabernacle, and such furniture and ornaments, could have been fabricated under such circumstances. There was displayed in the structure itself, and in the utensils to be used in it, and the vestments and ornaments, a perfection of artistic skill which quite astonishes us.

Recurring to the account given of that extraordinary work,

* Bezaleel, the son of Uri, the son of Hur.—Ex. 31 : 2-6.

it will be seen at once that almost every ingenious art was brought into requisition—carving in wood and stone—the working of every sort of metal—the compounding of metals and forming alloys and amalgams—the cutting and setting of precious stones—gilding, washing, plating—“overlying with gold.” Then there was the construction of the most delicate and elegant fabrics, as silks and fine linen, for vestments, curtains, veils, fringes, loops, tassels; and the preparation of skins for useful and ornamental purposes; and the art of dyeing the most beautiful and permanent colors—blue, purple, scarlet. Indeed, every curious art seems to have found a place for its display in this (in that age and place) wonderful structure and its more wonderful appurtenances.

But whence such skill? Whence that “spirit in man” to devise and execute such workmanship at the particular time when it was needed? It was the “inspiration of the Almighty.” The mind of the individual referred to was endowed with the taste and talent for just such works; and then his mind was stirred up to devise and execute them, and to instruct others in the same arts.

The account we have of this matter is in these words: “See, the Lord hath called by name Bezaleel, the son of Uri, the son of Hur, of the tribe of Judah; and he hath filled him with the spirit of God in wisdom, in understanding and in knowledge, and in all manner of workmanship: and to devise curious works, to work in gold, and in silver, and in brass, and in the cutting of stones, to set them, and in carving of wood, to make any manner of cunning work. And he hath put it into his heart that he may teach (others). Them hath he filled with wisdom of heart, to work all manner of work, of the engraver,

and of the cunning workman, and of the embroiderer, in blue, and in purple, and in scarlet, and in fine linen, and of the weaver, even of them that do any work, and of those that devise cunning work.”

I do not suppose that Bezaleel's mechanical inspiration, if the term be allowed, and his call to his work differed essentially in kind, though it might in degree, from the various tastes and endowments which, in every age fit certain classes of men to pursue, and which become the impelling causes to their pursuing such handicrafts, as the wants of the respective ages in which they live, require. The instance serves to illustrate the Divine control over all the springs of human action, and such a wise direction of all the varied activities of man as to bring about all the multifarious purposes of the Divine wisdom and benevolence.

We do not wish that every man should *think* and *act* as we do, and *be* as we are. We have an interest that he should *differ* from us. We would not have all to be of one craft, or calling or occupation; or all possessed of the like ingenuity and skill. We wish not only the privilege to do our own thinking in our own way, but we wish to think for *others*, and to have others think for us. We wish to carry on an exchange trade in thought; and if all were producing the *same* intellectual commodities as ourselves, we should find but a meagre market for our productions. And as we wish in return to avail ourselves of the intellectual productions of others, it would be no trifling calamity to find that others had none to dispose of, except such as our own storehouse is crammed with. All literary and scientific barter would be at an end, as we should have no

occasion to buy, and could not sell: and of the "making of books there would finally be an end."

And if our mechanical skill or aptitude for any particular business or station were only that of our neighbor, and his of his neighbor, the world over, we should again be in a plight quite as hopeless. Should we invent, or produce some rare or useful article, we want a world about us, who, not possessed of the inventive skill and able to produce the same, will patronize us and be profited by our invention, and in their turn, invent or produce something which we need. It is the very life of the world that one is what another is not, and can do what another cannot do.

"There is a strong disposition in men of opposite minds to despise each other. A grave man cannot conceive what is the use of wit in society; a person who takes a strong common-sense view of the subject, is for pushing out by the head and shoulders an ingenious theorist, who catches at the slightest and faintest analogies; and another man, who scents the ridiculous from afar, will hold no commerce with him who tests exquisitely the fine feeling of the heart, and is alive to nothing else; whereas talent is talent, and mind is mind, in all its branches! Wit gives to life one of its best flavors; common sense leads to immediate action, and gives society its daily motion; large and comprehensive views cause its annual rotation; ridicule chastises folly and impudence, and keeps men in their proper sphere; subtilty seizes hold of the fine threads of truth; analogy darts away in the most sublime discoveries; feeling paints all the exquisite passions of man's soul, and rewards him, by a thousand inward visitations, for the sorrows that come from without. God made it all! It is all good! We must despise no sort of talent; they all have their separate

duties and uses—all the happiness of man for their object ; they all improve, exalt and gladden life.”

We shall here be excused for transcribing from the *Philadelphia Ledger*, the following very apposite remarks, on the “value of scientific men.” And in like manner we might speak of other classes of men.

“To many, the scientific men of a nation seem but drones, without practical utility, trying all sorts of impracticable experiments in their laboratories, mixing acids and alkalies, and talking learnedly on the subjects far removed from practical life, but *doing* nothing for mankind. Solomon tells us, too, of a poor wise man who delivered a city, yet no man remembered him.

“If there is one sign of these times more hopeful than another, it is that scientific men are, as a class, more honored than at any former period of the world’s history. James Watt, who discovered the steam engine, has enabled England, with a population of 25,000,000, to do work that as many hundred millions of men could not have done without. It is thus that science has created the fabulous wealth of that monarchy. She is doing the same at this moment for our own country. Who can tell the value to this nation of the life of such a man as Fulton, with his steamboats, or even above him, our own glorious old Franklin, who wrested the lightning from heaven, and the sword from the hands of tyrants? Doubtless many a man, who boasted of his own great practical business powers, smiled, if in passing he marked him, with kite and key, demonstrating, in this, our own city, the identity of lightning and electricity, and laying the foundation thus for those electrical telegraphs now ready to convey tidings from continent

to continent round the globe in an instant. Who can calculate the value of such a man as Professor Morse to the country and to the world?

“The scientific man, then, is of value to the community just in proportion to the amount of labor he saves to other men while producing similar results. Liebig has increased the production of all the farms in England, by applying the principles of analytic chemistry to soils, manures and agricultural results generally—he has been worth millions of bushels of wheat already to Europe. The scientific medical men of that country have lengthened the average of life several years. The same is true of mental science. He who has a better knowledge of those laws which enable a man at once to distinguish truth from error, can write a book which will save thousands from some popular mistake, or from years of laborious thought, enabling men to form just conclusions without delay. His empire is over the mind of man.”

Without *inventive* genius and the love of adventure, and research, and discovery, who would enlarge the boundaries of knowledge; who search out the dormant properties of substances, and bring to light and introduce to the notice of man, the long-hidden resources of nature, and make them to subserve the purposes of his comfort or improvement? As in the progress of the world human affairs advance towards their grand climacteric, and the wants of the race are vastly multiplied, the diversified mental resources of man are found, at every step of this progress, to be quite adequate to the demand. Not a new article of food or clothing is needed by man; not a new product; not a new element of power is wanted, but some one is found to have the sagacity to discover it, or the in-

genuity to produce it. By means of this extraordinary versatility of talent, every department of human improvement is advanced, and all the wants of man promptly met. Some navigate unknown seas and discover lands before unknown; others ransack nature for new substances, or form for use new compounds from substances already known.

But for these "diversities of gifts" who would write our books, edit our papers and journals; who print, bind, and circulate them? Who would be our statesmen; who search into the intricacies of law and be able to dispense justice and defend human rights; who study the healing art, investigate the laws of health and life, acquaint themselves with the nature and history of diseases, and search out remedies? And who would delve into the mine of sacred truth and search out its rich stores, and, in season and out of season, impart to every one as he have need? Who would unfold the beauties and excellences of the Word, elucidate its doctrines, enforce its precepts, and administer its consolations to them that mourn, impart knowledge to the ignorant, and proclaim pardon to the guilty?

And but for the peculiar mental proclivities which create the taste and furnish the needed qualifications, who would occupy the eminently useful and responsible position of teachers of our youth? Many a man may build a ship, or navigate a boisterous ocean, or write a learned treatise on philosophy or mathematics, who cannot "teach the young idea how to shoot." This is, like every other department in the great business of life, a profession or calling that requires its peculiar aptitudes and qualifications.

But our idea needs no further illustration. Yet we may

be excused if we pause a short moment to draw an *inference*—viz. : that it is a matter of superlative importance that every man should be able to *find his place*, and then in his own appropriate, fitting place, *do his duty*. Every man *has* a place, a business, a calling, for which he is better fitted than for any other ; and his own success and comfort, as well as the good of the whole, depends on his keeping his place and doing his duty there.

And we might deduce another inference, which is, that the position or calling of an individual is of itself a matter of vastly less consequence than the *manner* in which the duties of the position are performed. All the callings and positions of life are but links in the same great chain. We may not, therefore, make comparisons of their relative or real importance. All are important to the integrity of the chain, and to the securing of the great ends.

“From Nature’s chain whatever link you strike,
Tenth, or ten-thousandth, breaks the chain alike.”

The only fortunate position, the position to be coveted, is that in which *the right man finds the right place*. And the only honorable position is that in which the right man *in his right place*, patiently, perseveringly and honestly discharges the *duties* of his place. But we tread on the confines of our next topic.

CHAPTER XIII.

Man and his Varieties, in his endlessly-diversified conditions of life.

AGAIN, we may say it takes all *grades, castes* and *conditions* of men to make a world. We need take but a cursory glance over the face of society to see that there is very great *inequalities* in their *temporal condition*; and not only *inequalities* in condition, but diversities the strangest in respect to social, civil, domestic and religious habits and usages. The diversified character of the earth's surface, its varied climates, soils, productions, do but correspond to an equally diversified character and condition of the nations and tribes which are nourished by them. Never is human sagacity more completely non-plussed than in its attempts to account, on any natural principles, for the singularly-diversified conditions of human life. You may select, for an example, a score of young men, and suppose them to start out in life with equal fortune, talents, opportunities and prospects of success, and their future life will scarcely admit of comparison—only of contrast. The path of life, of each from the other, will be a divergence almost from the outset. With the same facilities of success no two will succeed alike. Under the very circumstances in which one prospers, another will meet disaster and downfall. It is not in man that walketh to direct his steps. The lot is cast into the lap, but the directing of it is of the Lord.

Hence we need not be surprised at the singular disparities among men. There will the high and the low, the rich and poor, the wise and the ignorant, the industrious and thriving, the idle and beggarly. There are perhaps no two of the whole human family whose temporal condition is precisely the same. Some have more than heart can wish, and know not when sorrow cometh; others are poor and cast down and afflicted, strangers to light and joy. The singular disparity in the conditions of men has been a subject of profound perplexity, especially to those towards whom Providence has seemed to be less propitious.

The causes of these disparities may be providential, or such as we cannot control, and for which we are not responsible; or they may be personal, and matters of praise or dispraise on our part. Yet whichever it may be, a little reflection will show that all these inequalities and varieties of man's condition here are permitted and wisely directed, and made to contribute to the greatest good of the whole.

The great Heavenly Parent, who in all his arrangements is working out a great system, and who forms and executes all his designs in reference to the great end to be attained, is doubtless the Author of these endlessly-diversified conditions of man. No other system would fully develop every trait of human character, every capability, capacity and susceptibility, both physical, mental and moral; and no other plan would have secured the great ends of the present economy of things: that is, provided for every necessity of man, and secured the discharge of every conceivable duty, and the doing of every needful work, and the filling of every station on the broad field of life, and the pursuit of every science and every department

of knowledge, which tends to the consummation of the one great plan. But for these varied conditions of man, many a useful pursuit and necessary calling would be left unprovided for.

“Order is Heaven’s first law; and this confest,
Some are, and must be, greater than the rest,
More rich, more wise; but who infers from hence
That such are happier, shocks all common sense.”

Our idea may, at least imperfectly, be illustrated thus: the proprietor of some great business concern—say a great manufacturing establishment—is engaged to realize from it every legitimate advantage. In order to secure the end, work of every conceivable kind is to be done; and, of course, men of a correspondingly varied skill and capacity must be employed, from the intelligent superintendent or head agent, the man of address, position and influence, to the scullion and sweeper. Men of all sorts of skill and ingenuity are brought in requisition,—from him who can invent the most ingenious machinery and form the most delicate portions of it, to him who can only hammer out a plain piece of iron, or lay a rude stone in the foundation of the building. How many cunning artificers in wood, and iron, and stone, and brass, and copper, and almost every metal, before the buildings and their machinery are ready for the work of the manufacturer; and then what varied skill and talent, and power of muscle, each characterizing a respective grade and position in life, are needful to the carrying out of the proprietor’s main and final end. How much business talent and financiering; how much mathematical accuracy and philosophical research in reference to the materials, the structure and the fitting up of the machinery; and what different

degrees of intelligence and what variety of character are engaged in the daily operation of this machinery, and in all the details of planning the fabrics to be made, directing every individual workman and marketing the products. It is a miniature world, and it gives employment to a few thousand men, scarcely two of whom holds precisely the same position, or are fitted to do precisely the same work.

The world over which our great Proprietor presides is a great and complicated piece of machinery, and the end to be gained is of infinite worth. The carrying out of its details involves the necessity of instruments and agents of every possible grade, from him who sits on the pinnacle of political power, as ruler or king, or him who rules in the world of letters or of science, or of financial and mechanical skill, to the delver in the mine, or the diver in the ocean, or the drainer of the swamp, or the sweeper of the chimney. An infinite variety of positions is to be filled, each important, each essential to the completeness of the great plan.

“All are but parts of one stupendous whole.”

The harmony, then, of this great whole, the good to be accomplished by its working; the good to the individual and the good to the entire race as a whole, depends not on the rivalries and strifes and struggles of men to get out of the position for which they are fitted and evidently destined, but on the fact that each man should faithfully and contentedly do his duty there.

“What if the foot ordained the dust to tread,
Or hand to toil, aspired to be the head?”

What if the head, the eye, the ear repined
To serve mere engines to the ruling mind.
Just as absurd for any part to claim
To be another in this general frame."

We do not mean that a man may not aspire to better his condition, or change his position for one for which he is better fitted, and where his power of body and of mind may be more available in the great arena of life. The very aspirations which may and often ought to fill the soul of the young man to make more of himself than he is at present, may be taken as the intimations of Providence that he is not now occupying the position for which he is the best fitted, where he may use his capabilities to the best advantage.

I have intimated that the causes and the reasons of the singularly varied conditions of men are to be found in the disposings of a wise Providence. Yet there are proximate causes of these conditions which should not be overlooked. Man is, in an important sense, the framer of his own fortune, and if he is *out of position*, he generally has himself to thank for it; or, if he is successful, he is, under God, the author of his good fortune. The truth is, men, by their different degrees of industry, enterprise and cultivation of mind, and by the application of the various resources given them, and the improvement of opportunities, indefinitely diversify their own conditions, and then Providence uses them *in* these diversified conditions, to carry out his equally diversified purposes. Men are furnished by Providence with the *raw material*, whether it be of mind or muscle, of skill or opportunity, and then the working up of this material is left very much to their own forethought and application; or, Providence, in other words, furnishes the foun-

dation plot, and the inherent skill and power, and time and opportunity and materials ; then leaves man to construct the edifice—to work out his own fortune—to form his own condition in life.

But, however originated, whether as an arrangement of Providence, or the creations of man, there can be no doubt that all these diversities of fortune and station are essential to the greatest good. It is a wise and gracious appointment of Providence. “Were there no diversity of wealth and station, we should be deprived of many of the comforts, conveniences and assistances which we now enjoy. Every one would be obliged to provide for himself food, drink, clothing, furniture, shelter, medicines and recreations ; and, in seasons of sickness, danger and distress, he would have few or none to alleviate his affliction and contribute to his comfort.” But by means of the present arrangement, all the several capacities and endowments of mankind are beautifully brought into play, and all “in those lines of active exertion,” for which they are fitted best to subserve the interests of general society. “One is preparing the leather, another is making for us the shoe ; one is tending the sheep on mountains, another is wearing the carpet, or preparing the cloth for our clothing. Some are delving in the mine, or smelting the ore, or tempering the steel, and forming the ten thousand implements of use among men ; others are buffeting the waves on unknown seas, to bring us the luxuries of other lands. Some are wearying their brains by day and by night in writing for us ; others are exercising their skill and ingenuity in printing what they write. Some are preparing grammars, dictionaries, and all sorts of elementary books for learners ; others are contributing their quota to the

common weal, as teachers: and so, through every class and grade, each supplying the lack of the other, and each contributing something of his own to the general stock.”*

Hence it is, the whole human family are strangely constituted in a state of dependence one on another. *No man liveth to himself.* There is a mutual dependence—not among men only of the same condition in life, but scarcely less among men of different conditions. I do not know that the poor are more dependent on the rich than the rich are on the poor. The king is nothing without his subjects. The rich man would soon be without his purple and fine linens, and sumptuous fare, but for the untiring toils of the humble laborer; and the man who blesses the world with his valuable mental attainments, looks in his turn that he may share in the benefits of every other handicraft of industry. There is through all the varied ranks of society this mutual and necessary dependence. And the beauty and perfection of life consists very much in a suitable adjustment of all its mutual relations, the prompt and cheerful discharge of mutual duties, and the free exercise of all those feelings of benevolence on the one hand, and of gratitude on the other, which the right discharge of duty secures.

The merit of life, then, consists not in being able to *extinguish all distinctions* in society and to bring all to one level, but in the harmonious working of the great machine of human activity, as the great Disposer has arranged it. The bringing the mortar and the laying the brick are quite as essential to the existence of the mansion to be erected, as the skill of the architect or the ingenious devices of the carver and

* Dr. Thomas Dick.

the glazier. He that honestly fulfils the duties of a low condition, is vastly more to be honored than he that neglects or badly performs the duties of a high position. The one should be ashamed of himself, and the other should *not* be ashamed of his position.

“ Honor and shame from no *condition* rise ;
Act well your part ; there all the honor lies.”

The evil lies not in the *distinctions* themselves, but in the discontent, and restiveness, and pride, and spirit of insubordination, which are all the time attempting to subvert the wise ordinations of Providence. But for the emulations and strifes, the pride and ambition which disturb the harmonious working of the great machine in all its ten thousand parts, all would move delightfully and harmoniously forward, and “ every station and rank would contribute, in its sphere, to the prosperity and happiness of another. For the poor cannot do without the rich, nor the rich without the poor, the prince without his subjects, nor subjects without wise and enlightened rulers and equitable laws. All are linked together by innumerable ties ; and the recognition of these ties and the practice of the reciprocal duties which arise out of them, form the source of individual happiness and the bonds of social enjoyment.”

Numerous and endlessly varied as human wants are, and multifarious as are the positions to be occupied, yet as numerous and correspondingly varied are the resources and endowments of men, qualifying them to fill them all.

There is, then, more truth than triteness in the maxim : *It takes all sorts of men to make a world* : all ranks, castes and conditions ; men of all sorts of dispositions and idiosyncrasies—

of all kinds of habits, aptitudes and appetencies—the high, the low, the rich, the poor; the yielding and the uncompromising—the stern, the unbending, the marble-cheeked and the iron-sided, to breast the assaults of savagery, and to hold with a strong arm the lawless and disobedient, the wicked and unreasonable. There are needed, too, the skilful and inventive, the shrewd and shiftless—the ruler and the leader, and those *to be ruled and led*

All have their uses; some directly promote human happiness and improvement and the great ends of life; and some indirectly. Some directly generate, cherish and mature the graces and virtues of life, others are but the indirect *occasions* of such results. Some have much to do in the formation of our characters; others are chiefly useful in *trying* these characters. They give, for example, *patience her perfect work*.

Hence the singular *variety of condition* which we meet among men. But we quite mistake if we circumscribe the skill, influence and the final uses of all these singularly varied conditions to the present life. They are designed by a Beneficent Providence to be the occasions of rearing an infinite variety of plants for the Garden above. In due time the great Vinedresser will transplant them into the celestial Paradise, where they will flourish all the better for their short wintering process amidst the rude blasts or the parching droughts of an earthly atmosphere.

We may therefore rest assured that, in spite of all attempts to equalize the condition of man—the tendency of good laws and human institutions to protect and bless the humble and to raise them to a better condition—it remains a matter of fact (and is likely to), that the condition of man is almost as varied

as men are numerous. The difference may be of moral worth, of mental acquisition, of the possession of earthly pelf, or of honor or office—of accident or the result of hard applied industry—it may be of praise or of blame—for immediate good or for evil—a righteous dispensation of Providence, or a result of human pride and folly. We speak of the fact, and may be indulged in a closing thought as to the design.

The virtue of life consists in living in the world on *suitable terms with all*. In this are developed all the varied excellencies of our natures, and all the diversified graces of our Religion. Here, by the way, is discovered a threefold variety: a variety in our moral constitution, fitting us for the exercise of all the sympathies which the varied conditions of life about us require; a variety of religious qualifications suited to the same demands, and a corresponding variety in the wants of men.

Were there no disparity in the conditions of men—were all on a level as to mind, morals, skill and ingenuity in turning their bodily and mental powers to useful purposes; as to education, health, earthly possessions, influence and power, sorrow and joy, prosperity and adversity, where would be the room for the exercise of our varied graces, and the varied susceptibilities of our natures? Were there no poor to be relieved; no ignorant to be instructed; no abandoned to be reclaimed; no sin to be rebuked; no pain to be assuaged; no affliction or distress to draw out the tear of sympathy, or solicit the hand of relief, there would be no play for the generous workings of the benevolence; no kindness or condescension; no self-denial or sympathy. Or, were there none who *could* act as angels of mercy, there would be no such thing as gratitude, or the feeling

of obligation and dependence which does so much to bind the human family into one great brotherhood.

We need, therefore, indulge no painful concern that there are too many sorts of people in the world. The only concern we need have is that we do our duties, each in the place and position which, in the kind orderings of Providence, have been assigned us.

That man deserves the most of his country, and of the church, and of the whole family of man, who acts best his part in the sphere in which God has placed him. The fact that one duty or one sphere of action obviously devolves on a given individual, and that he has aptitudes and capacities and likings for that particular field of activity, is the best possible indication which another individual, differently capacitated, can have that he should look for his sphere of duty elsewhere. If every man did but understand his own aptitudes and capacities, and were satisfied to act in his own obviously destined sphere, there could be no clashings of interests, no invasions of others' rights, no intrusions into other men's departments of activity.

And we decide quite at random when we undertake to pronounce on the greater importance of one post of duty, or one sphere of action over another. One may represent the tenth, another the ten thousandth link in the chain of the great whole, yet strike out either and the chain is alike broken. With the great Sovereign Ruler there is neither great nor small—every thing, as he made and arranged it, is important—nothing non-essential, nothing indifferent.

CHAPTER XIV.

ASTRONOMICAL VARIETIES: No two Worlds alike—Differ in Form, Bulk, Motion—
Inhabitants—Moral Varieties among Worlds—Redemption the Grand Moral Va-
riety of our World.

WE have no need to confine our researches to man, or to this pitiable speck of earth. Other worlds and other beings afford equally fit illustrations of our theme. We may, therefore, for the present quit the footstool of the Great King, to gaze on the magnificent dome of the great Palace. We shall find, pervading the ten thousand sparkling worlds that bestud the concave of the heavens, the same principle of endless diversity. Variety undoubtedly characterises every world that shines.

No two suns, planets or satellites are alike. In shape, motion and distances; in velocity, diversity and bulk; in lengths of days, years, and vicissitudes of seasons; in climate, productions and inhabitants; in the scenery on their respective surfaces—especially in their celestial scenery, and in the different appendages attached to them, as moons, rings or belts—they present the most wonderful exhibition of the wisdom and benevolence of God, in so *variegating* his works as to meet not only the *necessities* of his creatures, but to gratify their varying tastes, to please their senses and make them happy.

No two systems or clusters of systems are alike. They differ in form, magnitude, number of revolving bodies, and in the

mode of their government. One is ruled by a magnificent body in the centre, which dispenses light and heat to the whole; another has two, three or more centres, revolving, each, with its respective system about another.

All the heavenly bodies, as far as we are acquainted, present a general uniformity of appearance and character. All are spherical, turn on their axis, and revolve about a central body. They resemble one another in so many respects, that we do not hesitate, speaking in general terms, to call them alike. And it is from their striking analogies that we deduce inferences as to the probability of their being inhabited, and governed by an internal economy similar to our own. But we shall find here too, amidst this general uniformity, an endless variety.

We need not, at first, go beyond our own solar system. Indeed, if our proposition be established here—if this first family of the starry worlds be variegated, in the same interesting manner, as we have seen among terrestrial objects, it will go far to establish a strong probability that the same principle runs through all the magnificent systems which God has made.

The following, borrowed from Sir John Herschel, may be taken as a just illustration of the comparative dimensions, and the relative distances of the several bodies which constitute our solar system: “Suppose a well levelled field or bowling green a mile or two in extent and free from all obstructions. In the centre of this place is a globe of two feet in diameter. This represents the sun. At a distance from this of 82 feet, i. e., on the circumference of a circle of 164 feet in diameter, place a grain of mustard seed. This represents the planet *Mercury*. Place a pea for *Venus* on a circle of 284 feet diameter; also a

pea for this, our earth, on a circle of 430 feet diameter; a large pin's head on a circle of 654 feet diameter, for *Mars*: grains of sand in orbits of 1,000 to 1,200 feet for *Juno*, *Ceres*, *Vesta* and *Pallas*. To represent Jupiter, place a moderate sized orange in a circle nearly half a mile across; *Saturn*, a small orange on a circle four-fifths of a mile; and *Uranus*, a full sized cherry or a small plum on the circumference of a circle more than a mile and a half in diameter."

This, at a mere glance, develops a pleasing variety throughout; yet a few details will throw over the whole an additional interest. We begin with the sun.

This differs from every other individual of the system, in its enormous dimensions—it being 1,000 times larger than Jupiter, the largest planet—1,300,000 times larger than our earth, and more than 500 times larger than all the planets, satellites and comets belonging to our system;—in its density—it being scarcely more than the specific gravity of water; and in its being the luminous and illuminating body for the whole system. But for this peculiar feature the whole system would be shrouded in midnight darkness. And yet what makes this variety the more remarkable is, that the sun, after all, (as confirmed by later discoveries), is not a *luminous* body, but an opaque globe like the one we inhabit, the brilliancy of its appearance and its illuminating properties, accompanied with heat, being produced by its peculiar atmosphere.

From the sun, as the grand centre, we direct our steps to the first planet in the system, called MERCURY. Though still on a ball that turns on its axis, and performs its annual revolution, is enlightened by the same sun, and cheered by the light of the same planets by night, as your native earth, yet

you would find yourself on a strange ball, differing from all others which revolve within the vast domains of our sun, and probably from any that shine in all the vast immensity of the heavens. The sun would thence present a surface seven times as large as he does to us, and shine with a sevenfold brightness, and, other things equal, pour forth a sevenfold intensity of heat. The earth would appear as a large star, and Venus as a small moon, six or seven times larger than our morning and evening star, giving to their nights the mild radiance of moonlight. You would, too, find yourself on a globe as dense as *lead*—flying round its centre with a velocity greater than any other planet—100,000 miles per hour—and in a more eccentric orbit. Every object on its surface—every tree, shrub, flower; mountain, river, landscape, would, from the profusion of the sun's radiance, appear in sevenfold splendor—on which *our* eyes might not for a moment gaze. The *inhabitants* of this unique planet, too, must form a distinct variety. Physical constitutions like ours could not exist—or, if exist, could not exercise their functions in such an atmosphere—could not see in such light or derive a subsistence from such a soil.

But come with me again and I will show you another star differing from this in glory. It is the beautiful and blushing VENUS, a brilliant lamp amidst the lesser orbs of night—sweet harbinger of the morn, or the usher in of the soft evening twilight. She turns on her axis like any other planet, and rolls on in her majestic orbit at a distance 68,000,000 of miles from the sun, yet as you alight on her surface you will find she adds another *variety* to the countless gems which bedeck the heavens. Venus is distinguished by the exceeding brilliancy and beauty of her splendor. Her light (twice that of

the earth) is so intense as to be distinctly seen by the telescope, in the day time, and “during the night the eye is so overpowered by its brilliancy as to prevent its surface and margin from being distinctly perceived.” This is not fully accounted for, but on the supposition that a great proportion of the objects on its surface are fitted to reflect the sun’s rays with peculiar splendor. Now add to this the fact (ascertained by telescopic observations) that this planet presents a most romantic diversity of surface—some of its mountains rising to the enormous elevation of twenty miles—and the whole, illuminated by such a solar radiance, exhibiting a scenery diversified and grand beyond any adequate conception, and you have a *variety* worthy of admiration.

The next in order is our EARTH: opening your eyes on its celestial scenery the first peculiarity you discover is, that her nights are beautifully illuminated by a *moon*—accompanying her in all her annual rounds, and adding another to the *variety* which every where characterises the countless bodies which move through the heavens. The next characteristic peculiarity is the *vast disproportion of land and water*—three-fourths of the terraqueous globe being covered with water. Its surface, when viewed as a whole, is divided into four vast irregular belts or bands, extending north and south, the two broadest of which are water. Though, perhaps, not of original structure, but a result of the Deluge and a consequence of sin, yet this peculiarity distinguishes our planet from every other. No planet presents so *variegated* a surface—none so completely intersected, and cut up into continents, islands, oceans, seas, lakes, rivers, mountains, plains. And, aside from many original peculiarities of structure, the earth has been marred and

mutilated by the ravages of sin, presenting, we hope, the melancholy pre-eminence of being the *only* world groaning under the malediction of its benevolent Author.

The same may be said of *the vicissitudes of the seasons*. In their existing state they produce an almost endless variety of beauty—and also of disaster and deformity. The horrors of winter; the scorplings of heat; desolating tornadoes; appalling thunder storms, come in the revolutions of the seasons, as well as the beauty and fragrance of the spring, or the luxuriance of summer, or the bounties of autumn. Those desolating *evils* are, again, the sad peculiarities of the physical and moral derangement of *our* world, and probably of no other.

One stride more, of 50,000,000 of miles from the orbit of the earth, and you stand on fiery MARS. Its surface is diversified with land and water; its seasons similar to ours, though more strongly marked, and nearly twice as long; yet if you will look a little further you may see how Mars *differs* from our ball, and from all the shining spheres that bespangle the skies. She is in *size* but half as *large*, and in *density* considerably less than the earth. An extensive and strangely dense atmosphere surrounds her, producing the red and fiery appearance which she exhibits, like the rising or setting sun when seen through vapors. Only about one-third of her surface is water. She receives from the sun not more than half the quantity of light enjoyed by the earth, and no moon (yet discovered) enlightens her dreary nights.

But we must hasten our ethereal journey. We next meet, amidst the flying balls of ether, a singular variety. Having traversed 80,000,000 of miles from Mars we meet, within the distance of the next 41,000,000 of miles *four* very small plan-

ets called *asteroids*, and named *Vesta*, *Juno*, *Ceres*, and *Pallas*. Their diminutive size, their proximity to one another, and their vast distance from the sun, form an interesting *variety* in the garniture of the heavens. Their orbits are more eccentric and more inclined to the ecliptic than the other *planets*, and their seasons, of course, more strongly marked. And what is more singular, their *orbits cross one another*—the orbit of *Vesta* even crossing those of the other three, rendering it possible that in their annual rounds they may come in collision, with an embrace that shall shatter them into a thousand atoms. In many respects this dwarfish family of worlds presents anomalies exceedingly interesting to our present subject.

Next in order comes mighty JUPITER, rolling on in magnificent grandeur at the immense distance of 495,000,000 of miles from the sun, and occupying twelve of our years in completing one circuit. In vain you distend your vision to find another like him. A body of such immense magnitude—1,400 times larger than the earth; at such an enormous distance from the sun which holds him in his place; wheeling in his orbit at the rate of 30,000 miles an hour; and turning on his axis in nine hours (the length of his day); carrying along with him *four moons*; and capable of sustaining a population 8,700 times greater than our earth—presents a novel spectacle, wonderful and sublime; and affords a most magnificent specimen of the riches and wisdom of Heaven's great Architect.

But Jupiter presents another feature yet more novel and grand, and more peculiarly his own. He is encased in a singular appendage of *belts* or bands, which surround him at an elevation (it is supposed) of 1,000 miles from the planet. These belts are from 5,000 to 10,000 in breadth, extending

quite across the planet. They have been discovered to exchange places, or to move from one position to another in the space of a few hours, producing the most stupendous changes in the celestial scenery of that planet; diversifying the face of their skies in a manner wholly inconceivable to us. This, together with the singular and rapid motions of the heavenly bodies as seen from Jupiter, on account of the inconceivably great velocity with which he turns on his axis (moving further, by 3,000 miles, in one hour than the earth does in twenty-four), must make a nocturnal scene on that planet grand beyond conception. Though so distant that the sun appears scarcely more than a brilliant star, yet Jupiter presents a peculiar splendor, exceeding in brilliancy even *Mars*. This is no doubt owing to other apparatus for the production of light, of which those *belts* may be the principal.

But let us look in upon the next world, and see what of variety we may find there. Let imagination traverse 400,000,000 of miles from Jupiter, and you meet, rolling on in the lone grandeur of his velocity, and in the illimitable immensity of space, the most interesting and magnificent body which shines in the heavens. There is nothing like it in the firmament. It has *seven moons*—a rare variety. But what singles out SATURN as so unique in the celestial canopy and makes him so striking a specimen of variety in the Divine workmanship, is the extraordinary RINGS which surround him. *Belts* too he has, yet differing from Jupiter's in this, that they are regular and immovable; doubtless an integral part of the planet.

But you pass unnoticed all other varieties: his encircling belts; his seven moons, pouring down their silvery floods of

light ; his huge bulk, and his density not more than that of cork ; his immense distance from the sun, so that that luminary appears but as a star, ninety times less than to us ; his immense year, equal to more than twenty-nine of ours, and his days of but ten hours, and your whole attention is directed to the strange phenomenon of the *Rings*. You see stretching from horizon to horizon across the whole arch of the firmament large semicircles of light, occupying one-fourth or one-fifth of the visible sky. They vary in brilliancy according to the time when viewed, or the position from which seen. At night they appear as resplendent as the moon ; in the day time dim like a cloudy arch.

To enhance the beauty and sublimity of the scene, and to add to all an enchanting *variety*, these immense rings (200,000 miles in diameter and one 20,000 in breadth) roll round the planet at the distance of 30,000 miles, in the short space of ten hours, presenting their diversified brilliancy. And what still enhances the grandeur of the scene, the two rings do not revolve in the same space of time, giving to the whole a yet greater *variety of motion*, as well as a constant succession of scenery. What variety, then, in the celestial scenery of Saturn ! Two immense luminous arches, diversified by their own motions, and at night more diversified by carrying stamped upon them the shadow of Saturn ; the various aspects of seven moons, some rising, some setting, some at their meridian, some appearing as crescents, half moons, or full enlightened hemispheres, some eclipsed, others emerging from their dark beds, and all moving with tremendous velocity, give to this planet a character of its own.

We must not stop to speculate on the *use* of these things.

They not only contribute a magnificent *variety* to the crown jewels of the Great King, but afford a stupendous theatre for the existence and development of a countless number of intelligent beings. The whole amount of surface on the different sides of the rings is more than twenty-eight billion square miles, or 588 times the area of the whole habitable portion of the earth. Now if we suppose these immense celestial territories to be inhabited (a very probable supposition, for who would surmise that such a palace would be fitted up for waste and desolation?) they could accommodate a population of eight billions, or 10,000 times the present population of our globe.

A word concerning URANUS, and our survey of the solar system is completed. On the orbit of Saturn, though at the distance of 900,000,000 miles from our starting point, the sun, yet we had completed but one half of our journey to Uranus, the exterior ball of our system. Its distance is, of course, 1,800,000,000 miles; a distance, which, if traversed by a steam-carriage moving at the rate of twenty-five miles an hour would occupy 10,000 years. Here the sun has dwindled almost to a point, yet Uranus enjoys a compensation of *six moons*, is eighty times larger than our earth, twenty times larger than all the planets of the solar system, save Jupiter and Saturn; is of a density not greater than water; moving in its inconceivably great orbit more slowly and majestically than any other planet, and occupying in the completion of his year no less than eighty-four of ours.

These circumstances—and others might be discovered did our telescopes reach far enough—are sufficient to ensure a great *variety of scenery*, in seasons, animals, inhabitants;

in productions and climate; and to distinguish this planet from all others in the system.

I have now taken a bird's-eye view of each of the worlds (the new planets excepted) which compose *our system*. We have found no two alike, but each most skilfully diversified with a beauty, sublimity and grandeur peculiarly its own. In shape, motion, distance; in velocity, density and bulk; in length of days, of years and vicissitudes of seasons; in climate, productions and inhabitants; in the scenery on their respective surfaces, and more especially in their celestial scenery; and in the singular appendages, useful or ornamental, attached to most of them, we have discovered the most wonderful exhibition of the wisdom and benevolence of God in so variegating the works of his hands as to meet not only the *necessities* of his creatures, but to gratify their ever-varying tastes, to please their senses, and to make them happy in their present state of being.

I am now prepared to invite you to embark on a more adventurous excursion, and, by a legitimate analogy, to extend the principle I am advocating to other systems and other clusters of systems, which constitute the boundless universe.

Look, if you please, through Sir John Herschel's forty-feet telescope, pointed for a survey *beyond* the confines of our planetary system, and tell me what you see:

"I see," says one, "stars of different magnitudes bespangling the whole compass of vision, some exceedingly bright, some, but as the twinkling of a single ray of light."

"But what a *variegated* scene," says another who applies his eye. "How one star differeth from another in glory!

Star after star appears as you steadily gaze, till the whole field of vision becomes a sparkling sheet of worlds!"

"And what," exclaims another who has distended the pupil of his eye a little further than the rest, "what are those little *luminous clouds*, or concentrations of confused light, which lie scattered in rich profusion throughout the entire compass of vision?"

"Indeed," exclaims another in extasy intense, "do you see that these sparkling luminaries not only differ in dimensions, distances and motions, but they present an exquisite variety of *color*. Here is one red like crimson; yonder shines one white as snow. One is yellow, another green; one orange, its neighbor blue. Others blending the hues of different colors produce scenery rich, variegated and enchanting."

And another, too intent to speak sooner, exclaims in all the enthusiasm of a Newton, "Is it possible that certain stars at which I have been gazing are *not single stars*. I have put on the magnifying power till I can see them to be *double, triple, quadruple* or *multiple*."

A world of wonders indeed!—but let us go back and examine a little more leisurely, though briefly.

You saw scattered over the field of space an indefinite number of stars. These are suns, accompanied no doubt by their respective systems of planets, or worlds; each occupying as much space in the great field of ether, and giving support and habitation to as great a number of intelligent beings, and affording as great a *variety* of plans, operations, uses and scenery, as the system we have examined. The nearest of these stars, or suns, is not less, as has been ascertained, than twenty billions of miles; a distance greater than we can con-

ceive. If such be the distance which divides the different solar systems which make up the universe, we here gain some idea, though it is bewildering, of the amplitude of the field on which God has chosen to display his wisdom and the riches of his " manifold works."

An extraordinary development of modern astronomy (and one much to our present purpose), is the resolving of a great number of stars (supposed for centuries to be single) into *two*, three, four, or many. So immensely remote are these stars that when viewed by the naked eye, or through an ordinary instrument, their light appears blended, yet when plied by some modern telescopes are found to be separated by a space by no means small. But why I direct attention to these stars is to point out a singular phenomenon—another grand and interesting *variety* in the sidereal heavens. The characteristic of the solar system we found to be that of *one* magnificent body in the *centre*, dispensing light and heat to a great number of other immense bodies over which it has a supreme control to sustain them in their respective orbits. But as we pass on to other suns and systems of worlds, we are agreeably surprised to meet with a different order of arrangement and government. Instead of *one* sun in the centre, about which all are borne in solitary grandeur, we here meet with a *double* system, having *two* suns, each revolving about the other, and bearing with them their respective systems of planets and satellites. Again, *three* suns, with a *triple* system, are seen wending their way around each other, and about a common centre:—or *four*, or more, interweaving their respective orbits, speeding their courses about one another, with motions the most complicated and

novel, and conducting in their several trains hundreds of worlds.

This transcends our utmost surmisings on the subject of *motion*. All we have seen in the solar system is but the simplicity of a right line compared with the *complexity* of motion in these *triple, quadruple* and *multiple* systems. A new *mathematical problem*, transcending the vastest powers of human intellect—perhaps of angelic—must be solved before we may do more than wonder, praise and adore Him who “in the heights of heaven doeth great things past finding out, yea, and wonders without number.” How these several systems, composed of so many different bodies, can be so nicely poised in mid space in relation to another and to the common centre—how their antagonist forces can be so nicely adjusted as to curb every ball in its destined path, and to preserve the safety and harmony of the whole, beggars all human sapience to divine.

Nor is this all: astronomical observations have developed facts in reference to the *velocities* of these suns and systems so surpassing any thing of the kind in the solar system as to make it a sublime and terrific peculiarity of these stars. The 60,000 miles an hour by which the earth moves in his orbit, or the 100,000 of Mercury is but an item in the incredible, inconceivable velocity with which these double and triple stars are found to move about one another.

They have, too, another peculiarity: in almost every instance they vary in *color*. One is *white*, its companion *red*. One orange or green, its fellow yellow, or blue, ruddy, greenish or bluish. What an endless, what a beautiful *variety* of *scenery* must this produce on the surfaces of the different planets which are enlightened by these suns! One hemisphere

of a globe illuminated by a *red* star, the other by a *green* one! A sun of a brilliant *white* rising in the east, while another of a ruby hue is sinking below the horizon in the west, each sending up rays of his peculiar color, and blending hues in the most agreeable and tasteful manner! What beautiful changes, contrasts and varieties must be produced by the various revolutions, at their different distances and various angles of inclination, of two, three or four suns of so many different colors.

I name one other variety under this head: As you looked through the telescope, you saw certain objects, more or less distinct, which appeared like small *luminous clouds*. But on increasing the power of the instrument you found this cloud to be resolvable into *stars*—and *beyond* this, other similar clouds, which, with a larger telescope would, no doubt, be resolvable in the same manner. Such observations have convinced astronomers that the millions of millions of stars which fill immensity are not scattered at random, or *diffused* in space, but collected into *clusters*. How numerous these clusters are, is beyond the ken of human wisdom to tell. Space seems to be full of them. Or how many myriads on myriads of stars are contained in a single cluster is as yet beyond human calculation. Every new magnifying power introduces us to new clusters—and beyond these there still remain luminous specks, or *star dust*, which, no doubt, a larger instrument would equally resolve.

Here we gain an idea of the amplitude and magnificence—to us, the *infinitude*—of the works of the Almighty hand, which baffles the powers of the most vivid imagination. We think now no more to count the suns or systems—we

take no further note of planets like Saturn or Jupiter, but launch our adventurous bark into the interminable ocean of space, and survey and attempt to number only *clusters* of systems, some of which are known to contain many millions of stars.

The first of these magnificent *groups*, demanding attention, is the one to which our solar system belongs, called the *Galaxy* or Milky-Way. It is a broad irregular belt or zone stretching across the heavens from one end of the firmament to the other—

“A broad and ample road whose dust is gold,
And pavement stars, as stars to us appear;
Seen in the Galaxy, that Milky-Way,
Like to a circling zone powdered with stars.”

To the naked eye it presents little more than a confused light, yet when plied by a large telescope, the confusion vanishes, and its place is filled by thousands of glittering suns. In a field of view, not above the fourth part of the apparent size of the moon, Herschel distinguished more than 500 stars, and during 15 minutes of time, there passed the vision of his telescope no less than 116,000. He estimates the probable number of stars in this cluster to be 20,000,000. Yet does not suppose this to be so large as some others.

The whole field of space which has been traversed by the best telescopes is 500 times further than the distance to the nearest fixed star, or 10,000 billions miles; a distance which, if passed over by a cannon ball at the rate of 500 miles an hour, would occupy 2,200 millions years. Within this vast area, which may be but the vestibule of the Universe, there have been discovered no less than 3,000 of these

nebula or clusters of suns, some apparently more, some less magnificent and extensive than the Milky-Way. Suppose them on an average to be equal and each to be accompanied by 50 planets, we have enclosed within telescopic vision 3 billions of worlds, a number of which we can form no adequate conception. But it is not so much the surpassing *grandeur* of this scene as the *variety* to which I would guide your attention.

In form, dimensions, motions, and general appearance, no two of these clusters are alike. Many are globular with a concentration of light near the centre. Some are conical, or triangular, or oval; round, elliptical, annular or shaped like luminous rings; and others like an ellipsis with a dark spot in the centre. "Their situation and shape," says Herschel, "as well as their condition, seem to denote the greatest variety imaginable. In another stratum, or perhaps in a different branch of the same, I have seen double and treble nebula, variously arranged; large ones with small, seemingly attendants; narrow but much extended lucid nebula, or brighter dashes; some of the shape of a fan, resembling an electric brush, issuing from a lucid point; others in the shape of a comet, with a seeming nucleus in the centre, or like cloudy stars surrounded with a nebulous atmosphere."

Some appear in strata of great length and breadth, but of little thickness; others present every irregularity of form that can be imagined. Some have a bright star near their centre; others have bright stars in other portions of them—and a few appear as a stream of luminous matter, with a brilliant star at each extremity. Indeed there is scarcely an imaginable shape in which you do not find some of these clusters.

What, then, is the conclusion? Surely that *variety* is a

universal characteristic throughout the vast domains of the Eternal King. Take a cursory retrospect of the whole, and you see that the very structure and operation of the vast and complicated machine involve a *perpetual variety*; moons revolve about planets; planets about suns; suns and systems about suns and systems; clusters of systems about their common centres; and then (grand beyond all human conception) these mighty clusters, rolling on, as one system, with inconceivable grandeur, and in an orbit that beggars all arithmetic to calculate or the loftiest imagination to compass, rolling on, about the great centre of ten thousand centres—about the capital of Jehovah's boundless domains—about the throne of the Eternal Mind. What variety of motions, distances, velocities—what variegated scenery—what diversified results must such stupendous and varied operations produce!

But we must no longer linger amidst the principalities and powers, the kingdoms and dominions of the only Potentate. The rich garniture of the heavens affords other illustrations of variety no less interesting than those already given, as *comets, meteors, planetary nebula, variable stars*; but time fails.

Again, the countless myriads of *intelligent beings*, who, doubtless, inhabit the unnumbered worlds of Jehovah's empire, afford *another series of varieties* most extensive and interesting. No two worlds, we have seen, are fitted to be the abode of the *same species of beings*. Neither their physical conformation, nor their mental constitution can be the same. But this must pass.

Yet I apprehend we differ from the tenants of other worlds in nothing so *conspicuously* as in our *moral condition*. This is our inglorious distinction. Here is the mark which makes

us the wonder of angels, and the scorn of devils. The *moral apostasy*, together with the mysterious plan of *recovery*, may be the humiliating—the glorious distinction of our world. It may be peculiar to our planet that here alone the subjects of God have rebelled—and here alone is shown the possibility, and the practicability of restoring them to the favor of the abused Sovereign. All eyes are turned on us; now in deep and solemn commiseration over man's ruin; now in admiration of the scheme of restoration; and now in praise and adoration at the final consummation of man's redemption. The whole is to be regarded as a *signal display of the Divine perfections*. The scheme *here* filling up for *restoring rebels* is *one way*, which God has selected by which to develop his eternal power and Godhead. In other worlds, moral transactions, of a character of which we can form no just conception, may be transpiring, as sublime, as characteristic of the sleepless energies of Omnipotence, as honorable to his moral perfections, and as beneficial to the vast assemblage of his creatures, as the plan adopted here for the emancipation of man.

I know not that we have any just ground for the self-gratulating surmise, that the Universal Sovereign has made our insignificant ball, *peculiarly*, a theatre of his marvellous works. That He has, in the scheme of redemption, wrought marvels here, inscrutable by human ken, is past all controversy. Yet that he is not the Author of wonders as profound and magnificent, as unsearchable and glorious, in other worlds, I know not that we may question. Nay, more: the fact that he *is* the Author of such a stupendous transaction in this comparatively insignificant speck of creation, is rather a presumption that he may be the Author of as grand (if possible) and sublime trans-

actions in the mightier, nobler, more majestic worlds and systems, which compose the numberless provinces of his empire. But for our *moral degradation*—our loss of the capabilities and susceptibilities of our state of primeval innocence, we might perhaps be favored by an acquaintance with the distinguishing moral achievements which characterize the history of other worlds. Other worlds, we know, *are* acquainted with our moral disasters, and with the interposing hand of compassion for our restoration. “Into these things angels desire to look.” Beings of other worlds are intently eager to survey and scrutinize this extraordinary transaction. So well do they know the ruin of man’s present moral condition, and so well appreciate the blessedness of reconciliation with God that an acclamation of joy is heard among them, when but “one sinner repents.” The Apostle Paul, too, represents the mystery of redemption as revealed *to the intent that unto principalities and powers in heavenly places, might be made known, by the Church, the manifold wisdom of God.*” Our planet was selected as a theatre on which to exhibit to all worlds *the evil of sin*—its origin, its growth and full development—that the “man of sin be revealed”—be manifested and shown out in all the strength and luxuriance of its native vileness: and, on the other hand, to afford a signal illustration of the perfections of the Divine character, in the atonement made and applied to save man. *Redemption* is, therefore, the grand *moral variety* which distinguishes our world from all others. Hence, it is an object of absorbing interest to the tenants of all other worlds. Yet the annals of other worlds may unfold to our astonished vision transactions as peculiar and grand, and as beautifully and awfully illustrative of the Divine perfections in some other inter-

esting point of view. And, were we possessed of the data which Gabriel may have, we might go on from world to world, and from system to system as we have already done, pointing out as many *moral* varieties in the Divine dispensation as we have seen physical diversities in the manifold works of Nature.

Enough has been adduced in illustration of my principle. Variety is the characteristic of Divine workmanship. Whether you look into the vast and mighty fabrics which roll in clustered grandeur around the Eternal Throne, or to the myriads of animalcula, which revel in all the luxury of life in a single drop of water, or on a single leaf, you meet a never-ending variety.

But it is time that I close. Yet a few *reflections* rush unbidden upon us.

1. *What an idea does this give us of God?* With but a partial view of the multiplicity, the grandeur and variety of his works, we can but stand afar off, and in awful astonishment and in overwhelming majesty, cover our face, and with the sweet singer of Israel exclaim, *O Lord my God, thou art very great!* What view so displays the *magnificence* of the Divine Being? We can scarcely comprehend that even Omnipotence could construct *so many* and such *enormous masses* of matter—reduce them to order and govern them. But when we see in what an *endless variety* he has made all things, our admiration of his greatness is raised still higher. It were much that he should clothe the meadow with a carpet of green, and adorn the trees with a verdant foliage: but much more that he should *variegate* this covering in ten thousand different shapes and colors and patterns.

Again, what an idea does our subject give us of the *riches* of God? You call that man *rich*, who has many and large storehouses, filled with every thing which can administer to his necessities or his pleasures. But God's storehouses are as many as there are worlds in the universe—all filled with articles of the most exquisite workmanship, and in such infinite *variety* that you cannot find two insects, or sands, or leaves, or flowers, or worlds alike.

What an idea does it give us of his *goodness*! Why has he filled the universe with his riches—why so garnished the heavens—variegated all nature and clothed all things in beauty and sweetness? if it be not to display the plenitude of his benevolence and to contribute to the well-being of his creatures. Not only does he open to them inexhaustible fountains of pleasure, but he so diversifies their pleasures that they never tire.

And what an idea, too, here, of the *Divine wisdom*! Surveying *the manifold works* of God, who would not exclaim, "*in wisdom hast thou made them all.*" But numerous and variegated as they are, nothing is useless. All is beautifully adapted to its purpose.

What *skill* in producing and conducting all the operations needful to effect such endless variety!—what inscrutable wisdom and knowledge in so accurately calculating distances, motions, inclinations, positions, weights and bulk,—so nicely to adjust globes of such various dimensions, (some inconceivably large and at immense distances, some with strange *appendages* of moons, belts or rings,) and so accurately to poise them as to secure their stability and permanence, and to make them fit habitations for intelligent beings! Were we to contemplate

no more than the *mathematical calculations* which must enter into the account, there is indicated a depth and dimensions of intellect of which we can form no conception. Suppose the intellect of some created being to be vast enough accurately to calculate the attracting force of the sun, and the *mutual attraction* of the planets—also to suspend every ball in its proper position, and to adjust all in reference to their compound forces; yet he might find that not a wheel in the great machine would go—every ball drop from its place—worlds dash on worlds, because he had overlooked or found himself wholly unable to calculate the influence which *other* solar systems may have on ours, or other clusters of systems on the one to which ours belongs. For we have no reason to suppose ours an isolated system, independent of all others, but rather *one* of an indefinite number; and that every distance is fixed, every motion of every planet, satellite, belt or ring, is determined in special reference to the connection of our system to the great Whole. That God should be able to calculate all these nice particulars in relation to an infinite number and infinite *variety* of systems, gives us an idea of his greatness, his wisdom and power, more exalted than we may, perhaps, gain in any other way. What *must* that God be, who, on the one hand, could contrive, form and adjust its endless variety of parts so as to produce perfect harmony; set in motion, and uphold, in spite of all conflicting powers, such a vast machine as the universe; and, on the other hand, so nicely superintend the minutest objects in nature, as the diversifying a landscape, the variegating of flowers, or the gilding the wings of an insect. What *must* that God be, who is so high, so low, so rich, so poor, that he can stand at the

helm and guide millions of millions of worlds, and yet take note of the falling sparrow and watch the lily of the field.

2. *We can no longer marvel at God's tender and unremitting care of our world.* The Infidel looks abroad upon the *vastness of the material universe* and says it is absurd that the Author of *so many* worlds, most of them far surpassing ours in magnitude, grandeur and beauty, should make this earth, this insignificant province of his boundless domains—this speck of creation, an object of his peculiar care. Would he be at so much pains—would he send his only beloved Son to die, to bring succor to man? Would he pour out the bowels of his love, and exhaust his tender mercies on a speck, which bears no more comparison to the entire empire of God, than a grain of sand to the sea-shore, or a single leaf to the forest?

We admit the comparative insignificance of our planet, yet we yield not the point. Insignificant as our earth is, it is *one* of God's *varieties*. Among the exhaustless riches of the Eternal King there is nothing like it. As a *specimen* of his skill, then, and of workmanship, it is precious as the apple of his eye. The moment it became marred and mutilated by sin—the moment rebellion broke out in this province of his empire, it was befitting that God should put forth a special effort for its recovery. For the effects of this insurrection could not stop here. The warfare entered upon was a war of *principle*. The law violated was the law of the universal empire. The insult offered, an insult to the Majesty of the Universe. It mattered not, then, whether the *battle-field* were great or small—whether it were earth or Jupiter or a planetary nebula, millions of times larger than our sun. *A principle was to be settled.* It was to be determined whether sin or holiness should reign—whether

Satan or God should sit on the throne of universal empire. Our earth was selected as the scene of conflict. Here sin should take the field, arrayed against holiness. Here the Captain of our salvation should vanquish him who had the power of death.

But while our world has been made the theatre for the adjustment of a question so vital to the interests and happiness of every province in God's kingdom, other worlds may be the appointed arena on which to settle other questions of essential moment to the welfare of the great whole. While it may very justly excite our profoundest wonder that the sleepless eye of God should seem in a special manner to be directed towards our world, and his bountiful hand to be scattering blessings most profusely on his creature man, yet could we get a glance at the Divine economy of other worlds, I doubt not we should meet dispensations which would appear to us quite as special and extraordinary. It only comports with what we know of the infinitely varied character of God's works, to believe that every separate world in the universe has a history, people, climate and productions peculiar to itself; *and its own peculiar manifestations of the Deity*. His works and ways there—the moral condition of the people—their manners, customs, modes of existence, are all peculiar to themselves. And every separate world will form a distinct and interesting study for God's holy creatures to all eternity.

What we know is, that the Second Person of the Trinity has made a glorious advent to *this our planet*; that he begun, and is still carrying forward, a work of ineffable magnitude and immeasurable interest to us; that having fulfilled his benevolent errand here, "He that maketh the clouds his chariot"

bade adieu to this globe, and rode in triumph to some other world, to some *material* world—for he departed with a material body—where he may achieve marvels as wonderful, and perform works as stupendous, and as honorable to God; where he may be carrying forward *other* schemes for the final aggrandizement of the IMPERIAL THRONE, quite as magnificent as he had accomplished on our earth.

There is in the idea that God created and upholds all this vast universe, a sublimity which beggars all conception. By the word of his power, by his almighty fiat, all worlds, systems, clusters of systems and boundless universe, with all its complicated structures, adaptations, motions and uses, emerged from nothing! that nothing is so minute, nothing so mighty, no intelligence so high, none so low, which he does not direct. The surmise of the Christian philosopher here is certainly a very natural one: “The infinite ease,” says he, “with which this vast fabric was reared, leads us irresistibly to conclude, that there are powers and energies in the Divine Mind which have never yet been exerted, and which may unfold themselves to intelligent beings in the production of still more astonishing and magnificent effects, during an endless succession of existence.”

CHAPTER XV.

How it takes all sorts of Saints to make a Heaven.

"Having gifts differing according to the grace that is given us."—Rom. xii. 6.

HEAVEN is a paradise, a garden of flowers, into which the great Proprietor has gathered (and where bloom in eternal beauty) flowers of every imaginable hue, fragrance and variety. Or heaven is a vast repository of jewels, which the great Mediatorial King has gathered, and is still gathering, from amidst the beggarly elements of the apostasy, and fitting and burnishing in every possible variety. While in essential characteristics and intrinsic value all are alike, yet Gabriel in vain would traverse the boundless fields of Paradise to find two of these plants of renown, these trees of righteousness, which do not present some features of interest peculiar to itself. Or, if heaven be a repository of the jewels of the Great King, then each of the great multitude, which no man can number, presents some peculiar beauty and excellence of its own.

Heaven is the assemblage and the full consummation of all the varied graces which ever flourished on the earth, or among the principalities and powers in heavenly places.

It is in the garden below that all these plants of righteousness are reared and fitted for transplantation to the garden above. And if, as has been intimated, the same universal law

of variety pervade the boundless domains of heaven, as we have seen characterize all things on earth, not except man in all his social, intellectual and physical relations and developments, we must expect to find man in all his *moral* relations, endowments and trainings, subject to the same law. Not only does it take "all sorts of men to make a world," but it requires "*all sorts of saints* to make a heaven."

Hence all those "diversities of gifts" and spiritual endowments, all those "diversities of operations" and "ministrations" of which the apostle speaks. By his manifold wisdom and grace, God is thus preparing men for heaven, who shall exhibit and illustrate in their characters, virtues and graces of every possible variety.

A late writer, in illustration of this thought, has well said: "A truly righteous act is a good in a double sense. It not only *does* good but itself *is* a good. It adds to the sum total of good in existence. The whole realm of God is the wealthier for it, and the glory of God's administration is so much increased. He, then, who works out one great act of fidelity, showing to the world the beauty and preciousness of that cardinal virtue; or holds forth one great example of truth; or one great exhibition of disinterested love; or one great lesson of Christian patience and constancy, will find these, at its close, substantial products of life, which will bless it as they will enrich the universe forever. Let it not be supposed that in judging and rewarding the actions of probation, God will have respect only to what was simply *useful*, or the opposite. He will regard also what was beautiful and only in itself good. As an earthly monarch collects in the galleries of his palace the achievements of art, rare works of painting and statuary,

and of exquisite mechanical skill, which henceforth remain illustrative of his taste and wealth and magnificence, and descend from generation to generation as among the most sacred treasures and ornaments of the nation ; so God, out of all the noble, and beautiful, and pure things which the history of redemption will have furnished, the virtues, the charities, the high achievements of Christian faith and hope, will, in the day when he 'maketh up his jewels,' fill and embellish the courts of Heaven, and cause them to stand forever as illustrations to the universe of the highest beauty and worth, and monuments of that wondrous grace which had power to elaborate them from materials once so ruined and lost."

Our subject is *variety in Christian character and experience*. As in the natural world variety is everywhere the controlling order of workmanship, so in the spiritual, all God's spiritual creations bear stamped upon their face the most evident marks of his "manifold wisdom" and his "manifold grace." The fact that the Church is made up of all sorts of men ; of persons of all sorts of temperaments, habits, positions in life, degrees of mental culture and habits of thought, would seem to furnish a general basis for a corresponding variety in the moral character and religious temperament and experience of its members ; and as the church below is the nursery of the church invisible above, we may assume that the perfect state of the blessed in heaven shall not be less richly developed and profusely variegated than in this imperfect state below.

The reflecting mind will not fail to magnify the wisdom and grace of God in the singularly rich displays of this wisdom and grace as seen in the varieties of his spiritual workmanship. While it is the same Spirit, the same Sovereign Agent, that

works "all in all"—works all these different graces and virtues in all the different myriads and millions of persons who are the subjects of them. Yet every individual case is an individual variety.

Divine grace operates on the human mind as it finds it; and operating, as it does, on all possible varieties of mind and personal peculiarities, without pretending to eradicate or change them, it, of consequence, produces as great a variety of Christian character. The design is to engender and cherish in the body of Christ, which is the church, every possible Christian grace. The presentation of the same motives, the same truths, and the same providential dealings, would, on this principle, secure a singular variety in the results; and it would seem, as we shall see by and by, as if the Divine Mind were exhausted in so multiplying and variegating motives, truths, providential dealings, and all the means of grace, as to secure every conceivable variety in Christian character and experience.

But we are concerned at present rather with the facts; of the uses and reasons of all these diversities of gifts and graces, and the diversified means and agencies by which they are produced, we will speak hereafter. The great fact in the case is, that, as in nature so in grace, the Divine wisdom and goodness seem exhausted in an endless variety of workmanship. As we cast the eye over the broad field of Christian experience, could we thoroughly analyze the piety of any given number of Christians, we should undoubtedly find each individual a distinct variety of himself. All true disciples of our one Lord and one Spirit are essentially one. They harmonize in all the great features of Christian character and temper.

They are one in Christ. They all bear the same badge of discipleship—all love and serve the same Lord—are baptized into the same Spirit—feed on the same heavenly bread, and drink at the same wells of salvation. Their work, their aim, their hopes are one—their home, their eternal rest, is one. Yet every Christian exhibits peculiarities of Christian character differing from every other Christian.

Our thought is amply illustrated in sacred history. Patriarchs, prophets, apostles, all the saints whose biography we have in the Bible, are beautiful illustrations of it. In one, reverence predominated; in another, hope, or faith, or love, or joy. The religion of one was retiring, self-distrusting, subjective; that of another, was bold and aggressive. One exults on the Pisgah of hope, another feels his way through the valley of humiliation. The prophets were all holy men, yet no two of them presented the same phase of piety. Each one illustrated his own peculiar virtues and graces. The apostles were all (Judas excepted, and Paul in his stead,) good men, yet how different the features of their piety. What can be more unlike than Peter and John, or Paul and Barnabas? Nor was the type of piety which characterized the other nine scarcely less varied.

The three apostles with whom we are best acquainted, and about whose religious character we know the most, are Paul, Peter and John. They were all very holy and devoted men—baptized into the same Spirit, and of one faith, one Lord and one baptism. Yet how different a type of piety did each manifest. The Sun of righteousness had shone in upon their native darkness from different directions and through different agencies, and more especially had cast his light on certain

provinces of that dark empire of sin, the human heart ; and consequently as the mind was roused and a conviction produced, in respect to a certain sin or a particular class of sins, pardoning grace, *adapted* itself to the conviction of sin, or of duty, and the virtues and graces implanted thereby, would be found to correspond.

The apostles named are examples. They all, though not in the same degree, exhibited faith, zeal and love. Yet each was remarkable for a particular grace or graces, which strikingly distinguished *his* piety from that of either of the others. "Paul chiefly exhibited the strength of faith ; Peter, the power of zeal ; and John, the force of love. Paul is most distinguished for that courage and fortitude which faith inspires ; Peter, for the ardor and activity which are stimulated by zeal ; John, for that melting tenderness and fervent charity which he caught by leaning on the bosom of incarnate Love.

"Yet Paul had zeal as well as Peter, and love as well as John ; though in these qualities they respectively excelled him. Peter, too, was strong in faith, as well as Paul, and lovingly and devotedly attached to his Lord as well as John, though excelled by them severally in these particulars. So John was firm in faith as well as Paul, and fervent in action as well as Peter, though they outshone him in these bright graces. Each had what the others had, but each blended these virtues in different proportions. Each, forming a distinct compound of them according to his own natural temperament and his peculiar experience of the grace of God, attained to a historic individuality of his own, which has been recognized in all ages.

"There can hardly be a happier illustration of that diversity in unity, which, in religion as in all the other works of God, pre-

sent the charm of consistent variety. Such variety is like the parts of a skilful harmony, dissimilar, and yet made for each other, and blending in sweet accord. 'Now there are diversities of gifts, but the same Spirit; and there are differences of administrations, but the same Lord; and there are diversities of operations, but it is the same God which worketh all in all. But all these worketh that one and the self-same Spirit, dividing to every man severally as he will.'

"By the varied confounding of the same simple elements, a creation is produced where each part relieves, heightens and sets off the rest. Thus the pleasure of constant novelty, fresh and interesting combinations, and of well-adjusted contrasts, is kept up. It is this which feeds all pleasurable excitement. It is more than 'the spice of life.' It is the food of lasting admiration and enjoyment. Melody is sweet, but it is spiritless and monotonous, and soon surfeits the palled ear. But the harmonious 'concourse of sweet sounds' melting into each other, and blending into the rolling tide of music, is the triumph of that delightful art, whose magical effects are the result of variety in unison.

'Assembled men to the deep organ join
The long-resounding voice, oft breaking clear,
At solemn pauses, through the swelling base;
And, as each mingling flame increases each,
In one united ardor rise to heaven,'

"The affections of holy souls are like the ten accordant strings of the golden harps on high. They are attuned by the Spirit of God, who breathes upon them all, and mingles their dulcet notes with divinest skill in the full chorus of celestial song."

I make no apology for so long an extract. It so beautifully delineates our idea that it would be but affectation to attempt to clothe it in another dress.

But prophets and apostles afford but limited illustrations. The principle holds with respect to the whole body of believers. "The manifold grace of God" has, perhaps, wrought in no two persons alike. The illustration taken from the apostles will serve as a general one.

You may examine the religious exercises and the peculiar features of the religious character of each member of any individual church, or of every individual of the church universal, and you will find that the great Architect has as carefully and universally variegated his moral creations as he has his material works. You will discover that, in all the different subjects of Divine grace, the same spirit has wrought "diversities of gifts," and "diversities" of manifestations—"diversities of operations" and of "administrations." Different gifts are engendered, and different graces implanted and nourished in different hearts. One is distinguished by a peculiarly strong, simple and childlike faith. Simple trust and filial acquiescence characterizes such a one. Another class unfold the beauties of hope. However clouds and darkness may surround them at present, they always see light and joy before them. In one, meekness, humility and gentleness abound; while the religion of another is characterized by boldness, courage and enterprise. The religious affections of another are seen to centre very much about holy joy. He is wont so much to contemplate the goodness of God, and more especially his abounding mercy through Jesus Christ as the only ground of human salvation, that he rejoices always with joy unspeakable and full of glory; while

the religion of another is scarcely known outside of the vale of tears. So intently does he dwell on his fallen and his corrupt nature and his hopeless condition by sin, that he does little but mourn his lost estate.

As one has his thoughts directed more especially towards God—as he gets clearer and more comprehensive views of the greatness, and goodness, and holiness of the Divine character, reverence and awe become the more prominent manifestations of his religion; while another, by the more frequent contemplations of his own unworthiness and guilt as a sinner, finds his religious exercises cast in a more sombre mould—clouded by the shadows of humiliation, doubt and fear. The heart of one seems almost constantly to glow with gratitude and expand in love, and is the more easily engaged in labors of beneficence, or drawn out in kindly sympathies for the woes of the destitute and suffering. The heart of another recoils back on itself, and expends the feelings of a broken and a contrite spirit in self-upbraidings and repentant sighs.

The formation of this singular variety in Christian character is very much laid in the early convictions of the sinner as produced by the different aspects and phases in which Divine truth is apprehended, and in those different mental yearnings and anxious heart-struggles which usually precede conversion. Every truly converted soul is brought to one and the same point before the sovereign act of pardoning grace reaches it. All must feel their dependence, their moral corruption and guilt, their absolute need of an infinite Saviour, and must yield themselves up with implicit submission, unfeigned repentance and childlike faith; though there be a vast variety in the *manner* in which each individual is brought

to such a conviction and surrender; and as great a variety in the character of the convictions themselves. "Some are brought," says a great master in Israel (President Edwards, than whom few men ever searched deeper into the secret recesses of the heart, or was more highly endowed with the gift of "discerning spirits;") he was one of the Great Master's choice and interesting varieties)—"some are brought to this conviction by a great sense of their sinfulness in general, that they are such vile and wicked creatures in heart and life; others have the sins of their lives in an extraordinary manner set before them, multitudes of them coming just then fresh to their memory, and being set before them with their aggravations; some have their minds especially fixed on some particular wicked practice they have indulged; some are especially convinced by a sight of the corruption and wickedness of their hearts; some from a view they have of the horridness of some particular exercise of corruption, which they have had in the time of their awakening, whereby the enmity of the heart against God had been manifested."

Correspondingly varied too are the sources of religious comforts which different Christians experience. These vary according to the peculiar direction given to the mind in its awakened state. "More frequently, Christ is distinctly made the object of the mind, in his all-sufficiency and willingness to save sinners; but some have their thoughts more especially fixed on God, in some of his sweet and glorious attributes manifested in the gospel and shining forth in the face of Jesus Christ." Others are moved by the all-sufficiency of the mercy and grace of God, chiefly by his infinite power and ability to save. The truth and faithfulness of God, or the peculiar adaptedness to

their wants of the Gospel, engrosses the mind and moves the hearts of some; while others dwell on the promises, and invitations, and the peculiar grace of the Gospel, and they become the moving themes. In one instance, "the glory and wonderfulness of the dying love of Christ; the sufficiency and preciousness of his blood as offered to make an atonement for sin, or the value and glory of his obedience and righteousness, fill the mind and sway the heart. Or the excellences and loveliness of Christ chiefly engage the thoughts; and the type of religion, which is the result, varies according to the views taken of God and truth.

"In some, converting light is like a glorious brightness suddenly shining in upon a person and all around him; they are in a remarkable manner brought *out of darkness into marvellous light*. In many others it has been like the dawning of the day when but first a light appears, and it may be, is presently hid with a cloud." There is, indeed, an endless variety in the particular manner and circumstances in which persons are wrought on, both at and after conversion, as well as in the degree of hope and satisfaction which they have in their own estate. God confines himself to no particular methods, and therefore no one can make his own experience a rule for others. The work is "glorious in its variety," beautifully displaying the "manifoldness and unsearchableness of the wisdom of God."

But *why* does the "self-same Spirit" work in the children of the Highest such diversities of Christian experience, character and practice? The apostle answers: "The manifestation of the Spirit is given to every man, to profit withal." Christ's mediatorial work among men is a great work, and very various

in its character; and he provides instruments to meet the expansive and varying character of the work. He diversifies gifts and graces as he sees is best suited to profit all ranks and conditions of men, and fit them to perform every possible service in the church, and as is best suited to profit each individual Christian.

Paul speaks (1 Cor. xii. 8-10) of the differences of "administrations" and "operations;" the various ministries or services, and the different labors to be performed as the circumstances and exigencies of the church and the world had need of in his day; and how the mental and spiritual resources of the then present generation of Christians were adapted to meet all these singularly varied wants. "To one is given by the Spirit the word of wisdom; to another, the word of knowledge; to another, faith; to another, the gift of healing; to another, the working of miracles;" and to others severally the gifts of prophecy; of the discerning of spirits; of speaking divers kinds of tongues, or of interpreting of tongues.

Hence, too, the various grades of teachers in the Christian church, and their singularly varied endowments and aptitudes as teachers. To meet the wants of the church at that period, there were appointed, or "set" in the church, "apostles, prophets, teachers, miracles, gifts of healing, helps, governments, diversities of tongues." If all had been apostles, or all prophets or teachers, or workers of miracles; if all had the gifts of healing, or of speaking with tongues, or all interpreted, how extremely limited would have been the range of duties and services which the Christian church would have performed. And if there were not the same wise and benevolent distribution of religious endowments and capabilities in the church of

the present time, the broad field of Christian duty could never be occupied.

Contented, then, should every man be in the work and station assigned him by the great controlling mind. If he be doing the work for which he is fitted and called, he is doing a good and acceptable work; and it matters not in point of honor in the eyes of the Master, whether the department of service which he fills be, in man's estimation, high or low. He alone is high in Heaven's estimate who well does his own appropriate work.

What envyings, jealousies, and unhallowed rivalries; what heartburnings and strifes, would be spared a suffering church, if every individual member would quietly do his own duties, illustrate the graces which the Master has vouchsafed to him, and contentedly occupy the station which God has assigned him. Every grace would then be cultivated, every duty done, every post well filled, and soon "great would be the company of them who publish" the glad tidings of the kingdom.

The thought illustrated in this chapter quite rebukes the pride of those who seem to be doing a great and conspicuous work; and equally encourages all those humble workers in the Master's vineyard, who are doing an equally important and honorable work in the secluded vale. Leave unfilled either the high or the low station; leave undone either the work on the house-top, or the work of obscurity where no human eye sees and no tongue applauds, and you alike mar or mutilate the great whole.

Another closing thought occurs; it is the *obligation* of every individual Christian to do the work providentially assigned him with cheerfulness and zeal. The field to be

occupied by Christian effort is a broad one. Instruction of all sorts and of infinite importance is to be given; cautions and rebukes to be applied; afflictions to be soothed; consolations and sympathies to be administered.

Having, then, gifts *differing according to the grace given to us*, as every man hath received the gift, *even so* let him minister the same, as a good steward of the manifold grace of God.

CHAPTER XVI.

VARIETY IN DIVINE TRUTH, as suited to produce Variety in Christian Character and Experience.

“ ALL Scripture is given by inspiration of God, and is profitable for doctrine, for reproof, for correction, for instruction in righteousness, that the man of God may be *perfect*, thoroughly furnished unto all good works.” We discover in Divine Truth a variety corresponding to that which we have seen in Christian character and experience. “ He who receives the gospel of Christ finds it adapted to all the varying circumstances of his life ; so that in whatever condition he may be placed, it offers to him promises, counsels, admonitions, encouragements, helps, precisely suited to his wants, just as if they were given expressly to meet his case ; as indeed they were, by Him who knew how to give a Bible adapted to all the world and to each particular man in it.”

It is the design of the present chapter to contemplate, in some of its aspects, this peculiar characteristic of Divine Revelation—how it is adapted to meet all the endlessly diversified wants, conditions, and circumstances of man—to be his teacher, his reprove, his guide and comforter in every supposable, or possible condition of life. And

1st. We turn to what we may, in general, denominate

the *literary character* of the Bible. The Bible is in this respect a singular repository of jewels; and you would be astonished at the variegated character of these jewels. The careless reader of the Bible does not take note of the great multiplicity and variety of the *topics* there treated; from the infinite interests of man's immortal spirit down to the most familiar domestic incident, or the most common occurrence in life.

It lays down principles, precepts and maxims, which are applicable in every condition of life. It administers a rebuke, whispers a warning, plies a threatening, issues a command, waves an invitation, soothes a grief, assumes the angel of mercy towards the afflicted, and heals the broken heart, as the varied and ever-changing circumstances of human life require. Its great and simple theme is human salvation through an incarnate God. The design of Revelation is to unfold this simple, sublime theme. In order to this, it was needful that the character of God should be revealed—his inflexible justice, his unspotted holiness, and his overflowing goodness and mercy—that the purity, the righteousness, and infinite importance of the Divine law should be understood, that the exceeding sinfulness of sin should, in every possible form and condition of life, and in all its moral turpitude, be illustrated; its corrupting, desolating, damning effects on the human soul and its debasing influences on the social and civil condition of man should be portrayed—that the great remedial scheme of rescuing man from sin should be brought to light through the ordained Mediator, and his Divine character become confirmed by the teachings of heavenly wisdom, by signs and wonders and many mighty works, and that the

whole system of doctrines and duties should be taught and variously illustrated.

All these various topics must be narrated, discussed and variously unfolded. And were we to go no further, we at once perceive what a multiplicity of subjects must be treated of in the Bible. And what adds vastly to the variety, is that all these subjects are illustrated and enforced in such a variety of ways. It is line upon line and precept upon precept. The same truth, the same fact or doctrine or precept, is presented in so many aspects, and urged by so many considerations.

But the field covered by the Bible is vastly broader. There must needs be a *theatre* on which the great drama of redemption must be acted. This must be fitted up as a suitable habitation for intelligent creatures. It must become not only a theatre for the unfolding of the mysteries of redemption, the maturing and consummating of the plans and purposes of the Divine mercy in respect to man's salvation, and the carrying out, in all its benevolent details, the one great scheme, but on the other hand, this earth should be not the less the theatre on which should be developed the *evil of sin*—the turpitude and inveteracy of the disease which it is proposed to heal. Here the poisonous seed should be planted—here vegetate in a prolific soil—here send up its bitter plants, which should grow and blossom and bring forth, in all its vile luxuriance, its bitter fruits.

In order to meet man's wants, and to satisfy his reasonable inquiries, what an extensive and multifarious *history* must the Bible then contain. The pious, reflecting mind is not satisfied simply to know that this world exists, fitted up in so much beauty, richness and variety. But he wishes to know

who is its maker? who the author of all these wonderful works, and mysterious arrangements of creation and Providence? who the controller and preserver of the great system? *Why* all was made and so carefully governed? He needs a universal history—an ancient history, which reaches back to the beginning of time; and forward to the end of time. The Bible is such a history. It is a history of the world—of its origin and authorship—of its fitting up for the habitation of man—of the origin and character of its first inhabitants and their occupancy of the earth—of the apostasy of the progenitors of our race, and the “death and all its woes,” which followed in its train. It is a history of that wonderful plan of recovery from the ruins of sin and of restoration to the favor of God. It is a history, too, of all the great nations of the earth, and of all the great events from the beginning to the end of time. What a multitude of topics are embraced, what a long series of generations have their great and leading events chronicled in this book. How varied, then, must be its history!

But the Bible is vastly more than a chronicler of the past or a true mirror of the present. Prophecy is unwritten history, painted in symbol or seen in vision or dream or type or shadow, or communicated to some favored minds, to be transferred to the sacred page for the edification of all future generations. As the scroll of the mysterious future unrolls, the symbol or type fades away and the veritable page of history takes its place.

The Bible as merely an historical book covers an exceedingly broad and varied field.

I have alluded to other topics detailed in the Bible which further illustrate its varied teachings. The beauties of holiness are

to be unfolded ; the truth of our religion to be defended and confirmed ; the excellencies of the gospel to be tested in its reforming, civilizing, and sanctifying efficacies ; the influences of religion to be shown in all their bearings on the various conditions of life both now and hereafter. To show all these things, what a variety of instructions, histories, narratives, biographies, the Bible must contain—what civil, social, domestic and individual histories must be narrated, in order to bring out and present in their proper light all the practical excellencies and every-day benefits of our Religion.

On the other hand, sin and all its bitter fruits, must be correspondingly, or by way of contrast, illustrated. It is as much the plan of the Divine author to deter from sin and its final ruin as to attract by holiness. Hence the Bible is singularly prolific in its illustrations of the evil of sin—how offensive it is in the sight of God—how blighting it is in all its developments in this world, and how finally damning to the immortal soul. The Bible, therefore, not the less abounds in histories, biographies and narratives illustrative of this sad topic.

One can scarcely overlook the delightful fact that the Bible presents such a variety of considerations, expressed in every conceivable form, to deter men from sin ; and so many and such various motives to lead them in the paths of righteousness. Nor would we overlook the vast variety of topics, thoughts and considerations, as expressed in ten thousand different ways, which are designed to excite and cherish in the soul the *devotional* feelings. The motives thus held out to draw men to God are more than we can number.

Again, the *style* of the Bible is worthy of a remark in this connection. Written by so many different individuals, during

so long a period of time, and in so many different countries, its style must vary accordingly. Each writer brought his own peculiar qualifications to the work—his own idiosyncracies—his own mental aptitudes—his own caste of piety. Hence no two wrote in the same style—no two illustrated the same truth in the same manner—each drew his illustrations from the manners, customs and scenery of his own country; and the composition of each was highly tinged with the history of his own times, and the topics which each discussed strikingly partook of the age in which he lived.

The great variety in the *modes* of teaching in the Bible, is not the less worthy of remark. Besides history and prophecy, touching narratives and terse maxims and sayings, the Bible abounds in poetry, parables and proverbs; in types, shadows and symbols—in all sorts of figures of speech which can give interest, life and variety to its teachings. Indeed, we can scarcely conceive of a mode of illustration and enforcing truth, and of arresting the mind and reaching the heart and conscience which it does not adopt. Nothing is left unsaid—no argument is left untried which might convince, persuade or draw by example. As a literary treasure the Bible is singularly rich and varied.

2. We should arrive at the same conclusion were we to contemplate Divine Truth *as a means of converting the sinner, or sanctifying the saint*. It abounds in instructions—motives—commands—invitations and threatenings, presented in every possible form, and urged by every possible consideration, to arrest the erring and to turn his wayward feet in the way of righteousness and peace. It meets the sinner at every turn and corner, rebukes his waywardness, and spares no pains to

rescue him from impending ruin. It holds out before him every inducement that he should choose the way of life.

And in like manner the child of God, who desires that he may grow in grace and in a knowledge of God his Saviour, comes to this fountain of living waters—to these green pastures of eternal Truth, and how is his soul satisfied with every good thing! It is to him a feast of fat things. So abundant and varied is this Bread of life, that not a want is left uncared for. Is he joyful? the songs of Zion are put into his mouth. Is he afflicted and cast down? the voice of Divine Truth hails him to the healing waters, whose consolations are neither few nor small. Do the burdens of life oppress him? Does the burden of sin crush him down? Do clouds and darkness surround him without, and a deeper darkness enshroud his soul within? he has his remedy. Sacred Truth, in some of its endlessly varied aspects and applications, is at once the fountain of his consolation, and his never failing remedy. Does he sigh for greater measures of grace, a closer walk with God, a nearer likeness to Christ, a more perfect assimilation to the Divine nature, he finds the Bible doubly rich in all the resources needful to realize such an end.

How does the Bible abound in ways and means without number, to set life and death before the soul! It appeals to every passion—to every interest—to self-love—to our sense of honor, of right, of gratitude—it presents every motive that can be drawn from heaven, earth or hell, that the soul should aspire heavenward. How manifold is the wisdom of God, as made known in his word: “Suited to every sinner’s case.”

There is not a virtue which some Bible truth, doctrine, precept or maxim is not fitted to produce and cherish in the soul;

nor is there a vice which it does not rebuke, and, if not resisted, surely annihilate. Its resources for purifying the heart and cultivating every thing in the soul that is lovely and of good report, are as abundant and various as all the devices of sin which are to be met and eradicated, and all the forms of love to be cultivated, can possibly require.

“What thoughts around thy sacred pages cling,
Great master-volume of exhaustless lore!
Here man mature, and youth in life’s green spring,
Gather new treasures to their scanty store;
Science and art, the themes of every age,
Find their reflection in thy ample page.

“But more than all, what holy truths are thine,
What lights to guide the pilgrim on his way!
In sorrow’s hour what solaces divine!
In death what props the trembling soul to stay!
Oh, in all times what hopes through thee are given,
To fit the spirit for its home in heaven!”

3. The *adaptations* of Divine Truth to every want and every possible condition of life, again, beautifully illustrates its variety.

In nothing is the Bible a more remarkable book than in its adaptations to every want, to every state of mind, to every condition in life, whether temporal or spiritual. Are you rich? The Bible warns you against the dangers, the temptations and the deceitfulness of riches—against the pride and oftentimes foolish extravagance—the selfishness and avarice which riches too often engender: ever cautioning them who have great possessions “how hardly shall they that are rich enter the kingdom of heaven. Are you poor? You share richly then in the

consolations, comforts and promises of God's word. To the poor the gospel is preached—to them who are destitute of the good things of this life hath God spoken with a double frequency and a peculiar tenderness. Christ's mission on earth was in some special sense to the poor. He relieved their temporal wants—healed their diseases—sympathized in their infirmities—took on him their lowly condition—spent most of his time among them—and especially was he at great pains to teach them how they might be rich towards God—heirs of God to an incorruptible treasure.

Are you prospered? Are your relations in life happy? Does health smile in your dwelling? The Bible has much to say to you, how God's goodness ought to lead you to repentance—how you ought to do good and communicate—how employ the advantages which health, and influence and social position give you to the honor of the bountiful Author of all this goodness. Or are you, on the other hand, depressed, afflicted and plagued all the day long. Sickness enters your dwelling—wasting disease mars the strength and beauty of your household, and spreads the dark clouds of sorrow around; or death with his relentless scythe cuts down some beloved one, and fills the once happy circle with lamentation and woe. You now find the Bible *your own Book*, written to cast light on your dark path, and to lift up the head that hangs down, and to support you under these burdens and bereavements of life. How does the Bible abound in supports and consolations to the weary and the heavy laden—to the oppressed and suffering of every name and degree! But it is not the *abundance* of these consolations that we are called upon alone to admire;

it is their beautiful *adaptation* to every case—their singular variety. Here the Bible is one exhaustless storehouse.

Are you in the path of duty? The Bible is now a light to your feet and a lamp to your path. It is your counsellor and guide, and if you will heed its oft repeated and varied precepts you shall not be left to wander in forbidden paths. Or are you *out of the path of duty*?—lukewarm, backslidden—stumbling on the dark mountains of sin—strayed as sheep from their shepherd. The good spirit that dictated the Divine word did not overlook you, though you be afar off. How frequently are you rebuked for your wanderings—how frequently invited to return—and what encouragements, what precious promises of forgiveness and a restoration to the Divine favor, if you will return to allegiance and duty.

Again, has your mind been highly cultivated and expanded by education? Do you love to search into the deep things of God—to study the mysteries of redemption? Are you interested to know the origin, the history and the destiny of our world—and the more mysterious origin, history and destiny of man, the sacred volume is here, too, an exhaustless fountain. And especially if we embrace here the great and profound things of Redemption, we have a theme which is most prolifically discussed and enforced in Holy Writ. It is a field boundless and variegated. No matter how profound and excursive the mind which is brought to the exploration of this field, no limit is ever reached. The mind of a Newton or an Edwards feels no exhaustion of the theme. The deeper they penetrated into the mysteries revealed in the sacred pages, the higher they soared amidst their sublimities, the more they felt that there lies beyond any present investigations, illimitable fields

on which the Bible has thrown just light enough to stimulate and aid their researches, but not enough to relieve the mind of exertion. The Bible is remarkably adapted to meet the demands of the most intellectual class of its readers.

Nor is its adaptation less worthy of remark in reference to the unlettered and ignorant. The Bible, in a remarkable manner, comes down to the condition of this large class of our race, and adapts itself to the measure of their understanding. All the great *fundamental* truths of our Religion, are so simplified as to be brought within the compass of the humblest mind. So abundant, indeed, are the teachings of the Bible addressed to the masses of mankind, as to indicate that this wonderful Book was, in some special sense, given to them.

Again, the adaptations of Divine truth to every *moral state of the Christian*, indicates other sources of variety. Are you fervent in spirit serving the Lord; is your walk close with God; your supreme affections set on things above; and you, body and soul, consecrated to him who has bought you with a price? Precious, then, will be to you the living oracles of God. As food to the hungry, as water to the thirsty, so is this heavenly manna to all such as have received the baptism from above. To no class of Christians is a greater portion of the Scriptures adapted. To them, in a special sense, they are profitable for doctrine, for reproof, for correction, for instruction in righteousness. They are ever reaching onward and upward for larger measures of grace and a more perfect conformity to God their Saviour. They find the Word to be life and spirit, in carrying on the great work of sanctification in the soul. They feel in their innermost souls the congeniality and adapt-
edness of the living Word to meet all their spiritual aspira-

tions, and to guide and aid them in all their struggles to overcome the world and rise to the mansions of the blessed. They are ready to appropriate the whole volume to their own use. Their unfeigned testimony is, "the law of the Lord is perfect, converting the soul; the testimony of the Lord is sure, making wise the simple; the statutes of the Lord are right, rejoicing the heart; the commandment of the Lord is pure, enlightening the eyes; the fear of the Lord is clean, enduring forever; the judgments of the Lord are true and righteous altogether. More to be desired are they than gold, yea, than much fine gold; sweeter also than the honey and the honey-comb. Moreover, by them is thy servant warned; and in keeping them there is great reward."

And in like manner, too, he who has departed from his God, who has turned his back on heaven, and been false to his God and his duty; who has become engrossed in the world; who is lean in spirit and forgetful of the Lord that bought him, finds the Bible full of reproofs and warnings against his present course of alienation and disobedience, and equally full of promises and proffers of aid if he will repent and return to his duty and his God.

Joyous in spirit, or depressed in spirit, abounding in the love of God and richly replenished with every grace; or pining in spiritual penury; mourning and bereaved; living or dying, each finds a "word fitly spoken" to his case. It speaks peace to the righteous; rest to the weary; comfort to the mourner; hope and support to the dying; and eternal blessedness to all who love and reverence the Son. And not the less does it utter threatenings to the wicked, alarm to the careless, and eternal abandonment to all who lay not up a treasure in heaven.

Though Divine Truth be so singularly diversified, and this wonderful variety so admirably meets the equally varied wants of man, yet there is perhaps not a truth which will impress any two minds precisely alike, and produce the same conviction. And so, by the way, we might say of the teachings of Providence, and all other means and agencies employed to teach man the great lesson of immortality. The same dispensation of Providence will not produce the same result on any two individuals. One will learn one lesson from it, another a different lesson.

Thus is the Bible a mirror reflecting every truth needed to meet all the possible wants of man. Would we *know ourselves* we must look into this mirror, for here only shall we see a correct likeness. But woe to us if, having looked into the glass, we go away and forget what manner of men we are.

Or would we know God : how high, how holy he is, yet how condescending ; how just and yet how ready to show mercy ; how much he has done and will do to support his justice, yet how willing to pardon ; would we study the character of God, would we array before us his fearful, his lovely attributes ; see God as *love* to the man of a meek and humble spirit, but as a consuming fire to all the workers of iniquity ; the only fountain of such is the Bible. There is knowledge high as heaven ; profound as the lowest deep. Do you ask how God can maintain his justice, and yet pardon the rebel ; how punish sin, yet let the sinner go free ? Open your Bible, and you will find unfolded there a *plan* most wonderful, gracious, mysterious, by which God can be *just*, and yet justify the believing sinner ; a plan which no human wisdom could have devised, and which angels love to contemplate. Nowhere

else is such wisdom found; nowhere else are revealed themes of so profound personal interest to ourselves. "Search the Scriptures," for in them ye have eternal life; and they are they which testify of our highest interests here, and of our best interests in the eternal world.

Nowhere else do you find a book that parts the folds which curtain from our view the unknown future, and gives us a glimpse, through intervening clouds, of that world where angels sing and devils wail. Revelation apart, futurity is a dark unknown. That the soul should live beyond the grave, how it shall live, for what purpose, and in what condition, we should know but little beyond a dark conjecture. And as little should we know in reference to a state of reward and punishment. Whether death be an eternal sleep, or the soul at death migrate into the body of some animal or tree, the light of nature may conjecture; while by the light of revelation we *know* it shall "be well with the righteous," but it shall "not be well with the wicked." The righteous shall shine as the stars for ever and ever; the wicked shall be shut up in outer darkness, where shall be weeping, and wailing and gnashing of teeth.

Would you have your pathway through the dark valley illumined, and a guide to conduct you to the presence of the eternal Glory; would you learn the language of Canaan, and survey, beforehand, the celestial fields, and hear the songs of the angels, and catch a glimpse of the ineffable glory of the Lamb; unroll the Sacred Volume, and in the spirit of heaven read its golden lines.

CHAPTER XVII.

How various the dealings of Providence by which men are brought to the Saviour
—and how various the *manner* by which the means of grace in different
individuals are made effectual.

THERE remains yet another aspect in which to present man in his moral relations. We refer to the *various ways* by which sinners are brought to Christ, or the children of God sanctified; whether it be by the truth and other ordinary means of grace, or by the kind interposition of Providence. We can scarcely separate the two; for there is often so much that is Providential in the preparation of the mind to receive the truth, or in bringing the individual in circumstances to be favorably acted on; or the enforcement of the truth on the awakened mind and the enlightened conscience, that we cannot but assign to Providence a very prominent place in the work of saving the soul.

I have spoken of the variegated character of God's truth as suited to meet the essential wants of man, to engender and nourish into maturity an equally variegated series of graces and virtues, to hold out a promise, to ply a threatening, to offer consolation, to proffer needed aid, in every possible condition of life. And we have seen how singularly Christian character and experience differ, indicating that all God's moral

creations present the same infinite variety as we know all his physical creations do.

But the thought presents another aspect: *the various ways and means* by which men are *first* brought into a saving relation to Christ. Each individual has an experience here peculiarly his own—each entered the kingdom by means, or under circumstances, or drawn by motives, differing from those of any other individual.

Glorified saints will, in this respect, each have a different history to relate. Paul will tell how the Crucified one met him suddenly when on his way to Damascus, and wickedly intent on the destruction of the Christians and the extinction of Christianity. Andrew and John needed but a word from John the Baptist, and they instantly followed Christ. Peter will repeat to the eternal praise of God, how Andrew his brother sought him out, told him of Jesus, and brought him into the fold. Jesus himself speaks directly to Philip, and he unhesitatingly yields to the heavenly mandate, and follows the man of Nazareth; and he in turn becomes the bearer of the heavenly message to Nathaniel. This guileless Israelite can rehearse to the wondering universe how Philip sought him out, told him how he had seen that wonderful stranger, foreseen of prophets and longed-for by saints of old; and he brought him to Jesus. Nor will Matthew ever cease to incorporate into his eternal song of praise the grateful recollection that the voice of Sovereign Mercy reached him while engaged in the fraudulent, oppressive acts of his odious office. Jesus passed by and bade him follow him.

Fishermen were called while casting their nets into the sea: others gave heed to the heavenly voice, because of a miraculous draught of fishes: others, because he feeds a great mul-

titude with a few loaves and fishes : and others, because of some extraordinary cure, or some other wonderful miracle. The woman of Samaria who met Christ at the well, and all those "Samaritans that believed on him for the saying of the woman," can never cease to admire the wonderful Providence that brought her to the well at the favored moment when the Lord of life was there. Mercy overtook them in an hour the most unexpected. Angels wonder that fields all white for the harvest were found among a people supposed to be shut out from the merciful interposition of Heaven. How readily did Christ receive this unfortunate woman, and make her the messenger of good tidings to a great multitude from the city.

But how differently did he receive the poor penitent woman of Canaan. She cried after him—she fell down and worshipped him, saying, "Lord help me." The disciples became impatient of her importunity, and besought the Lord to send her away. And Christ still put her off. But, like poor Bartimeus, her eternal song of praise will not the less abound that Christ did at length hear her cry, and grant her a gracious smile.

Nicodemus came to Christ under the cover of the night, yet how kindly did Christ receive him, and how patiently teach him, unfolding to his ingenuous mind all the great truths of the gospel. I know not that Christ any where showed so special a regard to an individual. A teacher in Israel is received as a little child by the teacher sent from God, and is taught what be the "first principles of the doctrine of Christ." Again, an earthquake—a mighty display of divine power, shakes the prison at Philippi. It is in vindication of the religion of Paul and Peter. It is an arrow of conviction to the heart of the jailor. He comes in trembling, falls down at the

feet of the apostles, and asks what he must do to be saved. Christ met him at this extraordinary juncture, and spoke peace to his troubled soul.

Some are drawn into the kingdom by the sweet influences of love. The still small voice speaks, and they obey. Others are overtaken as by an earthquake or a thunderbolt, and are forced in as by the arm of the Almighty. Some are suddenly aroused as by the outstretched arm of Mercy; and while yet their feet take hold on death, they are snatched as brands from the burning. Good old Samuel cannot recall when he first yielded his heart to his God. He served God from his infancy—seemed a child of Heaven from his birth. The thief on the cross heard not the words of pardoning grace till the last sands of life were running out, and his probation was just closing.

And who will have a stranger story to relate of his introduction into the upper kingdom, than the once proud and vaunting, the oppressive and ungodly Nebuchadnezzar. During seven long and weary years he is driven from his kingdom—humbled for his sins to the level of the beast—made to eat grass like the ox—his body was wet with the dews of heaven, till his hair became as feathers, and his nails as birds' claws: when at length he was restored to his right mind, and brought to acknowledge the God of Heaven. He blessed the Most High, and praised and honored Him that liveth forever. "Now I, Nebuchadnezzar, praise and extol and honor the king of heaven, all whose works are truth, and his ways judgment: and those who walk in pride he is able to abase."

One, like Mary Magdalene, may tell how *quickly* Christ revealed himself to her; another, like Cleopas and his com-

panion in his walk to Emmaus, how long he *delayed* to make himself known to him. Another meets Christ in the field, or the workshop, on the journey or by the fire side, when at their daily avocations. To others Christ makes known his saving power in the sanctuary, in the house of prayer, or in the closet. Some, like Mary Magdalene after the resurrection, address Christ *first*; in great agony and earnestness they urge their suit and seem to be denied; others seem first spoken *to* by Christ and gently led to the cross. Endlessly varied indeed are the methods which Sovereign Mercy takes to gather in the jewels of the great king. Some are led, some drawn by the light of truth and the sweet influences of love and goodness—some are driven by the stern force of adversity or some terrible display of the Divine power and majesty.

Nothing is fraught with more mystery to us than the very different dealings of Providence with persons who seem to us to be in a condition of life, and to possess a character very similar. One is prospered—is successful in trade, or his fields yield a rich return for his labor; his children grow up about him, affectionate and prosperous, and has abundant occasion to say, “goodness and mercy have followed me all the days of my life.” Another—and we know not but he is quite as worthy—is plagued all the day long. Judgments are unsparingly mingled with his mercies. Often does the drought desolate his fields, or the winds or the waves, fire or the lawlessness and violence of man, ruin his business; or sickness spreads the gloom of death over his household, or cruel bereavement clothes his dwelling in mourning.

And the same person experiences, at different periods, providential dealings altogether different. Why these diversi-

fied providences, in circumstances, perhaps, very similar? If, as has been intimated, it is the plan of Divine Wisdom to ply the soul of erring man with every possible means for his rescue—to set life and death before him in every possible form—to urge him by every possible motive—to present truth in every aspect; and if it be the plan to prepare in this vineyard below, every variety of Christian graces and virtues for transplantation to the Paradise above, then we see reason why God should diversify his providences as widely as he has his word and his works. We need not, therefore, doubt that all these various and sometimes seemingly unequal, if not contradictory providences, are, though in different ways, working out one and the same great end. Every providential warning or encouragement, every trial or affliction, every hope or joy we experience, is designed and fitted to cultivate some particular grace in the soul, or to eradicate some particular sin.

Providence is a sealed book. Its teachings are rather for discipline than for instruction. In reference to our limited understandings its events are very much veiled in mystery. We are but poor interpreters till the end comes. Providence is a mighty teacher, like a great book of enigmas, unfolding one wonder after another, yet each remaining a mystery till, by unfeigned acquiescence, and a ready obedience, we get the key that unlocks the whole. "We walk in a way which we know not. We labor for our Master, but never know beforehand which shall prosper, whether this or that. The hand that beckons us along to glory, waves at us out of impenetrable clouds. We lay wise plans, but they miscarry. We commit gross blunders, and they are overruled for good. We run towards the light, and find it

darkness. We pray for joys, and they bring us pains. We murmur at God's judgments, and they are big with blessings. We run towards the doors to which worldly ambition has called us, and only a solid wall is across our path. We move against that wall at the call of duty, and it opens to let us through. The lines of our lives are all in God's hands. What shall befall us we cannot know. What is expedient, we cannot tell. Only this we know, that God would shape us to himself, whether it be by the discipline of joy or the discipline of sorrow. To make us perfect as he is perfect, this is the choice of our Heavenly Father; this is the end of all his revelations: while everything not helpful to this, he hides away out of our sight. Verily, 'the secret things belong unto the Lord our God; but those things which are revealed belong unto us and to our children forever, that we may do all the words of this law.' A partial revelation, then, is the method, and obedience the end."*

So diversified and strange, indeed, are the Divine dispensations that you may not, in any given case, make any calculation what they will be—though we may, with the greatest assurance, reckon on the uniformity of the laws of Nature and the continuance of the Divine rectitude and beneficence. Follow through life any two individuals who started out with equal prospects of success, and you will meet little but *contrast* in their future histories. The one is the child of prosperity, the other of adversity. The one stumbles in a dark way and sees not when good cometh, the other scarcely knows the footsteps of evils. How varied have we all, as a matter of personal experience, found the dispensations of Providence.

* Prof. R. D. Hitchcock, New York.

We are conducted in a "path which no fowl knoweth, and which the vulture's eye hath not seen." How few of all, now of adult age, are enjoying the condition in life and pursuing the course, which, in the buoyancy of youth and in the season of confidence and hope, they had marked out for themselves! One has followed the star of his destiny here and another there, till they remain but illustrations of the manifold ways of an all-controlling Providence.

But of one thing we may ever rest assured. It is that all the dispensations of Providence, whether seemingly adverse or prosperous, are designed to correct the wayward, to bring back the wanderer to duty and to God—to abase the proud and to raise up the humble, and to build and beautify the new Jerusalem with living stones of every possible variety.

Did our limits permit, it would be interesting to cite a variety of instances like the following. These will serve as specimens of the manner in which Providence is continually at work to turn men to God, and as examples of the oftentimes wonderful means which God takes to accomplish his purposes.

The first is what the writer (who was personally interested) calls a "solemn and terrible sermon on the Hudson, on board the unfortunate Henry Clay." He writes to a friend as follows: "I have not been indifferent to the claims of religion. But you will cease to wonder at my late course when I tell you that under the effect of that solemn and terrible sermon preached to me last summer, upon the Hudson, by the voice of God; in gratitude for so mighty a deliverance; and in breathing, as it were, the very air of eternity, I cast myself upon my knees on the sand, and, pouring out my soul in thankfulness, dedicated myself to Him who stood in majesty before me.

How could I have done otherwise? Surrounded by the dead and the dying, delivered by the special act of Providence from a destruction which, a moment before, claimed me for its victim; with a full vision of judgment and eternity, and my past life passing scene by scene before me; how could I do otherwise? And how can I forget my deliverance and my promise? I thank God for the terrors of that hour, and will carry the recollection of them and of His gracious interposition into eternity with me. Christ died to redeem me, and God interposed between me and death, bearing me above the flames and the waves, that he might not die in vain. How merciful to me, so unworthy!"

We should find no end to pointing out the diverse means and the different ways which the Lord employs to lead men to a knowledge of Jesus Christ. Sometimes it is a casual word by the wayside; or kind admonition from a fellow-traveller or fellow-laborer in the field or in the workshop, or by the fire-side. Now it is some kind act or expression of a friend; now the reproach of an enemy. It is the stern voice of adversity, or the benignant smiles of prosperity.

"Sometimes it is a poor colporteur, who, meeting with a man proud of his talents and his learning, addresses to him words which make a salutary impression on his mind." Again, a servant woman, a beggar, or some poor ignorant sufferer, becomes, in the hands of God, the instrument of the most precious blessings to an intelligent and influential family—who, in turn, become the ministers of lasting good to the wider circle in which they move.

A delightful illustration of this is found in a narrative related in a German religious journal, and vouched for by relia-

ble parties in this country.* It is the conversion of an infidel by a child. A little child of eight years old became the missionary and preacher to an intelligent infidel of high birth. So well does the narrative illustrate the sovereign power of God in the conversion of the sinner, as well as the singular methods he adopts to effect it; and so interesting is the story itself, that I may, without apology, introduce it entire as a suitable close of the chapter and a striking illustration of our present theme :

“ A rich Count, of Silesia, having frequently visited Berlin, Frankfort and Paris, had imbibed a bitter hatred against Christianity. The conversation of worldly men, the reading of infidel books, the pleasures to which he was addicted, the large fortune he enjoyed, all had inclined his heart to skeptical principles. Returning home, he abandoned himself without restraint to sensual pleasures, and openly professed infidelity, diffusing this poisonous influence all around him.

“ As he had in his *gift* the appointment of the parish pastor where his domains lay, he called a young minister whom he had formerly known at the university, and who was no more religious than himself. These two men seemed to vie with each other in infidelity. Being the count's favorite companion, the unworthy pastor sought only to please his patron. Their talk at table and elsewhere was often mere scoffing at sacred things, so that the servants, frivolous as they were, could not avoid being shocked.

“ The count was, as you may think, highly pleased with his pastor. He told him often that his greatest delight would be to see all religious opinions—which he called *superstitions*

* *N. Y. Observer*.—From a correspondent at the Mission House, Boston.

—effaced gradually from the minds of his vassals; and he added, that if he could obtain such a result, he should think he deserved well of the country. The parish thus went on very badly, and impiety prevailed in all its forms. Only one man—the schoolmaster—resisted the current; but he had no great learning or authority, and he was under the jealous watch of the pastor, who did not wish the children to hear evangelical truths, or, as he said, to be imbued with *dark and gloomy notions*.

“What *human* means were there to rescue this German count, since the pastor himself encouraged him in his infidelity? But that which is impossible with man, is possible with God. ‘A poor child of about eight years,’ writes the count afterwards to one of his friends, ‘was chosen by the good Shepherd of our souls to be an evangelist to me, and to lead me from infidelity to living faith. The event will be for me a perpetual motive to adore my Redeemer.’

“The case was thus :

“One day the count, walking over his grounds, heard the sweet voice of a child in a garden. He approached, and saw a little girl who was singing, seated on the grass, her eyes moistened with tears. This sight excited his curiosity; he entered the garden, and seeing that the little girl had a sweet and intelligent air, he felt moved with pity, the more so as her mean clothing showed that she belonged to a very poor family.

“‘Why do you weep? are you sick, my child?’ asked the count.

“‘No,’ she replied, ‘but I weep because I am happy—so happy!’

“‘How can you weep, if you are happy?’ said the count, surprised.

“‘Because I love so much the Lord Jesus Christ?’

“‘Why do you love him so much? He has been dead a long time; he can do you no good.’

“‘No, he is not dead; he lives in heaven.’

“‘And even if this were true, what benefit is it to you? If he could help you, he would give money to your mother, that she might buy you better clothes.’

“‘I do not wish for money; but the Lord Jesus Christ will take me one day to himself in heaven.’

“‘It is your grandam, or some such person, who makes you believe this.’

“‘No, no, it is true, and it makes me glad.’ And the child’s eyes filled again with tears.

“These simple replies, this candor, this happiness in poverty, forcibly struck the count’s mind. He gave the child some money, and went away.

“‘Two things,’ he writes in the letter above cited, ‘occupied my thoughts on my return to the house, and the following days. I asked myself, How did such sentiments find their way into this child’s soul? for I knew that neither the pastor nor the schoolmaster had imparted them. Next I wondered how a child of eight years could be filled with such sincere love; for I had remarked in the girl’s eyes an ardent affection for the Redeemer; I had seen that her soul was happy. In vain I sought a *philosophical* solution of this phenomenon; it was inexplicable to me.’

“While he meditated on these things, the count remembered another incident. Having set off on a journey from Cassel to Gotha, eight or nine years before, he stopped at New-Dietendorf, a settlement of Moravian Brethren, and was led by

curiosity, or to beguile the time, to one of their evening meetings. The pastor preached on a subject which appeared to him then very singular, namely, that the Lord honors persons who *profit by a child's conversation*. This sermon excited the count's sneers rather than his sympathy. But the subject recurred now to his mind, after his interview with the little girl. He thought continually on *profiting by a child's conversation*.

“On his return home, he was more serious, and avoided talking as before on religious topics. The pastor, his constant guest, was surprised at this reserve; but the count did not speak of the conversation with the little girl, lest he should be ridiculed.

“A week afterwards he was called by his business to journey on the frontiers of Austria. His road led him to Gnadenfrey, another settlement of Moravian Brethren. He arrived there at night. ‘The next morning,’ says he, ‘I heard the bells ring, and was told it was the *children's festival*. The director allowed me to attend the *love feast*, and the children's singing pleased me much. I went also to the evening meeting. The preacher delivered a touching discourse on the text: “Have ye never read, Out of the mouth of babes and sucklings thou hast perfected praise?” (Matt. xxi. 16.) At the close of this sermon the pastor made an affecting prayer, in which he commended to the church's remembrance children and youth. This service made upon me so strong an impression, that I am sure it will last throughout eternity. I was bathed in tears. I felt something which I had never experienced in my life before. The question which the persecutor Saul addressed to Jesus on the way to Damascus: “*Lord, what wilt thou have me to do?*” —this question arose in my troubled soul. I continued to

weep bitterly till a sweet peace had penetrated my heart. I felt then a tranquillity which words cannot express. I was convinced, to my great astonishment, that the name of Jesus—that name which I could not hear formerly without contempt—was become to me infinitely dear and precious, and that I had obtained mercy.”

The noble Count of Silesia marches now faithfully under the holy banner of Jesus Christ, admiring and blessing the ways of Providence. .Probably the most learned theological arguments would have been powerless against his arrogant skepticism; but what learning was incapable of doing, the Lord did by means of a child.

CHAPTER XVIII.

Man's varied wants: Food—Clothing—Habitation—Luxuries. Land, Sea, Mine, Forest, River taxed to supply these wants. Mental Wants,—Moral Wants.

I HAVE already extended my remarks on man beyond my original design. Yet there remains another topic not to be overlooked. I refer to *the singular provision made to meet man's wants, and the abundant resources which administer to his happiness.*

Is it asked again why God so singularly variegates his works and his ways?—why he multiplies the creatures of his hand in such endless profusion? We may return, at least, a partial answer. He does it, no doubt, to make himself known to man. Such power over *matter* as to mould a few elementary substances into such an infinite number of forms, and to give them such an endless variety of natures, characters and uses, each distinct from every other, attests his infinite power and universal control over every particle of matter in the material universe. His wisdom, his exhaustless goodness to his creatures, is manifest in this peculiarity of the Divine mode of working. And yet more strikingly illustrative of the Divine skill are the multifarious ways of his working in reference to *mind*. Its connection, in any conceivable form or for any purpose, with gross matter, is sufficiently marvellous. And

more God-like yet is the wisdom and skill displayed in the creation of such gradations and varieties of mind; its capabilities, habits and tastes are so wonderfully variegated. In giving existence to all these mental diversities, God has made a beautiful revelation of himself. It is only in harmony with what he has done in his material creations. In this respect, too, he makes known in his manifold works, his manifold wisdom and goodness.

Another reason why God is at so much pains to variegate his works is found in his love to minister, in all the plenitude of his goodness, to the wants of his creatures, especially his intelligent creatures. The Divine beneficence is as a full and overflowing fountain; its pent-up waters in every direction seeking an egress. The Divine mind is ever intent on devising ways for new manifestations of his benevolence. God delights in the happiness of his creatures.

We have seen in the preceding chapter how God *reveals* himself, in the peculiar feature of his works which we have been contemplating; magnifying, in every new creation, his wisdom and goodness beyond all human thought or conception. We shall now endeavor to get some just idea, how God, by a never-ceasing diversity of his works, meets the equally diversified wants of his creatures.

The wants of man may be ranged in three general classes: physical, intellectual and moral. We specify man because he is the noblest creature of God; and his wants, especially in his civilized condition, are vastly more numerous and varied than those of any other class of animals.

First, how numerous are man's *physical* wants, and how correspondingly abundant is the supply! His food, clothing,

habitation, luxury, means of defence, facilities and means of locomotion, all combine to make constant and the most liberal demands for their supply: and in like manner the preservation of health, and all the social and domestic comforts and enjoyments of man. The wants of man are very much in proportion to his civilization. As he rises in the scale of being from the savage state his wants constantly increase. As a savage, his food is scarcely more than the raw material, badly cooked, badly served, and scarcely sufficient to keep body and soul together. And his clothing and habitation are but a single remove from those of the brute creation. But how different is man in his advanced condition. For *his* clothing he demands fabrics, the produce and manufacture of every land and clime on the face of the earth. The cotton of the tropics, the silk, and the wool, and the flax of the temperate regions, and the furs of the arctic, are made to contribute to his wants. The herd of the stall and the wild beasts of the forest, supply the different kinds of leather used for his shoes and other parts of his dress. One land contributes the gems and precious metals which enter into the manufacture of his watch, and supply other ornamental portions of his apparel. One would be surprised at the full inventory of the costume of a well-dressed man, or a fashionable woman's entire wardrobe from hat to shoes. What a variety of articles; what different fabrics, the produce of every latitude, the workmanship of hundreds, perhaps thousands of individuals, and of almost every craft, before they become articles of traffic and use; and lands and seas were traversed, and hardships and diverse perils encountered, before these various articles were all brought together and made to adorn the form of a single individual.

But man's wants in respect to *food* are yet more constant and extensive. Few and simple as these wants are in a savage state, they are indefinitely multiplied in his civilized condition. The tenants of the stall, the beasts of the field, and the birds of the air, and the fish of the sea, are constantly taxed to minister to the palate of man. And when they have sent forth their most liberal contributions, they have supplied his table with but its first dish. All sorts of *cereal* productions, foreign and domestic, enter largely into his bill of fare; and so does a great variety of vegetables, fruits and spices of every name and nation. Man is an omnivorous animal. If he do not eat every thing, his tastes crave and his wants demand the productions of every soil and climate. Every island, continent and sea, is explored to collect the means to gratify man's wants for food.

But man must have an habitation—a comfortable, good house—an elegant, commodious, costly house, if he can get such a one; and, from attic to cellar, it must be magnificently furnished. Go into such a mansion, take an inventory of every article, and of the material of which every part of the edifice, and each article of furniture is constructed, and the land where produced or made, and you will marvel at the result of your observation. Field, forest, mine, quarry, land and sea have been ransacked to supply the multitudinous materials which enter into the structure of the house itself, and of its furniture and ornaments. Metals, minerals, precious stones; woods of a great variety of kinds and from diverse countries; glass, stone, brick, lime, cement, and a great variety of other substances, are combined to form the structure. And yet more numerous are the materials out of which are made the

articles which furnish and adorn the stately mansion. The workmanship, too, is of as varied a character. Thousands of men and women, of every nation and craft, and every degree of skill, have been engaged in their fabrication. The carpets are the contribution of one country, cabinet furniture of another; the china, plate, cutlery, glassware and a nameless variety of fabrics and articles of use and ornament, have been collected from almost as many different localities as there are individual articles.

“While we are sitting in our comfortable apartments feasting on the beauties of Providence, thousands and tens of thousands of our fellow-men, in different regions of the globe, are assiduously laboring to procure for us supplies for some future entertainment. One is sowing the seed, another gathering in the fruits of harvest; one is providing fuel, and another furs and flannels, to guard us from the winter’s cold; one is conveying home the luxuries and necessaries of life, another is bringing intelligence from our friends in distant lands; one is carrying grain to the mill, another is grinding it, and another is conveying it along to our habitations; one is in search of medicines to assuage our pains, and another is in search of consolation to soothe our wounded spirits. In the midst of never-ceasing exertions, some are crossing deep and dangerous rivers; some are traversing a waste howling wilderness; some are wandering amidst swampy moors, and trackless heaths; some are parched with thirst on sandy deserts; some are shivering and benumbed amidst the blasts of winter; some are toiling along steep and dangerous roads, and others are tossing in the midst of the ocean, buffeted by the winds and raging billows.”

How endless are the wants of man in only these three particulars: food, clothing and habitation. But this is scarcely more than the beginning of his wants. He must have facilities to prosecute his daily labors—utensils for his trade—tools with which to work, and a thousand appurtenances for comfort, convenience, or luxury from day to day. For the supply of all these wants, too, he again presents himself at the door of nature's exhaustless store-house.

Again, man, in his social and civil relations, is destined to live in a world of disorder and violence. He needs weapons of defence. He must, too, move from place to place—he must prosecute commerce—traverse sea and land for gain, and fulfil the numerous offices of friendship and affection. The proper discharge of all such duties involves a new and numerous array of wants to be supplied: as roads, bridges, canals, railways—sail-vessels, steamers, and vessels and vehicles of every craft, form and size, with all the facilities of travel, intercourse and trade. The idea implies, too, the existence and constant and active operation of manufactories, and the varied skill of large classes of men.

Man wants fuel for his fire—oil for his lamp—a bed and all its cozy comforts for his repose; and the thousand appurtenances of a well-furnished homestead for his necessities or pleasure. He needs, too, for his use and comfort, a great variety of domestic animals, with all the appliances needful to subject them to his use. God did not make man and put him in this world that he should be an ascetic or a recluse, nor that he should see how *few* might be his wants, and on how little he might subsist. He created man with all his wants inherent; and as man rises to a higher grade of life, these wants are propor-

tionably multiplied. The sentiment of the poet, often approvingly quoted—and, in the sense intended by him, true—is, in the view we are here taking of things, far enough from the truth :

“ Man wants but little here below,
Nor wants that little long.”

Man, if he would live and rise and fulfil his destiny in the world, *does want a vast deal* here below. His wants are multitudinous. And these wants have their foundation in the very nature of the man, and in the condition in which God has placed him. Man's wants are, in a sense, the conditions of his progress—the facilities by which he ascends from a barbarous to a highly civilized state.

Endless as are man's physical wants, God has, in the plenitude of his goodness and in the multiplicity of his creations, abundantly met the demand. He has correspondingly multiplied and varied all nature so as to meet all man's legitimate wants. He has done this, partly by original and providential arrangements, and partly, and more commonly, by endowing man with skill and industry—with inventive genius and the love of adventure and discovery—with all the aspirations and enterprise needed to fulfil his high destiny on earth.

We have seen in the foregoing pages how abundantly varied are the works of the creative hand. Not a legitimate want of man is left unprovided. How are climates and soils varied—how different countries broken up and thrown into hills and valleys, mountains and deep ravines, into plains and deserts, so as to produce, as I have briefly shown in a preceding chapter, every conceivable variety of grain, vegetables and fruit—so as to give grazing grounds to every kind

of beast and fowl—high hills for the wild goats, dens for the young lions, holes for the foxes, and rocks for the conies. And not the less remarkable is it that the same hills and fields contain all sorts of minerals and metals. And how too has God endowed his creature man with such an endless diversity of talents, tastes, skill, aptitudes and proclivitiest, that he leaves no island, sea or continent unexplored, where he may search out and prepare and appropriate to his use or comfort, the multitudinous things which God has provided for him.

The beneficence of God in this respect surpasses all wonder. Nor is the only wonder that God has made so *varied* a provision for man's wants, but that this provision is so liberal and profuse. We justly marvel at the extent of the earth's productiveness—the quantities produced—the profuse supply which the soil, the forest, the mine, the quarry, the river, and the ocean annually yield. And as man's wants from year to year increase—a civilization opens new avenues to man's industry and enterprise, and creates new necessities, new substances are discovered, and new uses of old substances. God is wont to hold his gifts in reserve till the advanced condition of man require them. How remarkable is this in respect to our supply of *fuel*—the use of *steam* for locomotion, and a great variety of substances, and articles of food and apparel—of convenience and luxury, which once were unknown, but now have become a component and essential part of human comfort and activity.

But man's physical wants, though the most common and possibly the most numerous, are but his lower order of wants. His intellectual necessities and the varied modes of their supply, are not the less worthy of admiration.

We have seen how diversified is the human intellect. The talents, and mental capacities and habits are so different, that no two minds will reason alike, and bring out the same result even on the same theme. The consequence of this is, that every science finds a patron; every literary pursuit is prosecuted; every feature of the mind is developed. And the mind, not content to expatiate on fields already explored, is continually seeking to explore new territory. The consequence of these restless aspirations—this characteristic propenseness of the mind to trench on the unknown—to secure something beyond present acquisitions, is, that the most ample provision is made to meet all the intellectual wants of man. Teachers of every art and science are thus provided; books of every sort, newspapers, journals and periodicals, of every name and nation. The press is daily sending forth tons of printed matter, which ministers to the intellectual wants of man. And so varied and prolific are these sources of knowledge that not a mental want of man need go ungratified. All the varied tastes and mental aptitudes of all the various classes, ranks and nations of men, find, in the provision Heaven has made for their supply, ample resources. As God has in the natural productiveness of the earth provided most bountifully for all man's natural wants, and not for his necessities only, but for his comforts and luxuries, the gratification of his tastes, for his love of the beautiful and his taste for ornaments; in like manner God has, in the intellectual world, furnished man most liberally with all possible materials of thought, and with all sorts of means and methods of acquiring knowledge, and giving expansion and depth to the mind.

Nor has the Great Giver restricted his benefactions merely

to the instructive and the needful. He is not unmindful of the tastes and cravings of men for entertainment and recreation. God deals with his children liberally. He would have them not only wise and holy and useful, but happy. He ministers to all their innocent wants; supplies the mind not only with food needful to its growth and vigor, but with *luxuries* to gratify its tastes and to regale its lawful appetites. The mind is provided not only with the substantial of a dinner, but with the luxuries of a dessert.

But here the great Foe to all useful improvement of the mind steps in, and by one of his saddest perversions, almost monopolizes this demand of the human mind. In the present gigantic perversions of the press, we detect the hand of the great adversary, pouring into these great fountains of mental and moral health, which ought to send forth the living waters into every part of the great desert, the poison of skepticism and infidelity, the enchantment of fiction and the mere effervescence of knowledge. The amount of this literary trash and intellectual putrescence with which our land and the world is this day flooded is enormous, beyond the conception of almost any living man; and the mischief, much of it yet to be developed, which it is inflicting on the present generation, and through them on generations yet unborn, is equally beyond the conception of the wisest mortal.

The entire constitution of nature, all its varied forms and types of life, all its varied beauties and utilities, each furnishes a theme of thought or a subject of intellectual entertainment. The field, therefore, over which the mind of man may roam and pluck its sweetest flowers and garner its richest harvests, is as boundless as the material universe, and as varied as the

unnumbered creations of the Divine hand. The singular versatility of the human mind, and its no less singular capabilities of entertaining all sorts of subjects, is but a beautiful counterpart of the diversified workmanship of God.

But man has another and a yet higher class of wants, which are not the less liberally met on the part of the Author of his being. They are *his moral and religious wants*. Man has yearnings after immortality; he feels an aching void, which things seen and temporal can never fill. He has religious instincts, which, though perhaps indistinctly developed, keep him apprised of his descent from and his obligations to a higher power, and ever and anon lead him to address the unknown God as his Protector and Benefactor. He has fears to be allayed and hopes to be cherished. And in a more advanced and enlightened condition, he feels that he has an angry God to appease, sins to be forgiven, a Saviour to secure, and the seamless robe of righteousness to gain. Henceforth he must struggle to divest himself of the filthy rags of sin and clothe himself in every grace and virtue which flourish spontaneously in the Paradise above. He has the old man to put off and the new man to put on. All things are to be made new. Man's moral wants are therefore the most important and imperative of all his wants.

But what provision has been made to meet these wants? We have already seen in the diversified character of Divine truth, a "word fitly spoken" to every individual case. Man is brought into no condition, suffers no affliction, is subjected to no trial, has no spiritual want or conflict, which does not meet a word of comfort or hope in the Sacred Volume. Man must have faith or he cannot see the Kingdom of Heaven; he

must have a guide and counsellor in his spiritual affairs; he must know what he ought to believe; he must have doctrines propounded and precepts inculcated and examples for imitation set before him, and motives to action proposed. He must have a glorious and blessed immortality set forth as the great consummation to be sought, and a miserable eternity as the doom to be avoided. He must be fervent in spirit, patient in tribulation, a co-worker with God, ready for every good word and work, his affections set on things above, and be continually seeking a more complete conformity to God.

To meet such varied and multiplied wants he resorts to the sacred pages. Here he finds doctrines, precepts, promises, examples, reproofs and instructions exactly suited to every want.

And not only so, but there is a voice in the volume of *nature* that speaks in harmony with Revelation and adapts its monitions and teachings to all the wants and conditions of man. The profuse goodness of God as seen diffused throughout the vast material creation—the singularly varied supplies and resources provided in nature for man; and the whole framework and fitting up and furnishing the Great Palace of Nature, proclaim alike and in the most varied accents of love, lessons of gratitude and obligation to God, and of adoration and praise. The power of God as displayed in the vastness of creation—in a control over such mighty masses of matter as make up the material creation, and over such mighty subordinate powers as the earthquake, the volcano, the tempest, the ocean, the electric fluid which speaks in the thunder, and executes the Divine behests in the lightning, in the skill and wisdom as seen in the endlessly numerous and the infinitely minute

creation of the wonderful Author; and the goodness, again, as seen in the harmonious tendencies in all these works, to work out the great purposes of the Divine benevolence, and there are ten thousand adaptations to promote the happiness of man—to propound to the reflecting mind topics of the most expansive thought, and of the profoundest interest. Exhaustless, indeed, are the resources with which nature supplies the moral wants of man.

To the devoutly pious mind the works of nature are a rich source of religious instruction. He heartily responds to the oft-repeated effusions of the pious King of Israel. The power, wisdom and goodness here so wonderfully manifest, are sources of the most instructive meditation: “O Lord, how manifold are thy works! In wisdom hast thou made them all: the earth is full of thy riches.” “Many, O Lord my God, are thy wonderful works that thou hast done, and thy thoughts which are to us ward: if I would declare and speak of them they are more than can be numbered.” “I meditated on all thy works; I muse on the work of thy hand.” And the most wonderful of all is the workmanship of the human body. “I will praise thee,” says David, “for I am fearfully and wonderfully made: marvellous are thy works! How precious are thy wonderful contrivances in relation to me, O God! How great is the sum of them! If I should count them they are more in number than the sand.”

Nor is this all. Generously as Revelation and Nature supply the spiritual wants of man—rich and boundless as are these sources of instruction and comfort, there remains another that is scarcely less so. God has made a no less interesting or less ample provision for the spiritual necessities of his

people in the singularly diversified dispensations of his *providence*.

We are surprised at the great preponderance of propitious or merciful providences over those which seem to us to be adverse and afflictive. Every honest heart confesses that goodness and mercy have followed him all the days of his life. Prosperity, health, plenty, is the rule of Providence. Afflictions, destitutions, disease, judgments are the exceptions. Our mercies are constant; our privations, losses and sufferings, casual. We are not left a moment without some kind token of our Father's love and protecting care. Even when we are smarting under his fatherly chastisements, and suffering the most severely, we may be suffering the privation of only *one* out of a thousand of our blessings. Our song is still of mercy and not of judgment. Our brief period of probation is especially a dispensation of mercy. God seems to have so diversified his providences as to bring out his mercy and benevolence to his creatures in every possible form. We are encircled in the arms of his mercies; the banner over us is his unceasing love.

How singularly rich, then, are God's providences in admonition, reproof, correction and instruction in righteousness. They do not more bountifully administer to man's physical wants than they do to his moral and religious wants. "His goodness leadeth thee to repentance." This ever-diversified and never-ceasing providential goodness is fitted to, and, where not wickedly resisted, does bring men to a cordial acknowledgment of the Father of spirits, and into humble allegiance to the Great King. Providence is the third if not the second great Teacher of man. Providence has a thousand tongues: speaks peace to the troubled spirit, comfort to the afflicted, hope

to the despairing, plenty to those who want, health to the sick, and to the guilty, intimates a pardon. No one that reverently heeds the voice of Providence, is likely to be left to any very serious departures from God.

But it is not merciful providences alone that teach the great lessons intimated. Providential dealings severe as death, and dark as the grave, may come laden with mercy, and, in the end, work out a joyous result. Their lessons are oftentimes more salutary, and the impressions they make more lasting than the providences which come gilded with the golden tints of mercy. "Thou art a God that hidest thyself." Some of the darkest providences are the channels through which flow into the soul some of Heaven's richest blessings. God sits as the refiner of silver, and though he may suffer the heat of the furnace to rise to its greatest intensity, he will, on that very account, bring out the silver more perfectly refined.

Adverse providences are not the less our schoolmasters to chasten our spirits, to humble our ambition, to rebuke our pride and selfishness; to moderate our desires for this world, and compel us to go out from ourselves and seek after the great realities of the eternal world, and the favor and friendship of the great God—to choose him for our portion, to yield up our spirits, for time and eternity, in humble obedience to his will.

CHAPTER XIX.

MAN designed and adapted to a high State of Civilization in this Life, and a high State of Exaltation and Glory in the Life to come: or, THE MODEL MAN.

ALL the Divine arrangements in Nature, and all varied provisions of Providence indicate that man is designed for a *high state of civilization and improvement*. This is a legitimate inference from what has already been said in preceding chapters. His multiplied physical wants, his enlarged mental powers and capacities—his singular versatility of genius—his as yet unknown capacities of mind, and capabilities of improvement—his native aspirations, always reaching after something beyond what he has—his *gregarious* propensities and habits, and his social qualities and disposition to aid and be aided by his fellow-man, indicate such a destiny. And, more than all, those unsatisfied desires and infinite aspirations which belong to his *immortal* being, and meet their fulness only beyond the skies, point out man as capacitated to occupy a rank among the creatures of God, and to do a work in some future sphere of activity, which is as yet but very partially developed.

What we have called man's *gregarious* propensities and habits, have a more important bearing on his social progress and general improvement than may at first be supposed. It is these "social desires and feelings which produce cities and

states, laws and institutions, arts and civilization." Man, as an isolated being—as divorced from all the influences of social intercourse and the mutual aid of his fellows, is scarcely above the brute. His food is of the simplest and coarsest kind; his clothing of the rudest sort; his habitation a den in the earth, or a structure such as his own unskilled hands could erect from the scantiest materials of the rudest sort. Commerce would be unknown, and no public enterprise could be prosecuted. Nearly all the comforts and conveniences of life, and all the improvements in society are the results of man's *combined* efforts and skill. It is only when enterprise and labor, numbers and capital are made to concentrate in cities; and States are organized, governments formed and sustained, and wise and humane laws are enacted, and useful institutions are maintained, that man advances from a savage to a civilized condition. And his advancement is in proportion as the wealth, and influence, and concentrated numbers of cities are employed to promote the highest interest of man; and as the State is pure, and the laws and institutions of the nation are just and humane, and well sustained.

Would we calculate the position which man is fitted to occupy in the scale of human advancement, we must be able to estimate, first, all the personal capabilities, both of body and mind, which he may bring to bear on the advancement of his condition when he shall be in a position to use them without let or hindrance; and, then, all the resources and facilities which external nature affords him, when these resources and facilities shall no longer be perverted, and employed, as they too often are, to hinder his progress.

The apostasy has laid man low. Sin has degraded him—

weakened and perverted the powers of his mind, and corrupted the affections of his heart. It has vilely arrested his noble aspirings heavenward, and plunged him into the abyss of moral turpitude. And so debasing, corrupting and *belittling* has been the influence of sin on the character and condition of man, that we now scarcely recognize him as that noble, high and holy being which God created. We can, therefore, now do little more than *infer* what the primeval state of man was, and what his *restored* state shall be, from the present longings of the human soul for a better portion, from the wants it feels, and from the superabounding supplies which Providence has provided to meet all man's desires and necessities. From these things we may get some correct idea of what man shall yet be.

Every generation of men has had in hope and prospect, a *golden age*, when man shall realize, in a much higher, happier and holier state than he yet has, all that prophets have foretold, all that God has promised, and all that the expensive and profuse provisions for man's progress which Providence has supplied to his hand. The pleasing hopes which angels entertained of man at his creation, and when in Eden they held frequent and sweet converse with him, shall be realized. Made but a little lower than the angels, he shall yet arise from the dust of his debasement and reassume his seat among the high and holy inhabitants—the principalities and powers of the heavenly state.

The theme illustrated in the present volume throws some light on the inquiry, What shall be the character and condition of man when he shall attain to that higher destiny which

awaits him in time—and also, what man shall be in his blissful condition in eternity.

Recall what has been said of the provisions which have been made in nature for man's physical comfort and advancement, and you see at once how all the wants of a high state of civilization are bountifully met. The earth, in all its varied soils, latitudes and climates, is made to bring forth supplies for his food and clothing; and not simply to supply his table with the bare necessities of life, and just apparel enough to meet the demands of absolute want, but with a profuseness and variety which indicate that God will not only vastly increase the number of his earthly family, but that he will spread for them a bounteous table, and clothe them in purple and fine linen. We cast the eye over the immense *coal* fields which yet remain undisturbed by man, and over the exhaustless beds of iron, lead, tin, stone, lime and all the useful minerals and metals, and we get the most substantial evidence of man's future progress. For we here see, in the greatest profusion, the resources of progress. Judging from the supplies provided to meet his personal wants and to furnish facilities to every trade, craft and avocation in life, we can fix no limit beyond which man may not advance.

Again, man, in his highly civilized condition, must prosecute an extensive *commerce*, and enjoy extensive facilities for travel and the communication of intelligence. He now demands, almost for his daily supply, the products of every nation, and he must be able to converse with the antipodes without the intervention of months, days, or even hours. We can see no end to the resources held in reserve (and partly developed) to sustain such a commerce and international communication. As-

tonished as we are at a comparison of the present commerce of the world with that of fifty years ago, we see, in the exhaustless products of the soil, the mine and the quarry; of the artist, the mechanic, and of the numerous handicrafts of the age—we see in the progress already made in the art and practice of navigation, and in the increased facilities for prosecuting it, unmistakable indications of a greatly extended commerce.

But a free and boundless commerce not only *belongs to* a highly civilized state, and is an essential part of it, but it is itself the “great civilizer.” Commerce and civilization are correlative terms. As the standard of the one rises in a nation, the amount of the other increases, and in proportion *as* it increases we may calculate that civilization is advancing. And not only so, but in proportion as the great *staples* of commerce are found to abound in the capabilities of the soil, and in the abundance of the varied articles of exchange and traffic which are found hid under the surface of the earth—on land or in the sea; and as we see man’s wants continually multiplying, and his industry and skill more assiduously and scientifically employed, we have the surest vouchers, not only for an extensive commerce, but for its concomitant, the advanced condition of man.

Such a condition implies a vast abundance and variety of all sorts of commodities—of an increased variety of articles for food and clothing—materials for erecting and furnishing houses—for manufactories—for mercantile and mechanical establishments—for naval and merchant fleets—for telegraphs, roads and bridges—and for the thousand and one facilities for traffic and the easy and frequent intercourse with all people. And as nature makes no vain preparations, we may be confident that

the future condition of man shall be such as is indicated by all these natural resources, when man shall, on his part, by a corresponding mental improvement, be able to appropriate these resources.

Nor is there wanting in nature resources too for the cultivation of the *taste* and of that chastened sense of the beautiful and sublime, which shall grace man in his higher state of advancement. Is a man's character and tastes formed by the circumstances in which he is placed, by the company he keeps, and the objects which he the most frequently and familiarly contemplates? we should, then, judge most favorably, what, in these respects, man may become. The beauty which overspreads the face of nature engenders in the mind a love of the beautiful.

The open volume of nature here presents three features (to name no more) which go in a special manner to refine and elevate the taste and to ennoble the whole man. There is, first, the exquisite delicacy and beauty of workmanship. Nothing comes from the Divine hand that is crude, uncouth, or unfinished; nothing that indicates misjudgment, mistake, or want of design; nothing imperfect. The more minutely you examine the productions of nature, the more you discover of their exquisite skill and beauty, of their fitness and utility. Nothing can therefore conduce more directly to cultivate in man a chastened taste, to refine his mind and keep his heart pure, than the careful and reverent study of the book of nature. In this wonderful volume are spread before him unlimited means (without money and without price) of the highest mental refinement and moral purity. All nature, in this respect, bespeaks the noble character and the elevated condition of

man when he shall have appropriated the resources thus put at his command.

Other features of the Creator's works, which not the less betoken the future high mental condition of man, are their sublimity and magnificence—the exercise in them of infinite power, and the inconceivably vast quantity of the material creation. These are themes which man cannot frequently and seriously contemplate without having his whole being expanded and brought to a higher moral level. In such contemplations, in such a looking up through nature to nature's God, he finds the native aspirations of his soul ascending and reaching after the infinitude of the Eternal Mind. And there is, too, pervading all God's works, and equally ennobling to the human soul, a delightful display of the Divine *benignity*. The great end of God's works is *man* and what he is to accomplish *through* man. Deliverance from sin, redemption through Christ, is the great end of creation and providence. As men shall in coming time study the works and ways of God more profoundly and devoutly; as they shall see them, the minutest as well as the most magnificent, pervaded by a spirit of infinite benevolence and love, all culminating at the one great point,—the glory of God in the salvation of man, an outgushing of goodness in every thing—they will become wiser, their minds will be ennobled, and their hearts made better. And the more man thus *sees* of God the more will he be transformed into his image. Eden shall return to earth, and man, made again the fit companion of angels, shall resume his station as but a "little lower" than they.

But man need not go beyond himself to get a most convincing evidence that he is, both in his temporal and eternal

life, formed and fitted out for a high destiny. His own mechanism—how fearfully and wonderfully made! the framework of his body, its ten thousand organs, uses and adaptations, to say nothing of the existence of the yet more wondrous nature and endowments of the mental and the immortal part, supplies ample proof of the high destiny that awaits man. “The parts of which the body is composed, their number, their various natures, dependencies, operations and uses; the arrangements by which they are formed into a system, a world within itself; the faculties attached to it, of seeing, hearing, smelling, tasting and feeling; its capacity of pain and pleasure; the warning which it is fitted to give of approaching or commencing evil; and the power which it so variously possesses of self-restoration; are all wonderful, mysterious, and strongly declaratory of the skill and goodness of the Creator.” Nor may we overlook the peculiar structure of the person, which gives man the pre-eminence over every other animal; “the beauty of the complexion; the symmetry of the members, particularly that displayed in the features of the face; the gracefulness and dignity of the motions; nor the power of the countenance to express the thoughts and feelings of the mind.” The face thus becomes an “index to the character of the invisible man, and shows not only his ideas, but his emotions also; his virtue and vice, his loveliness and deformity; and, in a word, whatever his fellow-men are interested to know.”*

I have alluded to the extraordinary capabilities of the soil to produce a superabundance of supplies for the wants of man, even his vastly increased wants in his highly civilized state; and have used this as an argument that man is destined to

* Dwight's Theology. Vol. i., pp. 344, 345.

such a state. In connection with this is another fact of kindred interest. It is, that, notwithstanding the "curse"—the "thorns and thistles," scorching winds and desolating tempests, rocks, deserts, and barren mountain-tops; notwithstanding all the reasons why, "in the sweat of his face" man should secure his bread, yet such is still the productiveness of the earth, that *only a minor portion of the human family is required* to make it yield its supplies in sufficient abundance to meet all the wants of this great family. The great majority are therefore relieved from the rugged labors of the field, to supply the workshop, to prosecute commerce, to man our merchant and naval fleets, to keep in motion the wheels of our manufactories; to pursue the arts and sciences and every branch of useful learning; to man the press with printers, publishers, writers and distributors; to supply men for the pulpit, the bar and the healing art; for the teacher's desk, the professor's chair, and the legislative hall. So readily and lavishly does the earth yield her fruits that we lack not men for merchants, miners, machinists and manufacturers of every name; for every trade, profession and pursuit which can possibly favor the future progress of man. In this we especially discern the good hand of the Lord.

Were it otherwise; were the earth so rugged, so sterile and hard to be cultivated; her surface, climate and soil such as to require the full labor of every man to secure from his fields the support of his own family, the race could never have advanced beyond a low state of barbarism. The arts and sciences, mechanical crafts and education, would never have been pursued. There would be neither merchants, sailors, nor miners; neither authors, editors, printers, nor distributors of

books ; neither preachers, statesmen nor teachers ; neither inventors, discoverers nor explorers of unknown seas and lands. The whole energies of the race would necessarily be absorbed in delving the earth, and forcing her to yield her scanty supplies, simply to feed a miserable race, and to clothe them in the rudest apparel. "What shall we eat, and wherewithal be clothed," would then indeed be the great concern of man.

And another thought occurs in this connection : as science shall be more and more applied to agriculture ; as inventions and discoveries put into the hands of the cultivator new facilities, in the shape of labor-saving machines, and more especially, when the *moral condition of man* becomes such that God shall remove the *curse* from the earth, a yet smaller proportion of men will be required as *producers* either of food or apparel ; and consequently a still larger proportion will be exempted from agricultural labor, to fill all those varied departments of human activity without which no people can reach a high state of civilization.

But we may not stop here. The world of *mind* yet more distinctly bespeaks the high future destiny of man.

A similar line of remark may be pursued first, on the singular mental furniture of man ; and, then, on the wonderful adaptedness of external nature to develop his mental resources, and to give expansion to his mental faculties ; and the adaptedness yet more direct of Divine truth and divine grace, to elevate and expand the whole inner man.

A superficial view of the intellectual man does not give us the most favorable idea of his superiority. We see the mass of the race, strangely ignorant and besotted—talent sadly misapplied, and intellectual influence employed to corrupt, de-

base, or oppress others. This is a partial view. Looking on man as he *now is*, we see vastly more to pity and blame, than to admire. He is like a noble eagle hit by a fatal arrow—maimed—with broken wings laid prostrate in the dust, struggling in vain to rise. With all the organs and energies needed to soar above the clouds, how does he belie his noble nature by grovelling in the dust. In his apostatized state man is seen only as a *perversion* of a noble, godlike nature. Wherever you are able to trace back the “*degenerate plant*,” to its pure original, you find in each case an attribute of man that may justly claim a celestial birth. But man shall not always struggle in the dust. He shall rise. Nature, revelation, grace, all proclaim the noble origin of man, and his yet nobler destiny.

Circumscribed as may be our acquaintance with the actual capacities and capabilities of the human intellect, we know enough to justify the assertion that they are such as betoken the future greatness of the man; and such, too, as shall contribute most effectively to raise man to the exalted position which awaits him. There is in man a “restless ambition; an interminable longing after nobler and higher things, which nought but immortality and the greatness of immortality, can satiate; a dissatisfaction with the present, which never is appeased by all the world has to offer; an impatience and distaste with the littleness of all he finds, and an unsated appetency for something larger and better, which he fancies in the prospective.” Unlike any of the inferior animals, the human desires outstrip any possible present gratification. A little does but stimulate his desires for more; and much, but for much more. “From the vastness of his propensities

and the vastness of his powers, he feels himself straitened and beset in a field too narrow for him. He alone labors under the discomfort of an incongruity between his circumstances and his powers; and unless there be new circumstances awaiting him in a more advanced state of being, he, the noblest of nature's products here below, would turn out to be the greatest of her failures."

There is no intimation of any limit to the human mind. Its capabilities seem to enlarge in proportion to its acquisitions and progress. The more a man knows, the greater are his desires for knowledge and his facilities for obtaining it, and the greater his mental capacities. The most extravagant theory of man's future greatness is not absurd or unwarranted.

Man is constituted the sovereign of this lower world. The animal, vegetable and mineral kingdoms are made to subserve his use. And, what is of special importance in the case, there is inherent in man, the skill, the ingenuity, the power—chiefly mental—by which to control the whole, and to appropriate all to his necessities and pleasure. The whole material creation, with all its exuberantly diversified beauties, utilities and adaptations—with its endlessly rich productions, whether in the animate or inanimate world—was made and is preserved for MAN. Without man, the world, with all its wonderful appurtenances, is a gorgeous palace fitted up in all the richness and beauty which wisdom and skill could devise, and yet *without an occupant*.

We judge of the rank and importance of the occupant by the provisions which one who knows him well, makes for his accommodation. What then are we to judge of man? For

him "all nature smiles in beauty and wantons in bounteousness." What supplies of all his wants—what riches does the earth hold in store for him—what variety and abundance does he enjoy now—and what exhaustless resources are in reserve to favor any conceivable degree of progress in time to come.

"He, for whose sake all nature stands,
And stars their courses move,"

holds a rank—when not thrown into the false position in which sin has involved him—scarcely inferior to the principalities and powers of the heavenly state. Instead of the insignificance which should lead the shortsighted observer to exclaim, "What is man, that thou art mindful of him?" the ready response would be: "Thou hast made him a little lower than the angels; and hast crowned him with glory and honor; thou hast made him to have dominion over the works of thine hands; thou hast put all things under his feet."

CHAPTER XX.

THE SAME SUBJECT: examples of extraordinary development among men, as pledges of his high future destiny—Nature, Providence and Revelation indicate this same high destiny—Man capacitated to appropriate the provisions made for his progress.

THUS far we have prosecuted the subject of man's prospects of a higher grade of existence in this life, as well as in the life to come, scarcely more than as a matter of *theory*. We have seen in man subjectively that which indicates such a progress; and we have discovered objectively in all the resources put at his command, and all the facilities afforded him for progress, that the same pleasing destiny probably awaits him.

It is now time that we direct our inquiries to man as we find him, and see if, under any circumstances, individuals of the race, at least, do afford us any specimens, such as to justify the expectations we have indulged. When we descant on that extraordinary productiveness of the earth which we expect shall bless man in the days of the earth's millennium, we are able to point to certain occasional examples of extraordinary growth and productiveness, as tokens and pledges of what shall be, when, relieved from the curse, the earth shall bring forth to supply the wants of a vastly increased number of living beings. And have we not tokens, in some good degree corresponding, of what man shall be when physically, mentally and morally

emancipated, and allowed the free development and expansion of his powers?

We are not without occasional examples of that high type of manhood of which I have spoken. In the condition of ignorance and moral degeneracy in which man has hitherto existed, we have seen him, for the most part, in a depressed, unnatural state—like the maimed eagle wallowing in the dust. Yet, in almost every age, a few have risen on their native wings, and soared aloft in something like the native dignity which belongs to a race formed in the image of God. These are specimens, kindly vouchsafed to a prostrate race, to cheer them onward and upward to the station prepared for them next to angels. These rare specimens are ever and anon made to emerge from the dark abyss of fallen humanity, for the double purpose of exhibiting the real capabilities of man and giving a living illustration of what, if he carry out his noble destiny, he shall be; and of serving in certain exigences of human affairs, to fulfil the great purposes of the Master.

Here we might instance such men as Moses, Solomon—Martin Luther, Sir Isaac Newton, and our immortal Washington. Whether as statesmen, soldiers or jurists; or as men of giant intellect and mental cultivation; or as wise, sagacious, far-seeing, and exercising a great control over other minds, they seemed not to belong to the same race with ordinary mortals. In them there was a native nobility and greatness, beautifully showing forth what man, when present obstructions shall be removed, shall become. But these men all felt a humble consciousness that they had but just begun their growth into a perfect manhood—that they had scarcely passed the threshold

of that mental expansion and moral elevation of which man, even in this life, is capable.

Or we may refer to great philanthropists, as Wilberforce, Howard, Clarkson ; or to men of expansive benevolence and of great endurance and self-denial for their country, their suffering fellow-men, or the honor of their God ; or to men of extraordinary bravery or remarkable business talents, and we should not fail to discover what vast pre-eminence man may attain even amidst the forbidding, depressing circumstances of this present life ; a delightful presage of what he shall be when disencumbered from all these mundane obstructions.

We are indebted to the author of "The Philosophy of a Future State," for a few instances which occasionally occur, of the capacity and vigor of the human mind even amidst the obscurities and obstructions to mental activity, which exist in the present state of things. We cite them as proofs of the existing capabilities of man, and as pleasing intimations of his future greatness.

The illustrious *Pascal*, when under the age of twelve years, and while immersed in the study of languages, without books and without an instructor, discovered and demonstrated most of the propositions in the first book of Euclid, before he knew that such a Book existed. At that early age he was an inventor of geometrical science. He made experiments and discoveries on the nature of sound, on the weight of the air ; and demonstrated the pressure of the atmosphere. At the age of sixteen he composed a treatise on Conic Sections. At nineteen he invented an arithmetical machine by which calculations are made, not only without the help of a pen, but without a person's knowing a single rule in arithmetic ; and at the age

of twenty-four he had acquired a proficiency in almost every branch of human knowledge, when his mind became entirely absorbed in exercises on religion. He was as eminent for his piety as for his intellectual acquirements.

The celebrated *Grotius*, at the age of thirteen, maintained, in the University of Leyden, theses in mathematics, philosophy and law, with universal applause. At the age of fourteen he formed literary plans which required an amazing extent of knowledge; and he executed them in such perfection as to astonish the literary world. He acquitted himself in a manner which would have done honor to the greatest scholars of the age. Having made an extraordinary progress in the sciences, he entered, with great reputation, on the practice of law at the age of seventeen. The admirable *Crichton*, when in his twentieth year, had mastered ten languages and gone through the whole circle of the sciences, as then known. At Paris, he one day engaged in a disputation which lasted nine hours, in the presence of three thousand auditors, against four doctors of the church, and fifty masters, on every subject they could propose; and having silenced them all, he came off amidst the loudest acclamations, though he had spent no time in previous preparation. *Gassendi*, a celebrated philosopher of France, at the age of four, declaimed little sermons of his own composition; at the age of seven, he spent whole nights in observing the motions of the heavenly bodies, of which he had acquired a considerable knowledge; at sixteen he was appointed professor of rhetoric at Digne; and at the age of nineteen he was elected professor of philosophy in the University at Aix. Nor was he more remarkable for his vast knowledge of philosophy and mathematics, than for his humble devotion to his God.

The world-renowned Sir Isaac Newton made his discoveries in geometry and fluxions, and laid the foundation of his two celebrated works by the time he was twenty-four years old; works so abstract, profound and sublime, that only first-rate mathematicians are qualified to understand and appreciate them. He understood Euclid almost before he read him; a cast of the eye upon the contents of his theorems, was sufficient to make him master of their demonstrations. But above all he revered and studied the Bible. He was as humbly devout as he was profoundly great. At the age of five, *Philip Baratier* understood the Greek, Latin, German and French; at nine, he could translate any part of the Hebrew Scriptures into Latin, and could repeat the whole Hebrew Psalter. Nor had he made less progress in the sciences and other branches of learning.

These are confessedly extraordinary cases—exceptions now—but strikingly illustrate the vigor and comprehension of the human faculties; and if such varied and extensive acquisitions in knowledge can be attained, even amidst the frailties and impediments of this mortal state, it is easy to conceive with what energy and rapidity the most sublime investigations may be prosecuted when these impediments shall be removed, and when every moral obstruction shall be taken out of the way. “The flights of the loftiest genius that ever appeared on earth, when compared with the rapid movements, and the comprehensive views of the heavenly inhabitants, may be no more than as the fluttering of the microscopic insect to the sublime flights of the soaring eagle. When endowed with new and vigorous senses, and full scope is afforded for exerting all the energies of their renovated faculties, they may be enabled to trace out the hidden springs of Nature’s operations, to pursue the course

of the heavenly bodies, in their most distant and rapid career, and to survey the whole chain of moral dispensations, in reference not only to the human race, but to the inhabitants of numerous worlds."

But before passing from the subject of extraordinary men, we must cite a single instance more; and this not an instance illustrating so remarkable a precocity as some already adduced, but illustrating a remarkable degree of industry, self-reliance and perseverance in self-culture. We quote it the rather because it is a more practical case—a more imitable example.

The story of Edmund Stone is a pleasant one, and I tell it in the language in which I find it, hoping that so encouraging a tale will not fail to stimulate some obscure boy who feels the buddings of genius swelling in his bosom, yet who dare scarcely give these suppressed aspirations vent even to the most intimate friend, to go and do likewise—to rally all the hidden resources of his soul, to assert, in imitation of the modest yet persevering boy and the noble and learned man, the native nobility of his mind, rescuing it from all the difficulties to its advancement:

"Some years ago, Edmund Stone, a boy eight years of age, was running about the garden and grounds of the Duke of Argyle. He was the son of the duke's gardener. The little fellow was ignorant of every thing but what grew in the garden, or might be seen in his father's cottage. His parents had no means of educating him; but a servant of the duke's household, out of compassion, taught him his letters, and the elements of reading. Reading became a habit, and formed within him the desire and love of knowledge.

"While the boy was thus storing his mind with information

of various kinds, the duke built a new wing to his mansion. The lad looked on day by day, as the work proceeded, and seeing the architect make use of a rule and compass in his calculations, he inquired what it meant. The mystery was solved, and he was told that the science of arithmetic was explained in books. He borrowed an arithmetic, and by persevering study mastered its contents.

“Geometry was then mentioned to him, and procuring a book on the subject, he soon mastered that in like manner. Learning that the best books on this science were written in Latin, he bought a Latin dictionary and grammar, and labored diligently until he had acquired the language. Some one told him there were excellent scientific works in the French tongue; so he got possession of a French dictionary and grammar, and learned that language also.

“His industry accomplished all this between the ages of eight and eighteen, while learning his trade as gardener, under his father.

“One day the duke, coming into the garden, saw a Latin copy of Sir Isaac Newton’s celebrated ‘Principia,’ lying on the grass. Thinking it belonged to himself, he ordered it to be carried back to the library. The young gardener stepped forward, and said, ‘Your grace, the book belongs to me.’ ‘To you!’ replied the duke; ‘do you understand geometry—Latin—Newton?’ ‘I know a little of them,’ said the youth, who felt that he had made but small attainments, in view of the wide fields of knowledge opening before him. The duke, who was a scientific man, questioned him on the subject of mathematics, and was astonished at the force, the accuracy, and the simplicity of his answers. He then asked him of his past life, and learned from the lad’s own lips the history above given.

“His account charmed the duke, who drew the unconscious genius from obscurity, and provided him with an employment which gave him time for the cultivation of the sciences. The same talents were discovered in him for music, painting, architecture, and all the sciences which depend upon calculations and proportions.

“Such is the history of EDMUND STONE, the well-known mathematician. He lived to an advanced age, preserved an unblemished reputation, and rendered important services to science. Among his works are a Mathematical Dictionary, a treatise on Fluxions, another on Euclid, and a work on the use of mathematical instruments. He died in 1768.”

Does the aspiring youth whose reachings after something better and greater seem pent up in a hopeless obscurity ask how he shall attain to the consummation he so ardently though secretly wishes? we answer, “Let him *try* and TRY again. What has been done, may be done. Though

“ ‘Many a flower is born to blush unseen,
And spend its fragrance on the desert air,’ ”

yet how many others overcome every obstacle, create resources where they are not—seem to reverse the hand of destiny, and make themselves men, great men, controlling spirits in the great world of mind, from which their early surroundings had seemed forever to exclude them.

In a word, I might say the highest style of man is the *Christian Philosopher*; who, a proficient in all sciences, in the arts, in literature, eloquence and music, should lay all his vast learning and resources at the foot of the Cross—who should see God in all things, the mighty and the minute—the

soul of the universe—the great central Object of all love and adoration.

Man by his skill and mental powers is able, as already intimated, to *appropriate* to his use all the vast resources and powers of nature—powers and resources which have heretofore, and for many generations, lain useless if not unknown. As examples, we may refer to water, wind, fire, steam, electricity, magnetism, nearly all sorts of minerals, metals and precious stones, and gums, saps and resins. It is the power of science, the application of *mind*, that has made water, wind and steam such valuable locomotive powers; and electricity and magnetism, the instantaneous messengers of our thoughts and wishes to the other side of the globe; and minerals and metals and all natural substances, the ready and efficient ministers of man's comfort and progress. Substances, which, in a less advanced state of society, were useless, become essential resources for further progress. It is not a little interesting to follow man in his onward progress: how one substance after another, one article for food, or apparel, or for locomotion, or for his progress and comfort in some direction, is subjected to his use as his advancement requires. Our domestic animals, as the horse, the ox, the cow, the dog, are happy illustrations of the power of mind to subjugate the animal kingdom at the feet of the lords of this lower creation.

Man studies the laws of air, heat, water, wind; discovers their powers and habits, and then subjects them to his own purposes. Minerals, vegetables and animals are by a similar process appropriated to his use. And we may safely assume that such are the native capacities of the human mind, that, as the race shall advance and human wants shall multiply,

man shall be still abundantly equal to the task of searching out and preparing new powers and substances which shall meet the increased demand. And assuming, as we may, that external nature is but the exact counterpart of the human mind, and the latter being, as admitted, capable of an indefinite expansion, we may not doubt that nature has in reserve (yet undiscovered) exhaustless resources for the future and as yet unconceived progress of man.

Man has no power to increase or diminish or change a single power of nature or a particle of matter. Yet he has the power to subject all nature to his use. The running stream offered the same power to the wild Indian as to the civilized man. It was enlightened *mind* that discovered the method of securing this power and making it turn the wheel of his manufactory. The coal and the iron, the silver and gold, the copper and lead, lay as rich and abundant in the mine, and the oil and the gutta percha as bountifully in the tree, an hundred or a thousand years ago as now. But not till man's need required, was his skill employed to bring to light and subject to use these puissant resources.

All nature is fitted to rouse the mental energies, to invigorate and expand them by giving them food convenient for them. The volume of nature is adapted to feed the mind, if need be, forever; while the volume of revelation, with all its thrilling, infinite thoughts, affords an eternal study. Here the mind reaches after the Eternal Mind, and seeks an assimilation.

But we here trench on the confines of another feature of man's final destiny. Man is immortal, and he is capacitated to take an eternal range in the celestial fields. His

relations to God (as reconciled through Christ) and to the high and holy intelligences of heaven, are such as to wing his soul for an eternal flight. The human soul is not capacitated simply to traverse the whole field of natural science, though that were a greater consummation than we can at present conceive; but he has all the requisite capacities to pursue each science and each source of knowledge, in all its endlessly diversified windings, to the very verge of heaven, and there discover that it has "its outgoings in the Infinite and Eternal." This immortal part claims kindred with the skies, and indicates a nature capable of eternal research and expansion. Man is a partaker of the Divine nature; and in his unperverted state he bears the image of his God. There is a singular assimilation between the Creator and his creature man. They exchange thoughts; God speaks; man understands his *language*, and in his turn communicates with his God. There is in his soul a *reaching* after immortality which betokens his true and final destiny.

We have seen how the whole material creation was formed and fitted up, variegated and beautified, by a skill and wisdom and benevolence truly Divine; and so formed and adapted in all its endlessly diversified parts as to subserve all the better desires and the higher wants of man, and to make man truly a noble being—rich, happy, prosperous in this life, highly intellectual, holy, the friend of God, the companion of angels, and an aspirant for heirship and a glorious participation with the eternal Heir of all things.

Nor has the Creator only to "arrange the external world as to hold forth every possible inducement to man to cultivate his higher powers, nay, almost to constrain him to do so;" but

in beautiful correspondence with this, we have seen how the living, breathing, reasoning thing, called man, is himself so formed and furnished, and all his parts so delicately variegated and adapted to their respective uses, and all so capable of an indefinite improvement and expansion, as to indicate for man a destiny higher, holier, more honorable than we can possibly conceive. His mental capabilities, and the strangely rich susceptibilities of his soul, even of infinite progress in the divine and eternal life, unmistakably point out his fitness (originally) to occupy that exalted station of glory and felicity which awaits those who are by adoption the heirs of the Great King.

Nor can the most casual observer of the wonder-working Hand fail to discover how admirably fitted are the dispensations of *Providence* to push man on from one stage of advancement to another, and finally to raise him to that exalted rank which he is destined ultimately to occupy. We have only to observe how God, by the mighty arm of his Providence, so overrules all human affairs as to secure the greatest good and the final advancement of his creature—man. To this end he controls the rage of war, makes and unmakes kings, favors the rise and decrees the end of empires, rules among the nations, makes even the sins of men to praise him, and restrains the wicked as he pleases. He executes judgments, sends afflictions, diseases, trials, losses, pains, persecutions; and then so uses all these dire ministers of his pleasure as to make them speak lessons of instruction, of reproof, or caution, that men may be deterred from wrong-doing, and taught the vanity of all sublunary things, that their hearts and hopes may be directed to an enduring treasure and unfading honors. Or another

phase of Providence wears a benevolent smile. The sunshine of peace, of plenty, of health and general happiness, smiles over your dwelling. God now woos to his arms by his love. He would melt the hard and ungrateful heart, by his unsought, unmerited, but unremitting goodness. The whole drift of Providential dealings is to arrest man in his downward course, to hedge up his way, to win, and to lead him on, if not to force him up, to a higher grade of life. He that will devoutly follow the leadings and heed the monitions of Providence, will find himself in possession of more of this life and a rich inheritance in the life to come.

But we have a yet clearer intimation of what man shall be. Divine inspiration has shed no doubtful light on his future destiny.

To say nothing of the varied, rich, and valuable *information* which the Bible gives of the future life, casting light on man's dark pathway to the tomb, confirming his hopes and realizing his faith—the system of truth contained in the Sacred Word, its precepts, proverbs and parables; the various illustrations of real life—what to be pursued, what to be eschewed—which it presents in the form of biography and narrative; and its historical, poetical, practical and devotional portions, are all suited to enlighten the mind, to purify the heart, to restrain men from all things which debase and disgrace them; to engender higher hopes and to guide their aspirings upward, and to urge them onward in the cultivation of every grace and virtue, of every moral excellence which can contribute to that moral greatness which awaits the perfected man. Where Divine Truth is received into a good and honest heart, it is sure to expand and elevate the mind, to store it with the most

useful knowledge, and to plant there the most ennobling and purifying principles. It presents to the mind ideas the most sublime, thoughts the most moving and expansive, hopes the most ecstatic, and motives as urgent and big with interests as three worlds can supply. What themes it suggests, how fraught is it with practical knowledge; what heart-stirring truths it urges on the attention of man! The contemplation of such themes, the entertainment in the mind of such truths, and the indulgence of such hopes and such a faith as those truths engender, cannot but make man a higher and holier being, more like angels, more like heaven and his God.

God is the grand fountain of all knowledge. From him cometh wisdom and understanding. "There is a spirit in man, but the inspiration of the Almighty giveth him understanding." Man has the capacities, the mind, the intelligent soul, but not till God speaks to him in his word, in his providence, in his works, does he have "understanding." He speaks the most distinctly in his word. Here he shadows forth himself; here his attributes, in all their terribleness, in all their loveliness, are displayed. Here truth is portrayed in all its beauty and majesty. Here the immortal man, ere he is yet delivered from the cumbrance of mortality, is caught up to the third heavens and hears things unspeakable and full of glory. Faith is the offspring of Divine Truth. But it is faith that realizes to the soul all the glories of the upper world—that identifies the soul, in hope, in interest, in final blessedness, with the great heir of the universe. Not only is Divine Truth found to be a sure antidote for every moral evil, and the sure means to enlighten, purify and ennoble the mind in its present lapsed and unnatural state, but it imparts to the

mind the knowledge of eternal realities, and a moral fitness for the joys of eternity.

All the good, and nearly all the great ones who have obtained a pre-eminence among the sons of men, have been deeply indebted to the Bible. Either directly or indirectly their minds have been aroused by the study of the sacred pages, and they have been made to feel the force of a higher class of motives and better aspirations: allow the eye to pass from one class of learned men to another, and see if it be not so. How small the proportion of wise philosophers, or the great proficient in science, the arts, or poetry, or of great statesmen and jurists, who have been infidels! Rather, how large a proportion have bowed reverently at the footstool of Divine Truth, and been the humble followers of the Lamb!

Prof. Henry, the distinguished *savant*, and head of the Smithsonian Institute, testifies that he knows but *one man* among the scientific men of the United States who is an infidel. This fact speaks volumes, and shows conclusively that the lights of science have any other tendency than to make men sceptical or unbelievers. It is usually your pretenders to scientific knowledge, or men wholly destitute of any scientific attainments, who disbelieve, or affect to do so. As a general remark, we think it will be found that a vast majority of them belong to the latter class, being wholly ignorant, or, what is worse, mere smatterers. And I may here add the opinion of our great orator and statesman: Daniel Webster having been commended for his eloquence on a memorable occasion, replied, "If any thing I have ever said or written deserves the feeblest encomiums of my fellow-countrymen, I have no hesitation in declaring that for their partiality

I am indebted, solely indebted, to the daily and attentive perusal of the sacred Scriptures, the source of all true poetry and eloquence, as well as of all good and all comfort."

Or would we see what resources there are in Divine Truth, to elevate large masses of men—as communities and nations—how it reforms, refines and civilizes a people—enlightens the public mind, and purifies the public sentiment, we have only to compare for a moment those nations that have the Bible with those that have it not.

Who are our philanthropists—who the great benefactors of our race—the almoners of Heaven's goodness to man? Who are the salt of the earth and the light of the world—who the patrons of every good thing—the reformers of every vice—the originators and supporters of our humane and benevolent institutions, and the founders and friends of our colleges and seminaries of learning? Who multiply and circulate the living oracles of God, preach a pure morality and the saving and sanctifying religion of the gospel, and fill the world with good books? These are the works of those who have drawn their principles, motives and feelings from the Bible. Without this sacred book, there is no such thing as a sound morality—a free government—a high intelligence—a pure church—a holy religion, an active benevolence. As proof of this, we need only refer to the history of hospitals for the sick—asylums for the blind, the deaf and dumb and insane, and the numerous benevolent, reforming and humane institutions which are everywhere the ornaments of a Bible land.

In its moral influence over men and its adaptedness and tendencies to raise him to a higher moral eminence, the Bible is executing a higher mission, and one especially congenial to

its own nature. It contains an energy mighty enough, and resources sufficiently abundant, to realize all the prophets have foretold, and all that the most enlarged benevolence and the most devout piety are waiting for.

But there are provisions in the exhaustless fountain of Truth suited to a yet higher consummation. Not satisfied to raise man simply from his present moral debasement, it shall make him sit with angels in heavenly places. It cherishes every heavenly grace; it guides the holy aspirations of the soul onward, and onward and upward to its God. In the desires which it inspires, in the affections it engenders, in the hopes it cherishes, it assimilates the contrite heart with the ever blessed God.

But what is man's final destiny? To what eminence do nature, Providence and revelation indicate that man is capable of reaching? Shall he arrive at a goal in his onward progress, beyond which he may not go? God has not told us what man shall be. He has spoken of a kingdom, a throne, a crown—of an exceeding and eternal weight of glory, and a mansion in our Father's house—of an assimilation to our God.

But what these terms in all their fulness imply, we do not know. The crown is a crown of righteousness; the glory is an exceeding and eternal weight of glory. The joy is unspeakable and full of glory. The best account we have of man's high and holy destiny (and this is full of hope and faith and pleasing expectation) is that "eye hath not seen, nor ear heard, nor have entered into the heart the things God hath reserved for those that love him." "Behold what manner of love the Father hath bestowed upon us, that we should be

called the sons of God. It doth not appear what we shall be ; but we know that when he shall appear, we shall be like him, for we shall see him as he is :” see him in all his perfection and beauty—see him in all his glory and majesty, when he shall be revealed from heaven, with his mighty angels, in flaming fire, taking vengeance on all that obey not God—and to be glorified in his saints, and to be admired in all them that believe.

Though we cannot fathom the fountain of redeeming love ; though we know not, in all its blessed details, what God hath reserved for them that love him ; for as yet we cannot rise on the wings of faith high enough to overlook the glories and beatitudes of the New Jerusalem ; yet, to the expectant heir of all this glory, it is worth ten thousand worlds to know that *his life is hid with Christ in God*, and that “when Christ who is his life shall appear, then shall he also appear with him in glory.”

CHAPTER XXI.

THE MIND OF GOD: The Infinitude of the Perceptions and Ideas in the Divine Mind.

WHAT a wonderful Being, then, is God! Who, by searching, can find out God? who can find out the Almighty to perfection? it is as high as heaven; what canst thou do? deeper than hell; what canst thou know? The measure thereof is larger than the earth and broader than the sea. When puny man would scan the wondrous attributes of the infinite God, he is like the minutest insect, that, perched on a grain of sand upon the sea-shore, should essay to measure the length, and breadth, and depth of the boundless ocean, rehearse its wonders, declare its laws and descant on its varied utilities. His vision extends but a span; his broadest comprehension reaches but to an infinitesimal portion of the wide world of waters before him; and the brief day of his existence contracts the field of his observations within the narrowest limits.

But man may know something of God; and, the little he knows may seem to be much. And it is enough for all his present purposes—enough to give him the most exalted and ecstatic idea of that wonderful Being—enough to rouse every dormant energy of the mind, and to engage every desire to know more of such a God and to seek his eternal favor.

While it is doubtless true that we can comprehend but very partially the infinitude of the Divine Mind—its capability of being directed towards, and of controlling every event and every object in the wide universe, however minute or magnificent, and all at the same instant of time, and without the least effort, or confusion, or possibility of mistake or failure ; yet we can comprehend enough—know enough to fill our minds with the most adorable sense of the perfections of the eternal Godhead.

We can form no just idea of the magnitude of creation—of the number of worlds God has made—of the immense quantity of matter they contain—of the infinite variety of beings that people these worlds, and the no less wonderful displays of beauty, wisdom and skill which appear in the fitting up of these wonderful palaces for habitation, and for the supply of the wants of all these inhabitants. It is beyond our comprehension that there should exist a Being who can with perfect ease govern even a single world—to order all its changes, to control all its events—that he should be able to superintend the pencilling of every flower—the gilding of the tiniest insect's wing, and the vegetating of the minutest seed. And much less can we comprehend how this wonderful Being can at the same instant and without confusion or fatigue, or the possibility of mistake, govern the affairs—not only the most seemingly insignificant, but changes and motions which require a *power* which beggars all conception—of more worlds than we can number ! That he does these things there can be no question. For things could not subsist as we now see them, were there not one supreme, all-pervading, all-controlling, and constantly and universally acting POWER—and that Power is God.

We have seen in the foregoing pages, how profusely benevolent God is ; and to carry out his boundless schemes of benevolence, how wonderful he is in working. In all the varied and superabounding provisions which he has made for the happiness of his creatures, and the supply of their endless wants, he has exercised the tenderest, the most fatherly regard for them all.

These things being so, it must follow (and it is the design of the present chapter to illustrate) that the ideas and perceptions of the Divine Mind must reach to every event, every object, every change which exists, or can exist in the boundless universe ; and that these ideas and perceptions exist in the Divine Mind as *present realities*. With God there is no past, no future ; all is an eternal now.

With man the entire future is an unknown land. Every event, every act, is completely shrouded from his view. The veil is impenetrable, and a veil almost as impenetrable curtains from us the *past*. Probably not one in a thousand of its events and acts lives in the memory of the present. The great panorama of human affairs moves on. The eye surveys only the passing scenes. These in their turn pass on and are forgotten, and their places are occupied by those which were hid before. But God surveys the whole, the past, the future, as always present.

What an idea does this give us of the Divine Mind—of his perceptions and ideas—of his *thoughts* ! “ Many, O Lord my God, are thy wonderful works which thou hast done ; and thy thoughts which are to usward : they cannot be reckoned up in order unto thee ; if I would declare and speak of them, they are more than can be numbered.” “ O Lord, how great

are thy works ! and thy thoughts are very deep." The royal singer here connects the multiplicity of the works of God, and the wonderful ways of his providence, with his no less wonderful *thoughts*. God forms nothing, does nothing, controls and preserves nothing, which is not with him a matter of thought ; and if *once* a subject of thought, and if the idea be once in his mind, it always has been and always will be there. In the Divine Mind, thoughts, ideas, perceptions, cannot come and then pass away as with man. Of such a mind we have no adequate knowledge or experience, no competent conception. Yet such, in the nature of the case, must be the mind of God. With him there is nothing new, nothing old. He can acquire no new idea or thought ; and none possessed can ever pass from his mind. All things are at all times, and in every part of the universe, naked and open to his view.

God has a plan, purpose or choice as to every thing he does. From eternity he foreknew and foresaw all that he would do. The idea of the thing to be done, or of the event to come to pass, must have lain in the Divine Mind from eternity, and will remain there to eternity. Not an object, therefore, can exist in the vast expanse of the universe, or a change take place, or an act be performed, or an emotion indulged by creature high or low, or an affection move the heart, or a thought enter the mind, of which the Divine Mind is not constantly cognizant. Every phenomenon, every operation in nature throughout the vast realms of creation, however magnificent or minute, is always present to the Great Mind. God does nothing by way of experiment or guess. He acts in all things intelligently. The distinct idea is always before his mind ; and he forms every plan and executes every purpose according to the eternal pattern.

There is something inconceivably grand in the idea, that, while the thoughts of God are engaged in the control of millions of millions of worlds, originating and guiding their motions—sustaining the balance of the vast system—directing every particle of matter in each of those huge bodies—providing for all the wants of their inhabitants, even the most insignificant, and superintending every change, however apparently unimportant, he at the same moment exercises a care and superintendence not the less particular, over the minutest atom, act or event, in this world which we call ours. Not a sparrow falls to the ground without his notice. His unremitting care, his kind and ceaseless *thoughts*, are upon every creature he has made. He formed each according to the type which is eternally in his mind.

Life, in all its forms and manifestations, in all its members, organizations and uses; beauty the most perfect, and adaptations the most wise and delicate, are but the exact counterparts of ideas inherent in the Universal Mind. And the thoughts of God are equally engaged to endue every species of life with its appropriate propensities and instincts—to provide food convenient for all—to confine each to its appropriate sphere—and to direct the endlessly varied activities of the whole so that each shall fulfil its destined purposes. The insect, so small as to elude the utmost stretch of human vision, has a place in the thoughts of the great I AM. Each fills its place and fulfils its mission as certainly as the huge globe which wheels its way about its sun in a circuit of millions of miles, giving locality and sustenance to hosts of creatures of every kind and caste.

Such unremitting thought has God for all his creatures,

that he “feeds the young ravens when they cry : the young lions seek their meat from him.” “Creeping things innumerable, both small and great beasts”—the monsters that play in the deep, and every living thing—“these wait all upon thee that thou mayest give them their meat in due season : thou openest thy hand, they are filled with good. Thou hidest thy face, they are troubled : thou takest away their breath, they die, and return to their dust.” And as one generation passes off, God sends forth his spirit and creates another, and thus “renews the face of the earth.” Such unwearied care for his creatures requires on the part of God unceasing thought. How wonderful the calculations (all implying constant thought and a distinct idea at all times, of the work to be done) that adapt climates, soils and seasons, so that the earth should bring forth in sufficient abundance and variety to supply his great and varied family—to say nothing of the calculations and thoughts needful to give existence to such a variety of living forms, bestowing upon them the various instincts and functions of life, and then extinguishing this life when its brief day or year expires, and its respective mission is fulfilled ! We cannot conceive of a mind so capacious, so comprehensive, so untiring. But such is the mind of God.

If God be indeed everywhere present,—the past and the future, as if all were present,—his *thoughts* must extend to all things ; an infinitude of ideas lie in his mind. “The same God, who holds the universe, with its every system, in the hollow of his hand, pencils every flower and gives nourishment to every blade of grass, and actuates the movement of every living thing, is not disabled by the weight of his other cares, from enriching the humblest department of nature with

charms and accommodations of the most unbounded variety.”* He is ever mindful of the nature of the merest infinitesimal particle; of its adaptations, for he had regard to these in its creation; of its relations to all other particles—the changes it shall pass through, and its uses in all its varied relations, changes and adaptations; whether it enter into the composition of a mineral, a plant, a jewel or a flower—whether it become the component part of the arm or the brain of man, or form a particle in a nerve or blood-vessel of some invisible animalcule; or whether it gild the wing of the tiniest insect, it is the object of unremitting attention in the mind of the great Former.

Accept as an example the 300,000 species of animals which are said to exist. Not only all these species have their exact counterparts—their ideas—in the Divine Mind, but each of the millions of individuals of all these species. And not only so, but every joint and muscle; every organ, function and attribute; every characteristic and habit—the form, and right insertion of every nerve, sinew and blood-vessel; and the intention and adaptations of each to perform the office designed, receive as particular attention from the great Architect, as if each were the exclusive object of his regard. Yet the great Mind is as truly active at the same moment towards every other object in every part of his dominions; and all this without the slightest confusion or weariness. “Magnitude does not overpower him, minuteness cannot escape him, and variety cannot bewilder him; and at the very time while the mind of the Deity is abroad over the whole vastness of creation, there is not one particle of matter, there is not one individual prin-

* Chalmers' Natural Theology.

inciple of rational or of animal existence, there is not one single world in that expanse which teems with them, that his eye does not discern as constantly, and his hand does not guide as unerringly, and his Spirit does not watch and care for as vigilantly, as if it formed the one and exclusive object of his attention!" Yet so vast are the works of his hands that "the glories of an extended forest would suffer no more from the fall of a single leaf, than the glories of this extended universe would suffer, though the globe we tread upon, and 'all that it inhabit,' should dissolve." The mind of God comprehends the whole at a glance. From beginning to end—from eternity to eternity, all are as present realities to the Universal Mind.

But the Psalmist marvels at the *thoughts* of God in another respect: "Many, O Lord, are thy thoughts which are *to us-ward*." Man is a complete world in himself. If God had done nothing but to form man with such a wonderful mechanism—to endue him with such grace, beauty and intelligence—to adapt him to external nature, and to supply his wants in such abundance and in such unbounded variety, we should have enough before us, to indicate without doubt the wonderful wisdom of God. His thoughts to us-ward are more than we can number.

God could never have formed either the physical or the mental man as he is except as he foresaw—as the thought or idea was in his mind—how every part should be formed, how all the parts should harmonize, and be adapted to accomplish the purpose designed. The human structure, though so heterogeneous, intricate and compound, is formed of a very few simple elements, and these few elements so skilfully combined as to produce substances that appear altogether dissimilar.

Bones, flesh, blood, hair, skin, nails, how unlike, yet scarcely more than modifications and different proportions of the same substances. But the selection and the compounding of the materials, and the due proportioning of all the parts, and their relations and adaptations one to another, are matters which imply the most consummate skill, and the minutest attention. Had the bones, flesh, skin or any ingredient of the body been compounded in the least degree differently, it would not have served the purpose designed, and the whole system would be thrown into disorder. If the blood had been of a different consistency, or the bone more or less dense, or the skin more or less porous, or the pores possessed of a greater or a less absorbing power, it would derange the harmony and frustrate the end of the whole mechanism ; and so if a joint, or a blood-vessel, or a nerve were not made and preserved just as they are.

All these things imply the unceasing attention of the Divine Mind. A moment's disregard would throw all into confusion and distress, and would thwart the ends for which man was made.

Nor shall we discover the unremitting care of God the less strikingly, if we contemplate the human system, as, in good degree, self-preserving, self-restoring and self-perpetuating. The arrangements which secure such singular results are of God ; and in their origin and constant operation, imply the constant *thought* of the great Former and Preserver. And *God's thoughts to us-ward* appear not the less wonderful in the formation of the *mind*—in its singular connection and co-operation with the body, and in its extraordinary capacities and activities. The offices of reason, memory, association,

and indeed all the operations of mind, suppose the constant presence of the Divine Mind. We say God knows our thoughts, not our present thoughts merely, or for the present moment, but he knew from eternity every thought and operation that ever passed through our minds or ever will.

Again, both the mind and the body are largely subjected to the dominion of the *will*. Bodily organs, limbs and muscles move as the will dictates; and the operations of the mind are subject very much to the same authority. There is, in the mechanism which secures such a result, displayed a skill and delicacy of workmanship which is nothing less than divine. And in all the operations of this mechanism there is a necessity that the great forming Mind should exercise a constant inspection and control.

Every process of reasoning, then,—every thought, intention, act of the will, is open and naked unto Him with whom we have to do. For if God were ignorant of a single action, thought or secret intent, of a man's whole life, he would not be a competent judge at the last day. Man is to be judged—rewarded or punished—according to the deeds done here in the body, implying, no doubt, the motives and secret intentions which impelled to these deeds. “The Book of God's remembrance” is the boundless reservoir of his ideas and thoughts. This book is a mirror, in which God can, at any instant, and at every moment from eternity to eternity, see every desire, thought or motive of every intelligent creature.

We have seen how the all-controlling Mind is present, in unceasing thought and activity, with the millions and millions of worlds—systems on systems—which wheel in awful grandeur over the boundless fields of ether; how the exercise of

such inconceivable power—the exactitude with which every revolution is performed—the preserving of the balance among the huge and countless masses of matter, so as to secure the harmony of the whole, and keep in tune the “music of the spheres,” presupposes the constant presence and the unwearied application of the Eternal Mind; and in like manner that the same Divine prescience as completely pervades that little mysterious world known as the creature man, and that no less mysterious world, the minutest animalcule which the microscope reveals. But there is another phase of humanity which may serve as an illustration :

Man is an *immortal* being, yet a depraved being; an enemy and an alien from his God, yet capable of a union with the divine nature, and a participation in the honor and bliss of angels. Man’s *moral* relations, therefore, to his God, are, in the divine estimation, of vastly greater moment than all his other relations. God must be such a one as can judge the world in righteousness. Were not then the Divine Mind an endless series of thoughts, and were not every link of the entire chain of human actions and thoughts ever present to that mind, how could God take account of all his rational creatures and at the last day render an impartial and righteous judgment? Not one act, one thought, one secret intention or hidden and forbidden desire will be overlooked. Every circumstance in which a man did right or wrong, every motive which actuated him, every palliation or aggravation in the case, every aid vouchsafed on the part of God, and every opportunity or privilege improved or slighted, will come in as vital items in the last great account; and if they be not all present in the mind of the Judge, how can he award a right-

eous judgment? All must be indelibly engraven on the mind of the Judge. Who can know the mind of the Lord? who can number his thoughts?

Did our theme require further illustration we might find a prolific one in the dispensations of *Providence* and of *grace*.

God governs the world by his Providence. But he cannot be an intelligent, righteous governor, unless he have a full and present knowledge of all the main springs of human action—of all the passions, emotions, principles and overt acts which go to make up human character. He must be able to survey at a glance the entire character and conduct of every subject. All must be forever portrayed on the Divine Mind as on canvas, and ever visible to the divine eye: otherwise he cannot reign in righteousness.

And equally true is it that all the dispensations of divine grace; all God's dealings with man as a *moral* being; all hidden rebellions and sins and temptations; all his faith and repentance and turning to God and rejoicing in a good hope of eternal life; all his works of faith and labors of love, stand written in the book of God's remembrance, and all shall one day be read in the ear of the assembled universe: else how shall God be vindicated, who casts off some, and accepts others; else what becomes of that "firm foundation," that rock of unwavering confidence and intelligent security, on which the saints shall forever stand? else one might be adjudged to heaven to-day, but some new fact transpiring—some new view of his character being revealed to the mind of the Judge, the decision would be reversed, our supposed saint would to-morrow be obliged to exchange his residence in the King's palace above, for the chains of darkness and the prison house of the universe.

Such, then, must be the nature of the Divine Mind that has a present cognizance of every thought, desire and purpose of every man that ever lived or shall live; and this too from his birth to his death. And God is acquainted with and orders all circumstances, influences, temptations, afflictions—as well as all the teachings, invitations, warnings and reproofs, which form the character, or constitute the responsibilities of the man. These are all necessarily omnipresent in the mind of Him who shall judge the world in righteousness.

We might then end this chapter as we began it, by repeating, “How wonderful a Being is God!” To the finite mind he is altogether incomprehensible. We can form no adequate idea that any mind can be so capacious as to contain impressed upon it an indelible and eternal idea of every object, motion, thought and event which has ever transpired, or shall transpire from eternity to eternity.

The theme I have undertaken to illustrate in the foregoing pages, gives us perhaps the most clear and comprehensive idea we can at present obtain of the infinitude of the Eternal Mind. All the creatures, all the works, and all the ways of God “existed in his incomprehensible mind during countless ages, before the universe was formed.” What an infinity of thoughts and conceptions! What unbounded scope of mind; what infinite comprehension! Not an object, change or operation in nature so great or so minute, but God is present in his nature and almighty agency to direct it. Not a providential act or event so far-reaching and vast, or so seemingly insignificant as not to command the unremitting regard of the great Controller; and not an act of grace to console the desponding heart of the most lowly saint, but God is the ready

author, pouring the consolatory balm into the wounded spirit. The breathing of the feeblest desire, the suppressed groan of the oppressed, and merest sigh of the penitent, alike make their impression, and leave their image stamped on the great Mind of the universe. "Thy thoughts, O Lord, are more than we can number."

We are amazed at the idea that God should be the author of such a *countless variety* of natures and forms; and his watchful care should be over all his works. He is an everywhere present God. Not the minutest thing escapes his notice. He clothes the grass with its particolored coat; he variegates the flower; he diversifies the sounds that salute the ear, and the odors that perfume the air. Not the most insignificant particle floats without his notice.

Surely, then, such a God will not allow the sinner to go unpunished. His vigilance over him will be in proportion to the worth of his soul. For him the heavens were garnished; for him all nature is variegated and clothed in beauty and loveliness; and for him all things are so constituted that he may rejoice in them and be happy. And think you he will pass unnoticed man's ingratitude and rebellion?

Of the many reflections which the foregoing chapters urge on the mind, I shall name but three:

And, first, How much has God done to make his creatures happy! He *formed* man *for* happiness, and then he fitted up creation about him in a manner precisely adapted to make him happy. The constitution of man is an exact counterpart to the constitution of nature. Has God endowed man with organs of sense capable of deriving gratification from external objects, and then not produced those objects and adapted them

to this end? Has he implanted in mind insatiable desires for *novelty*—an indomitable love of variety, and then made in nature no corresponding provision for their gratification? God has so variegated his works as to make a contemplation of them one of the highest sources of gratification in the present constitution of things, and to lay a foundation of eternal felicity hereafter. Eternity will not be too long to survey, to admire, and enjoy the endlessly diversified and the innumerable multitudinous works of the Divine skill.

Again, *What fearful resources are laid up in the armory of the Great King by which to make the wicked miserable!* Who would not fear the wrath of the King! And if that King be possessed of all knowledge and wisdom; if his power be unlimited, and his riches boundless, and every possible resource be at his command, so that he may bring the full weight of his power to bear on one who should transgress his law and thereby incur his displeasure, who could withstand his *anger*? who would not be as the stubble before the devouring fire?

But *God is a Great King*. How great he is, how mighty, with what manifold wisdom he is endowed, of what inexhaustible riches possessed, what boundless resources are at his command, the foregoing discussion gives us some intimation. How blessed to have *such* a one for a *Friend*, but how dreadful to encounter him as an *Enemy*! Who can stand before him when his anger is kindled but a little? Fear God. He not only can kill, but he has power to cast into hell, and none can deliver out of his hands. He can open, and none can shut; he can shut, and none can open. If he be your enemy, no friend in the universe can help you. Oh, then, make your

peace with God. Take refuge in Christ; for out of Christ, God is a consuming fire.

Finally, *How should we demean ourselves in the presence of such a God!* As David contemplated God in his works, he said: "I will sing unto the Lord as long as I live: I will sing praise unto the Lord while I have a being. My meditation of him shall be sweet: I will be glad in the Lord." He would think much on God; he would ponder his works and his ways. Such meditations he found sweet. It was delightful to turn off from the humiliating contemplation of his own weakness and depravity, to think on the infinite purity and excellence of God—to seek relief from the moral wastes and corruptions of humanity in the truth and holiness of the Godhead. Here he discovers reasons for eternal praise. While he lived in the flesh—yea, as long as he should have a being, his spirit should never cease to sing praises to Jehovah.

And have *we* not the same reasons to rejoice in the Lord—to honor, love and serve the great I AM?—the same motives to light up our souls and to fire our hearts in holy zeal for the honor of such a God? All nature rebukes our apathy. Every thing that God has made urges us on to fidelity, and zeal, and holy love. While we have a being, then, let us honor Him who has so gloriously honored himself in all his works.

CHAPTER XXII.

The Divine Complacency—The Happiness of God in the Contemplation of his Works and his Ways, and his own Attributes and Character.

BEFORE concluding a volume, the design of which is to conduct the mind of the reader through nature up to nature's God, it will not seem out of place that we should pause a moment before the gate of this august Palace, and seek a yet nearer approach to the Great King.

We have essayed to survey at some length the outer Temple of the Majesty of heaven, and having treated of God, physically, in his acts and relations to the material Universe in all its endless details and varieties; and having attempted, but in vain, to sound the depths of his mental resources—the profound recesses of the Divine Mind—to inquire what must be the *thoughts*, the mental conceptions, the ideas of the Being who has reared, and who controls and inhabits this august Temple, will not the more reflecting reader fain advance with me yet another step? But let him put off his shoes from off his feet; for we now propose to look into the audience chamber of the King, that, peradventure, we may see God who is invisible.

When we have become interested in an author of rare men-

tal powers, or in an artist of extraordinary skill, we wish to know more of his private character—of his moral condition—how he wears his honors, how he uses his influence—what motives urge him to action, and how he enjoys the works of his hands—whether he be happy. We propose, reverently, to institute such an inquiry in relation to God.

Having created all things and set the great machine in motion—having given it laws and made all things move in obedience to the ordained order, does God, as the ancient philosophers taught, wrap himself up in the morose abstraction of his own infinity, in a sort of inactive and solemnly forbidding existence; or does he exist in a state of perpetual and infinite enjoyment? Are we not prone rather to clothe the Deity in the sombre mantle of stern Omnipotence and unbending Justice, than think of him as a Being of exhaustless benevolence and of overflowing happiness? It is a matter of great practical interest that we should have correct views here.

Man's unhappiness arises from his imperfection. Lack of wisdom always to devise the best measures—lack of power to execute them—lack of benevolence, or of happiness exemplified—lack of an abiding and all-controlling consciousness of rectitude, which alone can exempt from regret and remorse, and give that dignity of moral character which is essential to happiness—lack of foreknowledge which can foresee future evil, and of power to forestall it—lack of ability so to control all events relative to himself and others, as to ward off all misfortune and disaster—and lack of such moral character and moral feelings as yield nothing but the peaceable fruits of righteousness;—these are some of the things which mar, if not destroy, the happiness of man. These are all the result of *imperfec-*

tion. But God is perfect, and consequently no possible event can mar his happiness.

We may therefore adduce the perfections of God as the unmistakable vouchers for his infinite happiness.

God is omnipotent. He can consequently do whatever he will. He can execute all his plans. There is no power in the universe that can frustrate a single purpose of his. He speaks, and it is done; he commands, and all stands fast. God is consequently raised altogether above the least feeling of weakness or inability. To will with him is to do. This consciousness of Omnipotence must be a perpetual source of happiness. A vast deal of human misery arises from a consciousness of our weakness—our inability to do what we would. It is this which makes the future of man such a dark and oftentimes painful uncertainty. We can neither foresee a single future event, however insignificant it may be, nor can we by any possible means secure its existence. We are frustrated, plagued, disappointed. We may neither have the power to ward off the evil that is before us, nor to secure a future good which we may desire. No such source of discomfort can disturb the Eternal Mind. Not a future event can take place without his choice—not one that shall frustrate a single purpose of his, or in the least militate against his infinite felicity.

Again, the *exercise of power*, where there is the perfect consciousness that it is done in infinite righteousness and benevolence, is a perpetual source of happiness. Man takes delight in the workmanship of his own hands, and in none does he feel so high a pleasure as where there is the exercise of great power or skill. What, then, must be the felicity of God, as he surveys this vast and boundless universe, the prod-

uct of his power and skill. What power to create simply the ball on which we have our habitation—to balance it in mid-space—to fix it in its proper orbit—to send it revolving with such tremendous velocity about the sun—to set it wheeling on its axis—to give it its relative position in respect to all the other heavenly bodies! But if we contemplate God, not only as the Creator of this comparatively insignificant ball, but the Creator of the *sun*, a body whose solid contents exceed those of the earth by near a million and a half of times (1,435,000), and all the bodies which compose the solar system; and not only the Creator of these, but of the millions and millions of suns and their respective systems, which sparkle in boundless space, the marvel is infinitely enhanced.

Now it is quite impossible for the most expansive human intellect to get any thing like an adequate conception of the *power* which is employed in the creation, and the subsequent preservation, and in the working of the great machinery of the universe. The relative positions of these vast and endlessly numerous bodies; their harmony one with another; their order and motions, indicate a power altogether past all our conceptions. But God is feelingly alive to a consciousness of exerting such a power; and this consciousness cannot be otherwise than a source of infinite and eternal felicity. The whole moves on, accomplishing an infinitely benevolent end, at his fiat; the whole would stand still at his command.

Were we to stop here, and contemplate God only as putting forth a power sufficient to create and govern the *material* universe only, we cannot fail to discover a foundation for a very high order and degree of happiness; but the slightest glance into the *mental* and *moral* world will exhibit the exercise of a

power far surpassing any thing we have yet seen, and which must give a proportionally higher order and degree of happiness. Man, by his power and diligence, may raise up valleys, remove mountains or force his passage through them; he may bridge oceans; compel into his service the winds, the fire and water, and make the swift-winged lightning his messenger. But when he comes in the world of mind he seems shorn of his power. He can exert no power beyond himself—and not much even there. He can exercise no direct control over the mind of his neighbor—cannot change a single volition or purpose. He may present *motives* which may become influential, or he may employ authority which shall change one's outward conduct. But he cannot of himself *control mind*. To convert a man from the error of his ways, is as completely beyond the power of man as to create a world. But God turneth the heart of man as the rivers of water are turned. Quick and easy as thought he can make the vilest infidel the holiest angel. Conceive of God exercising a complete control over the whole universe of mind, human and angelic, whether they be principalities or powers, kingdoms or dominions. Samuel and Job, Isaiah and Paul, were what they were because God made them so. Pharaoh and Ahab were what they were because God left them to a reprobate mind. Mind—spirit, is peculiarly the dominion of God—the empire where his great power is manifested.

Here, then, we find the basis of a still higher order and a greater degree of the Divine blessedness. He is over all, God blessed forever.

The Divine *knowledge, wisdom, skill*, affords us a further assurance of the blessedness or felicity of God. There is pleasure in devising—especially if we may foresee that the

scheme devised will certainly be executed and its end realized—that the means to bring it about are suitable and adequate. But man's pleasure is sadly curtailed, from the fact that he can neither foresee nor secure the result. There may be a failure from a thousand unforeseen incidents, arising from a want of his own ability, knowledge and wisdom, and from a thousand circumstances over which he can have no control.

But nothing of the kind can happen with God. He sees the end from the beginning. No retarding or frustrating incidents can occur—no uncontrollable circumstances ever threaten a failure. He *knows* that every event, every means needful to bring about a given end will certainly be present. He sees them—they are all in his mind *as present*. No act of omnipotence could make them more certain. Consequently there can be nothing in the mind of God like a fear of disappointment—a solicitude for the future—dread of disaster, the but too fruitful sources of human misery. The whole illimitable field of the future, with every possible event and fact, is as completely before the mind of God as the present is.

Again, how infinitely must God enjoy the operations of the *wisdom* and *skill* which he constantly sees displayed in his works. The universe is an infinitely vast, complicated, and an endlessly variegated system. The mightiest as well as the minutest object, and the mightiest and the minutest movement, are all tending to one and the same great end. Yet this end is to be attained by the controlling to that purpose of ten thousand times ten thousand events—and many of these oftentimes seeming to act in a totally adverse direction. Light and darkness—order and disorder—truth and error—friends and foes, are all to be *made* to execute the plan. And not only this, but while the great and final scheme is maturing and hastening to its

sure and final issue, an infinite number of subordinate ends are being answered. The preservation of the minutest insect, the conversion of a soul; the growth of a plant, the rise and fall of a kingdom; the fall of a sparrow, the growth in holiness and glory of an Archangel, are all contemplated in the Divine Mind, and every needed provision and instrumentality carefully secured.

Now contemplate, if you can, the Divine Mind, as everywhere present, as everywhere active, witnessing the successful operation of all his plans, the successful fulfilment of all his purposes—means accomplishing precisely the end designed without a single failure, and tell me if such a contemplation on the part of Deity must not yield to the Divine Mind a supreme felicity?

The *Independence* of God suggests another source of his happiness.

Man is dependent; and though much of his happiness arise *from* his dependence, yet true it is that his dependence is the source of much misery. He can do nothing of himself. He is of yesterday and knows nothing. What he begins he is never certain of finishing; what he wishes he is never certain of obtaining. His breath is in his nostrils—and yet if death do not cut short his efforts as soon as begun or before he realize a desired result, a thousand unforeseen incidents may render all his exertions abortive, and consequently he is little else than the creature of a painful uncertainty. But no such uncertainty can mar the happiness of God. He is dependent on no accident, circumstance or event, that can frustrate a single purpose or hinder a single desire. He doeth all his will, and none can hinder him, or say, what doest thou? *Omniscient*, all future

events and things are present to his mind, and all have been ordered by his choice; and infinitely *wise*, one event can by no possibility interfere to hinder another; and *omnipotent*, no created being—no being in the universe can withstand his will or frustrate his purposes. He can will what he pleases, he can do what he wills, and, of course, can never be subject to the discomfort and reaction of disappointment and failure.

And we may argue the happiness of God from his *Benevolence*.

God is love. All the attributes of God seem but the different manifestations of his Benevolence. And we know that the highest happiness a rational being can enjoy, and perhaps the only true happiness he may experience, is from the exercise of his benevolent affections. The exercise of *malevolent* feelings cannot be otherwise than misery. True, elevated, rational, heavenly happiness, may be defined to be Benevolence, or a love to make others happy.

If, then, God is infinitely benevolent, he must be infinitely happy. And that he is infinitely benevolent we have ample testimony in all his works of creation and Providence. We cannot mistake that every thing, as it came from the hand of God, bears marks of the same benevolent design. That sin has, as far as possible, perverted every thing to a malevolent purpose, is equally true. But this does not obliterate the original and benevolent design of the Creator. Look at the structure of man; not a muscle, nerve or joint—not a faculty of the mind—not a passion, feeling or affection of the heart, which does not, if unperverted, minister directly and effectually to his happiness. Or look, if you please, at the whole system of nature, and, notwithstanding the disorder into which sin has

thrown it—a disorder like that into which a beautiful city is thrown when almost overwhelmed by an avalanche of burning lava—you will everywhere discover in its arrangements the marks of a benevolent Mind. There may be discovered running through the whole a design to make all creatures happy. What *provisions* are made for the food and protection of all God's creatures—one made to administer to another, and the earth and its fittings up made to minister to all. What *adaptations* are everywhere discoverable—every being adapted to its element, its food and its mode of being! And what a beautiful system of *compensations* runs through the whole system of nature, so that if the happiness of one be invaded on the one side, it is compensated, with usury perhaps, on the other! Has sin inflicted on man diseases, woes and innumerable burdens? Nature is made to furnish reliefs—remedies—antidotes to poisons, and a healing balm for every wound.

What unalloyed satisfaction it may give the Divine Mind to contemplate such a system! A healing stream gushes out from every rock; a rose overtops every thorn. Ten thousand precious plants force their way through the sterile, stony ground, and often cover its deformities. The consciousness of being the Author of diffusing so much happiness to his creatures is infinite happiness in the Author himself.

“*It is more blessed to give than to receive.*”—In uttering this saying our Saviour revealed to us the Divine philosophy of Benevolence, or, in other words, the most effectual way to be happy. Is God the great *communicator*? “giving life and breath and all things—filling our hearts with food and gladness?” Is he the most benevolent Being in the universe? He is, then, the happiest Being. Is he infinitely benevolent?

He is, then, infinitely happy. And not only is the *exercise* of the benevolent affections the source of immeasurable happiness, but the mere *possession* of them—the consciousness of their existence in the soul, is a continual fountain of happiness, a well of water springing up unto eternal life. God, then, must be infinitely and eternally happy.

Another source of the Divine complacency is his *integrity*, or perfect *moral rectitude*. Consciousness of moral defection is a fruitful source of human misery. The good man weeps in secret places over his indwelling sin. He laments his shortcomings in duty, his rebellions, his sins of word, deed and thought. He is feelingly alive to his want of moral rectitude. And the wicked man, too, if he reflect, is the subject of regret, vexation, and oftentimes of the keenest remorse. If weighed in the balance of even a human standard of virtue, he is found wanting. But no such thing can mar the happiness of God. He can look back on a whole past eternity, and not a stain can be discovered on his character; not an act has he put forth but in the strictest integrity; not a moral blot does he see on the face of all his works; he has never breathed a thought or indulged a feeling which would not bear the light of eternity, or the gaze of ten thousand angels. In all the plannings of his wisdom, in all the acts of his benevolence, in all the executions of his power, he has never made a misstep; nothing he would undo; nothing he can regret.

Remorse, therefore—the bane of human happiness, the poisoner of human joys, the unquenchable fire in the godless soul—can, by no possibility, find a place in the Divine Mind. And as God can have no regrets, no remorse for the past, so he can have no solicitude for the future.

Again, we infer the same thing from the Divine *Justice*. Justice is a disposition to do right to all, to do wrong to none, to render to all their due. No small share of human misery arises from *injustice*. The consciousness of inflicting wrong, or withholding good where it is due, is as the lash of the scorpion, stinging the soul in its innermost vitality. And what wretchedness does the doing of injustice inflict on the sufferers?—what heart-burnings, ranklings and misery!

What a holy complacency, what unadulterated felicity God must enjoy in the possession of such an attribute; and, if possible, how much more in the exercise of it! Although God has been exercising this attribute from all eternity; been deciding on the merits and demerits of his creatures; rewarding and punishing in all varieties of cases, millions without number, not a being in all the universe can rise up and say God has done him a wrong, has withheld good when due, or inflicted a penalty not due. He can challenge every creature in heaven, earth and hell, and none can accuse him of a single wrong.

And *Mercy*, too, is an attribute of the Divine character—the disposition in God to bestow good on the miserable, even on the ill-deserving. There is not a purer, a higher, a holier happiness on earth than that which does good to the miserable, and forgives and blesses the undeserving. But all this God does constantly and in an infinitely higher sense than it is possible for man to do. Heaven is daily filling up with the subjects of God's mercy. The song of redeeming love is every hour swelling louder and louder; the ocean of eternal bliss is widening and deepening with the accession of every soul that mercy brings to heaven. God sees it all, knows it all, and recognizes it all as the fruit of his own mercy.

Another moral attribute of God, which cannot fail to yield a glorious harvest of blessedness to the Divine Mind, is his *Truth*. By this attribute we mean God's perfect veracity—the accordance of all his declarations with the reality of things—his faithfulness in fulfilling his promises, executing his threatenings and accomplishing his predictions. God, who looks from eternity and to eternity, cannot discover a single failure of all he has said, of all he has promised and engaged to be fulfilled.

The contemplation of such a moral character must be a source of infinite felicity. As far as we can comprehend and appreciate such a character, the contemplation of it is perfectly delightful. It is a moral beauty on which the eye of the mind delights to dwell. But to God, who has an eye that can comprehend such a character in all its beauty and loveliness, and a heart that can perfectly appreciate it, how infinitely delightful must be the contemplation!

But we stop not here. The Divine complacency is not confined to the subjective contemplation of the divine character and attributes. The happiness God derives from the contemplation of his *works* is none the less worthy of our consideration. When God had finished the work of creation, he is represented as surveying the whole, and pronouncing all to be "good." He was well pleased with the workmanship of his hands. The angels, the whole heavenly host, who understood vastly less of the wisdom and power and beauty displayed in all these works than God did, and consequently had vastly less reason for their admiration, greatly rejoiced in this new accession to the Divine workmanship. "The morning stars sang together, and the sons of God shouted for joy." God is very

frequently represented as taking delight in his works, as rejoicing in the works of his hands. And more frequently are the works of God made the theme of praise by angels and the spirits of just men made perfect.

They that sing the song of Moses and the Lamb, say: "Marvellous are thy works, Lord God Almighty." The contemplation of God's works—the admiration of the wisdom, power and goodness therein displayed—the exhibition which they afford of the character of God, no doubt afford a very essential ingredient in future bliss. God has more extensively made himself known by his works than by his word.

The admiration of his works by his creatures, and the high strains of adoration which rise therefrom, are no doubt a continual source of blessedness to the Divine Mind.

That God derives a high pleasure from the contemplation of his works appears therefore from the fact that all these works are represented as praising him: "Praise ye him, sun and moon: praise him, all ye stars of light. Praise him, ye heaven of heavens, and ye waters that be above the heavens. Let them praise the name of the Lord: for he commanded and they were created. He hath also established them forever and ever: he hath made a decree which they shall not pass. Praise the Lord from the earth, ye dragons, and all deeps; fire and hail; snow and vapors; stormy wind fulfilling his word; mountains, and all hills; fruitful trees, and all cedars; beasts, and all cattle; creeping things and flying fowl."—Ps. cxlviii. 3–10.

All nature is represented as vocal with the praises of God. Hills, rocks and woods; all creeping things—the starry heavens—all that lives and breathes and is, raise the voice of praise.

Here is more than an intimation of God's happiness in his works. If there be in all nature a foundation for universal praise, it is because the Power, Wisdom and Goodness of God as displayed in these works, merit such a praise, and God as the Being to whom these attributes belong, cannot but take delight in the manifestations of these attributes.

As God surveys his works, there is perhaps nothing so palpably obvious as the infinite amount of happiness which is secured in those works. We sometimes speak of our world as a miserable world; and no doubt it is the most miserable world, but *one*, in all the Universe. Yet in this rebellious, sinful, miserable world of ours, misery is the exception, and not the rule. Except in man, who is doomed here to suffer the penalty of his apostasy from God, there is comparatively very little misery; and this comes as a consequence of man's transgression. "The creature was made subject to vanity not willingly," but because of man's apostasy. There is much misery, but there is, despite the curse, much happiness. There are some clouds, yet there is more sunshine; some storms, yet on that account more fertility and beauty; some poisons, yet more sweets; some tears, yet more smiles; some sickness, yet more health; some worlds (we know of but this one) have apostatized and drawn down upon themselves the malediction of heaven, and turned the sweet waters of life into bitterness and stagnation, while millions of other worlds are shining in all the fresh beauty of their first creation, ever regaling in the full sunshine of their Creator's face. Sighs, groans, tears, have never been known there; vexations, corroding cares and disappointments have never ruffled a single breast. Thorns and briars—natural and moral evils, have

found no place there. All is peace and purity; good will to their uncontaminated tenants, and glory to God in the highest.

As God surveys the vast empire of his creation, he sees but comparatively a little spot which is not pervaded with happiness. Where one groan reaches his ear and calls down his kindly interposing pity, ten thousand anthems of joy ascend from as many happy worlds, and swell, as they approach the eternal throne, into one grand diapason of praise to Him who created them to be happy. And what can give to an infinitely benevolent mind a purer and higher bliss than the existence in his creatures of such an amount of happiness? In his benevolent purpose, God devised a scheme of creation with the design that happiness should pervade the whole; and it cannot fail to convey delight to the Divine Mind to see his plan without a single unpermitted failure realized—to see the teeming millions of unnumbered worlds, rational and irrational, animate and inanimate, rejoicing in the light of their Creator's face.

A company of wretched captives are passing by. Separated from their families, reduced to bondage, destitute and miserable, they are destined to a fate more cruel than death. A rich and benevolent individual comes forward, ransoms them from their bondage, provides them food, apparel and habitation; restores them to their respective families, gives them some rich acres to cultivate, and in a few years sees them an industrious, prosperous and happy community. And he knows that under God, *he* has done it all. Will he not survey the whole with delight? Will he not love again and again to ponder on the happiness which has originated and been fostered by his own hand? And how much more *God*,

who sees all the happiness in the universe to be originated and to be every moment nourished by himself?

Should it be objected that, if the happiness of God consists either in producing or witnessing the happiness of his creatures, the time must have been when God was not perfectly happy; in answer, I may say that *all duration is equally present with God*. The past and the future are equally before his mind as the present; and all the creatures he has made or shall make were present realities to his mind from eternity, and equally capable of yielding delight.

And what again can be a surer index of the happiness of God, than that he should be the author of so much happiness in his creatures? Would happiness be so distinguishing a feature in God's creation if there were not a counterpart equally distinguishing in the Divine Mind?

Again, the contemplation of his whole works as one grand *system*, must convey to the mind of the Eternal a still higher happiness. The author of some great and noble piece of machinery might be highly pleased to witness the successful operation of different *parts* of his workmanship; but not till he should take cognizance of the *whole*, as one entire piece, the individual parts all working in harmony and producing the grand and final result, would he realize the pleasure which properly belonged to him.

This brings me to remark, as the last source of proof which I shall present,

That the contemplation of the final and glorious *end* of all things, must be a never-failing source of blessedness to God. This final end is no doubt the glory of God. But this end is to be attained through the sanctification, the salvation

and eternal beatification of a countless multitude of intelligent creatures.

It is the happiness of the Divine Mind that he looks through present clouds to eternal day beyond—that he can with a glance trace up a chain of events reaching from the morn of creation to the end of time, or from eternity to eternity, and see the result. Changes, revolutions, convulsions, may betide, and seem to be working out a result entirely contrary to the one desired; yet God sees, and he *knows*, that the desired result will, in due time, follow. He can have no solicitude for the result. There can be no failure of the instrumentalities and agencies to bring it about, and no possible interference of influences to retard or hinder its accomplishment at the proper time.

The grand and final result of all things consists in the glory of God *through* the salvation of his creatures. Conscious that he is himself the most excellent of all beings, and that all beings are dependent on him for all they are and shall be, he well knows that in his glory is bound up the glory and happiness of all his creatures. If then God take pleasure in the happiness of his creatures, he must first of all take pleasure in his own glory. So that when God makes the chief end of all things his own glory, he is not actuated by the sordid passion which we call selfishness, but by a motive the most benevolent possible. For by so doing he the most effectually advances the happiness of the whole universe.

That God's making the chief end of all things his own glory is not selfishness, but benevolence, appears the more evident from the fact that he seeks his own greatest glory *in the happiness of his creatures.*

The happiness of all God's creatures, then, is God's happiness. He is the author of it all—to be glorified in it is the grand and final result of all his works of creation and providence.

Contemplate God, then, as having completed the drama of Redemption, and having arrived, too, at moral results as glorious in respect to other worlds. With what infinite complacency must he then survey the whole! With what supreme felicity must he recognize the whole as the result of his own wisdom and the fruit of his own goodness! A great multitude which no man can number are supremely happy. They are rapt and burn in the love of God. Their overflowing souls give expression, in eternal praise, to the Divine felicity.

And they have but just begun to be happy. The infinite mind of God stretches down through a whole coming eternity, and sees them expanding in happiness as eternity rolls on. They are now fixed in eternal blessedness. Sin and sighing and sorrow are all done away, all tears are wiped from their eyes. They shall know pain and disappointment no more. No one can pluck their harps from their hands, nor tear their crowns from their heads. They are forever blessed, forever happy. And God has done it all. The happiness is his. He is over all, and in all, *God blessed forever.*

CHAPTER XXIII.

God in all and over all, giving life and breath and all things—Inspired descriptions of God—How such views of God should affect us.

WE have ranged through a broad field in search of the unsearchable God. We have seen him in every thing; in the heights above and in the deeps below; in the minutest of his works, and in the most magnificent, whirling through interminable space stupendous worlds, millions of times larger than our earth, and with a care not the less careful, guiding the minutest atom that tips the wing of the minutest insect. We have seen him in the "fire and the hail," in the "snow and vapors," and in the "stormy wind fulfilling his word." We have taken note of his power, and followed the footsteps of his ceaseless love "in the mountains and all hills, in fruitful trees and all cedars; beasts, and all cattle, creeping things and flying fowl." How he rules among the kings and princes of the earth! among judges and people! How he controls and uses as he will all the diversities of human gifts and talents, and all the varied conditions of men! We have seen God in all things; how he

"Warms in the sun, refreshes in the breeze;
Glow in the stars and blossoms in the trees;
Lives through all life, extends through all extent;
Spreads undivided, operates unspent;
Breathes in our souls, informs our mortal part,
As full, as perfect in a hair as heart."

And having traversed the boundless fields of ether, and everywhere wondered to behold the grandeur and magnificence of the works of the Almighty hand, and then descended through every grade of creature workmanship to the most insignificant atom either animate or inanimate, we have everywhere discovered the same infinite skill and benevolence. And we have attempted to retrace our steps, and, returning from our wanderings amidst the mazes of nature, to approach to nature's God. We then found ourselves in the presence of the Great and Holy Being, whose thoughts are infinite, who ever rejoices in the workmanship of his own hands, and who is the Blessed, the only Potentate, the King of Kings and Lord of Lords.

We cannot now more appropriately close this volume than by ranging ourselves at a stand-point whence we may take a retrospective view of that glorious Being, glimpses of whose character have, in the foregoing pages, been made, in a great variety of ways, to pass before us ; and if, in this retrospect, we shall be led hastily to pass over ground already traversed, the reader may not regret it.

But we would rather here look with the eyes of another, and not our own—with the eyes of one inspired—one who sang of God, his lips being touched with a coal from the inner sanctuary. We will invoke to our aid the sweet singer of Israel. The theme which we have undertaken to illustrate was a favorite theme of the royal poet. More especially did he celebrate the wonder-working hand of God in the creation, and the control of the material world. As an example of this I might transcribe the whole of the 104th Psalm. I will transcribe but a part of it, and ask the reader to reperuse the whole :

“ Bless the Lord, O my soul. O Lord my God, thou art very great; thou art clothed with honor and majesty: who coverest thyself with light as with a garment; who stretchest out the heavens like a curtain; who layeth the beams of his chambers in the waters; who maketh the clouds his chariot; who walketh upon the wings of the wind; who maketh his angels spirits; his ministers a flaming fire; who laid the foundations of the earth that it should not be moved forever.”

As the royal worshipper comes into the audience chamber of the King, mark his demeanor there; hear what he says. The threshold crossed, he is awed into humility, melted into love, and amazed amidst the glorious magnificence of the eternal throne. Words cannot give utterance to his emotions—language cannot describe what he sees and hears and feels. We will endeavor to accompany him as he comes to bow down and worship in the Palace of our Great King. Standing yet without the portal, adoring, wondering, loving, he exclaims, in childlike simplicity: *O Lord my God, thou art very great! How great, how glorious, baffled all power of language to tell, and the broadest, loftiest flights of imagination to conceive.*

Though he could neither himself comprehend nor convey to our minds God in his eternal *fulness* and his indescribable, inconceivable infinitude; yet, by summoning to his use the choicest imagery of an earthly mould—by laying hold of those things and circumstances, which, in the estimation of mortals, are representatives of the highest state of honor and power, riches and pleasure, he attempts to convey to our minds some proximate idea of the glory and power, the dominion and majesty, the riches and goodness of the King of Kings. He

first adores him as a mighty monarch, (but what a description!) *clothed in robes of honor and majesty—covered with light as with a garment—dwelling in light*—or, as light is an emblem of knowledge, wisdom, purity and felicity, gloriously arrayed in these as in a luminous cloud, inaccessible to mortal eyes by reason of its brightness—*who only hath immortality, dwelling in the light which no man can approach unto—whom no man hath seen, nor can see*—enthroned in the midst of all the glorious attributes of the Godhead.

This glorious Being, so gorgeously apparelled, is next contemplated as seated in his spacious palace or pavilion, which is none other than the wide expanse of the heavens, the broad concave of the firmament, spangled with ten thousand starry gems—worlds and suns adorning the vast canopy of this monarch of the skies. “*He stretcheth out the heavens like a curtain.*” “*He layeth the beams of his chambers in the waters.*” The chambers or upper rooms of his mighty tabernacle reach above the clouds—their beams are laid in the waters that are above the firmament.

We judge of the greatness of a king by the splendor of his equipage and the multitude and character of his retinue. His horses and chariots of state, his officers and servants, form a criterion by which to judge of the extent of his dominions, the riches of his empire and the power of his arms. What, then, from the description before us, are we to judge of the power, the greatness and majesty of God? “*He maketh the clouds his chariot; he walketh upon the wings of the wind.*” Again, “*the Lord rideth on a swift cloud.*” And again, “*He rideth on the heaven of heavens.*” These are figurative expressions denoting the greatness and glory of God and the perfect facil-

ity with which he controls all events in this lower world. But who are the ministers and attendants—who compose the retinue of Him who visits every portion of our globe, and superintends all its vast variety of affairs as if he were conveyed on the wings of the wind, or who visits worlds innumerable as if he rode on the heaven of heavens? “*He maketh his angels spirits and his ministers a flaming fire.*” Or, to transpose and more accurately to give the sense of the original, “who maketh the spirits his messengers, and a flaming fire his ministers.” Angels, archangels, spirits—intelligences of all grades—yea, the winds, the flaming fire, the earthquake and the storm, he makes his ministers in the execution of his vast and various purposes. They fly, at his bidding, from world to world, light on the remotest globe that shines in the heavens, and execute his will, and return to bow down, with ten thousand times ten thousand, to adore and worship at his feet.

Such did the Psalmist conceive to be the great and awful Being whom he attempted to worship. The more he endeavored to form a conception of Him, the more he must have been constrained to cover his face and repeat his first exclamation: “*O Lord my God, thou art very great!*” His attempt is not so much to *describe* the Holy One, as to exhaust all figures, comparisons and hyperboles, to show that he is above and beyond all power of description. He attempts to approximate towards some just idea of the majesty of Heaven by instituting a comparison with the royal estate of some mighty earthly potentate. The splendor of his wardrobe, the grandeur of his court, the extent and riches of his empire, his regal state and vast retinue, and his mighty

deeds, are all summoned before him ; yet all fall so infinitely short of the reality of the Divine Majesty that they are but the dimmest representatives, doing little more than to afford occasion to show how infinitely above all earthly description is the eternal God.

Do you speak of his throne ? it is a throne of righteousness. Of his empire ? it is boundless, to us infinite—embracing all dominions and all worlds. Do you ask after his crown ? it is a crown of glory. Of his apparel ? he is robed *in garments of honor and majesty*. Of his attendants ? they are angels of every grade—spirits high and holy—messengers swifter than the wind, burning with love more intense than fire—known as cherubim and seraphim, principalities and powers, kingdoms and dominions. Or do you ask after his *power* ? What a description have we here ! “ *He looketh on the earth and it trembleth, he toucheth the hills and they smoke.*” He calls all things into existence by the word of his power. He says, “ *Let there be light, and there is light.*” He speaks, and it is done ; he commands, and all stands fast. And do you ask for a further description of his glory, his greatness and his power ? You have it in language more than human in these words : “ He bowed the heavens and came down ; and darkness was under his feet.” “ His glory covered the heavens, and the earth was full of his praise. And his brightness was as the light.” Such was his *appearance*. Now mark his irresistible and magnificent *progress* or march : “ He rode upon a cherub and did fly ; yea, he did fly upon the wings of the wind.” “ He made darkness his secret place : his pavilion round about him were dark waters and thick clouds of the skies.” At the brightness of his presence,

the thick clouds passed away or were dispersed, hailstones and fire of coals ; i. e. he wrappeth himself in darkness, yet commandeth light to shine out of darkness for his people. And what can equal the description given of his dreadful power in the discomfiture and overthrow of his enemies ? “The Lord thundered in the heavens, and the Highest gave his voice, hailstones and coals of fire ; yea, he sent out his arrows and scattered them, and he shot out lightnings and discomfited them.” “Before him went the pestilence, and diseases went forth at his feet. He stood, and measured the earth ; he beheld, and drove asunder the nations : and the everlasting mountains were scattered, and the perpetual hills did bow : his ways are everlasting. The mountains saw thee, and they trembled. The overflowing of the water passed by : the deep uttered his voice, and lifted up his hands on high. The sun and the moon stood still in their habitation.” All nature—heaven, earth and sea stand aghast and tremble when God, the great and awful God, lifts his hand to take vengeance on all that obey not his voice. How fearful, then, to fall into the hands of such a God ! He has all power in heaven, earth and hell. He is a consuming fire, before whom all transgressors are as stubble. “I kill and I make alive,” saith this High and Holy One, “I wound and I heal ; neither is there any that can deliver out of my hand. For I lift up my hand to heaven and say, I live forever. If I whet my glittering sword and mine hand take hold on judgment, I will render vengeance to mine enemies and will reward them that hate me. I will make mine arrows drunk with blood, and my sword shall devour flesh.” Surely, “O Lord my God, *thou art very great,*” And well might trembling and fear take hold

on the Psalmist when he came into the presence of such a Potentate. What humility became him ! what reverence and fear !

David dared not come into the presence of his God as the heedless horse rushes into the battle. The sanctuary was to him a most solemn place. He might trifle before an earthly monarch—he might contemn or abuse a fellow-mortal, robed in earth's richest attire. But he could not trifle in the presence of the majesty of Heaven. He would not, for the price of his soul, insult and provoke his God by listlessness and levity in his presence.

The Psalmist adds further considerations as illustrative of the power, the wisdom and goodness of God. He now looks away from his ever adorable *character and attributes* to the *MANIFESTATIONS of God discoverable in his works.* He has already contemplated him as a Mighty Monarch, adorned in all the insignia of royalty, his palace, his throne, his empire ; his crown, his robes, his attendants, as far surpassing all the regal decorations and magnificence of an earthly court as Heaven surpasses earth, or as infinitude in wealth and honor exceeds the poor beggarly elements of the world. And he had contemplated him as the avenger of his honor—clad in his fierce indignation—going forth in his judgments as a devouring fire—the earth trembles at his presence—the sea is thrown into consternation—and trembling takes hold on the heavens because he is wroth. But now the pious king casts his eye about him and contemplates the immortal and invisible Potentate as he is set forth in his *works.* The *creation of this globe—both land and water—the stocking the earth and the sea, respectively, with a superabundance of living crea-*

tures—the provision which is made for their subsistence both as to food and drink—and the arrangement he has made, by means of day and night, for the labor, refreshment and protection of man, are some of the topics which inspire the devotion and raise heavenward the pious soul of the royal worshipper. He read not the Book of Revelation only, by which to raise in his heart the fire of devotion, but he opened wide before him the volume of nature, from which he derived the same great truth, caught the same seraphic feelings, and felt urged home upon him the same sacred duties. Should we not in this imitate him? Should not our souls take fire at the altar of nature's God when we survey the wonderful *design* and the exquisite as well as sublime *workmanship* of the Divine architect? Were we to give to this subject the pious contemplation which it deserves, should we not find it an infinitely richer source of religious pleasure and instruction than we now do—and should we not sympathize with the Psalmist in the exclamation, “When I consider the heavens, the work of thy fingers, the moon, and the stars which thou hast made, what is man that thou art mindful of him?” Nothing, aside from a direct revelation, can give us such clear, elevated and enlarged views of the Divine Majesty, as a contemplation of nature's works.

David proceeds to infuse into his mind the fire of devotion by further recounting the attributes and excellencies of his God as displayed in his works. “Who,” says he, “laid the foundation of the earth, that it should not be removed forever. Thou coveredst it with the deep as with a garment: the waters stood above the mountains. At thy rebuke they fled; at the voice of thy thunder they hastened away. They

go up by the mountains; they go down by the valleys unto the place which thou hast founded for them." Thus passed through the mind of the king and the prophet, as he bowed down and worshipped, the stupendous *work of creation*—God calling all things into being by a *mere word*—suspending this mighty globe in mid-space: borne up by its own weight, yet as immovably fixed in its orbit as if it were founded on an everlasting rock. First he sees the earth "without form, and void"—of a paste-like consistence—the water and the dry land not yet being separated. It is *covered with the deep even* to the tops of the mountains—like a sightless lump of clay, without prominence or valley, river or sea, forest or field. But on the third day the command is given—the "rebuke" is uttered; "*Let the waters under the heaven be gathered into one place* and let the dry land appear. And the waters "fled," and at the voice of thy thunder they hasted away, and formed the mighty deep. And, as some read the eighth verse, "the mountains ascend, and the valleys descend to the place thou hast established for them." The earth in the great transformation which separated the solid and fluid parts of the globe, is thrown into hill and vale, mountain and deep ravine. And again, its solid parts are left in different degrees of density, as the metal, the rock, the sand, the mellow loam, suited to the wants of its future tenants. And he set bounds to the sea, which it might not pass and turn again to cover the earth. But for the power of his arm who said, "Hitherto shalt thou come, but no further, and here shall thy proud waves be stayed," the sea would "turn again" to cover the earth as it did at the beginning. What a proof this of our *dependence* on the almighty arm. If he hold not the raging billows within

their assigned limits, they would break forth and in their irresistible course, overwhelm every living thing. What a theme do we find here for praise and thanksgiving, for adoration and love to the great Supreme. How good to stir up our minds by a survey of His wonderful works. While we muse upon these the fire of devotion will burn.

Nor does the Psalmist in his pious contemplations stop here. He follows up the footsteps of the great architect—he looks into the bowels of the mighty machine, and sees by whom, and for whom, and to what end it is made. And how does his admiration rise, how his pious emotions burst forth when he contemplates the *divine purposes* in the production of this world. He sees it not merely a *mighty ball* hung out in the heavens to be numbered among the gems of night, but a vast *habitation* fitted up for the abode of a great variety of living creatures.

The earth, the waters, the air, teem with life. The uninformed have no just conception of the *variety* and the *multitude* of living creatures. The productiveness of many of the lower grades of animals is almost beyond belief. But these are not the facts which at this time engage the devotional feelings of the Psalmist; it is rather to the wise and benevolent *arrangements* by which God has provided for the wants and conveniences of his great family of living beings. And first, the provision made to supply animals of every grade and clime, *with fresh water*—an article indispensable to the existence of every living thing. The grand reservoir of water is salt—not capable of sustaining life, yet it sends forth its sweet streams into every nook and corner of the dry land. Not an acre—not a yard, but yields, if not on its surface, by descend-

ing a little, a supply of fresh water. The Arab that roves on his native sands, the Laplander that shivers in his icy hut, the lion that prowls in the forest of Africa, and the inhabitants of the wilds and the tenants of the rocks, all receive their supply of this indispensable beverage. And this, without their having the trouble to go to the grand reservoir. It is brought to their habitation without their pains or expense. The great architect has perforated this ball in every conceivable direction, through which apertures or water-courses, he sends the needed fluid. This is what so excited the pious admiration of the Psalmist: "He sendeth the springs into the valleys, which run among the hills. They give drink to every beast of the field: the wild asses quench their thirst. By them shall the fowls of the heaven have their habitation." This is *one* way by which every portion of the earth is made to yield a supply of water to every living thing. The water of the ocean is filtered through the earth, purified of its saltness and corruption, and brought to the surface of the earth for the use of man and brute. And *another* way is, "*He watereth the hills from his chambers*: the earth is satisfied with the fruit of thy works." The waters of the ocean and of the rivers ascend into the atmosphere in the form of vapor, form clouds over our heads, called here "chambers" of God, and there condensing in a cooler region, return on the earth in the shape of *rain*—fertilize the ground, afford drink to animals, penetrate the earth, form springs, rills, streamlets, rivers, which return the waters into the mother fountain.

Nor is this all: *God provides food* for all. This afforded the pious King an additional topic of meditation when he came to worship. "He causeth the grass to grow for the cattle

and herb (all kinds of vegetable food) for the service of man." "He bringeth forth food out of the earth: and wine that maketh glad the heart of man, and oil to make his face to shine, and bread which strengtheneth his heart." "Wine" and "oil" here doubtless represent the respective fruits of the vineyard and the olive-yard—wine not the fermented juice of the grape, but the grape itself; or if the juice, in a jelly state, to be used for food, or diluted in water for a beverage.

And not only does God provide *food* for his creatures, but shelter and habitation. "The trees of the Lord" are for the birds, where they may "make their nests." "As for the stork, the fir-trees are her house." "The high hills are a refuge for the wild goats, and the rocks for the conies." Rocks, caves, dens, and deep ravines are the respective habitations which God has provided for different tribes of animals.

Again the benevolence and wisdom discovered in the *vicissitudes of day and night*, raise the thoughts of the contemplative mind to the beneficent author. "Thou makest darkness, and it is night, wherein all the beasts of the forest do creep forth. The young lions roar after their prey and seek their meat from God. The sun ariseth, they gather themselves together and lay them down in their dens." Then "man goeth forth to his work." How wise and benevolent such an arrangement! God draws his thick curtains around us; all is hushed in silence and we repose. And now God opens the doors of their habitations and sends them forth to forage the tenants of the rock, the mountain and the forest. Roaring after their *prey they seek their meat from God*. How entirely adapted are these divine arrangements to the constitutions, the habits and the wants of the various grades of living things.

But what impressions ought such contemplations to produce on the mind—what influence to exercise on the heart. The survey filled the heart of the Psalmist with admiration—with love, praise and unfeigned devotion. “The earth,” exclaims he, “is full of thy riches.” So great, so good, so glorious in power and wisdom did God appear in this survey of his material workmanship that his full heart found utterance in expressions like these: “I will sing unto the Lord as long as I live: I will sing praise to my God while I have my being: my meditations of him shall be sweet: I will be glad in the Lord. Bless the Lord, O my soul, Praise ye the Lord.”

He would *be glad in the Lord*. He would praise and magnify his God and worship with gratitude and thanksgiving.

He had seemed to stand by the great architect and see him call out of nothing the huge and formless lump of this globe. Dreary and waste it assumed form and beauty—the waters collect in their vast reservoirs, and the dry land appears. Hills and dales, rivers and lakes, mountains and dashing cascades diversify its face. Every minute portion is watered by springs and streamlets. A soil is formed—vegetation springs up—not only to meet the demands of necessity, but to supply a thousand luxuries. Nothing was made in vain—nothing not suited to its purpose.

Next the Psalmist casts his eye over the *sea* and derives thence other reasons why he should rejoice and be glad in the Lord: “This great and wide sea, wherein are things creeping innumerable, both small and great beasts: there go the ships: there is that leviathan whom thou hast made to play therein.” David discovers reasons for gratitude in the *exist-*

ence and *uses* of the *ocean*. The magnitude of the ocean—it covering more than two thirds of the earth's surface—the power displayed, especially when this mighty expanse of waters is lashed into a rage—the sublimity of the ocean, have ever afforded themes calculated to inspire the reflecting and pious mind with reverence and adoration. But the points on which the mind of the Psalmist most readily fixed as subjects suited to inspire his soul with an idea of the divine goodness, were *the replenishing* the sea with such an innumerable multitude of living creatures, and the *making it a highway for communication* among the nations of the earth. “Wherein are creeping things innumerable,” *and*, “there go the ships.” The natural history of the ocean is as yet but very imperfectly understood, yet understood enough greatly to excite wonder and admiration at the variety and immensity of the inhabitants of the deep. The ocean as profusely teems with life as the land; and life is there as endlessly diversified, and presents doubtless a longer chain of gradations from the minutest to the mightiest. “There is that great leviathan, whom thou hast made to play therein”—the *whale*, the most formidable monster of the deep, that sports in the great play-ground of the vast expanse of waters.

But a contemplation of God's works excites our gratitude and draws out our love chiefly as we discover the *uses* of them. The stocking the sea with such an abundance and variety of animals, is for *use* as well as to please with a display of goodness and wisdom. A large portion of the population of the globe are already fled from the ocean; and doubtless, when in the days of her millennial glory the population of the earth shall be vastly multiplied, a new storehouse of food will

be found to have been kept in reserve for a supply of a population more numerous than we can now well conceive.

But David seems to have got a clearer conception of the utility of the ocean in another respect: *it was navigable*: "There go the ships." The far reaching mind of the royal prophet and poet might have enjoyed in vision something of the present condition of the world in respect to neighborhood and social and commercial relations. In a barbarous condition of the world there could have been no advantages—yea, there would have been many disadvantages, had the nations of the earth been brought into close neighborhood. They would have naturally corrupted one another. Their proximity would have been the occasion "of endless wars and of the most devastating ruin." While nations remain idolatrous, debased, depraved, it matters not how effectually separated they are. While the world *was* in such a condition, Providence effectually kept them apart by means of broad and trackless oceans; and thus the maddening passions of men were circumscribed within comparatively narrow limits. But when the day approached that God would enlighten and christianize the world, these barriers were overstepped. These mighty oceans became a highway—commerce, with the thousand facilities it affords, for the increase of knowledge and religion, became an efficient instrument by which to convert the world to God. Thus God has made the ocean, which once seemed but the sporting field of "leviathan," the great channel of communication between the different and distant portions of the world. "*There go the ships,*" has sent a thrill of joy and gratitude into many a christian's soul, as he has seen them bear away the messengers of peace and pardon, freighted

with the word of eternal life to a perishing world : and “ here come the ships,” has as often filled with delight the half-enlightened and waiting heathen who have stood on their shores to welcome the ambassadors of the cross to their benighted lands.

The Psalmist found it pleasant to meditate on these things. He rejoiced and was glad in the Lord who doeth wonders—who overrules earth and *ocean* so as to perfect his own praise. And so should we if we were wont to see God in all things. “ His way is in the sea ; his path in the great waters, and his footsteps are unknown.”

But I dwell too long on a single topic. The mind of the royal saint next finds resources of spiritual enjoyment.

In the plentiful provision and the tender and remitting care of God for all his creatures : “ These wait all upon thee : that thou mayest give them their meat in due season. That thou givest them they gather : Thou openest thy hand, they are filled with good.” The abundant supply which God provides for every species of animal, however inert or insignificant, or wherever found, whether in the depth of the ocean, or deep buried in the earth, or fast encased in the solid rock ; the instinct of all the various tribes of irrational creatures to search out the particular kind of food which has been provided for their sustenance, and refuse what is hurtful ; the efforts they make to *gather* what is provided for them, and the contentment with which they accept their allotted supplies, cannot fail to excite our admiration of the goodness and wisdom of God in his providential care over his creatures. “ My meditation of him shall be sweet : I will be glad in the Lord.”

Hence the Psalmist takes notice, as another topic of pleasing interest, of *the dependence* of all creatures on God and of

his dominion over them all : “ Thou hidest thy face, they are troubled : thou takest away their breath, they die and return to their dust. Thou sendest forth thy Spirit, they are created : and thou renewest the face of the earth.” The meanest insect is as dependent on God for natural life as the saint is for spiritual life. In another place David says of himself : “ Thou didst hide thy face, and I was troubled.” God gives natural life to all his creatures, sustains it, and takes it away at his pleasure. There is not a creeping thing so insignificant as not to be the object of his care—not a sparrow falls to the ground without his notice. Why then should *we* ever distrust ? In a day, and perhaps (in the case of some tribes of insects,) in an hour after their creation, a whole generation is cut off and renewed by another. This is here all attributed to divine power : “ Thou takest away their breath, they die ”—“ thou sendest forth thy spirit, they are created ”—another generation appears.

What an idea does this give us of God ! Nothing is too minute—nothing too insignificant, to put it beyond the care and government of God. “ His tender mercies are over all the works of his hands.” Nothing escapes his notice—nothing which is not subject to his care and made subservient to his government. How great must that Being be who can make and superintend and rule over so vast a universe of beings—to give breath to the minutest insect that creeps—to provide food for all the beasts of the field, the fowls of the air and the fishes of the sea—to take away their breath when they die, and to renew by his Spirit, every successive generation. And if God so clothe the fields and care for the birds of the air, how much more shall he take care of you ! O ye of little faith !

But the Psalmist will not dismiss these pleasing meditations without practical reflections, which expand his soul, and raise his thoughts into the regions of high devotions. And such contemplations, if rightly indulged in, would profit us in like manner. Let us therefore endeavor to trace the workings of David's pious soul, that we may participate in the *practical* influence which contemplations like the above had on him. His mind is brought to certain delightful conclusions; the first is,

That "*the glory of the Lord shall endure forever.*"

Look up, O my soul, to Him who is the author, the finisher and preserver of all His creatures. How great and glorious He must be! And this glory shall endure forever. It shall endure throughout all time in the works of creation and providence, and throughout all eternity in the adoration and praises of angels and saints. He is the Sovereign God, the Universal King, the only Potentate, and none can take the glory from him. The pious mind sees a foundation in the works of *creation* and *providence* for eternal praise to God. But if here, as New Testament saints, we bring into the account the element of *redeeming love*—the works of the new creation, we discover a still higher ground on which to predicate the everlasting glory of the Lord.

Another conclusion to which the Psalmist comes, is, that *it is a fearful thing to incense such a God*, or in any way to resist his will: "He looketh on the earth and it trembleth; He toucheth the hills and they smoke." How fearful, how vain a thing for puny men to set such power at defiance. All the springs of nature—all the resources of heaven, earth and hell are at his command, and the mightiest human power

is less than the chaff before the wind in his sight. Fear not them that kill the body, and after that have nothing more that they can do. But I will forewarn you whom ye shall fear : fear Him which after he hath killed, hath power to cast in hell ; yea, I say unto you, fear Him. Next

We have the conclusion of the Psalmist as to how he will demean himself in view of such a God. "I will sing unto the Lord," says he, "as long as I live : I will sing praise unto the Lord, while I have a being. My meditation of him shall be sweet : I will be glad in the Lord." He would think much on God—he would praise his works and his ways. Such meditations he found sweet. It was delightful to turn off from the melancholy contemplation of his own weakness and corruption, to think on the infinite purity and excellence of God—delightful to seek relief from the moral wastes and corruptions of humanity, in the eternal excellency of the God-head ; and here he discovered reasons for continual praise. While he lived in the flesh he would praise God ; yea, as long as he should have a being—while immortality endures, his spirit should never cease to sing praises to Jehovah. And have we not the same reasons to rejoice in the Lord—to serve and love the great I AM—the same motives to light up our souls and to give our minds in holy zeal for the honor of such a God ? All nature rebukes our apathy. Every thing that God has made urges us on to fidelity and zeal and holy love. While we have a being, let us honor him who has so gloriously honored himself in all his works.

But what says the glowing love of our saint, of those who will *not* love and praise and honor such a God ? While his own soul burns with holy jealousy, and is wrapt in holy love

for such a God, what does he see to be the righteous doom of all such as will not yield a willing homage to so glorious a Being, and join in the general chorus of all nature in ascribing praise and honor to him? "Let the sinners be consumed out of the earth, and let the wicked be no more." If with such reasons to move them—if with such motives to draw out their souls to God, they will not love and honor God—if they will be dumb, while all nature is vocal with the praises of God—aliens and rebels are more irrational than the brute creation. Why, it is not fit that they should have a place on God's footstool—it is meet that they should be consumed out of the earth and be no more. Why should they live on God's bounty; why be upheld by his goodness, only to raise rebellion in his empire and to produce discord in the general symphony of all his loyal subjects? Heaven responds, *let them perish.*

Finally, it is a matter of holy rejoicing when God triumphs, and his enemies are destroyed: "Bless thou the Lord, O my soul. Praise ye the Lord." "And all the angels that stand about the throne, and the elders, and the four beasts, fall before the throne on their faces and worship God, saying, Amen. Blessing, and glory, and wisdom, and thanksgiving, and honor, and might be unto our God for ever and ever, Amen."

CHAPTER XXIV.

CONCLUSION: The Claims of Natural Religion; the Origin of false Religions; their Philosophy and History; Reasons for one common universal Religion, and that Christianity.

AND may I not now, before taking a final leave of the reader, ask him to bow down in the August Temple we have been contemplating and worship the great and glorious Being who has stretched out the heavens and laid the foundations of earth, and gives life and breath and all things. The claims of NATURAL RELIGION seem here to force themselves upon us with renewed earnestness. The original religion of man we may claim to have been a Natural Religion. It was the worship of the God of Eden, and of the beautiful world of which Eden was the most beautiful representative. Then they worshipped the God of the stars; heard him in the winds, the thunder and the storm. Every plant that grew, every animal, insect, bird or fish that sported in all the beauty and luxuriance of primeval life, bespoke the hand that made them and the fatherly care that watched over them and fed them. Hills, plains, rivers, trees, hymned forth the praises of their great Original. The clouds were his chariot from which he dispensed the rich treasures of the skies. The morning stars sang his praise, and the evening shades responded in anthems of thanksgiving

and joy. All nature bespoke the goodness, wisdom and power of a present Deity.

Whichever way the favored progenitors of our race turned their eyes, they discovered God in all things, and God over all. They had no written oracles : they needed none. The living oracles were inscribed on every lineament of God's universal workmanship. The stupendous Temple in which they stood—its walls, its foundations, its vast concave—every particle, or contrivance for use or ornament, prompted their willing hearts to adoration and praise. Every breeze that blew, every flower that opened and shed forth its fragrance—the sunshine and the shade—heat and cold—day and night, uttered their persuasive voice, inviting men to bow down and worship the universal Parent.

Some one has spoken of God as “the greatest of workers,” the “chief of artificers.” He locks not up his wisdom in mere abstractions, but rather embodies it in tangible objects, and in this way makes manifest his intelligence, his ingenuity and all his vast mental resources. “This world is but one of his workshops, and the universe but a collection of his inventions.” His works everywhere proclaim his preference of the material and useful to the merely imaginative.

No class of men have reasons for profounder and more reverential worship than mechanics, especially those of the class who are inventors, discoverers, or practical and pious philosophers. As they range amidst the wonderful realities of the universe, replete as it is with design, and redolent in its minutest arrangement with wisdom and goodness infinite, the greatest wonder of all to such a one is the Eternal Mind himself, from whose conception it rose, and whose prolific fiat gave

birth to it, in all its vastness and variety. "And instead of the temple of science having been reared, it is more proper to say that the temple of nature has been evolved. The archetype of science is the universe, and it is in the disclosure of its successive parts, that science advances from step to step—not properly raising any new architecture of its own, but rather unveiling by degrees an architecture that is old as the creation. The laborers in philosophy create nothing, but only bring out into exhibition that which was before created."

The more profound then the researches of our intelligent, philosophical mechanic, the more ingenious his workmanship, or sublime and useful his discoveries and inventions, the more he finds himself imitating and reaching after God, and the profounder and more reverential are his thoughts of God, and the more intelligent and humble his worship. Every new discovery or invention, every advance in ingenuity or skill, every new law of nature he may explain and appropriate, every new substance he may discover, is but a further exposition of the powers and skill of the Great Architect, and a further acquaintance with the exhaustless storehouse of the Great Proprietor. His advancement is simply a more complete development of his own original mental powers, and a more profound acquaintance with the objects of his researches. Nothing *new* has been evolved. And so he may go on to all eternity. Every step does but reveal himself and reveal his God; himself as the embryo of unlimited capabilities of research and investigation; and God as the Great Author and Proprietor of all things.

Where, if not in such a position, does a man discover reasons, motives, incentives for the adoration and praise of his

God? Certainly nothing is more reasonable, nothing more congenial to the right mind than what is denominated Natural Religion.

Nor need we by any means confine our remarks to the class in question. Other classes of men—all classes, may, each in its own department of pursuit and observation, discover the same reasons and incentives to bow down in the great Temple and worship the King. They who cultivate the soil, and whose garner groan beneath the bounties of the liberal Hand; they who delve deep into the bowels of the earth, and bring up every useful and precious mineral and metal, and wonder at the boundless treasures which lie hid in the deep caverns of the earth; and “they that go down to the sea in ships, that do business in great waters; these see the works of the Lord, and his wonders in the deep.” How are they called on to “praise the Lord for his goodness, and for his wonderful works to the children of men.”

But for the apostasy Revealed Religion had had no place in the Theology of man. Inscribed on the broad and open volume of nature, patent as the sun in the firmament, are all the laws, all the promises, all the guidance unfallen man needed. Sin created the necessity of a Revelation. The whole is a testimony concerning Jesus the Mediator—the promise, the prophecy; the advent; the works, the sufferings and death of the Deliverer; the means and agencies of salvation, and the glorious realizations of a saving faith in the atoning blood. The voice of God as he spake in the flower, the breeze and the dew-drop; in the sunshine, the rain, and the health-bearing air; as he spake in the ten thousand manifestations of his goodness, had been hushed by the tumults of sin, and the

benignant face of Heaven was obscured by a cloud. It was needful that the voice of Mercy should now speak and proclaim peace and pardon to the erring. Such is the revelation, and such the nature of that life and immortality brought to light through our revealed Religion.

And we need only recur to what has been said of the adaptations of all physical objects and organizations, to the mental progress and the moral improvement of man, and we shall see reasons, urging home upon us again the obligations of Natural Religion.

But we would present the thought in another form. The view we have taken in the foregoing pages of God and his works, and of man and his obligations and duties, very naturally conducts us back to *the origin of Religions*, and conveys some just notions of their *Philosophy* and their *History*.

There is much of profound interest in the origin, the history, and the philosophy of False Religions. Constituting, as they do, the most subtle combination of all the engines of mischief which the great adversary wields, there is much in them when contemplated as perversions and counterfeits, both to admire and lament. We meet in false religions not so much absolute falsehood as truth perverted and counterfeited, to the peril of man's best interests in this life, and his eternal undoing in the life to come.

False religions have a common origin, and more in common than is generally allowed. Based on *practical atheism*, it is not easy to determine which recognizes the least of God. Neither Paganism, Popery, nor Mohammedanism questions the abstract being of God. Such a monstrosity falls only within

the dark domains of Atheism. Reason and conscience never said, "There is no God." This is the language of the heart. God has stamped his image on all his works. The heavens declare the being and agency of God—the succession of day and night proclaim it—everything shadows forth an all-pervading Deity.

False religions have formed a crafty compromise between the conflicting elements of man. They yield to Reason, who *knows* there is a God, and to Conscience, who *feels* it, the abstract *fact* of the Divine existence, but grant to the *heart*, which has no complacency in the character of the God of Reason and Conscience, the prerogative of clothing this Being with attributes congenial with its own corrupt nature. Hence the invention of other gods, and the assigning to the true God a fictitious character; and hence the fabrication of corresponding systems of religion. Yet, in the compromise, the heart, *de facto*, has the advantage. For, while it theoretically acknowledges the being of one Supreme God, by adding at the same time a multitude of lesser deities to which it pays its supreme homage, it practically loses sight of both the being and authority of the true God.

Here is the dark triumph of sin. It has placed a black and impenetrable cloud between the effulgence of the Eternal Throne and this lower world. It has covered the earth with darkness—done its utmost to shut out God from the world, and to usurp his dominion over this part of his empire. It has changed the incorruptible God into an image made like to corruptible man, and to birds and four-footed beasts and creeping things.

In order to take a just view of the great systems of False

Religions which have obtained in the world, it will be necessary to premise the following things :

1. God reveals himself to the world as the world can *bear it, or is prepared to receive it.* And we must, of consequence, look for something corresponding to this in the various systems of Religion which have prevailed in different ages of the world and in different countries. And we may add that the *same* revelation becomes a source of more or less light, according to the condition of the people it enlightens. In a given amount of sunshine, the half-blind man sees but little compared with the man of clear and open vision ; and they who are enveloped in fog, little, compared with those who bask in the noonday sun. Every new acquisition of knowledge, every well-directed mental improvement, every advancement in society, casts new light upon—or rather educes new light from, the sacred page ; and so we may say of the cultivation of every Christian virtue and the cherishing of every right affection. The same truth as contemplated from different points, for different purposes, with different feelings and affections, with a clearer vision, and at a greater or less distance, appears in new beauties and relations, and assumes new importance.

It will, therefore, correct our views and moderate our censures, when contemplating what are denominated False Religions, if we take good heed as we pass, to our chronology, to our geography, physical, political and moral, and to the entire condition of the people as to knowledge, mental improvement and civilization. A religion which is essentially false in one age or condition of the world, might have been essentially true in another age or condition. For an illustration of this we need go no further back than Judaism.

2. Another point to be borne in mind is, *the mental and moral improvement of our race*. The condition of the human race is progressive. Partial and local retrogressions have at times, and for considerable portions of time, occurred, yet these should be regarded rather as the temporary results of the ebullitions, the confusions, and apparent dissolutions which usually precede the introduction and establishment of a new and better order of things, than as real retrogressions. It is the "shaking" of those things which shall be "removed." To us who reckon time by months and years, *centuries* appear a long *preparatory* season. But He who inhabits eternity and plans for infinite duration, feels no such restraints. With him a thousand years are as one day.

Could we stand in the council chamber of heaven and with the eye of Omniscience survey, in the field of our vision, the *whole* of the Divine procedure towards our world, we should see a steady, onward, irresistible march of Providence, executing the Divine purposes and at every step approaching the goal of a final and glorious consummation. But standing, as we do, at an infinite remove from the Imperial centre, and amidst all the darkness, disorders, and perversions of sin, where so much is to be *undone* before God's peculiar work on earth can be done—where there must be so much pulling down of both superstructure and foundation, before the true Temple can be reared and completed, *preparatory* work often appears to us not the work of progress, but of retrogression.

The correct view we believe is: That the energies of Providence are engaged to erect a *perfect building*—to elaborate and complete a perfect system. But as he will do this through the medium of human sagacity and toil, all possible systems,

we had almost said, are permitted to exist while the great Building—the true System, is in progress, that an endless variety of *facts* may be elicited, experiments tried and results arrived at, from which, as from a profuse mass and medley, human wisdom may choose the good and eschew the bad, and under the eye of the great Architect, produce the perfect Temple. Hence the many strange systems, developments and fantasies, which have been permitted, not only in religion, but in politics, ethics, etc. They are the *materials* from which to select. The middle ages were peculiarly prolific in these, and as peculiarly preparatory to the advanced state of the world which followed. This advanced state was a result—a compound—a fabrication from pre-existing materials, all thrown into the crucible together, fused—the dross being removed—and run in a new mould.

3. It comports with the Divine plan, that *sin should have its perfect work*. Earth is a usurped province—Satan is the god of this world! And the history of his reign is written with a pen of iron, and shall be read in heavenly places, an indelible lesson throughout the interminable duration of eternity; presenting an awfully edifying contrast of the misery of sin and the beauty of holiness.

The world is a vast machine, in every part *made* right, and if managed right, could produce nothing but holiness and happiness. Yet under the administration of his Satanic majesty, so completely perverted is every thing that the world is as notorious for violence and corruption, as, under a right regimen, it would be for peace and purity. In allowing Satan to dabble, as he is always disposed to, in the religious affairs of the world, in politics, in the social and domestic economy of men,

in their science and literature, and in yielding him the vast resources of the world, God has furnished all his intelligent creatures a durable and melancholy specimen of what sort of use sin makes of things and creatures originally and intrinsically good. And when this miserable experiment shall have been sufficiently tried, and its results made sufficiently manifest, the Great King, the rightful Sovereign, shall put down the usurper, and exhibit on the same field the diametrically opposite, the infinite beneficent and glorious results of His reign.

The extravagances, superstitions and cruelties of False Religions—or, as Carlyle would have it, “their bewildering, inextricable jungle of delusions, confusions, falsehoods and absurdities,” stand before us as so many melancholy perversions of the Truth—the “many inventions” of sin—not original errors but corruptions and perversions.

The position we shall attempt to maintain in this chapter is, that Religion, philosophically regarded, is one grand, consecutive, progressive system from its germ in the family of the first Adam to its glorious consummation in the family of the second Adam: and that corresponding with this there has run a parallel series of counterfeits, imitating the genuine in *form* and *lettering*, yet, intrinsically, possessing little or nothing in common.

Satan is a bold and accurate imitator, not (from policy only) an *inventor*, in the things of religion. He too well knows the force of man's religious instinct, and too well understands that there is a spirit in man which “witnesses” with the Spirit of God, approving as heaven-born the Religion of God's revealing, whether it be shadowed forth but obscurely, or revealed clearly, to expect to palm on the world a sheer

fabrication of his own. He pays to Divine wisdom the forced homage of clothing his falsehoods in the costume of Truth—in the panoply of heaven.

In taking a brief survey of the successive and progressive developments of true Religion we shall be able to trace a series of corresponding counterfeits, by which the Devil has contrived to blind the eyes and delude the souls of the tribes and kindreds of the earth in the different ages of the world. Throughout the whole he has not failed to keep pace with the march of providential development, changing and modifying, adding and subtracting as the world advanced, and as, one after another, opened the successive scenes in the great Drama of Redemption.

We date the history of the true Religion in the family of Adam. Immediately on the fall, a remedy for the great moral disease of man was revealed, and the church of God instituted. And from this point radiated the first rays of light over a dark world. This light increased and spread through a succession of holy men composing the Church, from Adam to Noah. The posterity of Seth transmitted the blessing through many generations and doubtless among many tribes of the newly peopled earth. In the days of Enos there was a remarkable extension of the Church, and Enoch was a city set on a hill which could not be hid. There must have been at least, a very general knowledge of the true God, and of the way in which he ought to be worshipped among the nations who lived before the flood. Nor is it certain that men had yet fallen into Idolatry, or that any great systems of religious error had yet been consolidated. Wickedness there was, and violence and corruption, which cried to heaven for vengeance, yet perhaps not yet organized

into system. Noah transplanted the germ of antediluvian piety into the new world, where it took root and early spread over the newly-peopled earth.

Then followed the clearer manifestation of the truth to Abraham, which continued from the calling of the Father of the Faithful till the giving of the law at Sinai. Then came the gorgeous ceremonial of the Tabernacle in the wilderness, shadowing forth new truths and elucidating old ones, and all looking forward, with a clearer distinctness, to Christ the great Reality. Then followed the spiritual kingdom of Christ, or the setting up of the true Tabernacle.

In Judaism, which was the growth of a thousand years, and of which modern Judaism is the Popery, we meet the first great rescue and concentration of whatever was true in former systems of religion. In Christianity we have the first. This is the *summation* of the whole.

But we are at present interested rather to trace the corresponding counterfeits, that we may see how men swerved from the simple truth as taught in Nature's Book, worshipping the work rather than the great Worker; the creature than the Creator; yet in the perversion there still remain the indubitable traces of the original and the true.

As "bewildering, inextricable a jumble of delusions, confusions, falsehoods and absurdities" as this Paganism is, it was once a true religion to its votaries. All false religions have had a truth in them, vestiges of which, more or less clear, are yet discoverable. In the clear light of revelation men have lost their original acute sensibility to the Divinity which shines in every star or every blade of grass. The Temple of Nature, once so beautifully and brilliantly luminous to its worshippers,

as lighted by ten thousand torches of its own, is dimmed—a shadow is cast over it by the meridian splendor of heaven's Great Light, and few but the thoughtful, the philosophic and the poetic, "see God in every star and hear him in the wind."

But in the beginning it was not so. In the earlier ages of our race there was a freshness in their sensibilities to natural objects—a vigor in their conceptions, which, in our greater privileges and refinement, we have lost. As the man deprived of his natural vision cultivates and realizes a kind of supernatural acuteness in the sense of feeling; or the savage, before he loses his natural skill through the aid of well-marked roads and open fields, has a singular sagacity of wending his way through trackless deserts, and thickets dark and broad, so the ancients, guided only by Nature's torch-light, *felt* after God, and discovered Him and worshipped Him in a manner we know little of—in a manner we may rashly call heresy, yea worse, idolatry. But to them it was *not* idolatry. They worshipped the God they saw and knew and felt in his works.

To the poor Sabean—a *physical* man, all feeling in proportion to paucity of intellect and expression—wandering over his arid wastes, the "blue diamond brightness" of the sun is as the eye of the Eternal beaming upon him as it wakes a ray of the yet unrevealed splendor within. Here is to his untutored mind, his uncultivated imagination, yet to his wildly sensitive heart, an emblem of the Great Divinity. Here is a "transcendent wonder," and he contemplates it with admiration without limit. Does he bow down, adore and fear? It is not the luminous ball which he worships; it is some mighty, unseen Power or Intelligence—the essence or Being which he has discovered in this emblem of the Deity. We may call this *Sabeanism* and

laugh at, or condemn, or compassionate the monstrosity which has, through the perversion of human depravity grown out of it. We may justly be astonished that vast generations of rational men should for so long a time have been befogged in such an "inextricable jungle of delusions" as this system at length became; yet in its early stages it was neither delusion nor falsehood. It was man in his childish simplicity and in the native sensibility of his soul worshipping in the open Temple of Nature. He sees God, who is invisible, and pays Him such adoration and fear as he feels to be His due.

For the same reasons the moon and the stars would in time become objects of adoration as lesser emblems of the same effulgent Glory hid beyond the clouds. Such may be taken as the origin and character of all those provinces of Paganism where the heavenly bodies were made objects of Divine worship, as in Sabeanism and the religion of the Scandinavians, or the Norse system.

The transition from such a system of worship to that of hero or man-worship was easy and natural—and, withal, an advancement of the original idea. If every natural object shadowed forth, more or less distinctly, the Supreme Divinity, much more would God's noblest work—the image of himself. Man would become a yet more striking object of high and ceaseless admiration. Yet not man in his fallen degenerate state, but man as he symbolizes the Great Prototype—man when viewed at so great a *distance* or at so commanding a height as to obscure what of human imperfection there is about him, and at the same time to magnify all there is divine in him, and all that imagination chooses to supply.

The worship of the Christian's God is hero-worship—a

heartfelt prostration—love, fear, boundless admiration and obedience to the man of Nazareth. Discovered as the “brightness of his Father’s glory and the express image of his person,” he is to the Christian the one among ten thousand—altogether lovely—the hero of his heart, the fit object of all adoration and praise.

But we have discovered a germ of the same root far, far back, beyond the long night of ages on which the day-spring from on high arose.

As a matter of philosophy, Christianity is not a new religion. Christ was in reality, and in full-orbed perfection, what the early sages among mankind dimly portrayed in their herogods. Guided by the dim starlight which Heaven then afforded them, they clothed their heroes with such attributes as seemed to them divine; they made them godlike and worshipped them as gods. It was not *Thor* (the thunderer—the hero—giant or man) whom they worshipped, but the Mighty One who thundered—the Great Unknown, who shook the earth with his power.*

As an example of this I might refer the reader to the well known incarnations of Vishnoo of Hindoo mythology, in which he will scarcely fail to discover the true idea of an incarnation of the Deity. But we are furnished with a more striking illustration in the case of Osiris, the celebrated hero-god of the Egyptians. This Deity, about whom clustered all the hopes of immortality, was fabled to have slept in death and to have risen triumphant over the powers of evil. He was acknowl-

* The writer acknowledges indebtedness, in these paragraphs, to Hero-worship, by Thomas Carlyle.

edged as the God to be worshipped throughout the great valley of the Nile.

There is something singular in the history of this Incarnation. Osiris is the Messiah of the old Egyptian religion, and, it is remarkable how many of the attributes of the true Messiah are made to appear in him. The oath taken in his name was the most inviolable of all oaths. He was the Judge of the living and the dead. Goodness was his primary attribute; and that Goodness was displayed in his leaving the abodes of Paradise, taking a human form, going about doing good, and then sinking into death in a conflict with evil, that he might rise again to spread blessings over the world, and be rewarded with the office of Judge of the living and the dead. Osiris is called the "Grace Manifester"—"Truth Revealer"—"Opener of Good." The ancient records speak of him, too, as "full of grace and truth." He was the Supreme God in Egypt, and the only one whose name was never pronounced.

In all these points there is certainly a very singular assimilation of attributes—life, death and resurrection—with that of the Christian's Messiah. But whence this assimilation? Perchance, it may be replied, Abraham had clear conceptions of Him who was to come, and he communicated this knowledge to the Egyptians on his first visit there. But *before* Abraham's day, this singular ritual of Osiris was known and celebrated. "Tombs as old as the Pyramids declare all this." Others trace this knowledge through a channel further back. Are not these the indelible traces of Noah's preaching on the mind of the world? Noah was a "preacher of righteousness." His immediate posterity, acquainted no doubt with the revelations already made concerning the Messiah, settled in Egypt,

became the founders of an empire there—the compilers of their sacred books and originators of their religious system. There is, perhaps, no such thing as a religion founded on absolute falsehood. All false religions, as I have said, are the perversions of a true religion. The religion of ancient Egypt was undoubtedly made up of such religious notions as were extant at the time, and it is not strange that so prominent an element of the true religion should be found incorporated in this ancient system.

But all this was physical religion—at least but intellectual—involving little or nothing of the *moral* element. It worshipped a Natural Divinity—a God of strength, valor, prowess, the Grand Architect and Garnisher of the heavens—the Thunderer—the Great Man—the Hero or Great Spirit. And the worshipper spends himself in wonder and admiration—perhaps in praise. God is made to appear in his mighty power rather than in his infinite mercy.

Not till a much later period do we find the *moral* element introduced into Religious Beliefs. That the Divine Power which they worshipped had a moral basis—that God is a moral Governor, and men subjects of a moral Government, they did not discover. The introduction of this element was an advanced step in the history of religion—the result of a special revelation. How much of the moral was introduced into these early systems from revelations made to the patriarchs and early prophets, we cannot determine. True it is that the darkness of human depravity soon overshadowed the fairest of these forms of belief. The light in them became darkness—and we now can only discover what in them was true, by its *counterfeit*; seeing the spurious coin we judge of the genuine.

In the progress of Religious Belief, I said, came *Judaism*—not a *new* Religion, but a new dispensation of the ancient Faith, clothed in new light and the moral element more distinctly marked. Moses was not an originator, but a *compiler*. The beggarly elements of the world were now clothed in a celestial dress. The physical yielded to the moral. God revealed himself as the Moral Governor. The scattered rays of light which had hitherto done little more among the nations than to make the surrounding darkness visible, now concentrated on Sinai, burst forth from the terrific cloud with all the vividness of a new revelation and all the terribleness of the divine Majesty, challenging the homage and love of a rebellious race. These collected rays were woven into a beam, which we call the divine law. What of God had been but indistinctly shadowed forth in nature, or imperfectly revealed to the Patriarchs, was now clearly made known. His moral character was made to stand out in bold relief; of which his law was made the transcript. Doctrines, duties, precepts were of consequence marked with equal clearness. It was a new and vastly improved edition of any previous system of faith. It was truth developed, defined, emancipated as coming from the hands of the Patriarchs to whom God had intrusted the clearest revelations of himself—or Truth rescued from the the abuse, corruption and darkness into which it had fallen in the hands of surrounding pagan nations.

An imposing *ceremonial*—new only in its form, was now adopted. Here again Moses was not the originator. Most of the rites and ceremonies of the Levitical Law were already in vogue. Moses collected the scattered fragments and wrote them in a Book—reduced a distracted ceremonial to order—

defined the number, circumstances and uses of such rites as God approved, instituted an order of men who should take charge of this department, designated the *persons* who should hold this office, and made the whole more clearly significant. It now became a system with an officiating priesthood and a law, all setting forth a Messiah who should come.

I have said there was, originally, *truth* in the old systems of Paganism : originally founded in truth—much of reality in them—a worship of God *as they knew* Him—or through the sources by which he revealed himself to them. But times change. What was true became in a sense false. Further revelations gave men *higher views* of God on the one hand—and further developments of human depravity led men to lose sight of God in the objects they worshipped as true emblems of the Divinity, and to worship these objects themselves.

• The old systems existed for a purpose—answered that purpose—lasted or will last till the good and true is transfused into the new, and then will die, having done the work of their generation.

The design of Judaism, (or of Christianity,) therefore, in her indignant denunciation of Paganism, is not the condemnation of the *truth* which was there, but it is to bring religion back to that truth—and not that truth only, but to that truth as expanded, and cleared from the dross of error ; and its boundaries enlarged by the rich accessions of all subsequent revelations. New mines were opened, richer and more abundant, and yet all the pure gold of the old ones was carefully preserved and worked into the new Tabernacle.

But the general views taken in the foregoing treatise supply, in this connection, another closing thought. It is that we

discover herein, *reasons for one common and universal Religion*, which shall finally pervade every human heart, and inclose in its broad fold the entire family of man.

All nature proclaims such a consummation for man ; and in equal distinctness proclaims Christianity to be such a Religion. It is, as no other religion, adapted to man's wants, to his progress and to his full development, whether it be in this life or in the life to come. It is under the auspices of this form of religion that mind is quickened and matured and made to subserve the great purposes of human advancement—that human genius is set on the alert of invention and discovery—that the powers of nature are evolved, applied and appropriated to man's use and progress. It is this form of religion which addresses itself to the *heart*, and cultivates the moral feelings, and evolves and applies the moral powers of man. It addresses itself to the whole man, develops all his powers, and fits him for his full and final destiny.

It is a service, adoration and praise paid to the God of nature. It is a supreme veneration of the Power that made the world, and keeps every star in its course, and manages the great universal machine as he pleases. It is the supreme admiration of the Wisdom which devises, adjusts, preserves and adapts all things so as to secure the whole against a single failure, and to bring out of the whole the great and benevolent end designed. It is the "transcendent wonder" of the love and benevolence of God in so forming, controlling and adjusting all things as to bring good out of the whole. No poison is so venomous that it is not made to yield a sweet ; no cloud so dark, no tempest so devastating, no providential dispensation so disastrous that it yields not in the end some permanent and substantial good.

In the highest possible sense, then, the Religion of Christ is a Natural Religion. Did we need further proof of this we should find it in its peculiar adaptations to the *social* and *civil* progress of man. It is this form of religion, which, either in its more immediate bearings, or in its remoter outgoings, is revolutionizing the world. It has made the earth to disgorge its mineral wealth, and has molded it into every conceivable utensil, tool, or machine that can contribute to human progress. It has, in the form of modern commerce, traversed every sea, made nations neighbors, increased beyond all precedent the wealth of the world, checkered every land with Railways and Telegraphs, and conveyed abroad the messengers of the cross and all the means and appliances for the universal diffusion of the gospel. It has translated the Bible into almost every foreign tongue, and given a power and ubiquity to the Press quite unknown in the world before. It is the author of all the freedom in the world—the founder of all constitutional government; and it has pervaded the world at large with a higher degree of intelligence, and the diffusion of the higher type of civilization which now blesses the world. And what but the expansive, rousing, enterprising spirit infused by Christianity has so stimulated the *migratory instincts* of men at the present day? These are indicative of the no-distant advances which await our race—precursive of the breaking-up of old reclusive habits of the species, and introductory of a system by which different branches of the human family become better known to each other, and by an interchange of sentiments and thoughts, as well as of the commodities of commerce, they contribute to a mutual and indefinite advancement.

Christianity, as its most obvious impress indicates, and its most spontaneous workings everywhere vouch, *was made for man*—for man in his expansion into a full manhood—for man as the proprietor and controller of all the powers and resources of nature as placed at his disposal for his advancement, whether physical, mental or religious, and the realization of all he is promised, and all he is capable of here or hereafter.

No other religion has ever exercised in the world this transforming power—no other contains in itself, the elements of such transformations. False religions are local in their character—temporary in duration, and mercenary in their application, and degrading and oppressive in proportion as their spirit pervades the hearts and minds of their votaries. They are most obviously made for the priest, the king and the devil, and not for the people—not for the expansion of the human mind—not for the cultivation of the human heart—not to elevate society, cherish freedom, define and protect human rights, or bless the race.

There are two features of our religion which, contemplated in the present connection, commend it as a religion especially for *man*. They are its *social character*, and its *teaching ministry*. In these two features it differs, essentially, from all false religions, and challenges its claims to universal regard and adoption by the whole family of man. In proportion as a religion is spurious it substitutes a ritual for a sermon; a ceremonial and a solitary worship for the social and public worship of the sanctuary—penance for repentance; and the dogmas of priests for the simple teachings of the word of God.

We ask not for a more satisfactory commendation of Chris-

tianity, triumphantly vindicating its claims to universality, than the simple fact that it *so exactly meets the nature and the wants of man*. Were man an isolated being—not connected with or dependent on his fellows, and had he not with them common interests as touching the things of religion and a common object of worship, he might then with more propriety talk of a solitary religion—another religion—that should excuse him from the duties of the common or social religion. But man is not an isolated being. So constructed is he in his original workmanship, and so circumstanced is he in this world, that he is as much dependent on his fellow-beings for the full and proper development and use of his religious affections and the profitable discharge of his religious duties, as he is for the expansion and improvement of his mental powers, or for the comfortable subsistence of his body. Our religious nature cannot develop itself in solitude—though religion has much to do with solitude, with the secret communings with the heart, with solitary communion with God. Yet religion is a thing suited to man as we find him in all his relationships in life—man as a social being—man as absorbed in business or borne down with labor or immersed in care—man as he sails on the smooth sea of prosperity with canvas full and every breeze propitious—or man as plunged beneath the billows of adversity. Hence sympathy, gratitude, kindness, love, patience, benevolence are no virtues at all if disconnected with the objects on which, or towards which they are to be exercised. Benevolence supposes a giver; gratitude a receiver; sympathy an object to be felt for; patience one to be borne with; love an object of affection; kindness and pity imply objects of compassion. But these when properly exercised are all religious affections.

Children as we are of the same common parent—dependents one on another as the members of the same household, and heirs to the same wants and woes, we have grounds for common sympathies, for the exercise of affections in common; we have one common object of worship—our ends and aims are one—our hopes and fears.

It is the same God that waters all our fields—that makes his sun mature our fruits—that sits over our several dwellings and preserves our households from alarm, from fire, from plague, disease and death. And where is the household who would be so ungrateful, so impious as not to acknowledge, by an act of *public* recognition, their public Friend and Benefactor.

And here we have an argument, did we need one, why all men, everywhere, and as often as the appointed day returns, should assemble in the place appointed for the worship of God.

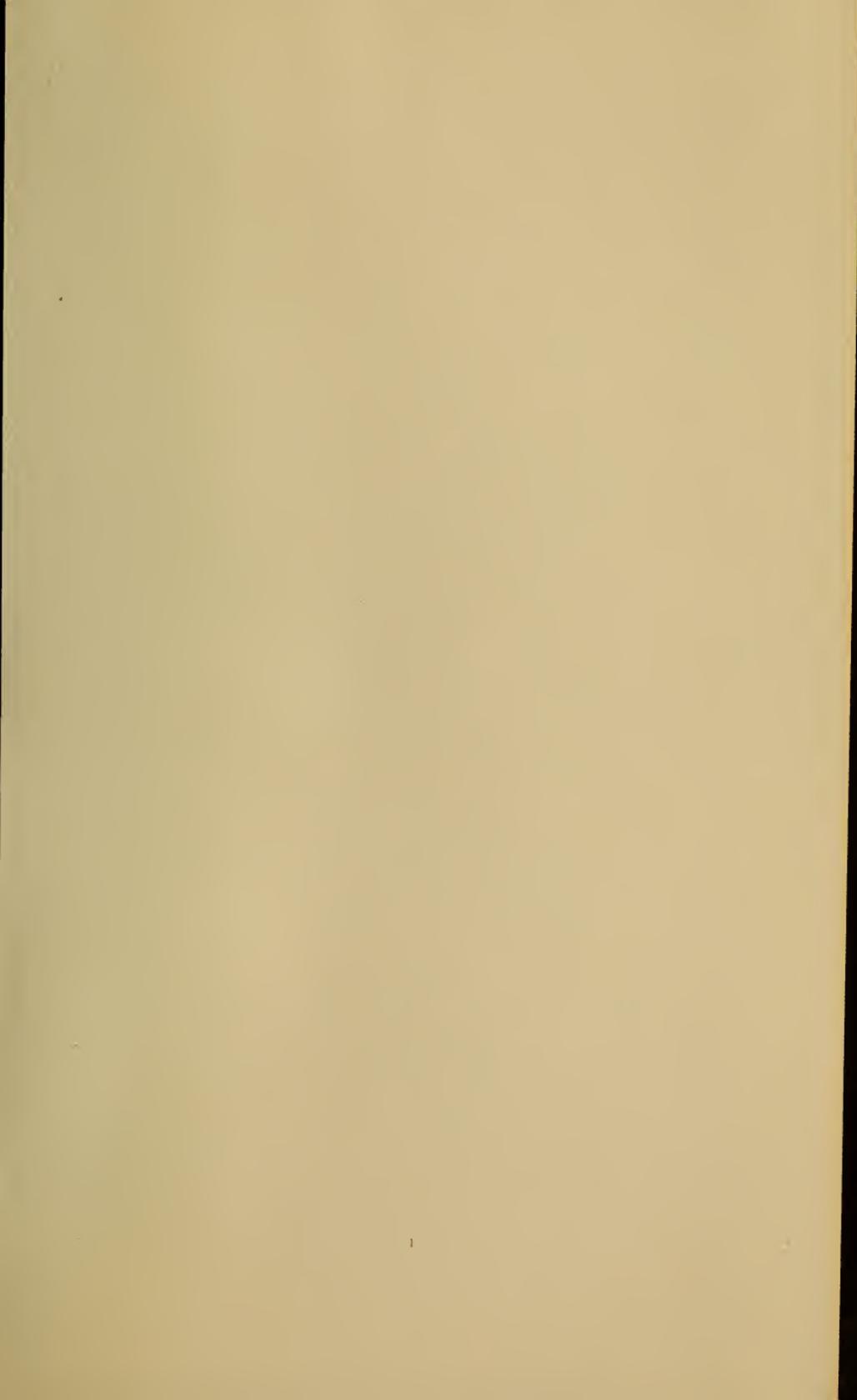
Strange it were, if fellow-travellers to eternity—if men of like wants and woes, of like hopes and fears—with the same difficulties to overcome, the same passions to subdue, the same temptations to meet—the same road to travel and the same end to obtain, should not feel the need of, and should not, in the sanctuary, be able to acquire much common instruction. Important as the topics of instruction are in our seminaries of learning, they fall into utter insignificance when compared with the topics which occupy the attention during the hours of divine worship. What is time to eternity—things seen and temporal to things unseen and eternal? What is the meat that perishes, the riches that vanish away like a dream—the pleasures that deceive, the honors that fade, the life that is but a vapor, to the bread of heaven, to the riches, pleasures and honors which will bloom in eternal youth—to the life

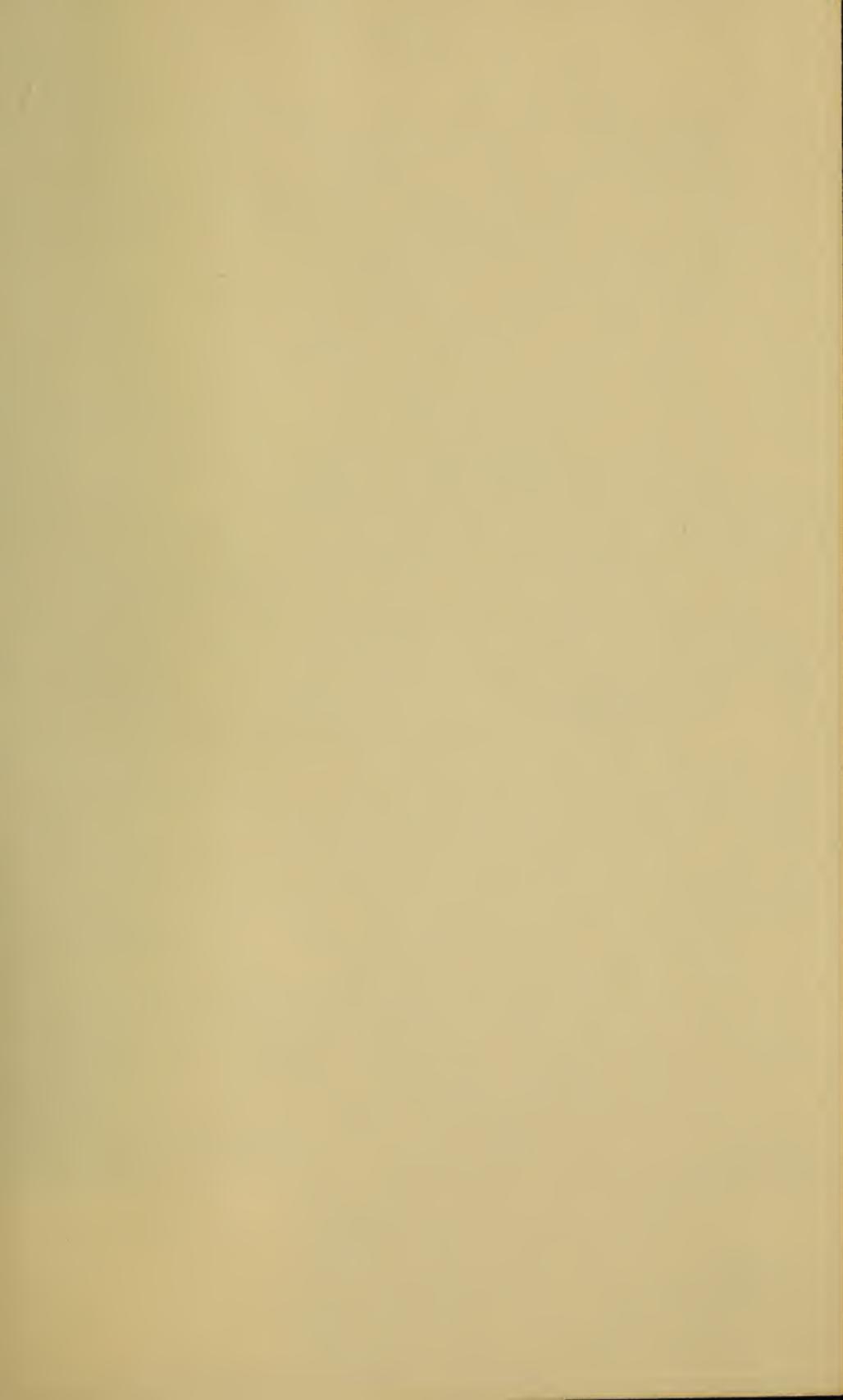
which shall never cease? What is earth to heaven—what *all* that pertains to earth to that exceeding and eternal weight of glory prepared for them who love God.

Such are but the every-day themes of instruction in the sanctuary. Here the science of immortality is taught—the art of transmuting the vile metals of earth into eternal gold—of prolonging a happy existence throughout an endless eternity, is inculcated. Are you oppressed with the cares of the world—is your soul cast down amidst its afflictions—do you labor and feel yourself heavy-laden? A voice from the sanctuary says: “*The Lord hear thee in the day of trouble; the name of the God of Jacob defend thee. Send thee help from the sanctuary, and strengthen thee out of Zion.*” Does his soul famish amidst the *husks* of this poor world, and long for more substantial meat? Again a voice of encouragement comes from the sanctuary: “*We shall be satisfied with the goodness of thy house, even of thy holy Temple.*”

THE END.

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