

votedly pursued. A being possessed of such noble parts as man, should not devote his time and energies merely to the earning of his bread and water, or to the gathering or the heaping up of dust of whatever color or density. He is a creature of enjoyment, and frequently receives more pleasures from little discoveries in nature than he does from receiving his daily wages. Can you tell me of a man who was made more happy by the intelligence that a rich legacy had been left to him, than John Franklin was when by his silken kite he took hold of the lightning of heaven, and thus established his theory of identity between the electricity of the clouds, and that of the electric machine? or of a miner who was made more happy by finding a nugget of gold which made him independent for life, than Archimedes was when he discovered the way of detecting the amount of alloy in King Hiero's crown?

One of the encouragements to scientific study is the correspondence or the adaptableness between the universe and the human mind. First the universe spreads out her vast fields in which are stored up some of the richest, the rarest, the most beautiful treasures, evidently intended by the great Architect to add to the happiness of man, to adorn his person, his residence, and make all his surroundings comfortable. Then again the mind of man is ever active, inquisitive, enterprising; never satisfied with present attainments. Man is endowed with such a desire for novelties, and curiosities, that no sooner does he arrive at a demonstrative conclusion of any law or problem for the solution of which he had been previously engaged than he begins to plunge into some other enquiry. No sooner does he satisfy himself as to the fact of a North-west passage than he begins to stretch forth his hand in order to reach to the North Pole. And he will never give up until one day (though it may be at the expense of much money, and many lives,) he will proudly stand upon the head of that imaginary axle around which our globe turns. It was never intended that a being possessed of such a spirit of enterprise and having such an inviting, and extensive universe for his field of action should always crawl upon the earth gathering, and heaping up dust, never raising his eyes higher than the place upon which the soles of his feet rest.

Let me present before you still more particularly the different departments of this vast field of knowledge spread out for man's investigation. Some of you had the privilege of visiting the American Centennial. Let us for a moment compare this world, and some of the surroundings to a great exhibition building.

The building naturally divides itself

into three main departments—the gallery, the ground floor, and the cellar. Commence with the gallery:—Here are held on exhibition countless numbers of wonderfully powerful machineries in perpetual motion. All self-sustaining. You talk of what you have seen in Philadelphia. Compare it with all this. Here are wheels within wheels, and systems within systems all in continual motion; and so skilful was the Machinist that the laws by which they are moving are their own inherent property. At this exhibition we had the pleasure of meeting with some of the most eminent men of the world. In the gallery we met with the celebrated Sir Isaac Newton. We noticed that he was intent upon understanding the science, and nature of that grand and glorious arrangement by which the exhibition was so beautifully lighted. He also exerted his master mind upon the discovery of that law by which those bodies and systems are held in place and motion. His emission theory of light seems to be still doubtful; but we think that he satisfied himself, and the scientific world that all those bodies are kept in place, and motion by two great laws which he calls centripetal and centrifugal forces; the one drawing to and the other forcing away from the centre; so these two laws acting upon those bodies with equal power, they perpetuate the motion into which they were originally impelled by the Creator. There we also met with Sir William Herschel. The gallery being of such a vast extent, and some of the articles on exhibition being so remote, he was engaged by his gigantic reflecting telescope bringing into view thousands of objects which the naked eye could neither behold nor examine.

On the ground floor we had an interview with some eminent men of science. Among the most noted were Professors Huxley, Agassiz, and Darwin. These men seemed to have been particularly interested in finding out the origin, growth, and development of the great exhibition. We would judge by their conduct, and conversation, that they were very strongly inclined to believe that the entire work was the result of what they were pleased to call *evolution*. We noticed particularly the great activity and wonderful perseverance of Darwin in the animal department. He gazed admiringly at the great variety of animals. He wondered whether such a variety of *species* originally existed. After a long, and unwearying research he came to a negative conclusion. He then set himself to work with patience, and enthusiasm, certainly commendable, to account for the origin of *species*: the result of his long and diligent enquiry as now given to the world is that the origin of *species* is owing to what he calls *natural selection*.

He maintains that wherever there is a race of animals some of them are weaker and some stronger: they all have to contend with difficulties in perpetuating life, difficulties arising from their natural constitution, climate, and fighting among themselves. In these struggles for existence the weaker will perish, the stronger will survive; then there is a selection, and every time the same process goes on the same result will follow, and the race becomes stronger, and more *select*. We shall leave you to judge whether such process could change the organization of animals so that the horse, which as some naturalists say, was once a clumsy three-toed animal should so change as to become the one-hoofed, agile, beautiful beast he now is; or the flounder, which as is asserted, once swam edgeways, having one eye on each side of the head, should so change as to swim on its side as it truly does now, having both eyes on one side of the head. Natural selection as understood by Darwin is much on the principle of the proverb "that fortune favors the brave," and the Napoleonic maxim that providence favors the strongest battalions.

Then we visited the underground divisions of the Exhibition. This department is dark, the sun of heaven never shines upon it, except when men in search of its treasures make small openings here and there to allow a few feeble rays of light to penetrate a few inches comparatively into its recesses. But notwithstanding the difficulties to be surmounted, great discoveries have been made in these dark and deep cellars. Here are found some of the greatest marks of infinite wisdom, skill and benevolence. Here are treasured up great deposits of coal, brass, copper, silver, gold, diamonds, and other precious things for man's comfort. Here we had the pleasure of meeting with the great and lamented Hugh Miller. We noticed that he was very forcibly struck with the marks of wisdom traceable, and the systematic arrangement of the articles on exhibition. One of the finest and most important questions which occupied his vigorous mind was, how came those treasures there? Were they the result of mere chance? or, if not, who was the depositor? While musing on these questions, and searching, he noticed the foot-prints of a Person deeply and indelibly imbedded in rocks and other substances. He found the foot-prints of this Person where He had been laying the coal and the freestone beds. He also found the marks of His fingers as He was placing the various articles properly, shelving them up one above the other in beautiful order for future discovery, and for future use. He noticed the foot-prints of this Person as He was leaving those cellars and making His

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