

operations in crucibles. One of these will suffice to show the easy credulity of men on this subject even at a late period. This story is given by Magnetus on the authority of an English Bishop, who told him the tale about 1685 at the same time giving him a piece of the gold. A stranger, meanly dressed, came to Mr. Boyle, and after conversing for some time about chemical processes, requested him to furnish him with antimony and some other common metallic substance, which then fortunately happened to be in Mr. Boyle's laboratory. These were put into a crucible, which was then placed in a melting furnace. As soon as these metals were fused the stranger showed a powder to the attendants which he projected into the crucible and instantly went out, directing the servants to allow the crucible to remain in the furnace until the fire went out of its own accord, and promising at the same time to return in a few hours. But, as he never fulfilled this promise, Boyle ordered the cover to be taken off the crucible, and found that it contained a yellow colored metal possessing all the qualities of pure gold and only a little lighter than the weight of the materials originally put into the crucible. The Arabian Alchemists considered the elements as under

#### THE CONTROL OF SPIRITUAL BEINGS,

(recalling the Clerk Manwell's "demons") which could be influenced by human means; and all the wealth of the oriental imagination was brought into play to picture races of Genii and Gnomes who wrought magic for the delight of mortals. These Arabs were conquerors, they felt the delight of power. Having become suddenly possessed of abundance they acquired an extravagant idea of the power of gold in giving happiness. It seemed as if with unlimited gold and eternal youth this earth might become once more a paradise. But the Alchemists did not waste all their time in vain dreaming. It is easy to see how the pursuits of these two phantoms, the Philosopher's stone and *elixir vitae*, would lead to advancement in the science of chemistry and medicine. The very doctrine of transmutation was a theory of chemistry,—a theory which has reappeared more than once since chemistry became a science. The possibility of changing the baser metals to gold was deduced from the old theory of certain elements or principles out of which all matter is formed. "Fire," "air," "earth," and "water," or later "sulphur," "salt," and "mercury," were the elements. Not the substances themselves but refined principles having the properties which distinguish "fire" and the rest. But the human mind is not satisfied until it reaches unity. These four elements of Empedocles were held to be the *manifestations of one primitive substance*, the essence of all things. This unity had been imagined earlier by Thales, reappeared in a modified form at the beginning of this century as Prout's Hypothesis, only to be thrown aside as untenable. But now again the same idea has forced itself upon the attention of chemists and certain phenomena observed with the spectroscope and by means of modern vapour density apparatus seems to point to that fundamental unity in the constitution of matter for which the mind longs. If all substances are merely different arrangements of the same universal element, transmutation is possible; but we may never realize the conditions. It is not unusual now-a-days to see ridicule thrown upon these old theories of the constitution of matter. This is unjust and shows a presumptuous shallowness on the part of those who thus decry the "old things." Dr. Samuel Brown, in his "Alchemy and the Alchemists," treats the subject differently. "Thales of Miletus originated the conception that *water* is the first principle of things. He inculcated the dogma that water is the one substantial or underlying essence, of which the rest of nature is but the manifold expression. Water was represented in his system as the

sole and primeval matter, convertible, and actually converted, by some plastic power, into the thousand-and-one familiar creatures in the universe; now into this one, and now into that; now into wood, and now into stone; now into the grass of the fields, and now into the body of man itself. Nor does this doctrine appear to be fanatical, when one reflects how rocks and salts can be extracted by mere boiling and evaporation not only out of the sea, but also from the most insipid of lakes and streams, and even from rain. It is not yet beyond the memory of man that Lavoisier was careful to distil water backwards and forwards in an alembic for many long days and nights together, in order to settle the question whether water were actually convertible into earthly matter. It is not fifty years (seventy now) since Davy conducted his celebrated experiments on the electrolysis of water by means of the galvanic current, with very much the same object in view. It is, accordingly, easy to perceive that the ceaseless circulation of the liquid element from the ocean into the air, and through the air again to the earth, in dews and mists and rains, only to run once more from springs and streams and lakes and rivers, down to the ocean whence it rose, must have impressed the youthful science of ancient and imaginative times with the supreme importance of water in the economy of creation. But this contemplation of nature as one vast alembic for the revolution of that beautiful and life-like creature, was not the only motive to its exaltation as the best and first of things in the mind of Thales. The marvellous effects of moisture in its varying forms of river, rain and dew, in covering the hills, the valleys, and the plains with verdure, during the flushing spring of Asia Minor and the Archipelago, to say nothing of the indispensable necessity of water not only to vegetation, but also to animal vitality itself, must have gone deeper still into the thoughts of those venerable seers who were first visited by the

#### INQUISITIVE SPIRIT OF WONDER.

Willing to forget the moon and all sublunary science I have stood beside the sea a whole year round and abandoned myself to its first impressions in the spirit of antique faith and awe. It moved forever at my feet, now driving me before it, and then drawing me after it, its everlasting voices in my ear. One day it murmured about my steps, kissing the brown earth, never weary of kissing the softened beach; another it was testy as a great wayward child, and chid the world the livelong day; on a third it was as angry as a brawling woman, and chafed along the shore; another time it panted and heaved and lashed like a hundred orators arousing the nations with their ire. Anon it swelled and roared, like an assailing host, or an infuriated people; and again it thundered responsive to the heavens, flashing back flash for flash, reflecting an infernal blackness upon the chaos of the falling sky. Its varieties of expression were as many as the days of the year, and far more; but always it was moved from its very inmost. It never lay still; it could not be at rest; it could not get away from itself. In vain it threw up spray and vapour and clouds; they returned to its unresting bosom through unerring channels. They went and they came as surely as it ebbed and flowed. They and it were always one and all nature was penetrated by the unity. Wherever it touched, living things sprang into being, plants, animals, and man; only to be resolved into the mighty organism of the waters when their lives were done. The ocean, reaching down to Hades and stretching beyond the clouds was the very blood of nature,—"the blood which is the life." Blind to sun, moon and stars, insensible to the firm earth on which I stood, and deaf to the solicitations of the air and all its winds, I was lost in the contemplation of what seemed more alive than they; and then I understood how the