

case it is not so, and we can give a name to the unknown relation. As a blow suddenly and distinctly strikes the body, so a thought suddenly and distinctly suggests itself to the mind.

(To be continued,)

Meteorites.

The phenomena which meet the student of nature are of greater interest than those connected with the fall upon our earth of the remarkable bodies which are known as "meteorites." This subject has recently been very ably discussed by the well-known Mineralogist, David Forbes, in a lecture delivered at St. George's Hall, London, who put together in a connected form all the leading facts which are as yet known with regard to the nature and source of meteorites. By "meteorites" or "aerolites" are understood such meteors as have at various times fallen down upon the earth, and which have thus afforded us the means of determining their chemical and physical nature. It has been long known that such bodies in their descent towards the earth present themselves in the form of balls of fire, or take the appearance of what would popularly be understood by the term "meteor." It is not, however, by any means certain that all these luminous bodies which we term meteors are truly due to the fall of meteorites. It has, however, been proved that some meteors are of this nature; and it has been rendered very probable that falling stars, and even comets, are bodies of a similar if not actually identical composition, differing only in the unimportant particular of size. The fall of meteorites has been noticed from an extremely early period, and, as was to be expected, was in early ages regarded with superstitious awe as of an altogether supernatural character. Many aerolites have been regarded with the highest veneration, and even worshipped, by the natives of the regions where they fell; and they have commonly been regarded as the harbingers of war, pestilence, famine, or the death of some illustrious individual. In parts of Europe also, it seems that the curious idea prevailed that these visitants from the outer spaces must contain in their interior some hidden treasure of great price. Accordingly, instances of meteoric falls are recorded, even in this century, "in which the spectators, once recovered from the mortal fright occasioned by the phenomenon, have allowed their cupidity to overcome their veneration, by smashing the newly arrived stone into fragments, in order to see whether it did not contain gold or precious stones within it." Mr. Forbes, however, thinks that the pre-historic races might sometimes have obtained from meteorites what would be far more valuable to them than gold or silver, namely, *iron*. Many meteorites are known to be composed almost wholly of metallic iron, and all contain this metal in greater or less quantity; so that there is some ground for Mr. Forbes' belief that "there cannot be a doubt as to the meteoric origin of the first iron implements," and that meteoric iron was used ages before the art of extracting iron from its ores had been perfected. "The iron weapons mentioned by Homer as in use at the time of the siege of Troy, some eleven centuries before the Christian era, were most probably made from meteoric iron, which would account for the enormous value, as compared with other metals, which was at that early period put upon them. We read in Eastern stories of magic swords, forged from iron which had but recently fallen from heaven, a manufacture which was imitated by Captain Sowerby, who, some half a century ago, had one made of meteoric iron, and presented it to the Emperor Alexander, of Russia. It is

quite certain, however that in many parts of the globe the first iron known to the inhabitants was a meteoric product—as, for example, in Mexico, where iron had never been smelted; the Indians of Tolnea, employed for making their agricultural implements meteorites, which had fallen in very large numbers in that district; in Siberia the Jakuts also use similar iron for their weapons; and in the British museum there can be seen a harpoon and rude knife, from the Esquimaux of Western Greenland, formed of pieces of meteorites flattened out and fixed in bone handles."

In historic times the Chinese were the first to study meteoric phenomena, and their astronomical literature contains the record of meteors observed during more than two thousand four hundred years. The Greek and Roman writers paid little attention to natural phenomena, but a few scattered notices of meteoric falls are to be found in their works. In the early part of the Christian era and during the middle ages, at least in Europe, the records of the fall of meteorites are to the last extent scanty, and only some seventy falls are noted up to the year 1500, only a single one of which is now represented by the actual stone which fell. This single specimen fell at Ensisheim in Alsace, and was for three hundred years hung up by a chain in the church of that place. It was carried off during the French revolution, and pieces were broken off it; but the main body of the stone was ultimately returned to Ensisheim, where it still remains.

For a long period, even in quite modern times, scientific observers showed an extraordinary apathy and scepticism as regards the fall of meteorites. No interest in this subject was manifested by the learned world till the year 1777, when there arrived in St. Petersburg the enormous and celebrated mass of meteoric iron which was discovered in Siberia by the naturalist Pallas, and which weighed three quarters of a ton. This famous meteorite gave rise to a memoir by Chladni, in which he maintained that this mass had fallen from the heavens, an opinion which drew down upon him almost universal derision. Very shortly afterwards, however, several falls of meteorites occurred, which were carefully observed, and which set the question completely at rest. Chladni's views were thus established beyond all doubt, and scientific men unanimously accepted the occasional falling of masses of stone from heaven as part of the ordinary course of nature. The following are the chief phenomena which accompany the fall of a meteorite;—When seen at night, as all have observed in watching a falling star, the meteorite appears in the distance as a more luminous point like an ordinary star, becoming larger and larger, as it approaches the spectator, till it ultimately looks like a globe of fire surrounded by a luminous vapour, and having a tail like a comet. In the day-time, however, the appearance is that of a small cloud of singular form and colour, which often ultimately bursts with a loud explosion. Generally, when the meteors are of any size, they burst upon entering our atmosphere scattering their fragments, usually with a terrific explosion, and often to the number of many thousands, over a vast area, and frequently many miles apart. The noise of the explosion is often followed by a whistling sound, caused by the rush through the air of the stone or its fragments as it descends towards the earth, into which it may bury itself several yards if the ground be soft. If it should fall upon rock, the meteorite may be shattered into fragments, and there are numerous instances on record in which the roofs of houses or the decks of ships have been penetrated, or in which animals or men have been severely wounded or killed. The light emitted by meteors is usually very bright, and has been variously explained. Some suppose that it is due to the actual combustion of the falling body; others suppose that they