FOREIGN CORRESPONDENCE.

General Considerations on Meteorites. By DIRECTOR W. HAIDINGER. (Vienna Imperial Academy of Sciences, March 14, 1861.)

THE specimen of the meteorite which fell May 19, 1858, at Kakowa (Banat), and which Count Coronini, then governor of the province, transmitted to the Imperial Geological Institute at Vienna, and which afterwards was transferred to the Imperial Museum, gave the first impulsion to a renewed study of these highly interesting substances, and to the completion of the collection of meteorites in the Imperial Museum, by exchange and otherwise. By this way specimens were obtained from Europe (Tula, St. Denis-Westram, Trenzano), from India (Allahabad, Assam, Pegu, Segowlee, Shalka), and from North America (Nebraska), together with valuable information concerning these phenomena, while MM. Haidinger and Reichenbach made them a subject of theoretical investigation, the results of which were published in the "Proceedings of the Vienna Academy," and in several German periodicals. Numerous and partly accurate as the statements on this matter are, the establishment of a complete theory of meteorites, and of the phenomena attending them, would still be premature.

Several of Director Haidinger's theoretical views have been lately stated independently by Professor Lawrence Smith, of Louisville, Kentucky; others have met with more or less positive contradiction.

Two objects offer themselves for scientific consideration. 1. The phenomena connected with the appearance of meteorites within the boundaries of our globe. 2. The consequences to be deduced from the study of the metallic and stony meteorites in themselves, especially as to their more or less crystalline structure.

The meteor observed by Dr. Schettczyk on November 28, 1859, at Strakonitz (Bohemia), appeared at first in the form of a star, and gradually increased to the size of a fiery ball, which at last exploded *without (at least so far as hitherto known) being followed by the fall of* any solid substance. At New Concord, Ohio, on May 1, 1860, a similar phenomenon was very accurately observed; but no mention is made of its first appearance in the shape of a star. The resistance opposed to the igneous globes by the atmospheric air, compressed during the whole course of their rapid passage, is particularly worth consideration. A twisting hurricane moves at the rate of 92 English miles per hour (134·72 feet, Vienna measure, in one second); a point of our globe's surface under the equator, under perfect calm and horizontal atmospheric pressure of above 1800 Vienna pounds per square-foot (while the same pressure in the above-mentioned hurricane does not exceed 32·81 pounds), accomplishes its rotatory movement at the rate of 1434·7 feet per second; while in the same time, the meteors pass generally through

a space between 4 and 23 and more miles; the pressure, at an average velocity of seven miles per second, being 22 atmospheres per square-foot. Benzenberg has already pointed out the analogy of this process with the apparatus for lighting matches by sudden and violent compression of air; and indeed the passage of a body through air at such a rate cannot be conceived without an enormous compression, and consequent development of heat and light. The air is forced on every side out of the meteor's orbit, in directions perpendicular to it, and must round itself in a spherical or ovoid manner from behind the rapidly progressing meteor. As Professor Smith supposes, the sound is not a consequence of explosion, but the clash produced by the air suddenly filling up the vacuum left by the meteor behind it, and renewed every moment as it continues its career. Dr. Haidinger and Professor Smith, with many other naturalists, agree in the supposition that meteorites are fragments of larger solids pre-existing in the cosmic spaces; the hypothesis of their existing originally in a state of igneous fusion being in open contradiction to the generally accepted hypothesis of an extremely low temperature (100° C.) of these spaces. The tufaceous aspect of meteorites seems rather to indicate an originally pulverulent state, in which crystallogenetic forces were called into activity, and modified or counterbalanced by external circumstances, in a mode analogous to the formation of the sphærosideritic septaria occurring in argillaceous strata. The first effect of pressure from without must have been the formation of a solid, superficial crust, during whose complete solidification lateral pressure, and the descending movement of heavier particles, would call into action thermal, electrical, and chemical influences. A similar process going on within the external crust may possibly occasion real explosions. The chapter on meteorites has been most ably and profoundly treated by M. E. E. Schmidt ("Lehrbuch der Meteorologie"), G. Karsten ("Algemeine Encyclopædie der Physik," Leipzig, 1860), and F. C. Naumann ("Lehrbuch der Geognosie.")

DEEP SINKING FOR COAL IN THE WYRE FOREST COAL-FIELD.

By George E. Roberts.

Mention is made by Mr. Hull, F.G.S., in the second edition of his useful work on the coal-fields of England, of a deep sinking for coal on the estate of the Arley Pottery and Fire-brick Company, situated at Shatterford, five miles north of Bewdley. This work, though unfortunately ending in failure, and leading to the abandonment of the enterprise, deserves a prominent position in the annals of coal-mining, chiefly because the section obtained may be regarded as an index to nearly the whole of the coal measures of the forest of Wyre. Through the courtesy of Mr. John M. Fellows, manager of works to the late company, I am enabled to place on record the particulars of