treated rather cursorily. In speaking of the *man-engine* for raising and lowering men, Mr. Hunt points out that the reason why this valuable invention is so little used is "the unfortunate system under which the mines of Cornwall and Devon are worked—a system which does not encourage the holder of shares to take any interest in the mines themselves, his interest being confined to the market value of the shares which he holds." This remark is unhappily applicable to other districts.

In Chapter IV., on ore-dressing, after an historical sketch, the principles of the mechanical preparation of ores for the smelter and the various kinds of machines now in use are described with the aid of numerous illustrations.

Chapter V., upon the discovery and extraction of iron ores from veins and other deposits, is disappointing, on account of its meagreness compared with the space devoted to less important metals, and the Cleveland ore should scarcely have been dismissed in a dozen lines.

Book IV. relates to the future prospects of British mining. To persons interested in mines, whether as owners, shareholders, workmen, or merchants furnishing them with supplies, this book will no doubt seem the most important in the volume. Mr. Hunt is not sanguine about better prices for tin, and he says that "it is improbable that our native copper mines can be expected to prove profitable for some time to come"; in the case of lead he evidently is not more hopeful, and though the prospects as regards zinc are brighter, still we are unable to supply our own wants. In spite of the productiveness of our iron mines, we have to import more than three million tons of iron ore annually.

The fourth chapter of this book contains numerous useful suggestions for working mines, and is well worthy of consideration by miners and shareholders in mines. With reference to profitable mining, Mr. Hunt says (p. 868):—"The question is frequently asked, Is British mining a remunerative pursuit? Various replies might doubtless be given in accordance with any particular set of views and opinions held on the subject, but mines promoted by mere speculation can scarcely be expected to become profitable, inasmuch as they are too frequently grounded upon a misrepresentation of facts, while the capital connected with them is often largely diverted to the pockets of individuals whose main purpose is immediate gain. Further, the management or conduct of affairs is often leavened with ignorance and incompetency; the acquisition of personal gain, at the cost of unsuspecting shareholders, being unfortunately sometimes the rule of action." No one who knows anything about mining can fail to indorse these remarks.

In Chapter V., which contains the general summary and conclusion, Mr. Hunt says that "the exhaustion of our mineral wealth is now going onward at a rapidly increasing rate," and the question arises whether we can meet the demands of trade from British mines or not. According to the author, our tin ore is practically inexhaustible, but for copper, lead, zinc, and silver we must depend greatly upon foreign and colonial mines; of iron ore we have enough for some years, though certain foreign ores are of importance to us.

The situation is summed up as follows:—"Without great improvements in the principles of mining it will not

be possible to work, at a profit, many of our deeper and more extensive mines."

The last two pages of the work, before the appendix, contain several important maxims which deserve the careful study of all persons engaged in mines, such as the necessity of supplying pure air *at any cost*, of raising and lowering the men by machinery, and providing for them in the event of accident or disease. The concluding words very properly strike at the rascality which has done much to wreck British metal mining. "Beyond these, to enable the adventurers in our Home Mines to compete satisfactorily in the metal markets with the proprietors of colonial and foreign mines, and to realise a profit on the sale of their minerals, it is absolutely necessary to study the strictest economy, and to establish—beyond the risk of any failure—the highest principles of honesty in every department, directly or indirectly, connected with British Mining."

The size of Mr. Hunt's volume is apt to alarm the reader, and the publishers would probably have done better by issuing the work in separate books. It strikes us, too, that undue prominence is given to tin, to the detriment of the more important metal iron. From the "Mineral Statistics" for 1883, we see that the iron ore raised had a value of about 5½ millions sterling, whereas the value of all the other metalliferous ores put together was only 1½ million. However, in spite of this favour shown to tin and of occasional inaccuracies, Mr. Hunt's *magnum opus* is very praiseworthy, as it contains a vast store of useful information, and the antiquary, the miner, and the capitalist are greatly indebted to him for having taken the trouble to chronicle so many valuable facts relating to such an important branch of British industry as Metal Mining.

LETTERS TO THE EDITOR

- [The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]
- [The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.]

The International Geological Congress

WILL you allow me to announce in your columns that, in consequence of the outbreak of cholera in the South of Europe, the International Geological Congress is postponed to September 1885.

JOHN MCKENNY HUGHES

Woodwardian Museum, Cambridge, August 12

The Volcanic Dust Phenomena

I WOULD draw the attention of such of your readers as may be travelling in Switzerland or other mountainous countries to the circumstance that in the clear atmosphere of the mountains the great corona or circle round the sun, as well as the semicircle seen opposite the sun before and after sunset continue to be markedly conspicuous; and the higher one ascends the more striking these phenomena are. I saw both the phenomena especially remarkable on the Gornergrat, altitude 10,289 feet, on the 21st and 22nd of last month; and even as low as 4000 feet they are decidedly more striking than at sea-level. It appears, therefore, that the bulk of the volcanic dust, if such it be, that still remains continues at a great elevation, and the prediction made last autumn that it might remain for years in the atmosphere, seems likely to be fulfilled.

The explanation of the strange sunsets given by "F. A. R. R." in NATURE (p. 155), seems a good one, except as regards the green appearance of the moon and stars; I must confess I am