cyanides and nitriles. An article on inorganic analysis, by Bunsen's flame reactions, will be found of great interest, and will repay a considerable study. In fact, the whole volume is most complete, and must be looked on with great satisfaction. A. P.

OUR BOOK SHELF

Index der Petrographie und Stratigraphie der Schweiz und ihrer Umgebungen. Von B. Studer, Professor der Geologie. Pp. 272. (Bern: K. Schmid. London: Williams and Norgate)

TWENTY years having elapsed since the publication of the "Geologie der Schweiz," Prof. Studer thinks that some new account of the geology of his country cannot be deemed superfluous. Since the date of that work numerous separate volumes, papers, maps, &c., relating to the geology of Switzerland have appeared. Many of these, however, are difficult of access, and not a few have been to all intents and purposes lost sight of. As a consequence of this, it is exceedingly difficult or even impossible for the student of Swiss geology to find out what has been written. This is easily understood when we remember that Switzerland has been a favourite field of study with geologists of all nations, and that descriptions of her rock-masses and formations are to be met with in the publications of almost every scientific society in Europe. Prof. Studer complains, and not without reason, that many of the names of rock-divisions and formations are derived from little obscure outlying places, for which we look in vain on the best maps, or from fossils which are familiar to only a few adepts, and that the same rock or formation, as the case may be, is known by different names in different regions, thus giving rise in the student's mind to confusion worse confounded. This index (the preparation of which must have cost its author a world of labour) will smooth the way to learners, and will, we are persuaded, be of scarcely less value to professors themselves. Petrological and stratigraphical synonyms are clearly explained, and the equivalents of the Swiss rocks met with in adjoining countries are given. The index is arranged alphabetically, and the list of "articles" leaves nothing to be desired. The descriptions are short, clear, concise, and at the same time comprehensive, those which relate specially to Swiss geology being of course the fullest. The author modestly says that his index makes no pretensions to be a text-book, and refers his readers for greater details to the works of Naumann, Zirkel, Senft, Cotta, &c.; yet we think that the very absence of minute details will be one of its chief recommendations to the geologist, who can always turn to the text-books and other sources when he feels inclined, for the index literally bristles with references. A long list of localities is added, by consulting which we are referred to the various articles in which they are mentioned. Thus, with a good map and Prof. Studer's index before him, one may gather a very clear conception of Swiss geology. The book is not bulky, and will be an invaluable companion to any geologist who thinks of trying his hammer in the "playground of Europe." J. G.

On the Early Stages of an Ascidian (Cynthia pyriformis). By Edward S. Morse, Ph.D. (Boston: 1871.)

IN this communication, reprinted from the Proceedings of the Boston Society of Natural History, Dr. Morse gives an account of his examination of the tadpole-like larva of a sessile Tunicate at Eastport, Maine, in July 1870. He confirms the statements of Kowalewsky and Kupffer, and describes "a remarkable structure in the caudal fin, which vividly recalled the fine diverging rays seen in the embryo fish. These rays were exceedingly delicate, though plainly marked. They ran off nearly parallel to the longitudinal axis of the tail, and were confined to the last five segments." This observation, if confirmed, will be of importance; it points rather to general piscine affinities in the Tunicata than to their special connection with *Amphioxus*. We are glad to see that Dr. Morse is alive to the danger of mistaking the effects of preserving fluids for natural appearances in microscopic specimens. Some neat figures illustrate the paper, which we hope is only the beginning of more complete investigation of this deeply interesting subject by the writer.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. No notice is taken of anonymous communications.*]

Magnetism in Copper Slags

ON examining the magnetic properties of some ores and minerals, I observed that a specimen of ore furnace slag from copper smelting was strongly polar magnetic.

Being surprised at this phenomenon, I mentioned it to Dr. Percy, Professor of Metallurgy at the Royal School of Mines, who kindly gave me permission to examine some of his slags, and also some of those exhibited in the Geological Museum.

I examined several specimens of ore furnace slags, and found they were all more or less magnetic and strongly polar; this even extended to some very small pieces the size of a pea. Most of these were of the ordinary kind, and of a porphyritic appearance, from the pieces of white quartz imbedded in their mass.

One specimen was of a vitreous character. This was not so strongly magnetic as the ordinary kind.

Metal slags from the second fusion.—Those examined were polar magnetic. They were Museum specimens, beautifully crystallised; the magnetic properties were distinct throughout the mass, though more feeble than in the ore slags.

Roaster slags from the third fusion.—I examined two specimens of this class; both were polar magnetic, but the magnetism was confined to a few points, and was not developed in the whole mass, resembling the consequent points in magnetism.

Refinery slags.—I examined one specimen; it was very feebly magnetic, though not polar, and the magnetism was confined to a few points in the mass.

In the analysis of copper slags, the iron present is always estimated as protoxide in combination with silica, forming a silicate of protoxide of iron. Unless this silicate is magnetic, it is difficult to understand how the whole of the iron is thus combined. Further analysis must decide this point.

EDMUND F. MONDY

The Volcanoes of Central France

GEOLOGISTS state that the volcanoes of Auvergne have not been in action in historic times (see Lyell, last ed., p. 479; also Jukes and Geikie, p. 354). I find, however, that the Rogation Days were appointed by Mamercus, Bishop of Vienne, in Gaul, about A.D. 460, for the purpose of chanting litanies to stay the volcanic eruptions which were then devastating his diocese (see Robertson's "Hist. Ch. Church," 4th ed., vol. i. p. 589; also "Proctor on Book of Common Prayer," note, page 251.)

Youghal, Co. Cork, May 13 W. J. GREEN

The Eruption of Vesuvius in 1855

IT has occurred to me that, at the present moment, the subjoined extract from the travelling notes of my husband, the late Dr. Marshall Hall, might be thought worthy of insertion in your valuable periodical. We happened to be at Naples when the eruption of Vesuvius in May 1855 occurred, of which the following gives some description:—

"During five years Vesuvius had remained in a state of inactivity, when, on May 1, 1855, indications of an eruption manifested themselves.

"Early on the morning of the 1st smoke and fire appeared,