largest number of miners. At the same time it must be remembered that, as the miners are not spread uniformly over any of the counties, the actual density of the mining population can never be accurately shown on such a map.

The total value of the minerals raised in each county is approximately indicated on another coloured map; and there are also maps showing the output, according to counties, of coal, iron-ores, lead-ores, and zinc-ores. The statistical maps and diagrams, which add greatly to the value of the Report, have been prepared mainly, we believe, by Mr. J. B. Jordan, whose experience in dealing with mineral statistics has extended over nearly forty years.

Among the diagrams is one showing graphically the annual output of coal and the quantity exported from 1860 to 1894, whilst a similar diagram shows the iron ore raised and the quantity imported for the same period. The annual production of the ores of copper, lead, tin and zinc, during a like period of thirty-four years, is also illustrated by special diagrams. Perhaps the most interseting of all the diagrammatic schemes are those dealing with accidents in mines. These tabular returns, extending from 1851 to 1894, suggest very melancholy reflections, but still it is matter of satisfaction to note that, on the whole, the miner's lot has been ameliorated. Prof. Foster, referring to a table of death-rates, points out that "mining has immensely improved in safety during the last forty-four years. The mortality from accidents has dropped and goes on dropping. From time to time disastrous explosions have caused a temporary rise, but on the whole there is firm and steady progress in the right direction" (p. 36).

Some two or three years ago a great improvement was effected in the "Mineral Statistics" by the introduction of brief descriptive notices respecting the mode of occurrence of the several minerals referred to in the returns. It is understood that these remarks were from the pen of Prof. Foster, and he has very properly reproduced them in this Report. So far as they go, they are models of concise description; but it is to be hoped that opportunity may be found, in some future work, for their amplification, for at present they rather whet the appetite than afford it full satisfaction.

A comparison of the mineral industries of this country with those of other lands, forming Part vi. of the General Report, must have involved an immense amount of labour, inasmuch as it necessitated the collecting and collating of the mineral statistics of the world. The statistical returns are accompanied by valuable descriptive remarks on the resources of each country; and with such thoroughness has this part of the work been done, that Prof. Foster adds notes in connection with countries, like Arabia, Egypt and Turkey, whence little or no statistical information can be procured. There are necessarily many gaps in the foreign statistics; but steps have been taken to secure fuller returns in future, and the subsequent reports will probably be less imperfect. Prof. Foster has prepared a form, in English and French, asking for specific data, and copies of this form have been issued, through the Colonial and Foreign Offices, to Her Majesty's representatives abroad.

Notwithstanding the care bestowed upon the preparation of the Report, and the evident desire to bring its information up to date, it still necessarily falls short, in some respects, of an ideal report on our mineral industries. The information, for instance, respecting stone obtained from quarries is only meagre; but the Quarries Act of 1894 will enable us in future to have statutory returns from all open workings, more than twenty feet deep. If the aid of a staff of specialists could be secured, the descriptive part of the Report might be advantageously expanded, and a volume produced something like that on the Mineral Resources of the United States, issued annually by the Geological Survey, or like the admirable work started a few years ago in New York by Mr. Rothwell. Even, however, in its present form, Prof. Foster's Report presents us with a record of the mineral industries of our country, far more comprehensive, instructive and accurate than anything which the British miner has hitherto possessed.

## OUR BOOK SHELF.

*Leerboek der Organische Chemie.* By Dr. A. F. Holleman. (Groningen: J. B. Wolters, 1896.)

THE author in his preface says that text-books of organic chemistry, used in Holland by students of medicine and pharmacy and by candidates in the faculty of science, contain too much and too little—too many facts and too little theory.

There is no doubt that this criticism of our larger organic text-books is a fair one. Volumes like those of Richter and Bernthsen are distended with an unnecessary number of compounds, whilst they conceal within an occasional paragraph of small print important questions of theory; they are books for reference rather than for study. In the present case the author wisely attempts to minimise the number of compounds, and boldly discusses in full-sized type points of theoretical interest as they present themselves. The influence of the Amsterdam school of chemistry is very apparent in this.

We find accounts of geometrical isomerism, including Hantzsch and Bamberger's latest views on the constitution of diazo-compounds, of the relation between osmotic pressure and the freezing and boiling point of solutions, of Arrhenius' electrolytic dissociation theory and its application to the determination of the strength of acids, of the thermodynamic law, which underlies the conversion of racemates into tartrates, &c., all clearly and concisely given.

There can be little objection to physical-chemical theories entering into the composition of an organic text-book; they are interesting and suggestive. But the author has unfortunately fallen into the error of neglecting the practical side of the subject, of too frequently ignoring the laboratory and the works, of omitting experimental details of important preparations, and of presenting to the student chemical reactions as a series of ingeniously contrived equations.

We do not know, of course, for what type of student the book is intended; but it would be out of the question to put it into the hands of a beginner, or of one who had had no previous training in practical organic chemistry.

J. B. COHEN.

*Physics for Students of Medicine.* By Alfred Daniell, M.A., LL.B., D.Sc., F.R.S.E. Pp. 469. (London: Macmillan and Co., Ltd., 1896.)

DR. DANIELL'S "Principles of Physics" is known to be an excellent systematic treatise on physical science, setting forth fundamental principles in a sound and scientific way. In the volume now under notice the same orderly arrangement is followed as in its larger