

Jules Liégeois, who has studied most carefully the legal aspects of hypnotism, suggested to a lady subject that she take a pistol and shoot a certain Mr. O. She acted out the suggestion perfectly, not knowing that the load was a blank cartridge. When again hypnotized, she admitted the crime and defended her action. Another gentleman now gave her the suggestions (1) that when the instigator of the crime enters the room she should go to sleep for two minutes; (2) on awakening, she should fix her eyes upon the man constantly until allowed to desist; (3) she should then stand in front of him and attempt to conceal him. When M. Liégeois entered the room, she fell asleep, and did all that was asked of her, thus revealing the instigator, though told by him not to do so. Professor Bernheim induced a subject to steal, and forbade him to mention that he had been told to do it. The patient said he stole because the idea occurred to him, but, when told to go up to the true criminal and say, "Please sing me the Marseillaise," he did so. It seems, then, that the subject will do nothing that he has been categorically forbidden to do, but that he will succumb to an indirect mode of revealing the true instigator of the crime. This certainly aids the courts; but it is a question how far it will be of service when the true criminal is not present, and whether additional suggestions in the first instance will not considerably interfere with the reliability of later testimony. Its further development will be watched with great interest by all students of the scientific aspects of mental phenomena.

PSYCHIC EFFECTS OF HASHEESH. — Mr. A. M. Fielde has recently recounted his experiences under the influence of hasheesh. He smoked the hasheesh until he felt a profound sense of well-being, and then put the pipe aside. After a few minutes he seemed to become two persons: he was conscious of his real self reclining on a lounge, and of why he was there; his double was in a vast building made of gold and marbles, splendidly brilliant, and beautiful beyond all description. He felt an extreme gratification, and believed himself in heaven. This double personality suddenly vanished, but re-appeared in a few minutes. His real self was undergoing rhythmical spasms throughout his body: the double was a marvellous instrument, producing sounds of exquisite sweetness and perfect rhythm. Then sleep ensued, and all ended. Upon another occasion sleep and waking came and went so rapidly that they seemed to be confused. His double seemed to be a sea, bright, and tossing as the wind blew; then a continent. Again he smoked a double dose, and sat at his table, pencil in hand, to record the effects. This time he lost all conception of time. He arose to open a door: this seemed to take a million years. He went to pacify an angry dog, and endless ages seemed to have gone on his return. Conceptions of space retained their normal character. He felt an unusual fulness of mental impressions, — enough to fill volumes. He understood clairvoyance, hypnotism, and all else. He was not one man or two, but several men living at the same time in different places, with different occupations. He could not write one word without hurrying to the next, his thoughts flowing with enormous rapidity. The few words he did write meant nothing. This experience admirably illustrates the close relationship between states of real insanity and transitory affections induced by psychic poisons.

BOOK-REVIEWS.

Elementary Political Economy. By EDWIN CANNAN. London, Henry Frowde. 16°. (New York, Macmillan, 25 cents.)

THIS little book is designed to set forth the rudimentary truths of political economy, and in some respects it is quite successful. Though containing only a hundred and fifty pages, it touches most of the fundamental facts and doctrines of the science, and explains some of them as clearly as could be expected in so small a compass. It is divided into three parts: the first treating of production; the second, of exchange and distribution; and the third, of the economic functions of the State. Mr. Cannan, however, seldom uses the familiar terms 'production' and 'distribution,' but employs roundabout expressions instead, — a practice that seems to us the reverse of commendable. He also avoids the term 'wealth,' using the phrase 'useful material objects' instead, and this phrase is re-

peated through his pages almost *ad nauseam*. Another fault in a work meant for beginners is the obscurity of the style in certain parts, as, for instance, in the sections on profits and wages; though in other parts the style is quite clear. Some important topics, too, such as the law of agricultural rent, are overlooked. The book seems to have been rather hastily prepared, and, in spite of some excellent qualities, is not what an elementary treatise on economics ought to be.

Report of the Geological Survey of Ohio. Vol. VI. Economic Geology. Columbus, State. 8°.

THE sixth annual report of the State Geological Survey of Ohio appeared early in the present year. The material for publication was partially ready in 1885, entirely so in 1886, and should have been published in 1887. This furnishes another illustration of the many difficulties with which science has to contend in bringing the results of its work before the public, when dependent upon legislative action.

Valuable matter accumulates, and remains in the hands of the publisher for long periods, which, if presented to the public at once, would be of great assistance to workers in other fields, and oftentimes prevent time and money being spent on questions which had already been solved.

The present volume is devoted entirely to economic geology, and principally to the subjects of oil and natural gas, nearly six hundred pages out of about eight hundred being taken up with descriptions of their modes of occurrence, their geological relations, and the methods of obtaining and handling them. Much of the matter has already been made public in a preliminary abstract by the State geologist and various papers in scientific journals.

The whole work teems with facts which are not only of interest to the scientist, but of great advantage to the practical workers in coal and gas as well.

After a general review of the geology of the State, in which its formations are shown to extend from the Trenton limestone as a base to the Upper Barren Coal-Measures, the more prominent theories of the origin of gas and oil are discussed, and compared with the phenomena observed in the Ohio fields. Discarding entirely the theory of chemical origin, it is maintained that petroleum is derived from organic matter, more largely vegetable than animal, but both; that it is derived from both shales and limestones; and that in the Ohio fields it has been produced at normal rock temperatures, and not by distillation. "The stock of petroleum in the rocks is already practically complete," is the reply to the question, so often asked, "Is the supply inexhaustible?"

Till 1884 the Trenton limestone was not considered a productive oil-bearing horizon. The discoveries of that year, however, in western Ohio, at once gave it a high rank. Beginning with the Findlay field, where the discovery was first made, and where, out of eighteen wells complete to April, 1886, but one had proved non-productive, the work extended through other portions of the State, the areas next in order of importance being the Lima and Bowling Green fields. The quality of the gas compares more than favorably with that of Pennsylvania; it furnishes a very valuable fuel; and its discovery has greatly increased the development of manufacturing interests in that section, while the growth of population has been correspondingly rapid.

In the eastern portion of the State, the oil-producing rock is the Berea grit, a subdivision of the sub-carboniferous. Its structural features, however, are not such as to favor the accumulation of paying quantities of gas or petroleum; and, although a very large number of wells have been sunk, with few exceptions they are entire failures.

In the central counties and those bordering Lake Erie to the north-east, the Ohio shale furnishes a small but very persistent flow of gas, which has become of considerable economic importance. But while this shale is also rich in oil, it is not obtainable in sufficient quantities to make it valuable.

A separate chapter is devoted to a description of the Macksburg oil-field, one of the earliest to be worked, and still very productive. The productive area is confined to a small anticlinal in the Berea grit, outside of which all wells have been complete failures.

Of the methods of drilling, and the care of the wells during

operation, a complete description is given, with diagrams of the machinery and tools used.

The transportation and uses of gas, its value as a fuel, the measurement of the wells, and the methods of piping, are described in detail.

The remaining pages of the report are devoted to the two principal coal-fields of the State, the manufacture of salt and bromine, cements, land-plaster, lime, etc.

Few of the States so thickly burdened with drift as is Ohio have so thorough a record of its depth over extended portions of their territory. Here it has been obtained by the drilling of the numerous oil-wells so fully, that a fair knowledge of the relief of the ancient preglacial surface of the State now exists. While in the northern counties the drift is of little thickness, in the western and central sections it at times reaches extraordinary depths, being in one case no less than five hundred and thirty feet thick.

Chambers's Encyclopædia. New ed. Vol. II. Beaugency to Cataract. Philadelphia, Lippincott. 8°.

ABOUT half a year has elapsed since the issue of the first volume of this new edition of Chambers's well-known Encyclopædia. Among the contributors we notice the names of many prominent scientists and literary men, and therefore we feel assured that the articles are in every respect a source of trustworthy information, and that they are up to date. The volume is profusely illustrated, and the illustrations are well selected. The maps have been made by Bartholomew and Johnston, and are up to the standard of the maps of their institutes. The present volume contains many interesting articles, among which we mention one on 'Bees,' by J. Arthur Thomson; 'Bimetallism,' by J. S. Nicholson; 'Blindness,' by F. J. Campbell; 'Bulgaria,' by A. Silva White; 'Robert Burns,' by Andrew Lang; 'Carboniferous,' by J. Geikie; and several military articles by Major Dunlop, R.A. The encyclopædia is well edited, the articles being carefully selected, and a judicious amount of space being allotted to the various subjects, according to their importance. The interests of the English and American public receive equal attention in this encyclopædia. Numerous articles might be quoted on account of the large amount of information conveyed in a small compass, and still well written. Among these we mention the article 'Bokhara,' which is principally founded on Vambéry's book of that country. Of special interest to the American public is the long article on 'Canada,' by J. G. Colmer, which is accompanied by two elaborate maps, — one of the Dominion, and the other of the eastern provinces. The article gives a brief review of the geography, commerce, and history of the province. The article 'California,' which is also accompanied by a map, has been written by Charles W. Greene. This, as well as other articles on subjects of special interest to America, has been copyrighted by the publishers. Among these are an interesting sketch of the Beecher family, and sketches of the cities of Boston, Brooklyn, Buffalo, and Cambridge. The remarkable career of John Brown the abolitionist is sketched. Other American men whose life and work are described in this volume are Artemus Ward (C. F. Browne), W. C. Bryant, Buchanan, Benjamin Franklin Butler, and John Caldwell Calhoun.

The National Revenues: A Collection of Papers by American Economists. Ed. by ALBERT SHAW. Chicago, A. C. McClurg & Co. 16°. \$1.

Is Protection a Benefit? A Plea for the Negative. By EDWARD TAYLOR. Chicago, A. C. McClurg & Co. 16°. \$1.

THE tariff question has now become the leading issue in American politics, and bids fair to remain so until it is definitely settled. The dispute between free-traders and protectionists has been in abeyance for some years past, owing to the greater prominence of the slavery question and the difficulties that grew out of it; but it has now arisen again, and in a more decisive form than ever. It presents itself, too, in a different form from that which it bore in the early part of the century. Then the protectionists advocated a high tariff only as a means of establishing manufactures, with the avowed intention of reducing it to a revenue basis at a later time; but now they desire to retain it as a permanent policy. What will be the ultimate outcome of the dispute that has now begun is a

question with which we have here no concern, but there can be no doubt as to the importance of a correct understanding of the problem itself. Nor is it sufficient that the leaders of the people alone should understand it; for the appeal of both the parties in controversy is to the mass of voters, and by them it must be decided.

Under these circumstances, every book or essay that really teaches any thing on the subject is to be welcomed, and such works are already beginning to appear in considerable numbers. The titles of two of them stand at the head of this article; and both works have considerable merit, while at the same time neither can be called quite satisfactory. The first is a collection of twenty brief essays — some of them very brief — dealing with all aspects of the revenue question, and not with the tariff alone. The editor is a young student and writer on economic subjects, and the authors of the essays are mostly recognized authorities on the subjects of which they treat. The principal fault of the book is the extreme shortness of some of the articles, which hardly allows room for an intelligent expression of opinion, and wholly precludes reasoning. It would have been far better, in our opinion, to have had a much smaller number of longer and more argumentative papers. However, there is a good deal that is suggestive in the book, and it may stimulate the reader to further investigation. The majority of the writers favor a reduction of the tariff, and all of them oppose the repeal of the liquor and tobacco taxes; Professor Thompson of Pennsylvania, though an ardent protectionist, agreeing on this point with the free-traders. Another noticeable feature of some of these essays is the favor with which the writers regard schemes for spending the surplus revenue for internal improvements, and even for distributing it among the States, this last being a measure of very doubtful constitutionality, and of equally doubtful expediency. We have no space to speak of particular articles; but the names of Professors Walker, Ely, Adams, Laughlin, and others, Carroll D. Wright of the National Labor Bureau, and many competent writers besides, are a sufficient guaranty that the book is of real value in spite of its scrappy character.

The second book on our table is an argument for free trade by an ardent and well-informed writer. The reasoning is not so close and thorough as we find in the best English writers on the subject, — a remark that applies to most American works on economic themes, — but it presents the arguments for free trade quite fully, and in a plain and simple style. The author opens his work with a brief history of the protective system both in Europe and in America, but the greater part of the volume is devoted to a discussion of the question as it presents itself to-day.

In a few cases Mr. Taylor presses his conclusions, perhaps, a little farther than the premises warrant; but, as a rule, his reasoning is sound, and his answers to the protectionist arguments are in the main apt and conclusive. With regard to the contention that our national prosperity is due to the tariff, he shows that we were never more prosperous than under the low tariff prevailing from 1846 to 1860, and that our great prosperity is really due to other causes, with which neither protection nor free trade has any thing to do. Again, the protectionists have long maintained that protection raises wages, and that the high wages prevailing in this country are due to it. In reply to this, Mr. Taylor shows, that, although wages are lower in free-trade England than in the United States, they are much lower still in the protected nations of the European continent; and that Russia, which has the highest tariff of all, has also the lowest rate of wages; and his inference is that high wages are due to great natural resources and high efficiency of labor. The author gives chapters to the effect of the tariff on our foreign trade and shipping, to its bearing on the agricultural interest, and, indeed, to nearly all the aspects which the question presents. Such works as these two, notwithstanding some defects, can hardly fail to stimulate thought and discussion among the people, which alone can lead to the prevalence of right views, and to a final and satisfactory settlement of the controversy.

The Building of the British Isles. By A. J. JUKES-BROWNE. New York, Scribner & Welford. 12°.

THE restoration of the geography of past periods is a problem of peculiar interest; and one of the great aims of the science of geology is to reconstruct the history of development of the conti-