

A comprehensive memoir on the geology and ore-deposits of the Bisbee Quadrangle, Arizona, by Mr. F. L. Ransome, appears as one of the "professional papers" of the United States Geological Survey (1904). This district became famous for its production of copper-ore in 1880, and was connected with the railway system as recently as 1902. Hence Mr. Ransome has found himself obliged to invent names—and pleasing ones of Spanish origin—for several topographic features. His plates show how the geological structure of the country can be read on many of the hill-sides with the clearness of a diagram; in several respects they remind one of the bare dry landscapes in the Mesozoic areas of the Basses Alpes. The fossiliferous beds include Middle Cambrian, Devonian (apparently conformable on these), Lower and Upper Carboniferous (both marine), and Cretaceous, resting unconformably on the preceding beds. The affinities of the strata are with those of Texas. The paper concludes with a discussion of the origin of the copper-ores, in which stress is laid on their concentration from cupriferous iron-pyrites, deposited in metamorphosed limestone.

In the *Proceedings* of the Royal Society of Victoria (vol. xvii., n.s., part i.) Messrs. F. Chapman and G. B. Pritchard commence an article on the fossil fish-remains from the Tertiaries of Australia. They deal with the description, range in time, and distribution of the sharks, and they observe that *Asteracanthus*, hitherto known only from Secondary strata, extended beyond question into the Tertiary seas round southern Australia. In other articles the Silurian Ostracoda and Phyllocarida, and the Tertiary Polyzoa and Mollusca of Victoria receive attention. Prof. J. W. Gregory contributes a paper on the antiquity of man in Victoria, and concludes (contrary to his previously expressed opinion) that, however ancient the Australian aborigines may be, there is no evidence of the long occupation of Victoria by man.

We have received the annual report of the Geological Survey of Canada for the year 1900, issued in 1903; it is accompanied by geological maps, dated 1904, of parts of British Columbia (Atlin Gold-fields), Labrador, Saskatchewan, and Quebec.

A revision of the Palæozoic Palæechinoidea, with a synopsis of all known species, has been contributed by Mary J. Klem (*Trans. Acad. Science, St. Louis*, vol. xiv., No. 1). She remarks that the prevailing characters which may be taken as a basis for classification are:—(1) number of columns in the ambulacra; (2) position and number of the ambulacral pores; (3) ornamentation of the plates; (4) imbrication of the plates; (5) apical system; (6) general shape of the body; and (7) geological position.

An interesting article on the occurrence and distribution of copper in the United States, by Mr. W. H. Weed, appears in the *Mining Magazine* (New York, September). Nearly 700 million pounds of metallic copper were produced in the States during 1903, and in the previous year nearly 300 million pounds were obtained from an area a mile long and half a mile wide at Butte, in Montana, where the Anaconda Mine produces more copper than any other mine in the world. The ores occur in well defined veins in quartz-monzonite, associated with white granite or aplite, which forms dykes and small masses. Dykes of quartz-porphyr also occur, and seem to have some genetic association with the ore-bodies. Several mines are 2200 feet deep.

The Geological Survey of Queensland has commenced the issue of *Records*. In No. 1 Mr. B. Dunstan, the acting Government geologist, contributes notes on the occurrence of gold nuggets near Mount Morgan, on phosphate-bearing rocks, asbestos, oriental rubies, &c. Mr. R. Etheridge records the occurrence of Halysites in the Chillagoe limestones. We have received also *Publications* Nos. 191 and 192, on the tin, copper, and silver mining in the Stanthorpe district, by Lionel C. Ball, and on the Herberton tin field, by Mr. W. E. Cameron.

Some Upper Devonian fish-remains, obtained by Dr. Whitman Cross from Colorado, are described by Mr. C. R. Eastman (*Amer. Journ. Sci.*, October). The remains belong to the genera *Bothriolepis* and *Holoptychius*. In the same journal a number of fossil turtles belonging to the Marsh collection in Yale University Museum are described and figured by Mr. O. P. Hay. Many of the specimens are from the Laramie deposits of Wyoming.

SCIENTIFIC RESEARCH IN THE PHILIPPINE ISLANDS.

THE occupation of the Philippine Islands by the United States has been quickly followed by the establishment of laboratories, and already a large amount of scientific work has been done, and several valuable reports have been issued.

The report¹ under review deals with the year ending September, 1903. The permanent buildings of the Government laboratory at Manila were completed last April, and comprise a serum laboratory for the preparation of therapeutic sera and vaccine lymph with attached paddocks and animal houses, a chemical laboratory, a biological department for the prosecution of pathological, entomological, and botanical research, a marine biological station, a bureau of weights and measures, and a library.

About one-third of the volume is occupied with a report on trypanosomiasis by Dr. Musgrave and Mr. Clegg, with special reference to the existence of surra among the horses in the Philippines. At the same time a very complete review of our present knowledge of trypanosomiasis is given, the various species are described, and the symptomatology and prophylaxis are discussed. The report, which is a very valuable one, is copiously illustrated with excellent photographs, temperature charts, &c. Several other papers of pathological interest are included in the volume; also an account of rinderpest inoculation.

Another valuable report is on the gutta-percha industry and the various gutta-percha-producing trees, and is illustrated with a number of photographs of species of Palaiquium and Payena, methods of collection of the gutta-percha, maps of geographical distribution, &c.

The final third of the volume contains the report of Mr. Charles Banks, the Government entomologist, and gives an account of the insect pests attacking the cacao. This, like the rest of the papers, is copiously illustrated with excellent photographs.

The volume reflects the greatest credit on the staff of the laboratory, but the complete omission of a table of contents and an index should be remedied in future issues.

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UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

BIRMINGHAM.—A chair of music has been established by an endowment of 10,000*l.* given for that purpose by Mr. Richard Peyton, of Birmingham. The chair has been accepted by Sir Edward Elgar; but the intention of the university authorities is by no means to interfere in any way with his work as composer, and he will be left free to develop the chair gradually and on such lines as he, in consultation with other members of the Senate, may think fit.

Dr. Arthur Robinson, of King's College, London, has been elected to the chair of anatomy, vacated by the appointment of Dr. Windle to the presidency of Queen's College, Cork. The new professor will assume office in January.

A new chair of electrical engineering has been established as a supplement to the lectureship in the same subject held by Dr. D. K. Morris. The first occupant of the chair will be Mr. Gisbert Kapp, now lecturer at Charlottenburg. He is not expected, however, to return to this country until the autumn of next year, and his appointment will not take effect until October, 1905. Meanwhile, and subsequently, Dr. Morris and his staff will continue their work as before. The new and large buildings for the department will be ready by that time. A competent assistant will have to be elected to assist Prof. Kapp in the drawing office for dynamo and central station design.

Prof. Burstall will continue to occupy his chair, the title of which will be changed to "Mechanical Engineering," and he will have control over a great engineering block and the power station.

It is not improbable that a special chair of civil engineering in the narrower sense will be established.

¹ Report of the Superintendent of Government Laboratories in the Philippine Islands for the Year ended September 1, 1903.