it is only the man with a broad and keen insight into theoretical chemistry who can ever hope to make a successful electrochemist or electrochemical engineer.

It is in this spirit that the book is prepared and arranged. One might perhaps regret that there are not more examples for the student to carry out in the laboratory, but when it is borne in mind that a vast subject is pretty thoroughly covered and that it seems to be the aim of the author to have those who follow him in his work obtain as complete an acquaintance as possible of the whole domain of electrochemistry, the word of seeming protest or advice remains unspoken.

There are twenty chapters in the book. These occupy in all about 284 pages. In chapter I. the history and the important classic researches are considered. The theory of electrolytic dissociation is accorded two full chapters. Faraday's law is given twenty pages. There then follow chapters on the preparation of potassium chlorate, nitric acid from the atmosphere, the isolation of sodium and potassium, of aluminium and of calcium. In regard to the last the author remarks 'the electrolytic isolation of metallic calcium is far from easy.' The reviewer is disposed to differ on this point, as he has made it and had it made by students in his laboratory upon quite a large scale and with comparative ease. Further, the reviewer always encountered difficulties in attempting to cage the metal in a cylinder of platinum-wire gauze that goes over the cathode wire. The furnace used by Goodwin has proved very satisfactory and is easy to operate. For barium and strontium wholly differently constructed furnaces were found necessary.

Electric furnaces, the preparation of organic compounds, discussions on the primary cell, the secondary cell, electricity from carbon, useful pieces of apparatus and a bibliography complete the remaining chapters. The author has endeavored 'to produce a book that will prove useful both in the lecture room and in the laboratory,' and the reviewer thinks that he has succeeded.

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SCIENTIFIC JOURNALS AND ARTICLES.

The American Naturalist for May opens with the 'Application of de Vries's Mutation Theory to the Mollusca' by Frank C. Baker. The article deals with some fresh-water forms and the author concludes that, while the theory seems to fit in nicely in many instances, it must not be applied too hastily to animal life. W. A. Kepner presents some 'Notes on the Genus Leptophrys,' and E. A. Andrews describes in detail the 'Egg-laying of Crayfish,' the species observed being *Cambarus affinis*. Glover M. Allen notes the occurrence of 'Sowerby's Whale on the Atlantic Coast' and gives a list of the recorded occurrences of this species. The 'Fresh-water Rhizopods of Nantucket' are listed by Joseph A. Cushman. Among the 'Notes on Literature' is a large number of notes and reviews of papers on fishes.

The Museums Journal of Great Britain for April has for its leading article 'Dublin Museum. The Circulation Branch,' by the director, G. T. Plunkett. This contains a detailed account of the circulating collections in botany, zoology, industrial crafts, artistic crafts, etc., including the objects loaned, the size of the cases and methods of packing for shipment, with example of labels and explanatory leaflets. The cases are loaned for periods of seven weeks or less. From the report we learn that the collections that have a direct relation to work that may be done by students seem to be in the greatest demand. The balance of the number is occupied with reviews and notes.

The American Museum Journal for April is styled the Local-birds Number, as it contains the first instalment of 'The Birds of the Vicinity of New York City' by Frank M. Chapman, intended as a guide to the special collection of birds found within fifty miles of New York. The second instalment will appear in the July *Journal* and the whole as Guide Leaflet 22; it will be a most useful little handbook. There is a notice of 'The Twenty-fifth Anniversary of the Presidency of Mr. Jesup,' and of the publications resulting from the Jesup North Pacific Expedition, as

well as of various accessions and additions to the exhibition series. We note that the 'Warren' mastodon is said by Dr. Dwight to be twelve feet high, but when properly mounted it will be decidedly under ten. In regard to the group of the crested cassique the desirability of treating the bottom of the case as if it were the ground may be questioned. The impression will certainly be given, no matter what the label says, that the nests are close to the ground instead of high above it. It may not look well to leave the bottom of the case bare, but it is better to do this than to give a wrong impression.

SOCIETIES AND ACADEMIES.

THE GEOLOGICAL SOCIETY OF WASHINGTON.

At the 179th meeting, April 11, 1906, Major C. E. Dutton gave an outline of his paper on 'Radioactivity and Volcanoes' in advance of its formal presentation before the National Academy of Sciences.

The Gold Field District, Nevada: Mr. F. L. Ransome.

Drainage of the Taylorsville Region, California, during the Auriferous Gravel Period: Mr. J. S. Diller.

The drainage system of the Taylorsville region, outlined by its deposits of auriferous gravels, includes the broad valley of a river heading south of Haskell Peak and flowing north through the Downieville quadrangle for nearly fifty miles across the fortieth parallel by Mount Jura into a lake or estuarine water body that covered the north end of that portion of the Sierra Nevada. This ancient watercourse is directly across the present drainage, which is west into the North Fork of Feather River.

Though the exact head of the auriferous gravel stream is in doubt, it originated in a distinct mountain range near the source of the Yuba and American Rivers. Its course is clearly marked by numerous gravel deposits well exposed by hydraulic mining. The bulk of the material is gravel with some sand and boulders which indicate, as pointed out by H. W. Turner, a steeper grade for this stream than for those flowing down the west slope of the Sierras.

The delta deposit at the mouth of the stream is nearly a dozen miles in length and breadth. Where thickest it has 400 feet of arkose sand beneath about 600 feet of gravel, and possibly represents the whole of the gravel period. Towards the top are rhyolitic tuffs and andesitic breccias such as cover the earlier gravels of the west slope of the range. Its well-preserved flora is clearly that of the auriferous gravel period.

Since the gravel period that portion of the range has been profoundly faulted and the gravels displaced at several points to the extent of 2,000 feet. The fault along the Honey Lake escarpment runs out into a fold over which the gravel is lithified into solid conglomerate and some of the pebbles are faulted and crushed in a remarkable manner.

A Source of Hydrocarbons in the Ordovician: Mr. David White.

It having been observed that the zinc deposits in southwestern Wisconsin are largely coincident geographically with the distribution of certain carbonaceous or 'oil' shales; the examination of the latter was undertaken to determine, if possible, the origin and mode of occurrence of the hydrocarbons which seemed to have influenced the ore deposition.

The shales, known as Plattville shales, of lower Ordovician (Black River?) age, lie at the base of the Galena limestone, regarded by Ulrich as Trenton. They occur in irregular patches scattered over an area of nearly 2,000 square miles. The oil shales embrace thin black shales and thicker chocolate to buff shales mingled with calcareous sediments and containing occasional marine invertebrate remains. The approximate analysis is reported to show a loss of volatile of 21 per cent. from air-dried material, with an additional loss of about 8 per cent. by incineration. The rock yields a very porous light oil, 1.98 in specific gravity, giving gas bubbles in water. The gas distilled from the oil shale gave Professor Rollin T. Chamberlain: H_2S, 6.79; hydrocarbon vapors, 11.11; CO_2, 18.12; heavy hydrocarbons, 4.00; CO, 8.40; O_2, .26; CH_4, 35.98;