show the degree of purity and extent of overlapping of contiguous parts of adjoining belts.

In conclusion, I beg to express the hope that my protracted absence in remote parts of the West, while engaged in tracing the boundaries of the life zones, may ameliorate my offense in not having seen all of Mr. Cockerell's writings.

C. HART MERRIAM.

SAN FRANCISCO, CAL., October 11, 1898.

SCIENTIFIC LITERATURE.

Angewandte Elektrochemie. Zweiter Band: Anorganische Elektrochemie. Dritter Band: Organische Elektrochemie. Von DR. FRANZ PETERS. Hartleben's Verlag, Wien; Pest, Leipzig.

The first volume of this book was reviewed in SCIENCE by Professor Smith (April 9, 1897). In the light of this notice of the general purport of the book by so able an authority, attention need only be called to the appearance of the subsequent volumes and to their contents. The second volume, on the electrochemistry of inorganic substances, is divided into two parts. The first deals with the electro-chemistry of the metalloids and alkali metals, including methods of obtaining hydrogen, of purifying water, of obtaining chlorine, bromine and iodine, oxygen and ozone, arsenic and antimony. It is interesting to note under carbon that it volatilizes at about 3,600° in the arc of the electric lamp, and that Moissan has succeeded in converting it into vapor in the electric furnace. It did not, however, assume the liquid state, but passed at once into vapor. The beautiful work of Moissan on highly heated carbon is taken up at some length. The electrolytic separation of lithium and sodium is then taken up, the methods of Grabau, Borschers and Castner in the production of sodium receiving special treatment.

The second part of the second volume is devoted to the alkaline earths, the earths and heavy metals.

The third volume deals entirely with the electro-chemistry of organic compounds. The extent to which organic compounds can be prepared by the action of the current is shown by the number of classes of substances included in this volume. In the paraffin series there are thirteen classes, including hydrocarbons, alcohols, ether, ethereal salts, acids. In the aromatic series there are seventeen classes, including hydrocarbons, nitro, sulphur and amine derivatives of the hydrocarbons, phenols, alcohols, aldehydes, ketones and acids. This volume closes with an account of some of the practical uses of organic electro-chemistry, as electrodyeing, electroprinting, electrotanning, etc.

Insofar as it deals with the electrolytic deposition of the metals, this book covers some of the same ground as the well known work of Borschers, which deals with electro-metallurgy in such a masterly manner. But the work of Peters covers a much wider field, and will doubtless prove to be a valuable contribution to practical electro-chemistry.

H. C. J.

Up-to-date Air-brake Catechism. By ROBERT H. BLACKALL, Air-Brake Inspector and Instructor on the D. & H. Ry. New York, N. W. Henley & Co. 12mo. Pp. 230. Illustrated.

This is a little book, but one of great value in a special field. It is the custom of the makers of air-brakes, and of the management of the best railway systems, to employ an inspector and instructor to go from point to point on the railways, inspecting the brake outfit and teaching its use, as experts. The plan is an admirable one and undoubtedly a most valuable insurance of safety to the traveling public as well as to employees. Mr. Blackall is one of these instructors and inspectors who, with rare discretion, tact and expert knowledge, has written out his instructions in this catechetical form and printed it.

The book is not only unique in its subject, in its completeness and in its comprehensiveness; but it is one which evidences in its plan, in its literary form and in detail, the talent and culture of a man of education, as well as of professional competence. Before January 1, 1900, every train must have sufficient air-brake equipment to control it, and this means the education and training of an army of railroad men of all grades; hence the value of this timely text-book. It includes a discussion of

the details of the equipment, their usual defects, accidents, shortcomings, and methods of remedy, as well as of their every-day management. It is an admirable bit of very useful book-making, and its notice in this place is entirely justified by its scientific character and completeness, as well as by its intrinsic value in its place and for its purpose.

R. H. T.

SCIENTIFIC JOURNALS.

THE *American Naturalist* for October opens with an article by Mr. John Murdoch, describing the relation between the Eskimos of Port Barrow, northwestern Alaska, and the animals of their country. Mr. G. W. Field's article on methods of planktology describing work carried out in The Rhode Island Experiment Station is reprinted from the Report of the Station. Mr. C. R. Eastman discusses some new points in Dinichthyid Osteology, and Professor Comstock and Dr. Needham continue their treatise on the wings of insects. There is a note on the variation of the teleutospores of *Puccinia windsoriæ*, by Mr. J. A. Warren, and editorially the plans for a marine biological station in Canada are discussed. Thirty-four pages are devoted to reviews of literature and scientific news.

Terrestrial Magnetism for September is almost entirely devoted to the recent International Conference on Terrestrial Magnetism and Atmospheric Electricity, reported in a recent issue of SCIENCE. A full account of the proceedings of the Conference is given, likewise the words of welcome addressed to those attending it by the President of Section A, Professor W. E. Ayrton, and the opening address of the President of the Conference, Professor A. W. Rücker. The following papers presented to the Conference are printed in full:

Establishment of Temporary Magnetic Observatories: W. von Bezold and M. Rykatschew.

Relative Advantages of Long and Short Magnets: E. Mascart.

Questions to be addressed to Magnetic Observatories: M. Eschenhagen.

Systematische Erforschung der Saecular Variation: A Schmidt (Gotha).

Magnetic Observations in the Azores: Albert, Prince of Monaco.

Mouvement diurne du pôle nord d'un barreau magnétique: J. B. Capello.

Expression of the Earth's Magnetic Potential: A. Schuster.

Earth Currents, Atmospheric Currents and Magnetic Perturbations: S. Lemström.

Interpretation of Earth Current Observations: A. Schuster.

Magnetic and Electrolytic Actions of Electric Railways.

SOCIETIES AND ACADEMIES.

ENTOMOLOGICAL SOCIETY OF WASHINGTON, OCTOBER 20, 1898.

UNDER the head of short notes and exhibition of specimens Mr. Pratt exhibited a specimen of *Phyciodes tharos* which had been taken at electric light at night. Mr. Schwarz showed a dry flower stem of the bear-grass showing the work of the Buprestid beetle *Thrincopyge ambiens* Lec., the single stem indicating the entire life history of the beetle, which works in the center and does not appreciably injure the plant. Some discussion followed upon the bear-grass and the allied Yuccas and Dasylirions of the arid region, more particularly in regard to the destruction of flower pod by cattle in spite of the especially protective growth. Mr. Heidemann showed three species of Aradidæ new to the District of Columbia, viz., *Aradus crenatus* Say, *A. breviatus* Bergr. and *A. inornatus* Stål., with comments upon their habits and characters. He also showed specimens of *Calisius pallices* Stål., from Florida, a species hitherto known only from South America and which must now be added to the fauna of boreal America. Mr. Ashmead remarked that he had found this last species under the bark of dead orange trees killed by frost. Mr. Howard called attention to an outbreak of the chinchbug upon the lawns in the city of Brooklyn during the months of July and August last, pointing out that the sudden appearance of this insect in enormous numbers in the center of a densely populated city, hundreds of miles from any previous point of destructive appearance and in the middle of a summer characterized by excessive precipitation and upon closely-cut lawns which had been frequently watered, afforded an instance entirely unprecedented in the history of the species.