SCIENCE

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FRIDAY, FEBRUARY 24, 1899.

CONTENTS:

MSS. intended for publication and books, etc., intended for review should be sent to the responsible editor, Professor J. McKeen Cattell, Garrison-on-Hudson N. Y.

*THE RECENTLY DISCOVERED GASES AND THEIR RELATION TO THE PERIODIC LAW.**

GENTLEMEN: It is well known to you all how the remarkable observation of Lord Rayleigh that nitrogen from the atmosphere possesses a greater density than that prepared from ammonia or nitrates led to the discovery of argon, a new constituent of the air. I need not say that had it not been for this observation the investigations of which I shall speak this evening would never have been carried out, at least not by me. You also, doubtless, will remember that the search for some compound of argon was rewarded, not by the attainment of the quest, but by the discovery, in clèvite and other rare uranium minerals, of helium, an element whose existence in the chromosphere of the sun had already been suspected. And, further, I hardly need to recall to your minds that the density of helium is in round numbers 2, and that of argon 20, and that the ratio of specific heats of both these gases, unlike that of most others, is 1.66.

From these figures it follows that the atomic weight of helium is 4 and that of argon 40. It is true that in many quarters this conclusion is not admitted, but I have always thought it better to recognize the

*Address delivered by Professor William Ramsay before the Deutschen chemischen Gesellschaft, December 19, 1898. Translated by J. L. H.

about 90 of these papers are abstracted and reviewed, chiefly by M. Binet.

L'Année philosophique, of which M. Pillon is the editor and Alcan the publisher, in the issue for 1897 reaches its eighth volume. It contains articles by M. Renouvier on the idea of God, by M. Dauriac on the philosophy of Paul Janet, and by the editor on Bayle and the altruism of Epicurus. The editor also offers a review of French philosophical publications extending to 140 pages. There is no bibliography.

MESSRS. LEMCKE AND BUECHNER, New York, are the American agents of a newly established bibliography of French periodicals, edited by M. Jordell. The example set in America was last year followed in Germany, and we are now glad to welcome a similar enterprise in France. In this first issue 146 periodicals are included, a subject index and an authors' index being provided. Scientific journals are not, as a rule, considered, but it is exactly articles that appear in the general journals that are most likely to escape the attention of scientific men, and the usefulness to them of such an index is evident. It should be accessible in all the larger libraries.

GENERAL.

IT is stated that progress has been made with the preparation, for publication, of the extensive scientific material collected during the voyage of the *Fram*, and that there is a likelihood that the first volume of memoirs will be issued during the coming summer or autumn. The collection will be in quarto form, and the separate memoirs will be the work of a number of specialists in the subjects treated, each being paged separately. The total number will probably be about twenty, forming from three to five volumes. The memoirs will be published at the expense of the Nansen Fund for the advancement of science.

A QUARTO memoir upon *Polypterus* is being projected at Columbia University as the result of the Senff Expedition to the Nile. Specialists in the nerves, muscles, blood vessels and visceral anatomy will divide the work, which is designed to be of the most exhaustive character. Mr. Harrington is taking charge of the distribution of the Senff collection to specialists in all parts of the country and in Europe, with the understanding that the results will be published by the New York Academy of Science, and thus constitute a special and uniform series, which can finally be issued in compact form.

PROFESSOR TITCHENER, of Cornell University, is prepariug for publication early in the fall 'A Laboratory Manual of Experimental Psychology,' which will be published by The Macmillan Company. The work will be in two volumes and will detail an elementary course of laboratory work. The first volume will deal with qualitative analysis, the second with the exact measurement of mental processes. Each volume will be published in a student's and a teacher's edition, the former giving instructions as regards the conduct of experiments, control of introspection, etc., and the latter furnishing references, cognate questions and exercises and standard results.

BOOKS RECEIVED.

In the Australian Bush and the Coast of the Coral Sea. RICHARD SEMON. London and New York, The Macmillan Company. 1899. Pp. xii + 552. $6.50.

The Principles of Bacteriology. FERDINAND HUEPPE. Translated by DR. E. O. JORDAN. Chicago, The Open Court Publishing Co. 1899. Pp. viii + 467. $1.75.

The Dawn of Reason or Mental Traits in the Lower Animals. JAMES WEIR. New York and London, The Macmillan Company. 1899. Pp. xiii + 234. $1.25.

A Brief Introduction to Modern Philosophy. ARTHUR KENYON ROGERS. New York and London, The Macmillan Company. 1899. Pp. viii + 360.

The Story of the Cotton Plant. F. WILKINSON. New York, D. Appleton & Co. 1899. Pp. 191.

SCIENTIFIC JOURNALS AND ARTICLES.

THE *Journal of Physical Chemistry*, January. 'Pressure temperature Diagrams for Binary Systems,' by Wilder D. Bancroft.' 'The Dissociative Power of Solvents,' by Louis Kahlenberg and Azariah T. Lincoln: a study of electrical conductivity of a number of salts in non-aqueous solutions, more fully noticed in 'Notes on Inorganic Chemistry.' 'Boiling-point curves,' by E. F. Thayer: the boiling point curves for mixtures of alcohol and chloroform,