

SCIENCE

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CONTENTS.

<i>Some American Contributions to Technical Chemistry:</i> DR. MARCUS BENJAMIN.....	873
<i>The Physiological Section of the Central Branch of the American Society of Naturalists:</i> PROFESSOR CHAS. W. GREENE.....	884
<i>Scientific Books:—</i>	
<i>Findlay on the Phase Rule and its Applications:</i> PROFESSOR WILDER D. BANCROFT.	
<i>Czapek's Biochemie der Pflanzen:</i> DR. RODNEY H. TRUE.....	890
<i>Scientific Journals and Articles.....</i>	892
<i>Societies and Academies:—</i>	
<i>The Michigan Academy of Science:</i> PROFESSOR F. C. NEWCOMBE. <i>The Torrey Botanical Club:</i> L. H. LIGHTHIPE. <i>The American Mathematical Society:</i> PROFESSOR F. N. COLE	892
<i>Discussion and Correspondence:—</i>	
<i>Marine Zoology in the Hawaiian Islands:</i> PROFESSOR J. E. DUERDEN. <i>The Greene Exploring Expedition:</i> DR. E. O. HOVEY. <i>Newspaper Science:</i> PROFESSOR JACQUES LOEB. <i>A Biographical Directory of American Men of Science:</i> PROFESSOR J. MCKEEN CATTELL	897
<i>Special Articles:—</i>	
<i>The Nomenclature of Types in Natural History:</i> PROFESSOR CHARLES SCHUCHERT.	899
<i>The American Association for the Advancement of Science, Summer Meeting of Section E:</i> DR. E. O. HOVEY.....	901
<i>Prize for a Method of Setting Diamonds for Cutting</i>	901
<i>Scientific Notes and News.....</i>	902
<i>University and Educational News.....</i>	904

MSS. intended for publication and books, etc., intended for review should be sent to the Editor of SCIENCE, Garrison-on-Hudson, N. Y.

SOME AMERICAN CONTRIBUTIONS TO TECHNICAL CHEMISTRY.*

THE inventive genius of the American people is universally conceded. The necessity of accomplishing things quickly, incidental to the growth of a new country, such as ours, has naturally led to the invention of many forms of labor-saving machinery, and so with improved appliances have come improved methods. The technical chemist is, however, less fortunate than his brother in the professorial chair whose merits are made known by his students, thus attracting an ever-increasing following to his laboratory, and perhaps he is also less fortunate than his associate who devotes himself to research work; for to him are given medals and honorary memberships which are properly the 'blue ribbons' of science; hence it is that the discoveries of the technical chemist, especially where they are commercially meritorious, remain too frequently unknown, and the profits of the improvement go to swell the dividends of the corporation to which he owes his allegiance while he receives no public recognition. It naturally follows, therefore, that any summary of the achievements in the development of technical chemistry must be very incomplete.

To say when chemistry begins is not generally possible, for its origin wanders back into alchemy and pharmacy on the one side and into physics on the other, and there are no sharp lines of separation among the

* An address delivered before the Congress of Arts and Science, St. Louis, September, 1904.

The second volume, the printing of which has been begun, will appear in the near future and conclude this most important contribution of the working student of vegetable physiology.

RODNEY H. TRUE.

BUREAU OF PLANT INDUSTRY,

U. S. DEPARTMENT OF AGRICULTURE.

SCIENTIFIC JOURNALS AND ARTICLES.

The American Naturalist for May brings this journal up to date. It contains articles on the 'Affinities of the Genus *Equisetum*,' by D. H. Campbell; 'Movements of Diatoms and Other Microscopic Plants,' by D. D. Jackson, and, after a long interval, another of the valuable 'Synopsis of North American Invertebrates, XX., Families and Genera of Araneida,' by Nathan Banks; 'Biology of *Acmaea testudinalis* Miller,' M. A. Willcox; 'Habits of the West Indian Whitebait,' A. H. Clark, and notes and reviews.

THE May number (volume 11, number 8) of the *Bulletin of the American Mathematical Society* contains: Report of the February meeting of the San Francisco Section, by G. A. Miller; 'On the development of mathematical analysis and its relation to certain other sciences,' by Emile Picard (St. Louis address), translated by M. W. Haskell; 'On the class of the substitutions of various linear groups,' by L. E. Dickson; 'Note on a problem in mechanics,' by A. M. Hildebrandt; 'A geometric construction for quaternion products,' by Irving Stringham; Reviews of Lechalas's *Géométrie générale*, by Oswald Veblen; Netto's *Elementare Algebra*, by J. H. Tanner; Murray's *Infinitesimal analysis*, by W. B. Fite; Tanner's *Elementary algebra*, by James Pierpont; *Annuaire du Bureau des Longitudes*, by E. W. Brown; Gibbs-Roy's *Diagrammes et surfaces thermodynamiques*, by W. F. Durand; 'Notes'; and 'New Publications.'

SOCIETIES AND ACADEMIES.

THE MICHIGAN ACADEMY OF SCIENCE.

THE annual meeting of the Michigan Academy of Science took place at Ann Arbor, March 30, 31 and April 1. The programs of

papers were good, and the meetings well attended by members and others from all parts of the state. On the evening of March 30 the annual address was delivered in University Hall before an audience of two thousand by Professor T. C. Chamberlin, of the University of Chicago, the topic being 'Old and New Hypotheses of the Earth's Origin.' The evening of the thirtieth was spent in a social smoker tendered by the University Research Club; and the excellent address of the retiring president of the academy, Dr. A. C. Lane, state geologist of Michigan, was delivered the afternoon of April 1, the topic being 'Natural Resources, their Conservation and Compensation for Necessary Consumption, one Feature of which is a Scientific Search for Substitutes.'

The academy has had introduced into the state legislature a bill for a topographic survey, and another bill for a natural history survey. The prospect for the passage of these bills seems good, and the academy decided to engage in a vigorous campaign to effect that end.

Papers were read as shown by the following programs:

SECTION OF AGRICULTURE.

Vice-President, W. J. Beal, Agricultural College.
KENYON L. BUTTERFIELD, president of State Agricultural College, Rhode Island: 'Outline of a Course in Rural Sociology.'

W. O. HEDRICK, Agricultural College: 'Syllabus for an Elementary Course in Economics.'

R. S. SHAW, Agricultural College: 'Syllabus for a Four-year Course in Live-stock Husbandry.'

U. P. HEDRICK, Agricultural College: 'Syllabus for a Four-year Course in Horticulture.'

J. L. SNYDER, president of Agricultural College: 'Social Phases of Agricultural Education.'

U. P. HEDRICK, Agricultural College: 'Outline of Topics in Horticulture for some Grades of Common Schools.'

CLARENCE E. HOLMES, superintendent of State School for Blind, Lansing: 'The Place of Agriculture in the Rural Schools.'

F. L. KEELER, Mt. Pleasant: 'School Gardens.'

J. B. DANDENO, Agricultural College: 'Some Experience in the Management of School Gardens.'

ERNEST BURNHAM, Kalamazoo: 'The Preparation of Teachers for the Rural Common Schools.'