$S\lambda$ asserts itself and the proportions are smaller.

On Amorphous Sulphur; V. Further Study of the Two Forms of Liquid Sulphur as Dynamic Isomers: Alexander Smith and C. M. Carson.

This investigation deals with (1) measurements of the rate of transformation $S\lambda \rightleftharpoons S\mu$ in presence of different catalyzers; (2) study of the influence of iodine, a second component; (3) investigation of freezing-point phenomena of $S\lambda$ and determination of the 'natural' freezing-point (114.5°); (4) thermal effects when liquid sulphur is heated rapidly; (5) measurements of concentrations of $S\mu$ when equilibrium has been reached at temperatures between 155° and 165°; (6) measurements of concentrations of $S\mu$ when liquid sulphur is being heated rapidly; (7) relations of viscosity to preceding results; (8) discussion of causes of the thermal effects and of the whole problem in the light of these results.

G. R. White,
Press Secretary.

(To be concluded.)

DOCTORATES CONFERRED BY AMERICAN UNIVERSITIES.

The degree of doctor of philosophy or doctor of science has this year been conferred, as shown in the accompanying table, on 325 students by institutions competent to award these degrees. The number in 1906 is exactly the same as in 1905, but these two years represent an advance over any preceding year, bringing the number of doctorates conferred during the last nine years to 2,387. These figures do not include those who have received the degree or its equivalent from foreign universities. No statistics are at hand in regard to these students, but the number is probably in the neighborhood of fifty annually. We have not the information that would enable us to say what percentage of those who take the doctor's degree continues to engage in research work and productive scholarship, but probably not more than one third. Neither are there any data showing what percentage of those who are engaged in the advancement of science and learning holds the doctor's degree, but it may be estimated at about half. In so far as these estimates are correct, there would be about 250 men a year added to those who will hereafter devote themselves with some success to research work, and of these about half will work in the exact and natural sciences.

It must be confessed that this number is disappointingly small when the population and wealth of the country are considered. Dr. W. T. Harris, in the last report of the

TABLE I.

DOCTORATES CONFERRED.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	Total
Harvard	26	24	36	29	31	28	46	38	46	304
Chicago	36	24	37	36	27	32	36	44	31	303
Yale	34	30	26	39	29	36	39	34	29	296
Columbia	22	33	21	25	32	39	29	38	42	281
Johns Hopkins	33	38	33	30	17	23	31	35	32	272
Pennsylvania	24	20	15	25	14	29	18	26	28	199
Cornell	19	7	19	21	23	20	13	21	19	162
Clark	12	5	9	7	1	4	10	18	13	79
Wisconsin	5	6	5	6	11	4	12	9	9	67
Michigan	7	4	5	3	10	10	8	7	8	62
New York	5	9	7	6	4	4	9	7	9	60
Boston	0	0	0	0	0	4	7	14	10	35
California	1	3	2	2	1	3	3	4	9	28
Virginia	0	2	2	8	6	3	1	1	0	23
George Wash	1	0	5	3	2	4	3	3	2	23
Princeton	0	3	3	3	1	1	2	5	5	23
Minnesota	1	2	3	2	3	3	3	3	2	22
Bryn Mawr	3	3	1	2	2	0	5	2	2	20
Brown	1	3	3	2	2	5	0	2	1	19
Nebraska	2	1	1	1	0	0	2	3	7	17
Catholic	1	0	0	0	2	2	5	1	5	16
Stanford	2	0	2	2	2	1	1	1	2	13
Iowa	0	0	0	0	0	2	0	2	5	9
Washington	0	2	0	1	0	1	1	0	2	7
Georgetown	0	0	0	0	0	3	1	2	0	6
Vanderbilt	0	0	3	1	0	0	0	0	1	5
Colorado	0	1	0	0	0	0	2	0	2	5
North Carolina	0	0	0	0	2	1	0	1	0	4
Illinois	0	0	0	0	0	0	0	1	3	4
Cincinnati	0	0	0	0	0	1	1	1	0	3
Kansas	0	1	0	0	0	2	0	0	0	3
Lafayette	0	0	0	0	0	3	0	0	0	3
Missouri	0	1	0	0	0	0	0	2	0	3
Northwestern	1	1	0	1	0	0	0	0	0	3
Wash. and Lee	0	0	0	0	1	0	1	0	1	3
Lehigh	0	0	0	0	0	2	0	0	0	2
Syracuse	0	1	0	0	1	0	0	0	0	2
Tulane	0	0	1	0	0	0	0	0	0	1
	236	224	239	255	224	270	289	325	325	2387

commissioner of education, states that in 1903 there were 20,887 professors and teachers in the colleges and universities of the United States, not counting professional schools; there were further in the secondary schools 33,795 teachers; or in all considerably more than 50,000 positions. At least one twentieth of these become vacant each year, and the number of new positions is increasing at the rate of more than 2,000 a year. There are probably more than 5,000 academic positions a year which should be filled by the type of men of which the supply appears to be only about 250. Further, these men must fill the large and increasing number of positions in the government service and elsewhere.

There has naturally been no considerable change in the productivity of the different institutions. Chicago and Yale conferred fewer degrees this year than usual, Harvard and Columbia more, and the Johns Hopkins about its average number. These five universities stand very close in their total influence. Harvard is now at the head of the list, surpassing Chicago by one degree, Yale by 8 degrees, Columbia by 23 degrees and the Johns Hopkins by 32 degrees. Several of the state universities have made considerable gains, which are especially noticeable when compared with the earlier years covered by the statistics. Thus this year California conferred 9 degrees; Nebraska, 7; Iowa, 5, and Illinois, 3, or 24 in all, whereas in 1898 these four universities conferred but 3 degrees.

Table II. shows the number of degrees conferred in the sciences enumerated in Table III. From this table it appears that somewhat less than half of all the degrees conferred are in these sciences. The last column of the table gives the percentage of degrees that are conferred in the natural and exact sciences. It thus appears that relatively more graduate work in science is done at Cornell and the Johns Hopkins than at Harvard and Yale.

TABLE II.

DOCTORATES CONFERRED IN THE SCIENCES.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	Total	P. Ct.
Johns Hopkins	19	17	20	19	9	10	17	18	18	147	54
Chicago	12	13	19	16	15	21	14	21	14	145	48
Columbia	10	23	12	13	14	18	11	20	16	137	49
Harvard	11	7	15	15	14	15	23	12	17	129	42
Yale	11	15	10	18	10	13	15	13	15	120	41
Cornell	11	2	11	13	16	13	8	13	7	94	58
Pennsylvania	8	8	6	12	5	14	9	12	11	85	43
Clark	12	5	9	7	1	4	10	18	9	75	95
Michigan	0	3	1	0	5	4	6	?	5	24	39
Wisconsin	2	4	1	3	4	0	4	3	2	23	34
California	1	3	1	2	1	3	2	3	3	19	68
George Wash.	1	0	3	1	1	4	1	3	2	16	69
Brown	1	0	0	1	2	4	0	2	1	11	58
Nebraska	2	1	1	1	0	0	1	2	3	11	65
Bryn Mawr	1	2	1	2	1	0	2	0	1	10	50
Stanford	2	0	0	1	2	1	1	1	2	10	77
Princeton	0	3	1	0	0	1	1	3	0	9	39
Virginia	0	2	0	4	1	2	0	0	0	9	39
Minnesota	0	1	1	0	2	1	0	1	1	7	32
Washington	0	2	0	1	0	1	1	0	2	7	100
Iowa	0	0	0	0	0	1	0	2	3	6	67
New York	1	1	0	1	0	0	1	1	1	6	10
Catholic	0	0	0	0	1	2	1	0	0	4	40
Colorado	0	1	0	0	0	0	0	0	2	3	60
Kansas	0	1	0	0	0	2	0	0	0	3	100
North Carolina	0	0	0	0	2	1	0	0	0	3	75
Vanderbilt	0	0	1	1	0	0	0	0	1	3	60
Wash. and Lee	0	0	0	0	1	0	1	0	1	3	100
Illinois	0	0	0	0	0	0	0	0	2	2	50
Lehigh	0	0	0	0	0	2	0	0	0	2	100
Missouri	0	1	0	0	0	0	0	1	0	2	67
Northwestern	0	1	0	1	0	0	0	0	0	2	67
Cincinnati	0	0	0	0	0	0	0	1	0	1	33
Georgetown	0	0	0	0	0	0	1	0	0	1	17
Lafayette	0	0	0	0	0	1	0	0	0	1	33
Syracuse	0	0	0	0	1	0	0	0	0	1	50
	105	116	113	132	108	138	130	150	139	1131	47

The third table gives the degrees conferred in each of the sciences, whence it appears that last year 38 degrees were given in chemistry, 21 in zoology, 19 in physics, 16 in botany, 12 in psychology, 11 in geology and 9 in mathematics. All the other sciences are responsible for only 13 degrees.

The institutions that conferred three degrees or more in special subjects are as follows: *Johns Hopkins,* chemistry 9, physics 4; *Chicago,* chemistry 4; *Columbia,* botany 4, chemistry 3; *Harvard,* zoology 7, chemistry 3; *Yale,* chemistry 7; *Cornell,* zoology 3; *Pennsylvania,* chemistry 4; *Clark,* psychology 6.

TABLE III.

DOCTORATES CONFERRED IN THE SCIENCES.

	1898	1899	1900	1901	1902	1903	1904	1905	1906	Total
Chemistry	27	32	26	28	27	33	35	36	38	282
Physics	11	7	15	24	12	14	17	14	19	133
Zoology	12	11	11	15	16	12	15	15	21	128
Psychology	18	15	9	13	8	18	10	21	12	124
Botany	11	11	12	8	12	9	17	15	16	111
Mathematics	11	13	11	18	8	7	13	20	9	110
Geology	6	5	5	10	6	10	7	4	11	64
Physiology	4	1	4	1	8	8	1	3	3	33
Astronomy	3	2	4	5	2	4	4	3	4	31
Education	0	5	8	2	1	2	0	6	0	24
Sociology	0	5	3	3	4	2	1	1	0	19
Paleontology	0	4	2	1	0	2	2	3	2	16
Bacteriology	0	1	1	1	1	3	3	0	1	11
Anthropology	2	0	2	1	0	1	2	1	0	9
Agriculture	0	0	0	0	2	2	2	2	0	8
Engineering	0	0	0	1	0	3	1	3	0	8
Mineralogy	0	2	0	0	1	1	0	1	1	6
Anatomy	0	1	0	1	0	4	0	0	0	6
Pathology	0	0	0	0	0	3	0	0	1	4
Metallurgy	0	0	0	0	0	0	0	1	1	2
Geography	0	0	0	0	0	0	0	1	0	1
Meteorology	0	1	0	0	0	0	0	0	0	1
	105	116	113	132	108	138	130	150	139	1131

The names of those on whom the degree was conferred in the natural and exact sciences, with the subjects of their theses, are as follows:

JOHNS HOPKINS UNIVERSITY.

Samuel James Allen: 'The Velocity and Ratio e/m for the Primary and Secondary β Rays of Radium.'

Roger Frederic Brunel: 'A Study of the Salts of Tautomeric Compounds. Reactions of Urazole Salts with Alkyl Halides.'

Robert Ervin Coker: 'Diversity in the Scutes and Bony Plates of *Chelonia*.'

Thomas Sidney Elston: 'The Fluorescent and Absorption Spectra of Anthracene and Phenanthrene Vapors.'

Howard Edwin Enders: 'A Study of the Life History and Habits of *Chætopterus Variopedatus*.'

Charles Walter Gray: 'An Electrical Method for the Simultaneous Determination of Hydrogen, Carbon and Sulphur in Organic Compounds.'

Charles Clayton Grove: I., 'The Syzygetic Pencil of Cubics and a New Geometrical Development of its Hesse Group G_{216}.' II., 'On the Complete Pappus Hexagon.'

Ernest Jenkins Hoffman: I., 'Osmotic Pressure of Cane-sugar Solutions.' II., 'The Semi-permeable Membrane of Copper Cobalticyanide.'

B. Smith Hopkins: 'The Osmotic Pressure of Glucose Solutions, and the Freezing-point Depressions and Densities of Solutions of Glucose and Cane Sugar; also Some Experiments on the Osmotic Pressure of Urea Solutions.'

Edward Pechin Hyde: 'Talbot's Law as applied to the Rotating Sectored Disk.'

William Lee Kennon: I., 'Osmotic Pressure of Solutions of Cane Sugar.' II. 'A Study of Zinc Ferrocyanide as a Semi-permeable Membrane for the Measurement of Osmotic Pressure.'

LeRoy McMaster: 'The Conductivity and Viscosity of Solutions of Certain Salts in Water, Methyl Alcohol, Ethyl Alcohol, Acetone and Binary Mixtures of these Solvents.'

John Frederick Messick: 'Cubic Curves in Reciprocal Triangular Situation.'

August Herman Pfund: 'Polarization and Selective Reflection in the Infra-red Spectrum.'

William Frederick Prouty: 'The Niagara and Clinton Formations of Maryland.'

Charles Judson Robinson: I., 'A Continuation of the Study of the Action of Amines on Camphoroxalic Acid.' II., 'The Combustion of Halogen Compounds in the Presence of Copper Oxide.' III., 'Some Experiments relating to the so-called Infusible Diamide of Parasulphaminebenzoic Acid.'

Charles August Rouiller: 'The Relative Migration Velocities of the Ions of Silver Nitrate in Water, Methyl Alcohol, Ethyl Alcohol and Acetone, and in Binary Mixtures of these Solvents, together with the Conductivity of such Solutions.'

William Anderson Syme: 'Some Constituents of the Poison Ivy Plant (*Rhus Toxicodendron*).'

HARVARD UNIVERSITY.

Henry Bryant Bigelow: 'Studies on the Nuclear Cycle of *Gonionemus murbachii* Mayer.'

Leon Jacob Cole: 'An Experimental Study of the Image-forming Powers of Various Types of Eyes.'

Harvey Nathaniel Davis: I., 'A PQ Plane for Thermodynamic Cyclic Analysis.' II., 'The Longitudinal Vibrations of a Rubbed String.'

James Walter Goldthwait: 'The Abandoned Shore Lines of Eastern Wisconsin.'

Murray Arnold Hines: 'A Revision of the Atomic Weight of Manganese.'

Arthur Day Howard: 'The Visual Cells in Vertebrates, chiefly in *Necturus Maculosus*.'

Burritt Samuel Lacy: 'Temperature Coefficients of Concentration Cells and of Electrodes, and the Thomson Effect in Electrolytes.'

George Richard Lyman: 'Culture Studies of Hymenomycetes.'

John Hancock McClellan: 'The Development of the Excretory System of *Amia calva*.'

Hansford MacCurdy: 'The Influence of Selection on Color Pattern in Guinea Pigs and Rats.'

Robert Dawson MacLaurin: 'Derivatives of Substituted Orthobenzoquinones.'

George Rogers Mansfield: 'The Origin and Structure of the Roxbury Conglomerate.'

Samuel Ottmar Mast: 'Light Reactions in Lower Organisms: I. *Stentor Cœruleus*.'

Lincoln Ware Riddle: 'Contributions to the Cytology of the Entomophthoraceæ.'

William Henry Roever: 'Brilliant Points.'

Alpheus Wilson Smith: 'Expansion and Compressibility of Ether and of Alcohol in the Neighborhoods of their Boiling Points.'

Herbert Eugene Walter: 'The Reactions of Planarians to Light.'

COLUMBIA UNIVERSITY.

Howard J. Banker: 'A Contribution to a Revision of the North American Hydnaceæ.'

Frederic Columbus Blake: 'The Reflection and Refraction of Electrical Waves by Screens of Resonators and by Grids.'

Ira Detrich Cardiff: 'A Study of Synapsis and Reduction.'

Frederick Van Dyke Cruser: 'The Insoluble Chromicyanides.'

Henry Allan Gleason: 'A Revision of the North American Vernonieæ.'

Louis Hussakof: 'Studies on the Anthrodira.'

Clarence Whitney Kanolt: 'The Combination of a Solvent with the Ions.'

Raymond Carroll Osburn: 'The Origin of Vertebrate Limbs. Recent Evidence upon this Problem from Studies on Primitive Sharks.'

Fred James Pack: 'The Geology of Pioche, Nev., and Vicinity.'

Thomas Thornton Read: 'The Amalgamation of Gold Ores.'

Charles Budd Robinson: 'The Chareæ of North America.'

Harvey Ambrose Seil: 'Further Investigations in the Quinazoline Group.'

John Fairfield Thompson: 'Platinum Silver Alloys.'

Frederic Lyman Wells: 'Linguistic Lapses, with especial reference to the Perception of Linguistic Sounds.'

Samuel Robinson Williams: 'On the Reflection of Cathode Rays from Thin Metallic Films.'

John Howard Wilson: 'Glacial History of Nantucket and Cape Cod, with an Argument for a Fourth Center of Glacial Dispersion in North America.'

YALE UNIVERSITY.

Raymond Harman Ashley: 'The Oxidation of Sulphur Dioxide in Analysis.'

Kate Grace Barber: 'Comparative Histology of Fruits and Seeds of Certain Species of Cucurbitaceæ.'

Edward Herbert Cameron: 'Voluntary Production of Tones under Varying Conditions of Attention.'

Haroutune Mugurdich Dadourian: 'On the Radioactivity of Underground Air and on Some Radioactive Properties of Thorium.'

Robert Banks Gibson: 'On Proteose Fever: an Experimental Study.'

Albert Hileman: 'The Determination of Fluorine eliminated as Silicon Fluoride.'

Carl Oscar Johns: 'Researches in Organic Chemistry.'

Ellis Earle Lawton: 'Wave-lengths and Structural Relation of Certain Bands in the Spectrum of Nitrogen.'

Gerald Francis Loughlin: 'Contribution to the Geology of Eastern Connecticut.'

Elmer Verner McCollum: 'Researches in Organic Chemistry.'

George Albert Menge: 'Researches in Organic and Physical Chemistry.'

Seth Enoch Moody: 'The Hydrolysis of Certain Dissolved Salts in Presence of Iodides and Iodates.'

Roland George Dwight Richardson: 'Improper Multiple Integrals.'

Clifton James Sarle: 'The Medina Formation and Fauna of New York.'

Gustaf Eric Wahlin: 'The Relation between the Binary Quadratic Forms and the Quadratic Numerical Bodies.'

UNIVERSITY OF CHICAGO.

James Francis Abbott: 'The Morphology of Cœloplana.'

Russell Burton-Opitz: 'The Periodic and Irregular Variations in the Venous Blood-flow.'

Harvey Carr: 'Some Visual Illusions due to Eye Closure.'

David John Davis: 'The Bacteriology of Whooping Cough.'

William Lloyd Evans: 'The Action of Alkalies and Oxidizing Agents on Benzoyl Carbinol.'

Henry Max Goettsch: 'The Affinity Constants of Diacid Bases.'

Frank Loxley Griffin: 'Certain Periodic Orbits

of K Finite Bodies revolving about a Relatively Large Central Mass.'

Glenn Moody Hobbs: 'The Relation between *P.D.* and Sparking Distance for Small Values of the Latter.'

William Raymond Longley: 'A Class of Periodic Orbits of an Infinitesimal Body subject to the Attraction of N Finite Bodies.'

Carleton John Lynde: 'The Effect of Pressure on Surface Tension.'

William McCracken: 'On the Hydrochlorides of Imido-ether Derivatives.'

Stephen Walter Ranson: 'Retrograde Degeneration in the Spinal Nerves.'

Hermann Irving Schlesinger: 'Velocity Determinations with Imido-ethers.'

Delonza Tate Wilson: 'Work on Minor Planets.'

UNIVERSITY OF PENNSYLVANIA.

Samuel Goodwin Barton: 'Secular Perturbations arising from the Action of Saturn on Mars, an Application of the Method of Louis Arndt.'

Benjamin Franklin Finkel: 'Determination of all Groups of Order 2 which contain Cyclic Self-conjugate Sub-groups of Order 2 and whose Generating Operations correspond to the Partitions.'

Anna Lockhart Flanigen: 'The Electrolytic Determination of Copper in an Alkaline Cyanide Electrolyte.'

Benno Humbert Alfred Groth: 'The Sweet Potato, Origin and History, Economic Value, Structure and Classification of Varieties.'

Joel Henry Hildebrand: 'The Determination of Anions in the Electrolytic Way.'

Edith Dabele Kast: 'The Mean Right Ascensions and Proper Motions of 130 Stars.'

Louis Krautter, Jr.: 'The Genus Pentstemon.'

Julia Langness: 'A New Form of Anode in Electro-analysis and the Rapid Electrolytic Determination of Certain Platinum Metals.'

Jesse Francis McClendon: 'On the Development of Parasitic Copepoda.'

Charles Travis: 'Pyrite from Cornwall, Lebanon County, Pennsylvania.'

Luther Ferree Zerr Witmer: 'The Electrolytic Determination of Tin and its Separation from Antimony with a Rotating Anode.'

CLARK UNIVERSITY.

Frank Kelton Bailey: 'On the Latent Heat of Recalescence in Iron and Steel.'

William Frederick Book: 'The Acquisition of Skill in Typewriting.'

Alvin Borgquist: 'Crying.'

Alfred A. Cleveland: 'The Psychology of Chess and of Learning to Play it.'

Frederick N. Duncan: 'A Comparative Study of Contractile Tissue.'

Arnold Lucius Gesell: 'Jealousy.'

George Edmund Myers: 'A Comparative Study of Moral Training.'

James P. Porter: 'The Habits, Instincts and Mental Powers of Spiders, Genera *Argiope* and *Epeira*.'

James Theron Rood: 'Quantitative Investigations on the Transmission of Sound by the Telephone.'

CORNELL UNIVERSITY.

Cornelius Betten: 'The Wing Venation of Trichoptera.'

Elmer Clifford Colpitts: 'On the Twisted Quintic Curves.'

Samuel Perkins Hayes: 'A Study of the Affective Qualities.'

Thomas J. Headlee: 'Phylogeny of the Butterflies as shown by their Wing Venation.'

Martin Joshua Iorns: 'Influence of Acetylene Light on Plant Growth.'

Helen Isham: 'A Contribution to the Chemistry of Hydronitric Acid.'

Charles Herschel Sisam: 'Ruled Surfaces of Order Seven having a Rectilinear Directrix.'

UNIVERSITY OF MICHIGAN.

Alfred Dachnowski:-'Beitrag zur Kenntnis der Entwicklungs-Physiologie von Marchantia polymorpha, L.'

William D. Henderson: 'The Thermo-electric Behavior of Silver in a Thermo-element of the First Class.'

Rufus Percival Hibbard: 'Influence of Tension on the Formation of Mechanical Tissue in Plants.'

Alexander Grant Ruthven: 'Genetic Relationships among the Garter Snakes.'

John Frederick Shepard: 'Organic Changes and Feeling.'

UNIVERSITY OF CALIFORNIA.

Sebastian Albrecht: I., 'A Spectrographic Study of the Fourth Class Variable Stars Y Ophiuchi and T. Vulpeculæ.' II., 'On the Distortions of Photographic Films on Glass.'

Nathaniel Lyon Gardner: 'Cytological Studies in Cyanophyceæ.'

Charles David Snyder: 'The Influence of Temperature upon the Heart Rhythm in the Light of the Law of Chemical Reaction Velocity as influenced by Temperature.'

STATE UNIVERSITY OF IOWA.

Rudolph Martin Anderson: 'The Birds of Iowa.'

Charles Howard Edmonson: 'The Protozoa of Iowa.'

Daniel Starch: 'Perimetry of the Location of Sound.'

UNIVERSITY OF NEBRASKA.

Charles Newton Gould: 'The Geology and Water Resources of Oklahoma.'

Jesse Perry Rowe: 'Montana Coal and Lignite Deposits.'

Robert Thompson Young: 'Development of *Cysticercus*.'

UNIVERSITY OF COLORADO.

Heman Burr Leonard: 'On the Factoring of Composite Algebras.'

James Underhill: 'Areal Geology of Lower Clear Creek.'

GEORGE WASHINGTON UNIVERSITY.

Cornelius Lott Shear: 'Cranberry Diseases.'

Martin Norris Straughn: 'The Chemistry of Different Varieties and Individual Ears of Sweet Corn as affected by Enzymes, Climatic Conditions and Breeding.'

UNIVERSITY OF ILLINOIS.

Melville Amasa Scovell: 'The Salicylic Modification for determining Nitrogen by the Kjeldahl Method.'

Perry Fox Trowbridge: 'Proteids of Flesh.'

LELAND STANFORD JUNIOR UNIVERSITY.

John Merton Aldrich: 'A Catalogue of North American Diptera.'

Walter Kenrick Fisher: Part I., 'Anatomy of *Lattia gigantea* Gray.' Part II., 'Starfishes of the Hawaiian Islands.' Part III., 'Holothurians of the Hawaiian Islands.' Part IV., 'Starfishes of California.' Part V., 'Starfishes collected by the Steamer *Albatross* in Alaska, in 1903.'

WASHINGTON UNIVERSITY.

George Grant Hedgcock: 'Studies upon Some Chromogene Fungi which discolor Wood.'

Perley Spaulding: 'Studies on the Lignin and Cellulose of Wood.'

UNIVERSITY OF WISCONSIN.

Irving Walter Brandel: 'Plant Pigments.'

John Langley Sammis: 'On the Relation between Electrolytic Conductivity and Chemical Activity.'

BROWN UNIVERSITY.

Vahan Simon Babasinian: 'A Study of the Methods of Preparation and the Properties of α-Phenyl-Naphthalene-Dinitro-Dicarboxylic Anhydride.'

BRYN MAWR COLLEGE.

Frances Lowater: 'The Spectra of Sulphur Dioxide.'

UNIVERSITY OF MINNESOTA.

John Zeleny: 'The Velocity of the Ions produced by Röntgen Rays.'

NEW YORK UNIVERSITY.

Maximilian Philip: 'Form and Movements of Liquid Jets.'

VANDERBILT UNIVERSITY.

Griffith Thompson Pugh: 'The Pleistocene of South Carolina.'

WASHINGTON AND LEE UNIVERSITY.

A. F. White: 'Composition of the Waters of Rockbridge County, Virginia, and their relation to the Geological Formations.'

SCIENTIFIC BOOKS.

Gesammelte Werke. By ADOLF VON BAEYER. Vol. I., pp. 1–990, with an introduction, pp. i–cxxxii; Vol. II., pp. 1–1194. Braunschweig, Vieweg and Sohn. 1905.

The friends and students of Adolf von Baeyer deemed his seventieth birthday a fitting occasion for honoring him by the publication of his scientific papers, 278 in number, from 1857 to 1905; and Baeyer graciously gave his consent to the plan. In the introduction, pp. i–xx and xxviii–xxxi, the great chemist gives a brief and very interesting account of the chief events in his life; he then discusses, on pp. xxxi–xxxvii, the main trend and bearing of his scientific work.

Emil Fischer gives, on pp. xxi–xxvii, a striking sketch of the life in the laboratory of Baeyer at Strassburg.

"Es wurde nicht schulmässig unterrichtet sondern kameradschaftlich gearbeitet."

There is also a list, pp. lvi–cxviii, of all the scientific papers published from Baeyer's laboratories, Berlin, 1860–72; Strassburg, 1872–5, and Munich, 1875–1905.

It is hardly possible for any one who has