this objection it must be remembered that plants have two at least of the qualities characteristic of animals—namely, extreme sensitiveness to certain agencies and the power of transmitting stimuli from one part to the other of the plant body. It is true that there is no central nervous system, nothing but a complex system of nuclei; but these have some of the qualities of nerve cells, while intercommunicating protoplasmic threads may play the part of nerves. Spencer[27] bases the power of association on the fact that every discharge conveyed by a nerve "leaves it in a state for conveying a subsequent like discharge with less resistance." Is it not possible that the same thing may be as true of plants as it apparently is of infusoria? We have seen reasons to suppose that the "internal conditions" or "physiological states" in plants are of the nature of engrams, or residual effects of external stimuli, and such engrams may become associated in the same way.

There is likely to be another objection to my assumption that a simple form of associated action occurs in plants—namely, that association implies consciousness. It is impossible to know whether or not plants are conscious; but it is consistent with the doctrine of continuity that in all living things there is something psychic, and if we accept this point of view we must believe that in plants there exists a faint copy of what we know as consciousness in ourselves.[28]

I am told by psychologists that I must define my point of view. I am accused of occupying that unscientific position known as "sitting on the fence." It is said that, like other biologists, I try to pick out what suits my purpose from two opposite schools of thought—the psychological and the physiological.

[27] "Psychology," 2d edition, Vol. I., p. 615.

[28] See James Ward, "Naturalism and Agnosticism," Vol. I., Lecture X.

What I claim is that, as regards reaction to environment, a plant and a man must be placed in the same great class, in spite of the obvious fact that as regards complexity of behavior the difference between them is enormous. I am not a psychologist, and I am not bound to give an opinion as to how far the occurrence of definite actions in response to stimulus is a physiological and how far a psychological problem. I am told that I have no right to assume the neural series of changes to be the cause of the psychological series, though I am allowed to say that neural changes are the universal concomitants of psychological change. This seems to me, in my ignorance, an unsatisfactory position. I find myself obliged to believe that the mnemic quality in all living things (which is proved to exist by direct experiment) must depend on the physical changes in protoplasm, and that it is, therefore, permissible to use these changes as a notation in which the phenomena of habit may be expressed.

(To be concluded)

Francis Darwin

DOCTORATES CONFERRED BY AMERICAN UNIVERSITIES

The accompanying table gives the number of doctorates of philosophy and science conferred this year and during the preceding ten years by forty-two institutions. In the issue of Science for August 30, 1907, will be found the details for the earlier years. The numbers for the eleven years have been as follows: 236, 224, 239, 255, 224, 270, 289, 325, 326, 327, 366. There has thus been a considerable though irregular increase. Unless the number this year is a chance fluctuation, it represents a gain of 12 per cent. above last year and of 50 per cent. above the figures for six or eight years ago.

Columbia and Chicago gave more degrees, 55 and 54, respectively, than have ever before been granted by any institu-

tion in one year. There is no noticeable alteration in the standing of the different universities. Wisconsin has maintained the large advance made last year, and Illinois has conferred five degrees, not a large number, but equal to the total of the preceding ten years. Probably the most important educational advance of the next ten years will be the growth of advanced and research work in the great state universities of the central and western states.

Of 3,093 degrees conferred in the eleven years, 1,416, nearly half, have been in the natural and exact sciences. As shown in Table II., there were this year 184 degrees in these sciences, a gain of 41 over last year. Chicago gave 37 of these degrees, twice as many as any other institution, and takes the position at the head

TABLE I

Doctorates Conferred

	Average of 10 Years 1898–1907	1908	Total for 11 Years 1898–1908
Chicago	35.6	54	410
Harvard	33.8	42	380
Columbia	32.2	55	377
Yale	31.8	32	350
Johns Hopkins	30.5	28	333
Pennsylvania	22.5	32	257
Cornell	18.1	22	203
Wisconsin	8.6	17	103
Clark	8.7	11	98
New York	6.7	15	82
Michigan	6.9	4	73
Boston	4.4	11	55
California	3.3	4	37
Princeton	2.6	6	32
Virginia	2.8	4	32
George Washington	2.8	3	31
Minnesota	2.4	3	27
Brown	2.3	2	25
Bryn Mawr	2.1	4	25
Nebraska	2.0	2	22
Catholic	2.0	1	21
Stanford	1.4	2	16
Iowa	1.1	2	13
Georgetown	1.0	0	10
Illinois	.5	5	10
Washington	.7	1	8
Missouri	.4	3	7
Vanderbilt	.6	1	7
Massachusetts Institute	.3	3	6
Colorado	.5	0	5
North Carolina	.5	0	5
Pittsburg	.1	4	5
Washington and Lee	.4	1	5
Northwestern	.4	0	4
Cincinnati	.3	0	3
Indiana	.0	3	3
Kansas	.3	0	3
Lafayette	.3	0	3
Dartmouth	.1	1	2
Lehigh	.2	0	2
Syracuse	.2	0	2
Tulane	.1	0	1
Total	271.5	378	3,093

TABLE II

Doctorates Conferred in the Sciences

	Average of 10 Years 1898–1907	1908	Total for 11 Years 1898–1908	Per Cent.
Chicago	16.4	37	201	49
Johns Hopkins	16.8	17	185	56
Columbia	13.4	21	155	41
Harvard	14.1	13	154	41
Yale	12.4	16	140	40
Cornell	10.4	15	119	59
Pennsylvania	9.0	18	108	42
Clark	7.7	11	88	90
Wisconsin	2.8	6	34	33
Michigan	2.9	1	29	40
California	2.4	2	26	70
George Washington	1.7	2	19	61
Brown	1.2	2	14	56
Nebraska	1.3	1	14	64
Princeton	1.1	3	14	43
Stanford	1.1	2	13	81
Virginia	1.1	2	13	41
Bryn Mawr	1.0	1	11	44
Minnesota	.7	1	8	30
Washington	.7	1	8	100
Iowa	.7	0	7	54
New York	.6	1	7	9
Massachusetts Institute	.3	3	6	100
Catholic	.5	(b)	5	25
Missouri	.3	2	5	71
Vanderbilt	.3	1	4	57
Washington and Lee	.3	1	4	80
Illinois	.3	0	3	30
Indiana	.0	3	3	100
Kansas	.3	0	3	100
North Carolina	.3	0	3	60
Colorado	.2	0	2	40
Dartmouth	.1	1	2	100
Lehigh	.2	0	2	100
Northwestern	.2	0	2	50
Boston	.1	0	1	2
Cincinnati	.1	0	1	33
Georgetown	.1	0	1	10
Lafayette	.1	0	1	33
Syracuse	.1	0	1	50
Total	123.2	184	1,416	46

of the list hitherto held by Johns Hopkins. Columbia with 21 degrees takes the third place, held last year by Harvard. Pennsylvania, with 18 degrees, much exceeds any previous year, and Yale and Cornell with 16 and 15 degrees, respectively, surpass their records in all but one year. Harvard and Johns Hopkins, on the other hand, show losses. These figures have, however, no considerable significance, as chance fluctuations of this size are likely to occur. The last column shows the percentages of the degrees which were in the sciences, there being considerable differences in the different institutions. Thus at Cornell and Johns Hopkins nearly 60 per cent. of the degrees are in the sciences, whereas, at Harvard, Yale and Columbia the percentage is about forty. At Clark it is ninety; at New York University it is nine and at Boston University two.

TABLE III

	Average of 10 Years 1898–1907	1908	Total for 11 Years 1898–1908
Chemistry	32.0	54	374
Physics	15.5	22	177
Zoology	14.7	25	172
Psychology	13.4	23	157
Mathematics	12.1	23	144
Botany	12.6	11	137
Geology	7.1	5	76
Physiology	4.1	7	48
Astronomy	3.4	1	35
Paleontology	1.6	1	17
Bacteriology	1.4	1	15
Anthropology	1.0	4	14
Agriculture	1.0	2	12
Anatomy	.9	2	11
Engineering	.8	0	8
Mineralogy	.6	0	6
Pathology	.5	2	7
Metallurgy	.3	0	3
Geography	.1	1	2
Meteorology	.1	0	1
Total	123.2	184	1,416

In Table III. the details for the several sciences are given. Chemistry shows a marked increase over any preceding year with as usual about double as many degrees as physics and zoology. Psychology, mathematics and botany follow closely, and there is then a drop to geology, physiology and astronomy. As has been noted in previous reports no strict line can be drawn between the natural and exact sciences, on the one hand, and philosophy, history and the languages, etc., on the other. The scientific method is increasingly applied in these subjects, and this tendency is probably more evident in the doctors' theses than elsewhere. The number of degrees given in these subjects this year was as follows: History, 32; English, 30; philosophy, 25; economics, 17; Germanic languages, 14; Romance languages, 12; Greek, 13; Latin, 12; Oriental languages, 9; political science, 9; education, 6; theology, 7; sociology, 6; law, 1; music, 1.

The institutions which led this year in conferring degrees in the different sciences were as follows: In *chemistry,* Chicago, Johns Hopkins and Pennsylvania, 7 each; in *physics,* Johns Hopkins 7, Yale 6; in *zoology,* Chicago 6, Pennsylvania 5; in *psychology,* Clark 6, Chicago and Columbia 5; in *botany,* Chicago 5; in *mathematics,* Chicago 6, Yale 4; in *geology,* Yale 3.

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:

UNIVERSITY OF CHICAGO

Edith Ethel Barnard: "The Effect of Electrolytes and Non-electrolytes on the Catalysis of Imido Esters."

Katharine Blunt: "A Study in Catalysis: The Formation of Amidines."

Robert Lacey Börger: "On the Determination of Ternary Linear Groups in a Galois Field of Order p^2."

Willey Denis: "On the Behavior of Various Aldehydes, Ketones and Alcohols toward Oxidizing Agents."

June Etta Downey: "Control Processes in

Handwriting; An Experimental Study of Verbal Imagery."

Grace Maxwell Fernald: "The Phenomena of Peripheral Vision as affected by the Brightness of Background and by Dark Adaptation."

Robert Anderson Hall: "A Study in Catalysis: The Formation of Guanidines from Isourea Esters."

Louis Ingold: "Vector Interpretation of Symbolic Parameters."

Nels Johann Lennes: "Curves in Non-metrical Analysis Situs with Applications to the Calculus of Variations and Differential Equations."

Frederick William Owens: "The Introduction of Ideal Elements and Construction of Projective n-space in Terms of a Planar System of Points involving Order and Desargues's Theorem."

Lula Pace: "Fertilization in Cypripedium."

Joseph Peterson: "Ohm's Law in relation to some Secondary Phenomena of Hearing."

Frank Henry Pike: "The Resuscitation of the Respiratory and Other Bulbar Nervous Mechanisms, with special reference to the Question of their Automaticity."

William Horace Ross: "On the Relation between the Radioactivity and the Composition of Thorium and Uranium Minerals."

Louis Agassiz Test: "A Study in Catalysis; The Rearrangement of Ortho-aminophenyl Esters."

Norman Richard Wilson: "Isoperimetrical Problems which are Reducible to Non-isoperimetrical Problems."

George Winchester: "The Effect of Temperature upon the Discharge of Electricity from Metals illuminated by Ultra-violet Light."

Oliver Charles Clifford: "Determination of the Susceptibility of Copper and Tin and their Alloys."

Frederick Valentine Emerson: "The Geographic Interpretation of New York City."

Louis Allen Higley: "The Action of Sodium and of Sodium Alcoholates on Various Esters of Acetic Acid."

Edwin Garvey Kirk: "The Histogenesis of Gastric Glands."

Frank Eugene Lutz: "The Variations and Correlations of the Taxonomic Characters of Gryllus."

Roy Lee Moodie: "Contribution to a Monograph of the North American Extinct Amphibia."

Florence Ella Richardson: "A Study of Sensory Control in the Rat."

Mary Emily Sinclair: "On a Compound Discontinuous Solution connected with the Surface of Revolution of Minimum Area."

Charles Christopher Adams: "The Geographic Variations and Relations of Io."

Mary Blount: "The Early Development of the Pigeon's Egg from Fertilization to the Organization of the Periblast."

Leonas Lancelot Burlingame: "Staminate Cone of Podocarpus."

Wallace Craig: "Expression of the Emotions in the Pigeons."

Reginald Ruggles Gates: "A Study of Reduction in *Œnothera rubrinervis*."

Herbert Marcus Goodman: "Active and Passive Immunity to Diphtheria Toxin."

Leroy Harris Harvey: "The Prairie Grass Formation of Southeastern South Dakota."

John Thomas Patterson: "Gastrulation in the Pigeon's Egg."

Charles Houston Shattuck: "Origin of Heterospery in Marsilia."

Ralph Edward Sheldon: "The Olfactory Tracts and Centers in Fishes."

George Washington Tannreuther: "History of the Germ Cells and Early Embryology of Certain Aphids."

Clarence Stone Yoakum: "An Experimental Study of Mental Fatigue."

COLUMBIA UNIVERSITY

Warner Brown: "Time in English Verse Rhythm."

Frank G. Bruner: "The Hearing of Primitive Peoples."

Gertrude Simmons Burlingham: "A Study of the Larctariæ of the United States."

Elizabeth Buchanan Cowley: "Plane Curves of the Eighth Order having Two Fourfold Points with Distinct Tangents and no other Point Singularities."

Norman Edward Ditman: "Opsonins and Vaccines in Medicine and Surgery."

Claude Russell Fountain: "The Spherical Emission of a Righi Vibrator."

Sven Froeberg: "The Relation between the Magnitude of the Stimulus and the Time of Reaction."

Francis Marion Hamilton: "The Perceptual Factors in Reading."

Eric Higgins: "The Temperature Coefficient of the Weight of a Falling Drop as a Means of Estimating the Molecular Weight and the Critical Temperature of a Liquid."

Homer Doliver House: "North American Species of the Genus *Ipomœa*."

Elmer Ellsworth Jones: "A Comparison of

Mental States in the Horizontal and Vertical Positions of the Body."

Farel Louis Jouard: "3-Amino-*o*-Phthalic Acid and Certain of its Derivatives."

Robert Harry Lowie: "The Test-theme in North American Mythology."

Daniel Ralph Lucas: "Physiological and Pharmacological Studies of the Ureter (III.)."

Clarence Earl May: "Oxygen Ethers of the Type —N:C·(OR), derived from Certain Nitrogen Heterocycles."

Arnold William Meyer: "The Determination of Diastatic Power by the Saccharification of Soluble Starch."

Leighton B. Morse: "The Selective Reflection of Salts of Carbonic and other Oxygen Acids."

Matthew Steel: "The Influence of Magnesium Sulphate on Nitrogenous Catabolism in Dogs, with Special Reference to the Distribution of Nitrogen among the Constituents of the Urine."

Reston Stevenson: "The Weight of a Falling Drop and the Laws of Tate. The Determination of the Molecular Weights and Critical Temperature of Liquids by the Aid of Drop Weights."

Frederick Seymour Weingarten: "The Influence of Internal Hemorrhage on Chemical Changes in the Organism, with particular reference to Proteid Catabolism."

William Henry Welker: "Some Observations on the Excretion of Nitrogenous Substances in the Urine of Dogs under Conditions of Diminished Oxidation induced by Potassium Cyanide."

UNIVERSITY OF PENNSYLVANIA

William Milton Barr: "A Study of the Spectrum and Bromides of Columbium."

William Blum: (*A*) "Experiments on the Atomic Weight of Cadmium." (*B*) "Derivatives of Complex Inorganic Acids."

James Edmund Bryan: "A Statistical and Clinical Study of the Children in the Elementary Schools in the City of Camden, New Jersey, in the School Year 1905–6, with a view to determining the Extent and Conditions of Retardation."

George Gailey Chambers: "The Groups of Isomorphisms of the Abstract Groups of Order p^2q."

Harold Sellers Colton: "Some Effects of Environment on the Growth of *Lymnæa columella* Say."

Margaret Harris Cook: "Spermatogenesis in Lepidoptera."

Lloyd Cadie Daniels: "Some New Derivatives of Complex Inorganic Acids."

Harrison Hale: "An Electrolytic Method of Analyzing Zinc Ores."

Jacob Daniel Heilman: "A Clinical Study of One Thousand Retarded or Over-age Children in the Public Schools of Camden, New Jersey."

Mary Elizabeth Holmes: "The Use of the Rotating Anode in Electrolytic Separations."

Merkel Henry Jacobs: "The Effects of Desiccation on the Rotifer *Philodina roseola*."

George Irving Kemmerer: "The Atomic Weight of Palladium."

Jacob Buehrle Krause: "The Modification of the Reaction-time due to Variation of the Preparation."

Herbert Guy Kribs: "The Behavior of Æolosoma."

John Ahlum Schaeffer: "Double Fluorides of Titanium."

Frank Gouldsmith Speck: "Ethnology of the Yuchi Indians."

Charles Vuilleumier: "The Distribution of the Values of Reactions to Sound in Twenty-four Hundred Consecutive Reactions with Each of Four Subjects."

Louise Baird Wallace: "The Spermatogenesis of *Agalena nævia*."

JOHNS HOPKINS UNIVERSITY

Marshall Perley Cram: "The Fractionation of Crude Petroleum by Capillary Filtration."

Ernest Elisha Gorsline: "A Study of the Claisen Condensation."

John Sharshall Grasty: "The Limestones of Maryland."

Lars Olai Grondahl: "Synchronous Commutation as a Method for Transformation from Alternating to Direct Current."

David Vance Guthrie: "The Ultra-violet Absorption Spectra of Certain Metallic Vapors and their Mixtures."

Felix Edward Walsh Hackett: "The Resonance and Magnetic Rotation Spectra of Sodium Vapor."

Herbert Eugene Ives: "An Experimental Study of the Lippmann Color Photograph."

Carl Alfred Jacobson: "The Conductivity and Ionization of Electrolytes in Aqueous Solutions as conditioned by Temperature, Dilution and Hydrolysis."

Edward G. Mahin: "Conductivity and Viscosity of Dilute Solutions of Lithium Nitrate and Cadmium Iodide, in Binary and Ternary Mixtures of Acetone with Methyl Alcohol, Ethyl Alcohol and Water."

Brainerd Mears: "The Osmotic Pressure of Cane Sugar Solutions at 15° Centigrade."

Harmon Vail Morse: "The Osmotic Pressure of Cane Sugar Solutions at 10°."

Edward Charles F. Phillips: "On the Pentacardioid."

Harvey Clayton Rentschler: "Dispersion of Gases."

William Frederick Schulz: "The Effect of a Magnetic Field upon the Absorption Spectra of Certain Rare Earths."

William Walker Strong: "Ionization in Closed Vessels."

James McIntosh Johnson: "Studies in Catalysis."

Ivey Foreman Lewis: "The Life History of *Griffithsia bornetiana*."

YALE UNIVERSITY

Stanley Rossiter Benedict: "Experimental Studies on the Metabolism of Magnesium and Calcium."

Earl Gordon Bill: "An Apriori Existence Theorem for Three Dimensions in the Calculus of Variations."

Theodore Harding Boggs: "The Influence exerted by the United Empire Loyalists on the Life and Politics of Nova Scotia and New Brunswick."

Walter Minor Bradley: "The Analysis and Chemical Composition of the Mineral Warwickite."

Samuel Hopkins Clapp: "Researches on Pyrimidine Derivatives."

William Allen Drushel: "The Quantitative Estimation of Potassium."

Frank Nugent Freeman: "The Habit of Handwriting and its Development, an Experimental Study."

Ruth Sawyer Harvey: "Drainage and Glaciation in the Central Housatonic Basin."

Frederick William Heyl: "Researches on Pyrimidines."

Francis Jerome Holder: "Multiple Series."

Francis Baker Laney: "The Gold Hill Mining District of North Carolina" (2 parts, texts and maps).

Ernest Barnes Lytle: "Multiple Integrals over Iterable Fields."

Howard Douglass Newton: "On some New Relations of Titanium in Analysis: The Volumetric Estimation of Titanium, of Iron in Presence of Titanium, and of Iron and Vanadium after Reduction with Titanous Sulphate."

Perry Blaine Perkins: "A Determination of the Molecular Weight of Radium Emanation by comparing its Rate of Diffusion with that of Mercury Vapor."

Freeman Ward: "Geology of the New Haven-Branford Region."

Euphemia Richardson Worthington: "Some Theorems on Surfaces."

CORNELL UNIVERSITY

Joseph Herschel Coffin: "An Analysis of the Action Consciousness based on the Simple Reaction."

Clyde Firman Craig: "On a Class of Hyperfuchsian Functions."

Herbert Grove Dorsey: "Coefficient of Linear Expansion at Low Temperatures."

Claude Wilbur Edgerton: "Studies on the Physiology and Development of some Anthracnoses."

Willard James Fisher: "The Temperature Coefficients of Gas Viscosity."

Percy Hodge: "An Experimental Study of Photo-active Cells with Fluorescent Electrolytes."

Reuben Edson Nyswander: "The Absorption and Reflection of Calcite and Aragonite for Infrared Rays as dependent upon the Plane of Polarization."

Clarence Albert Pierce: "Thermo-phosphorescence."

Carl George Schluederberg: "Actinic Electrolysis."

George Daniel Shafer: "Structure and Development of the Eyes of Certain Spiders."

John William Turrentine: "Contributions to the Chemistry of Hydrazine."

Anna Lavinia Van Benschoten: "The Birational Transformations of Algebraic Curves of Genus Four."

Paul J. White: "An Agricultural Survey of Tompkins County, New York."

Frances Gertrude Wick: "Some Electrical Properties of Silicon."

Albert Hazen Wright: "The Anura of Ithaca."

HARVARD UNIVERSITY

Percy Williams Bridgman: "Mercury Resistance as a Pressure Gauge."

Manton Copeland: "Spermatogenesis in Apis and Vespa."

Harry Louis Frevert: "Investigations in Chemical Thermodynamics."

Eliott Park Frost: "The Psychology and Correlation of Individual Differences."

Frank Irwin: "The Invariants of Linear Differential Expressions."

Grinnell Jones: (I.) "The Atomic Weights of Sulphur and Phosphorus." (II.) "The Compressibilities of certain Salts."

Joseph Abraham Long: "The Maturation of the Egg of the Mouse."

Joseph Howard Mathews: "A Study of Compressibility and its Relation to various other Physical Properties of certain Organic Compounds."

Charles Napoleon Moore: "On the Theory of Convergence Factors and some of its Applications."

Rollin Clarke Mullenix: "The Peripheral Terminations of the Eighth Cranial Nerve in Vertebrates, especially in Fishes."

Arthur Sperry Pearse: "The Reactions of Amphibians to Light."

Conrad Louis Benoni Shuddemagen: (I.) "The Demagnetizing Factors for Cylindrical Iron Rods." (II.) "A Study of Residual Charge in Dielectrics."

John Hunt Wilson: (I.) "A Revision of the Atomic Weight of Lead." (II.) "Energy Changes involved in the Dilution of Amalgams of Thallium, Indium and Tin."

CLARK UNIVERSITY

Ernest William Coffin: "On the Education of Backward Races."

Herbert Burnham Davis: "The Raccoon: A Study in Animal Intelligence."

Charles Wilson Easley: "Partial Vapor Tensions of Binary Mixtures."

Willis Lloyd Gard: "Some Neurological and Psychological Aspects of Shock."

James William Harris: "The Development of the Esthetic Interest in Children."

Newton Miller: "The Biology of the American Toad."

George Ordahl: "Rivalry; its Genetic Development and Pedagogy."

Caroline Amelia Osborne: "The Sleep of Infancy as related to Physical and Mental Growth."

William Louis Prager: "Steric Hindrances in Esterification."

Hermon Lester Slobin: "On Plane Quintic Curves."

Jesse Hayes White: "Relations of the Racial and Individual Social Instincts."

UNIVERSITY OF WISCONSIN

Alfred Newton Cook: "Phenyl Ether and some of its Derivatives."

Robert Wilhelm Hegner: "The Early Development of the Germ Glands of some Chrysomelid Beetles."

Warren DuPré Smith: "Coal Deposits of Batan Island."

Charles Austin Tibbals: "A Study of the Tellurides."

Charles Taylor Vorhies: "Studies on the Trichoptera of Wisconsin."

Henry Charles Wolff: "The Continuous Plane Motion of a Liquid bounded by Two Right Lines."

INDIANA UNIVERSITY

Walter Louis Hahn: "The Habits and Reactions of the Cave Bats."

Dennis Emerson Jackson: "Some Experimental Observations upon the Prolonged Existence of Adrenalin in the Blood."

Mrs. Effa Funk Muhse: "The Cutaneous Glands of the Toad."

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

George Alonzo Abbott: "A Physico-chemical Study of Ortho- and Pyro-phosphoric Acids and of their Sodium and Ammonium Salts."

Charles Angus Kraus: "Solutions of Metals in Non-metallic Solvents."

Edward Wight Washburn: "Ionic Hydration and True Transference Numbers."

PRINCETON UNIVERSITY

Fay Cluff Brown: "The Ions emitted from Platinum and their Kinetic Energy."

George MacFeely Conwell: "The 3-space P. G. (3, 2) and its Group."

Lionel Herman Duschak: "Studies of the Silver Coulometer."

BROWN UNIVERSITY

Maurice Louis Dolt: "The Action of Acetic Anhydride on para Methoxy Phenyl Propiolic Acid, and on Methylene Ether of 3-4 Dihydroxy Phenyl Propiolic Acid."

Philip Bardwell Hadley: "The Development and Behavior of the American Lobster."

UNIVERSITY OF CALIFORNIA

Samuel Alfred Barrett: "Pomo Indian Basketry."

James Grant Davidson: "Function of the Electrodes in Conduction through Flames and Gases."

GEORGE WASHINGTON UNIVERSITY

Frank Cummings Cook: "Phosphorus Metabolism Experiments."

Clara Southmayd Ludlow: "The Mosquitoes of the Philippine Islands; the Distribution of Certain Species and their Occurrence in Relation to the Incidence of Disease."

UNIVERSITY OF MISSOURI

Charles Brooks: "The Fruit Spot of Apples; a Morphological and Physiological Study."

Caroline McGill: "The Structure of Smooth Muscle in the Resting and in the Contracted Condition."

LELAND STANFORD JUNIOR UNIVERSITY

William Draper Harkins: "Papers on Smelter Smoke."

Mary Isabel McCracken: "Studies in Heredity."

UNIVERSITY OF VIRGINIA

William Allison Kepner: "The Nutrition of the Ovum of *Scolia dubia*."

John Jennings Luck: "The Structures of the Non-integrable Groups of Seven Parameters."

BRYN MAWR COLLEGE

Helen Elizabeth Schaeffer: "A Study of the Electric Spark in a Magnetic Field."

DARTMOUTH COLLEGE

Leland Griggs: "The Early Development of the Nervous System of Amblystoma."

UNIVERSITY OF MICHIGAN

John Serenus Bordner: "The Longitudinal Traction on the Formation of Mechanical Tissue in Plant Stems."

UNIVERSITY OF MINNESOTA

Henry Anton Erikson: "The Ionization of Gases at High Pressures."

UNIVERSITY OF NEBRASKA

Leroy Dey Swingle: "The Development of a Herpetonionadine Parasite of the Sheep-tick." "The Embryology of *Myosurus minimus*."

NEW YORK UNIVERSITY

Martin A. Rosanoff: "Determination of Chlorides and Bromides in the presence of Cyanides."

VANDERBILT UNIVERSITY

James Harrison Scarborough: "The Computation of the Orbit of Planet."

WASHINGTON UNIVERSITY

Henri Theodore Antoine Hus: "An Ideal Ecological Cross-section of the Mississippi River in the Vicinity of St. Louis, Mo."

WASHINGTON AND LEE UNIVERSITY

Mosby Garland Perrow: "Determination and Comparison of the Atomic Volume Contraction in the Isomorphous Series, $R'M'''(SO_4)_2 \cdot 12H_2O$ and $R_2'M''(SO_4)_2 \cdot 6H_2O$."

SCIENTIFIC NOTES AND NEWS

DR. L. H. BAILEY, of Cornell University, has consented to accept the chairmanship of the commission appointed by President Roosevelt to report upon the social and economic conditions of agricultural life.

OXFORD University will confer the degree of doctor of science on Professor Svante Arrhenius and on Dr. Vernon Harcourt on October 8, on the occasion of the celebration of the jubilee of the University Museum.

ON the occasion of the recent unveiling of the Bunsen monument at Heidelberg, honorary doctorates were conferred on Professor Adolf von Baeyer, and on Professor J. H. van't Hoff.

A COMMITTEE has been formed in England to present a national testimonial to Mr. Francis George Heath in recognition of his labors in arousing public interest in the preservation of open spaces, woods and forests.

THE staff of the Division of Pharmacology of the Hygienic Laboratory, Washington, D. C., has been enlarged by the following appointments: Dr. W. H. Schultz, formerly instructor in physiology and pharmacology, University of Missouri; Dr. Worth Hale, formerly instructor of pharmacology, University of Michigan; Dr. M. G. Motter, formerly professor of physiology at Georgetown University and secretary of the Board of Trustees of the United States Pharmacopœia, and Mr. W. I. Wilbert, formerly of the German Hospital, Philadelphia. The addition to the Hygienic Laboratory, provided for by congress a year ago, is nearing completion; it will enable the laboratory to extend its work considerably.

MR. GEORGE L. FAWCETT, for three years laboratory assistant in the United States Subtropical Laboratory at Miami, Florida, has been transferred to the Porto Rico Experiment Station at Mayaguez, where he is to be