THE NATIONAL ACADEMY OF SCIENCES

AT the autumn meeting, held at Cornell University, Ithaca, N. Y., the scientific program was as follows:

MONDAY, NOVEMBER 12

Morning Session

Welcome by President Farrand.

Some unexpected results of the heteroplastic transplantation of limbs: ROSS G. HARRISON.

The structure of the eye as an index of developmental deficiencies: CHARLES R. STOCKARD.

Some seasonal variation of vitamines: GEORGE W. CAVANAUGH (introduced by L. H. Bailey).

The effect of X-rays on the linkage of Mendelian characters: JAMES W. MAVOR (introduced by W. E. Castle).

Electrical resistance and thermo-electric power of the alkali metals: C. C. BIDWELL (introduced by Ernest Merritt).

Evening Session

Public Lecture, under the joint auspices of the Academy and the Alpha Chapter of the Society of Sigma Xi.

The origin and distribution of Andean bird life: FRANK M. CHAPMAN.

TUESDAY, NOVEMBER 13

Morning Session

Biographical notice of Henry Marion Howe (by title): GEORGE K. BURGESS.

Stereoisomeric styryl derivatives of some 4-quinazolone alkyl iodides and their bearing upon the problem of photosensitizing dyes: M. T. BOGERT and HELEN CLARK.

The expansion of a frequency function and some comments on curve fitting: EDWIN B. WILSON.

Note on an experimental problem of the late A. G. Webster: F. L. HITCHCOCK (communicated by Edwin B. Wilson).

On the wave-lengths of scattered X-rays: GEORGE L. CLARK and WILLIAM DUANE.

Unimolecular films of adsorbed gases: HUGH S. TAYLOR (introduced by G. A. Hulett).

Germanium: L. M. DENNIS (introduced by W. D. Bancroft).

Halogenoids: A. W. BROWNE (introduced by W. D. Bancroft).

Substantive dyes: T. R. BRIGGS (introduced by W. D. Bancroft).

Structural colors in beetles: C. W. MASON (introduced by W. D. Bancroft).

Afternoon Session

Retarded effectiveness of introduced parasites: L. O. HOWARD.

A theory as to long-time pandemic cycles of influenza: OTTO R. EICHEL (introduced by Raymond Pearl).

Metallic luster: W. D. BANCROFT.

WEDNESDAY, NOVEMBER 14

Morning Session

Presentation of Scientific Papers.

Biological studies of the Bremidae (by title): THEODORE H. FRISON (introduced by Stephen A. Forbes).

The paleobotany of the island of Trinidad. A preliminary announcement: EDWARD W. BERRY.

An aberrant F_2 ratio for the starchy-sugary endosperm factor pair in maize: R. A. EMERSON (introduced by L. H. Bailey).

The photo-luminescence of flames: EDWARD L. NICHOLS.

The effect of temperature on X-ray absorption coefficients: H. S. READ (introduced by Ernest Merritt).

Resistance temperature coefficients of thin platinum films obtained by kathodic sputtering: F. W. REYNOLDS (introduced by E. L. Nichols).

THE AMERICAN CHEMICAL SOCIETY

DIVISION OF CHEMISTRY OF MEDICINAL PRODUCTS

SYMPOSIUM: *The Chemistry of Glandular Products:* E. C. KENDALL, *Thyroxin;* T. B. ALDRICH, *Adrenalin;* H. A. SHONLE, *Insulin;* FRANK O. TAYLOR, *Pituitary extract.*

A study of the sodium salts of nucleic acid: ADRIAN THOMAS. The sodium nucleates were prepared from a nucleic acid obtained from wheatgerms. The acid was dissolved in solutions of sodium hydroxide and precipitated by pouring into alcohol, to which had been added some neutral sodium acetate to prevent emulsification. Sodium nucleates were prepared containing as a maximum eight atoms of sodium, assuming the molecule to contain four atoms of phosphorus. If potassium acetate is used in place of the sodium acetate some of the sodium is replaced by potassium. Upon using ammonium acetate instead of sodium or potassium acetate a decrease in the sodium content of the salt is found, but only a part of the sodium which is lost is replaced by ammonium. Apparently a hydrogen-sodium-ammonium salt is formed.

Butesin picrate, a new type of anesthetic-antiseptic: F. K. THAYER. Butesin picrate is the picric acid salt of butyl paraminobenzoate. There is combined in a definite chemical compound both antiseptic and anesthetic action. In an aqueous solution with a concentration of 1 part in 1,400 it produces immediate and complete anesthesia upon the eye, which lasts from ten to twenty minutes. It exerts antiseptic action and, in many cases, germicidal action against various common bacteria, in concentrations of 1:400 to 1:800. Butesin picrate is non-toxic and not irritating to the most sensitive surfaces. Incorporated into an ointment it is useful in the treatment of painful, denuded skin areas, particularly in cases of burns.

The synthesis of new cinchophen (atophan) types and incidental compounds (by title): MARSTON T. BOGERT and F. P. NABENHAUER. Cinchophens containing the quinazoline nucleus have been synthesized as follows: (1) o-aminoacetophenone to o-acetamino acetophenone, to acetyl isatinic acid, to 2-methylquinazoline-4-carboxylic acid; (2) isatine to benzyl isatinic acid, to 2-phenylquinazoline-4-carboxylic acid (A); (3) o-phthaloylamino acetophenone to phthaloyl isatinic acid, to 2-(o-carboxyphenyl) quinazoline-4-carboxylic acid (B). Of these, (A) is strictly analogous structurally to Cinchophen, except that it carries the Ph and COOH groups

on a pyrimidine instead of a pyridine nucleus. (B) resembles (A), but carries an additional COOH in o-position on the 2-Ph group. The physiological effects of these new compounds are being tested. Incidentally, many new intermediate and related products were also prepared and will be described in the published article.

The antiseptic action of the zinc chloride salt of aniline: J. W. HOWARD and F. D. STIMPERT. This salt was prepared by combining zinc chloride and aniline in molecular quantities and extracting the reaction mixture with boiling 95 per cent. alcohol. Softens at 230° C, melts at 255° C. Solubilities: at 20° C, 0.64 grms. in 100 cc H_2O; 0.87 grms. in 100 cc 0.4 HCl; 0.066 grms. in 100 cc 95 per cent. alcohol. V. slightly sol in CS_2, $CHCl_3$, C_6H_6, $(C_2H_5)_2O$. More sol. in CH_3OH and acetone. Slowly decomp. by 3N Na_2CO_3, readily by 1N NaOH or boiling H_2O. Studies on Staphylococcus aureus indicate aniline has about 5 times the disinfectant power of $ZnCl_2$. The salt $(C_6H_5NH_2)_2\ ZnCl_2$ in 0.6 per cent. soln. retards growth up to 25 mins. and will destroy in 30 minutes. Comparing with aniline and zinc chloride of the same conc. it shows a stronger antiseptic action.

Some chemical reactions of the pancreatic substance containing insulin (lantern): HORACE A. SHONLE and JOHN H. WALDO. The pancreatic substance containing insulin gives, after thorough purification, the following reactions: Biuret, xanthoproteic, Millon's, Ehrlich's diazo, reduced sulfur and Folin and Looney's reaction for tyrosine and cystine. The Molisch and glyoxylic reactions are negative. Neither phosphorus nor purines can be detected and the amino acid content is very low. This substance is soluble in dilute acids and alkalies. Its solution is laevo rotatory. The physiologically active portion dialyzes slowly through parchment paper, and can be precipitated by protein precipitants in such a state that it usually can be recovered from the precipitate. The C, H and N content of the purest preparations approximates that of protein. The data secured indicate that the active principle is either a proteose or that it is closely bound to a proteose.

Studies of the vitamin potency of cod liver oil—VII—The potency of hake liver oil (lantern): ARTHUR D. HOLMES. To secure data concerning the relative vitamin potency of cod and hake liver oils, tests were made of hake liver oil known to be true to name. Nine young albino rats were given hake liver oil in amounts varying from .00025 grams to .005 grams daily. Four animals received less than one milligram of oil daily and failed to recover from vitamin A starvation. Five animals received from one to five milligrams of hake liver oil daily and recovered, indicating that one milligram of this oil contained sufficient vitamin A to promote growth of young albino rats.

E. H. VOLWILER,
Secretary

SECTION OF THE HISTORY OF CHEMISTRY

F. B. Dains, *chairman*

Lyman C. Newell, *secretary*

Robert Brown and the Brownian movement: LYMAN C. NEWELL. Robert Brown (1773–1858), a Scotch botanist, discovered the movements of minute particles, now called Brownian movements, in 1827 while viewing a water suspension of pollen grains through a simple microscope. Impressed by this observation, he extended his investigation to suspensions of various substances—inorganic and organic, and proved that the movements are not due to anything living in the water nor to currents caused by convection or evaporation, but are fundamental and inherent in the particles. His investigation was first published in the *New Edinburgh Philosophical Journal,* Vol. 5, April–September, 1828, pp. 358–371.

Gulian C. Verplauck's account of alchemy in old New York: C. A. BROWNE. Dr. Browne says very correctly "that within the past few years a sufficient amount of documentary and literary material has been gathered together in different quarters to prepare a volume of considerable size upon the history of alchemy in America," and in the present communication he narrates in a delightful way what he discovered upon ruminating in a publication entitled the "Talisman" for the year 1829. It is the story of Max Lichenstein, who actually conducted a "transmuting laboratory" down in Wall Street, New York. No one would have dreamed such a thing possible, but it was, until he saw fit to migrate, and, adds Verplauck, "I have heard that his furnace has again been seen smoking behind a comfortable stone house in the comfortable borough of Easton, Pennsylvania, a residence which he chose, not merely on account of its cheapness of living, nor its picturesque situation, but chiefly for its neighborhood to Bethlehem, where dwelt a Moravian friend of his, attached to the same mysterious studies."

Ten minutes with the ancients: EDGAR F. SMITH. In this communication attention was called to several famous paintings of eminent alchemists. Pictures of men who traveled through Europe in the interests of alchemy were exhibited, and also the title page of a very famous volume, devoted to alchemy, by Carbonarius, was shown. It was explained how very helpful this publication would be to students of the present who had the inclination and desired to acquaint themselves with the writings of the so-called genuine practitioners of the art of transmutation.

Jacob Green—chemist: EDGAR F. SMITH. This paper records the life-work of a forgotten American chemist who taught his science in Princeton University for four years (1818–1822), and in 1825 became one of the founders of Jefferson Medical College where he was the first professor of chemistry (1825–1841). Green was a splendid example of the old-fashioned, broadly trained teacher. He made worth while contributions in botany, paleontology, natural history, physics and chemistry. His "Chemical Philosophy," in 1829, presented the fundamentals of chemistry in a remarkably lucid fashion. In fact, all of Green's books exhibit his complete grasp of his subject. His interviews with Dalton, Faraday, Gay-Lussac and other sciencific worthies are most illuminating. Green was a superb teacher of chemistry.

Some notes on a "reader of chemical history": EDWARD KREMERS.

LYMAN C. NEWELL,
Secretary