made in 1941. The method of chloride determination was the second official volumetric method described on pages 135–136 in the "Official Methods" (*10*). Two-gram samples of previously dried needles were analyzed in duplicate. The average weight of needles was obtained by weighing samples of 100 needles to permit the calculation of the average absolute amount of chloride per needle.

The data, summarized in Table 1, show that the average percentage of chloride was higher in the samples of diseased needles, but that the corresponding absolute amount of chloride per needle was less in the diseased needles because of their smaller average weight. There appears to be no obvious connection between the "little-leaf" disease in shortleaf pines and the chloride content of the needles.

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News and Notes

AAAS Meeting Notes

The American Microscopical Society will meet with the AAAS in Boston on 26–27 December 1946. The Executive Committee Luncheon will be held at 1:30 P.M. on 26 December at the Statler Hotel, in a room to be announced. The annual meeting of the Society will be called to order in the Hancock Room of the Statler at 4:00 P.M. on Friday, 27 December. Officers of the Society hope for a large attendance of members at this meeting, since certain amendments to the Constitution are to be voted upon at that time.

The Biometrics Section of the American Statistical Association will participate in the meetings of the AAAS, to be held in Boston, 26–31 December 1946. A symposium, sponsored by the Biometrics Section and the Atlantic Fishery Biologists, will be held on Friday morning, 27 December, to discuss the biometric aspects of fish populations. The Friday afternoon session, which will be held jointly with the Ecological Society of America, will deal with the use of mortality table techniques in studying biological populations. Two joint sessions with the Institute of Mathematical Statistics, scheduled for Saturday, will be devoted to a discussion of analysis of variance in biological problems. The Sunday program will consist of two sessions of contributed papers in which both members and nonmembers are invited to take part. Anyone wishing to contribute papers at these sessions should notify Dr. D. B. DeLury, Box 551, Blacksburg, Virginia.

Members wishing to be certain of hotel reservations for the Boston Meeting should make them early. A blank for this purpose will be found on page 9 of the Advertising Section in this issue.

About People

Howard A. Meyerhoff, executive secretary of the AAAS, resigned on 30 October to become a member of a survey party interested in the minerals of the Argentinian Andes. Dr. Meyerhoff, who is on leave of absence as professor of geology from Smith College, expects to be in Argentina for the next six months. He is well known to *Science* readers through his analyses of the legislative situation surrounding the proposal for a National Science Foundation. Shortly before he left he was officially cited by the Board of Directors of the American Psychological Association for his good work in attaining a "realistic compromise."

Theodore Freiser, formerly with the Mellon Institute, was appointed instructor in analytical chemistry at the University of Pittsburgh beginning with the fall semester.

George A. Kelly, formerly of the University of Maryland, has been made professor of psychology at The Ohio State University.

Wayne G. Norton, Eastman Kodak Company, Rochester, received the Adolph Lomb medal from the Optical Society of America on 4 October at the Society's 31st annual meeting at the Pennsylvania Hotel, New York City. The award, made possible by a fund left by Adolph Lomb, treasurer of the Society from its founding until his death in 1932, is made annually "to a person under 30 years of age who shall have made a noteworthy contribution to optics." Mr. Norton, who is 27, was graduated from the University of Rochester in 1941 and has been employed by the Eastman Kodak Company since that time. During

the war he engaged in production engineering, research, design, and development of fire-control instruments, including the heightfinder and rangefinder, produced for the Army and Navy.

L. van Dam, of the Zoological Laboratory, Groningen, Holland, has written to Charles G. Wilber, Fordham University, concerning his internment in Japanese camps at Java during the war and the loss of his entire collection of books and reprints. Dr. van Dam returned to Holland only a few months ago and is anxious to receive reprints and surplus books in the field of physiology.

Fred M. Bullard, professor of geology at the University of Texas, taught courses in geology in the 1946 summer session of the National University of Mexico, Mexico City, for the fourth consecutive season. While in Mexico he continued his studies on the new volcano, Paricutín. Following the summer session, Dr. Bullard made a survey of the active volcanoes of Central America, especially in Guatemala, El Salvador, and Nicaragua, under the sponsorship of the University of Texas Research Institute.

E. Ruffin Jones, Jr., formerly professor of biology, College of William and Mary, has been appointed associate professor of biology at the University of Florida.

Gladys C. Schwesinger has been appointed senior clinical psychologist with the State of California Youth Authority following her release from government service with the War Relocation Authority at Monzanar, California. Her new headquarters will be at Ventura, California.

John O. Hutchens, associate professor of physiology at the University of Chicago, has been appointed chairman of that Department. He will continue as director of the Toxicity Laboratory, of which George H. Mangun has been made associate director.

Emil Heitz, Basel, Switzerland, has been appointed visiting professor of botany, University of Missouri, effective 1 February 1947.

Vernon W. Schaefer, Richard W. Husband, and *George Seeck* have been appointed professor, associate professor, and assistant professor, respectively, in the Department of Psychology, Iowa State College, Ames.

James P. Heath, who was recently released from the Navy, where he served on epidemiological and research staffs, is to join the staff of the Department of Natural Sciences, San Jose State College.

Churchill Eisenhart has been made principal mathematician directly in charge of the statistical work of the National Bureau of Standards, according to E. U. Condon, director of the Bureau. Dr. Eisenhart is on leave of absence during the academic year 1946–47 from the University of Wisconsin, where he is associate professor of mathematics.

Thurlo Bates Thomas, University of Texas, has been appointed professor and chairman of the reorganized Department of Zoological Sciences at Carleton College. The staff of the Department includes: Neil S. Dungay, Frank R. Kille, and Roy A. Waggener, professors, and Olin Sewall Pettingill, Jr., associate professor.

Ernst A. Scharrer, Western Reserve University, has been appointed associate professor of anatomy in the School of Medicine, University of Colorado, Denver.

Lee E. Yeager has been named head of the wildlife research unit program in the Division of Wildlife Research, Department of the Interior's Fish and Wildlife Service. Dr. Yeager, who entered the Service more than a year ago as a biologist in the Office of the Coordinator of River Basin Studies, in his new post will also serve as liaison officer on Pittman-Robertson research projects to correlate scientific data acquired through expenditure of Federal aid in wildlife restoration funds. Work of the wildlife research units is conducted cooperatively between the Fish and Wildlife Service, 10 land-grant colleges, state game or conservation departments, and the American Wildlife Institute. Units have been established in the principal natural wildlife regions of the country to conduct investigations to furnish the scientific foundation upon which practical wildlife restoration and management practices can be based.

Ludwik Anigstein, professor of preventive medicine, University of Texas School of Medicine, has completed a four-month lecture tour in Poland as UNRRA lecturer on communicable diseases.

Harold Chatland and *Charles W. Vickery* have been appointed associate professors in the Department of Mathematics, The Ohio State University.

C. Lloyd Claff, Randolph, Massachusetts, presented a lecture on "Survival Mechanisms in Protozoa" at the Edward Martin Biological Laboratory, Swarthmore College, on 18 October.

James E. McCormack has been appointed assistant dean of the New York University College of Medicine.

Edward A. Ackerman, Department of Geography, Harvard University, is on a year's leave in Japan to act as technical coordinator and research supervisor. He recently contributed two of nine papers in a publication entitled "Japan's Prospect." Thomas R. Smith, formerly chief, Far Eastern Section, Division of Map Intelligence and Cartography, Department of State, will act as visiting lecturer during Prof. Ackerman's absence.

Announcements

President Truman has appointed a Presidential Research Board headed by Reconversion Director John R. Steelman, who is charged with the responsibility of reporting on the present status of Federal research programs and making recommendations with respect to improving the coordination and the efficiency of scientific research in the Federal Government.

By the Executive Order signed on 17 October Mr. Steelman is also directed to relate his findings on "non-Federal research, development, and training activities." He is also to make "recommendations for planning, administering, and staffing Federal research programs to insure that the scientific personnel, training, and research facilities of the Nation are used most effectively in the national interest."

The President's statement, which accompanied his Executive Order, said:

> National security and the development of the domestic economy depend upon the extension of fundamental scientific knowledge and the application of basic principles to the development of new techniques and processes. The Nation has a vast reservoir of war-accelerated technological development which must be applied speedily and effectively to the problems of peace—stepping up productivity in both industry and agriculture, creation of new farm and factory products, and advancement of medical science. Fundamental research, necessarily neglected during the war, must be resumed if scientific progress is to continue.
>
> The Federal Government has played and will play an important role in all areas of research, but the share of our national income which can be devoted to research has definite limits. The order lays the groundwork for a general plan designed to insure that Federal scientific research will promote the most effective allocation of research resources between the universities, the research foundations, industry, and the Federal Government.

Mr. Steelman is to be advised in his task by those government agencies that are active in research. Specifically named were the Secretary of Agriculture, the Secretary of Commerce, the Secretary of the Interior, the Secretary of the Navy, the Secretary of War, the Federal Loan Administrator, the Federal Security Administrator, the Federal Works Administrator, the Director of the Office of Scientific Research and Development, the Chairman of the Federal Communications Commission, the Chairman of the Tennessee Valley Authority, and the Chairman of the National Advisory Committee for Aeronautics, each of whom may designate a full-time member of his staff as alternate to act in his stead.

The University of Hawaii announces that Robert W. Hiatt, associate professor of zoology, has been appointed chairman of the Department of Zoology and Entomology. New appointees to the Department include: Albert H. Banner, marine zoologist recently released from duty with the 20th Air Force, Pauline Heizer, cytologist, and Gordon B. Mainland, geneticist, all assistant professors of zoology; and Donald C. Matthews, visiting professor of zoology.

A. Irving Hallowell, Department of Anthropology, Northwestern University, directed the work of six graduate students (Erika Eichhorn, Beatrice Mosner, Blanche Watrous, Ruy Coelho, Melford Spiro, from Northwestern University, and William Caudill, University of Chicago) who participated in a field project at Lac du Flambeau, Wisconsin, during the months of July and August. The project had a dual aim: (1) to collect data pertaining to the psychological effects of acculturation upon a group of Ojibwa Indians, and (2) to provide field experience for the students in the general area of culture and personality studies, particularly in the use of various projective techniques. Previous investigations of Prof. Hallowell among Canadian Indians with the same linguistic and cultural background who, during approximately the same period of time as the Ojibwa of northern Wisconsin, have remained much closer to their aboriginal mode of life, will provide a base line against which the results of the more accelerated changes at Lac du Flambeau can be measured.

Field headquarters were set up in a private summer home located on a wooded point overlooking the lake. Since funds were available only for traveling expenses, incidentals, and payment to informants, rent and living expenses were borne by the students themselves.

The projective technique employed to secure basic psychological data on individuals were the Rorschach and Thematic Apperception Tests. A large number of free drawings were also obtained. Supplementary information included life-history material, social and economic facts relevant to the contemporary situation, and some ethnographic data. Of a resident Indian population of approximately 800 individuals, 265 persons, ranging from under 6 to 80 years of age, comprise the total sample of those about whom some sort of data is on record. The most systematic information was obtained upon 100 children from 6 to 16 years of age. This included Rorschach and Thematic Apperception Test protocols, drawings in most cases, and information from school records.

Vinyl butyral plastic, long used as an interlayer material in safety glass, is ready for a broad-scale entry into the textile coating field, according to an announcement by the Monsanto Chemical Company. Describing the development as one which may ultimately enrich and simplify the lives of millions of housewives, Monsanto claims that it will make possible

such items as stainproof tablecloths, furniture slip-covers immune to ink, and draperies that can be wiped clean with a damp cloth. In sharp contrast with familiar rubberized or oilcloth-type coatings, the new application affords resistance to stains and water while allowing the fabric to retain much of its original appearance and touch qualities.

In the mill application process, there is bonded to the fabric a thin, almost invisible coating of flexible and transparent vinyl butyral—so tightly adhering that it will not chip or peel under normal usage, and so inconspicuous that only an expert can visually distinguish a properly coated cloth from an untreated companion cloth. Some merchandizing experts have expressed the opinion that the protective plastic makes the cloth more desirable and attractive from the standpoint of appearance, contending that it gives it a freshly-starched look and that it accentuates the brilliance of color patterns.

First plastic-protected articles to reach consumers will be gaily printed luncheon cloths, which are to be sold very shortly by a New York department store. Home tests conducted by Monsanto employees indicate that the luncheon cloths can be used continuously from 6 to 8 weeks, with a sponge-off after each meal, before the untreated underside picks up enough dust to require laundering.

Early in 1942 the Nation was without adequate supplies of rubber for textile coating purposes, while Monsanto—due to cutbacks in auto production—had a surplus capacity for production of vinyl butyral. Monsanto scientists collaborated with technologists of other companies (notably those of the Hodgman Rubber Company) to perfect an application technique whereby vinyl butyral could be calendered or spread-coated onto fabrics on existing mill equipment. The result was a coating of lighter weight, greater durability, more attractive appearance, and superior resistance to temperature extremes. It is estimated that some 26,000 miles of yard-wide fabric were coated with vinyl butyral for the armed services, principally for rain wear.

Since V-J Day the plastic and the process methods have undergone constant refinements. These have been directed mainly toward the goal of imparting waterproofness with minimum change in feel, texture, and appearance. It was stated that the plastic-protected fabrics will involve a slight cost increase, but this will be offset many times over by the functional advantages added.

Monsanto emphasized that it neither supplies fabrics, coats textiles, nor sells the finished material. Its function is merely that of a supplier of the plastic and of the technical knowledge required to apply it.

Organization of a Survey Research Center, to provide facilities for social and economic research and for student training in survey techniques, has been announced by the University of Michigan. The Center will be used to conduct surveys for governmental and commercial agencies on problems of economic, social, and psychological interest. The surveys will be conducted by detailed interviews on samples representing a national cross-section as well as on samples of small areas or regions or of special groups.

General policy for the new Center will be set by a University Executive Committee whose members are: Vice-President M. L. Niehuss, Russell A. Stevenson, dean of the School of Business Administration, R. C. Angell, A. W. Bromage, E. M. Hoover, and D. G. Marquis.

Rensis Likert, who has been appointed professor of psychology and sociology, is to be the director of the Center. The assistant director is Angus Campbell, newly appointed associate professor of sociology and psychology. Charles Cannell will be chief of the field staff; George Katona, research associate; and Eleanor Maccoby, study director. All were formerly in the Division of Program Surveys, U. S. Department of Agriculture.

The Department of Zoology, Columbia University, has announced the following appointments: Franz Schrader, executive officer; Teru Hayashi, of the University of Missouri, instructor in charge of the extension teaching of the Department; and Aubrey Gorbman, of Wayne University, assistant professor of zoology at Barnard College.

The potential brilliance of color television pictures has been increased 11 times over that in January as a result of the development and use of a new set of color filters and an increase in the number of frames per second, Peter C. Goldmark, director of Engineering Research and Development, Columbia Broadcasting System, said in a report to the National Electronics Conference in Chicago on 3 October. The meeting was sponsored by the Illinois Institute of Technology, Northwestern University, University of Illinois, and American Institute of Electrical Engineers, with the cooperation of the Chicago Technical Societies Council.

The new filters alone permit an increase of two and one-half times in picture illumination. An increase in the color frame rate to 48 per second from the 40-frame rate used at the outset of this year itself permits an increase in brilliance of four and one-half times. In combination, the new filters and frame rate produce the 11-fold improvement.

In his paper on "Color Television—Latest State of

the Art," Dr. Goldmark discussed fundamental considerations of the theory behind color television and said that the CBS color television system permits results which surpass current photographic methods of reproducing color.

Progress Thru Research, a new magazine published by the Research Laboratories of General Mills, Inc., appeared on 1 October. Subsequent issues, to be published quarterly, will carry reports of General Mills' research activities, new products, new methods, and semipopular informational articles on scientific subjects.

The first issue contained an article on industrial uses of lecithin, a review of General Mills' research expansion program, and the details of their formula for calculating the storage life of cereal products. Copies will be distributed free within the continental limits of the United States; requests should be addressed to: General Mills Research Laboratories, 2010 East Hennepin Avenue, Minneapolis 13, Minnesota.

The Department of Physics, Vanderbilt University, Nashville, Tennessee, announces that Carl K. Seyfert, formerly of the Warner and Swasey Observatory, Case School of Applied Science, Cleveland, has been appointed associate professor of physics and director of the Observatory. John I. Hopkins, North Carolina State College, Raleigh, has been appointed assistant professor of physics. Both assumed their duties at the beginning of the fall quarter. Sherwood K. Haynes, who has been granted a year's leave of absence from the University, will work at the Clinton Laboratories, Oak Ridge, Tennessee, during the present school year.

America's first mobile clinic for providing eye care in remote areas was dedicated in Trenton, New Jersey, on 12 October. The 2½-ton unit, which is 19 feet long and more than 6 feet wide, was planned and equipped by Bausch and Lomb. Somewhat similar to the mobile optical units used overseas during the war by the armed forces, the rolling eye clinic will provide a public health service rivaling that of the mobile hospital clinics now in use in the South.

A Conference on Genetics and Social Behavior was held on 10–13 September at the Roscoe B. Jackson Memorial Laboratory in Bar Harbor. The meeting was held in connection with the inauguration of a new program of behavior studies which was made possible by a recent Rockefeller Foundation grant.

R. M. Yerkes was general chairman of the Conference, and the members were divided into committees which led group discussions as follows: "Genetic Background of Social Behavior": W. L. Russell, F. A. Beach, C. E. Keeler, and G. W. Woolley; "Social Behavior and Motivation": Gardner Murphy, D. M. Levy, N. E. Collias, and E. A. Beeman; "Abnormal Behavior and Emotions": H. S. Liddell, O. H. Mowrer, H. J. Bagg, C. S. Hall, J. L. Fuller, and D. T. Allen; "Intelligence and Learning": C. P. Stone, N. E. Miller, L. V. Searle, W. M. Dawson, T. C. Schneirla, and H. H. Strandskov; "Physiological Background of Behavior": C. T. Morgan, E. W. Dempsey, W. C. Young, B. Ginsburg, R. S. Morison, M. A. Kennard, and E. M. Vicari; and "Social Organization and Leadership": C. R. Carpenter, J. P. Scott, Lois Murphy, and R. M. Yerkes.

The preliminary reports of the committees summarized research which is urgently needed in the fields of psychobiology and sociobiology, and stressed the importance of cooperative work between institutions and individuals. It was suggested that the Jackson Laboratory emphasize the use of controlled genetic material as a tool for psychological and sociological experiments on animals, and continue cooperation with visiting research workers.

A new laboratory unit at the Hanford atomic energy plant, near Richland, Washington, has been announced by General Electric. Operation of the Hanford Engineer Works, where active material for atomic bombs was produced during the war, was taken over by the Company on 1 September. The activities of the new unit will be one phase of the extensive atomic energy research and development program which the Company is conducting for the Government at Hanford. William D. Coolidge, X-ray pioneer and consultant to the General Electric Research Laboratory, Schenectady, has been named head of the unit. Dr. Coolidge has been associated with the atomic bomb project since the spring of 1941, when he was named a member of the six-man reviewing committee, appointed by the National Academy of Sciences, to evaluate the military importance of the uranium problem and to recommend the level of expenditure at which the problem should be investigated.

New appointments at Union College include the following: Carl D. Hocker, formerly of the Bell Telephone Laboratories, as associate professor of chemistry; Galen W. Ewing, formerly with the Winthrop Chemical Company, as assistant professor of chemistry; W. Max Schwarz, formerly of Indiana University, as assistant professor of physics; Marvin H. Little and Robert W. Finholt, as instructors in chemistry; and Jerome M. Rehr and Marshall C. Yovits, as instructors in physics. Alfred T. Goble has been named associate professor of physics after serving as lecturer since last November, and Frank J. Studer, who recently resigned to join the staff of the General Electric Company, has been appointed research professor to advise advanced students on their research projects.

The amino acids of insects will be studied under a five-year research program at the Laboratories of Insect Physiology of the Department of Entomology, Cornell University. The work, which has been made possible by a grant from the Lalor Foundation, Wilmington, Delaware, will include studies on the identification of the amino acids in insects and the amino acid nutritional requirements of insects. The project supports two research fellowships, which have been awarded to H. L. House, on leave of absence from the Dominion Parasite Laboratory, Belleville, Ontario, Canada, and J. J. Pratt, Jr., recently discharged from the U. S. Public Health Service.

A pharmacological laboratory devoted to industrial research and consulting has been opened by Lloyd W. Hazleton near Falls Church, Virginia (P. O. Box 333). A principal objective of the laboratory will be the development of pharmacological background for compliance with regulations of Federal agencies, according to Dr. Hazleton, who has specialized in industrial pharmacological research for six years as an associate professor of pharmacology at George Washington University, Washington, D. C. His graduate work was done at the University of Washington, Seattle.

The Department of Botany, University of Tennessee, has announced the following changes in staff: L. R. Hesler, head of the Department since 1919, is to devote full time to the Liberal Arts College deanship; S. L. Meyer has been appointed professor and head of the Department; A. J. Sharp has returned from a two-year study in Mexico and Guatemala under a Guggenheim fellowship; S. A. Cain has resigned to become botanist to the Cranbrook Institute; and R. E. Shanks has been appointed associate professor.

Augusto Giovanardi, professor of hygiene and bacteriology, University of Padova, Italy, has written to Lotte Strauss, of Mount Sinai Hospital, stating that he is especially interested in receiving bibliographies, articles, abstracts, and journals concerning the methods of preparation of allergens for diagnostic purposes and of vaccines for desensitization. He also reports that the University has not yet begun to receive foreign journals.

A convocation commemorating the 100th anniversary of the founding of the Smithsonian Institution was held in the Natural History Building of the U. S. National Museum, Washington, D. C., on the evening of 23 October. The program was opened by Vannevar Bush, regent of the Institution, who presided. Felicitations were given by L. P. Eisenhart, speaking for the American Philosophical Society, and Frank B. Jewett, president of the National Academy of Sciences. Dr. Jewett mentioned the close association between the Academy and the Institution during the past 83 years, stating that the Smithsonian was the Academy's domicile prior to its obtaining a home of its own and that all those who have served as secretaries of the Institution either have been or are members of the Academy. Alexander Wetmore, present secretary of the Smithsonian, responded, relating pertinent steps in its history since 10 August 1846, the date of its foundation. The main feature of the program was a lecture by Matthew W. Stirling, chief of the Bureau of American Ethnology, on "The La Venta Culture of Southern Mexico," illustrated by motion pictures in color. At the conclusion of the lecture an informal reception was held in the Rotunda of the Museum. The large number of invited guests included a distinguished group of foreign scientists, in this country to attend the recent meetings of the National Academy of Sciences and the American Philosophical Society.

Elections

Frederick D. Rossini, chief, Thermochemistry and Hydrocarbons Section, National Bureau of Standards, has been elected president of the Standing Committee of Thermochemistry of the International Union of Chemistry, according to an announcement from the Bureau. The Standing Committee of Thermochemistry, consisting of chemists from Poland, France, Belgium, Holland, and the United States, is concerned with achieving international agreements for standards used in thermochemical investigations. The Committee plans to hold its first postwar meeting in London in July 1947. Dr. Rossini joined the staff of the National Bureau of Standards in 1928 as a physical chemist in the Thermochemical Laboratory and became chief of the Thermochemistry and Hydrocarbons Section in 1936.

A. B. Kinzel was re-elected chairman of the Engineering Foundation at the annual meeting of its Board on 17 October. Dr. Kinzel is vice-president of the Union Carbide and Carbon Research Laboratories, Inc., and of the Electro Metallurgical Company. During the war he was senior consultant of the Metals Branch of WPB, and chief consultant on metals to the Enemy Branch of FEA. Other officers elected were: L. W. Chubb, director of the Westinghouse Research Laboratories, vice-chairman; Edwin H. Colpitts, formerly vice-president of the Bell Telephone Laboratories, re-elected director; and John H. R. Arms, re-elected secretary.

Helen A. Hunscher, Western Reserve University, recently became president-elect of the American Dietetic Association for 1946–47.

Recent Deaths

Henry Sherring Pratt, 87, zoologist, died on 5 October. Dr. Pratt, who had been professor of biology at Haverford College, Pennsylvania, since 1898, was the author of several books on zoology and biology. He was an authority on the embryology and metamorphoses of insects.

Frederick M. Prall, 52, director of the Rayon Technical Patent Section, E. I. du Pont de Nemours and Company, died on 11 October.

John Thomas McGill, 94, died on 11 April. He was associated with Vanderbilt University, Nashville, from 1876 until 1919, when he retired as professor emeritus of organic chemistry. He had also served for 18 years as dean of the Department of Pharmacy, and was one of the founders of the Tennessee Academy of Science, of which he was elected honorary president for life in 1939.

William N. Jennings, 85, died on 9 September. A pioneer photographer, Mr. Jennings was the recipient of the John Price Wetherill Medal from the Franklin Institute, which was awarded for taking the first known photograph of a flash of lightning in 1882. He was also one of the founders of the American Museum of Photography.

A New Laboratory of Applied Geophysics and Geochemistry, The Pennsylvania State College

A laboratory of applied geophysics and geochemistry has recently been established at The Pennsylvania State College under the direction of Sylvain J. Pirson. The program of work includes both resident instruction and fundamental as well as practical researches in the development of new mineral resources.

For the first time in the history of American academic institutions a course in geochemistry will be given at Penn State. A beginning was made, however, by the Graduate School of the Department of Agriculture, Washington, D. C., which introduced a course in the subject in 1943 under the charge of Dr. Chambliss.

Geochemistry, "stricto sensus," is not a well-known field in the United States, and in this respect we are possibly 20–25 years behind the Russians, who have produced outstanding modern geochemists, such as W. I. Vernadsky, A. E. Fersman, E. S. Federov, and others. Accordingly, the field of work should be defined and delineated in order that confusion may not exist with the meaning of the word "geochemistry" when used "lato sensus."

In its strictest sense, geochemistry is the study of the origin, occurrence, association, abundance, migration, distribution, dispersion, and accumulation of atomic elements within the geosphere including the atmosphere. Since the earth is derived from cosmic matter, it is natural that the basis for a chemical understanding of the earth's atomic processes should be based on astrophysical and astrochemical concepts. The origin of matter and its evolution in the earth over astronomic time is the special field of geochemistry. The borderline fields of chemical and atomic physics provide the fundamental laws for this study: nuclear and electronic configurations of the atoms, atomic numbers and weights, atomic and ionic radii, coordination numbers, crystal structures, energies and lattices, etc. explain the paragenetic relationships of the 92 geochemical and of the possible transuranic elements.

The pragmatic aspect of geochemical sciences is not neglected in the new courses. The application of the principles of geochemical processes and associations is the basis of the long-range forecast of future reserves of essential industrial elements. An understanding of these principles will help to conceive, formulate, and develop new technological means for prospecting and delineating hidden mineral reserves. The method thus far best known in this country is geochemical prospecting for oil and gas fields, the principles of which are still taken as preposterous by much of the practical geological profession, notwithstanding some remarkable successes and a commendable score in the ratio of exploration successes to failures.

Compared to geochemical exploration for oil and gas, exploration for ore deposits has made but a timid start. The fundamental concept at the basis of these methods of approach is the ionic diffusion of elements to near-surface layers where their abnormal presence may be revealed by microanalytical tests of soils, ground water, and vegetation. Broad geochemical provinces may thus be outlined in which chemical concenters (zonal distribution patterns), belts, zones, nodes, etc. may be delineated and the probable existence of hidden mineral treasures may be ascertained.

The standard methods of geophysical prospecting for minerals are not neglected in the Penn State program of study and research, nor are their most recent developments. A program of airborne magnetometer survey of part of the State of Pennsylvania in cooperation with the U. S. Geological Survey has been initiated, the purpose of which is to study the manner in which the parallel structures visible in the Allegheny Mountains may be traced into the Appalachian geosyncline, where deep oil and gas structures are expected to be found in close association with uplifts within the Pre-Cambrian basement rocks.