H. B. Linford, of the University of Washington, reported on zirconium plating.

There were numerous social functions—a dinner-dance, plant visits and a reception to Dr. Duncan A. MacInnes, president of the society and a member of the Rockefeller Institute in New York City.

CORRESPONDENT

PRESENTATION TO THE SMITHSONIAN INSTITUTION OF A BUST OF LORD KELVIN

THE presentation of a bronze bust of Lord Kelvin of Largs was made by the English-Speaking Union of the British Empire to the Smithsonian Institution at a luncheon given on October 8 at the Willard Hotel in Washington.

The bust, a symbol of scientific and international good-will between England and America, was tendered to the Smithsonian Institution on behalf of the Union by V. A. L. Mallet, recently appointed counselor of the British Embassy. The Honorable Alanson B. Houghton, formerly American Ambassador to the Court of St. James, presided at the ceremony as president of the Washington branch of the American organization of the Union. Dr. W. F. G. Swann, director of the Bartol Research Foundation of the Franklin Institute, described the scientific achievements of Lord Kelvin, and Dr. Fred E. Wright, home secretary of the National Academy of Sciences, presented a formal citation bearing on Lord Kelvin's achievements. This citation was prepared by Dr. Arthur H. Compton, of the University of Chicago, and by Dr. Henry Crew, of Northwestern University. The bronze is the first cast from the English original by Herbert Hampton, sculptor. Its departure for the United States was signalized at a meeting of leading scientific men in London on September 17.

In his speech at the opening of the ceremony, Mr. Houghton called attention to the common ideal of the English-speaking races and to the object of the English-Speaking Union, to promote whatever may add to a better understanding among the English-speaking peoples. Mr. Houghton introduced Dr. Wright, who presented the formal citation. It reads as follows:

> In Lord Kelvin, American men of science recognize not only the leading physicist of the English-speaking world during the second half of the nineteenth century, but also a frequent and inspiring visitor to their own shores.
>
> Through his measuring of dynamics and of everything that concerned the mechanical theory of heat, he discovered absolute scale of temperature and thus created the modern science of thermometry.
>
> His studies of the oscillatory discharge, his invention of the mirror galvanometer and siphon-recorder, and his mode of operation made possible the first successful submarine telegraph and incidentally created the science of electrical engineering.
>
> His profound researches in heat conduction and the tide have stimulated geologists and astronomers everywhere. An inexhaustible energy, a remarkable clarity of exposition, and a lovable nature endeared him to all who ever knew him.

Dr. W. F. G. Swann, chairman of the Advisory Research Committee of the Bartol Research Foundation of the Franklin Institute, as a member of the English-Speaking Union was then called upon to express the American Union's tribute to Lord Kelvin.

V. A. L. Mallet, counselor of the British Embassy, speaking for the English-Speaking Union of the British Empire, made the formal presentation of the bust to Dr. Abbot, secretary of the institution. In accepting the bust, Dr. Abbot said:

> It gives me profound satisfaction to accept from Mr. Mallet and The English-Speaking Unions of the British Empire and the United States this fine bust representing so great a man. To thoughtful people who will visit the Smithsonian Institution, which is the foundation of a statesmanlike Englishman, James Smithson, this bust of Lord Kelvin will recall at once the varied, outstanding accomplishments of the greatest physicist of the nineteenth century, including those inventions which made possible the Atlantic cable uniting America with the mother country.

SCIENTIFIC NOTES AND NEWS

PROFESSOR HERMANN WEYL, of the Institute for Advanced Study at Princeton, has been elected a member of the Royal Academy of Sciences of Amsterdam.

THE gold Georg-Neumayer Medal has been awarded to Dr. Gerhard Schott, professor of oceanography at the University of Hamburg.

Nature reports that Professor Carl Neuberg, of Berlin, director of the Kaiser Wilhelm Institute of Biochemistry, has been elected a foreign member of the Swedish Academy of Sciences, and Professor Friedrich Körber, of Düsseldorf, director of the Kaiser Wilhelm Institute for Iron Research, has been elected a corresponding member of the Royal Swedish Academy of Engineering Science.

THE retirement of Dr. T. Wayland Vaughan from the directorship of the Scripps Institution of Oceanography of the University of California, was made the occasion of a farewell party to Dr. Vaughan and his family, given by members of the staff at the La Jolla Yacht Club on the evening of August 21. Dr.

William Emerson Ritter, first director of the institution, made a short informal talk; other speakers on the occasion were Dr. F. B. Sumner and Dr. Roger Revelle. Dr. Vaughan was presented with an album of photographs that constitute a pictorial history of the Scripps Institution during the twelve years of his directorship. Dr. Vaughan's successor is Dr. H. U. Sverdrup, formerly of Bergen, Norway.

PROFESSOR E. L. KENNAWAY, director of the Research Institute of the Royal Cancer Hospital, London, and Dr. J. W. Cook, research chemist at the institute, have been awarded the prize offered by the International Cancer Union for scientific work on cancer. The award was made at the second International Congress on Cancer, recently held in Brussels and was attended by representatives of 45 nations. There were representatives of 42 nations on the adjudicating committee by whom the award was made. The prize is the gift of the Union Minière du Haut Katanga, a Belgian company which produces a large proportion of the world's radium and consists of 50,000f. (Belgian) together with 50 milligrams of radium. It is the intention of Professor Kennaway and Dr. Cook to use the radium for research work at the Royal Cancer Hospital.

AT the final business session of the New York meeting of the American Academy of Ophthalmology and Otolaryngology Dr. Lee W. Dean, of St. Louis, assumed the presidency. The following were elected for the coming year: *President,* Dr. Harry S. Gradle, Chicago; *First vice-president,* Dr. Bernard J. Samuels, New York; *Second vice-president,* Dr. Wilson Johnson, Portland, Ore.; *Third vice-president,* Dr. Frank L. Ryerson, Detroit; *Executive secretary and treasurer,* Dr. William P. Wherry, Omaha, Nebr.

AT the fourteenth biennial conclave of the Alpha Chi Sigma fraternity, held in Cincinnati, H. E. Wiedemann, consulting chemist of St. Louis, retired as national president. He was succeeded by Dr. V. W. Meloche, of the department of chemistry of the University of Wisconsin. Wm. Higburg, sales and advertising manager of the Republic Creosoting Company, Indianapolis, became first vice-president, and Dr. Walter S. Ritchie, head of the department of chemistry of Amherst College, second vice-president. John R. Kuebler, Indianapolis, was reappointed national secretary-treasurer and editor of *The Hexagon.*

DR. HENRY MERRITT WRISTON, president of Lawrence College, was elected the eleventh president of Brown University at a meeting of the corporation on October 9. Dr. Clarence A. Barbour, who has been president since 1929 and who is in his seventieth year, was elected president emeritus. His resignation, which was accepted "with deep regret," will become effective at the end of the first semester, when Dr. Wriston is expected to assume the presidency.

DR. L. C. MARTIN, head of the department of technical optics at the Imperial College of Science and Technology, London, is spending the year at the Institute of Applied Optics at the University of Rochester as exchange professor with Professor Rudolf Kingslake, who spends the year in London. In addition to the regular course in geometrical optics in the institute, Dr. Martin is giving four series of public lectures on stereoscopy, electron optics, microscopy and color vision researches at the Imperial College.

DR. WILLIAM DOCK, since 1926 a member of the department of medicine, has been appointed professor of pathology in the School of Medicine of Stanford University. Associated with him will be Dr. David A. Wood, associate professor of pathology, and Drs. James B. McNaught and Alvin J. Cox, assistant professors of pathology.

THE department of physiology at Ohio State University has been reorganized and consists of the following members: Professors Frank A. Hartman, chairman, and R. J. Seymour; associate professors, E. P. Durrant (emeritus) and Fred A. Hitchcock; assistant professors, Emil Bozler, R. R. Durant, J. K. W. Ferguson, Hans O. Haterius and George W. Thorn (on leave); instructors, A. J. Derbyshire, Ellis J. Robinson and Sam R. Tipton.

IN the department of mathematics of the University of Pennsylvania, Visiting Professor Hans Rademacher, formerly professor of mathematics at the University of Breslau, has been appointed to an assistant professorship, and Assistant Professors Dr. P. A. Caris and J. A. Shohat have been promoted to associate professorships. Dr. James A. Clarkson has been made instructor.

NEW appointments at the Michigan College of Mining and Technology, at Houghton, include R. M. Dickey as head of the department of mineralogy and geology, and U. J. Noblet as head of the department of forestry. R. B. Miller will assist Professor Noblet in organizing courses in botany and zoology. George Lyle, electrical engineering, Glen Wimmer, mechanical engineering, and John Taras, chemistry, are new instructors.

ACCORDING to *Nature,* at the University of Cambridge Dr. T. S. Hele has resigned his university lectureship in biochemistry; H. W. Hall, of St. John's College, W. A. Fell, of Sidney Sussex, and R. S. Handley, of Gonville and Caius, their demonstratorships in anatomy, and T. C. Nicholas, of Trinity, his

lectureship in geology. Dr. M. Born, who held a lectureship in mathematics, has taken up his work as professor of natural philosophy at the University of Edinburgh.

M. ARAMBOURG, professor of geology of the National Institute of Agronomy of Paris, has been elected to the chair of paleontology at the Paris Museum of Natural History to succeed Professor Marcellin Boule.

DR. LEONARD P. SCHULTZ, assistant professor of fisheries at the School of Fisheries of the University of Washington, has been appointed assistant curator in charge of the Division of Fishes in the United States National Museum, at Washington, D. C., to succeed Dr. George S. Myers, who has returned to Stanford University as associate professor of biology in charge of the Natural History Museum. Dr. Schultz will undertake his new work at the beginning of the year 1937.

DR. CARROLL W. DODGE, mycologist at the Missouri Botanical Garden and professor of botany at the University of Missouri, has returned after a stay of four months in Puerto Rico, where he made collection of about 4,000 specimens of lichens.

PROFESSOR JEAN PICCARD has taken up his work at the University of Minnesota for the fall quarter. He is planning to undertake a stratosphere flight, probably from California, some time in the winter or spring.

DR. HENRY A. CHRISTIAN, Hersey professor of the theory and practice of physic at the Harvard Medical School, will deliver the third Frank Billings Lecture of the Thomas Lewis Gilmer Foundation of the Institute of Medicine of Chicago at a joint meeting with the Chicago Society of Internal Medicine on Monday evening, October 26. His subject will be "Edema, Diuretics, Diuresis."

DR. H. V. WILSON, professor of biology at the University of North Carolina, delivered the Dohme lecture in zoology at the Johns Hopkins University on October 12. His subject was "Cell Behavior and Caenogeny—Two Points of View in the Study of Embryology." Preceding the lecture the department of zoology gave a luncheon in his honor, and in the evening a dinner was given by the graduate students in zoology.

DR. DINSMORE ALTER, director of the Griffith Observatory and Planetarium of Los Angeles, spoke before the chapter of the Society of the Sigma Xi of the University of California at Los Angeles on September 30 on "Periodogram Analysis."

THE Smith College Chapter of Sigma Xi held its fall meeting on the evening of October 7, at which time the officers for the coming year were installed. Dr. Johan Hjort, professor of marine biology in the University of Oslo, delivered an address on "The Biology of Whales."

DR. MARSTON TAYLOR BOGERT, professor of organic chemistry at Columbia University, spoke at the dedication on October 9 of the new chemistry building at Trinity College, Hartford, Conn. The title of his address was "The Research Chemist—Mankind's Devoted and Indispensable Student." Dr. Francis P. Garvan, president of the Chemical Foundation, spoke on "Chemistry and the Small College." President Remsen B. Ogilby, of Trinity College, gave the address of welcome.

DR. WALTER SCHILLER, of the University of Vienna, and Dr. Reuben Kahn, director of laboratories, University Hospital, Ann Arbor, Mich., were guests of the George Washington University School of Medicine on October 1. Dr. Schiller addressed the students and faculty on the "Morphology of Ovarian Tumors" and Dr. Kahn on "Immunity in Syphilis." Dr. R. J. Anderson, professor of biochemistry at Yale University, will give a seminar on October 23 on "The Chemistry of the Acid-Fast Bacteria." Dr. Richard P. Strong, of the department of tropical medicine of the Harvard Medical School, will give the Smith-Reed-Russell lecture on October 22. His lecture will be entitled "The Dysenteries."

THE Gastro-Intestinal Section of the Medical Clinic of the University of Pennsylvania Hospital has received a grant from the Committee on Scientific Research of the American Medical Association for the prosecution of investigations on the small intestine of man, particularly with reference to the chemical composition of succus entericus and the absorption of glucose. Dr. Charles P. Sheldon, instructor in obstetrics at the Albany Medical College, has been awarded a grant toward a study on respiration in pregnancy and labor.

AT the recent meeting of the Research Committee of the Virginia Academy of Science, grants in aid of research were made as follows: Dr. Forrest F. Cleveland and Dr. M. J. Murray, of Lynchburg College, $100 for a study of the relation of the Raman effect to structure in a series of organic molecules. Dr. W. B. Gurley and Dr. Grant Van Huysen, of the Medical College of Virginia, $50 for a study of the reaction of exposed dentine. Dr. J. G. Harrar, of the Virginia Polytechnic Institute, $75 for a biochemical study of certain nitrogen-fixing bacteria. Dr. William M. Moir, of the University of Virginia, $50 for a study of the influence of sex in the pharmacology of the barbiturates. Dr. Helen Peak, of Randolph-Macon Woman's College, $75 for a study of the psychology of inhibition. Dr. Thomas W. Turner, of Hampton Institute, $50 for

a study of the germination of the seeds of the Scotch broom. Dr. John H. Yoe, of the University of Virginia, $50 for his study of organic analytical reagents. The grant to Drs. Cleveland and Murray will be paid by the American Association for the Advancement of Science, being the amount allotted by that organization to the Virginia Academy of Science for research purposes.

DISCUSSION

THE PRINCIPLE OF "DIVERSIFICATION" IN THE WILDLIFE FIELD

A BALANCED agricultural program must include some of the wild things as well as the traditional cultivated crops. Man, animals, plants, climate and soil are all bound together in a single great system of matter and energy. As Francis Thompson said:

> All things by immortal power
> Near and far,
> Hiddenly
> To each other linked are,
> That thou canst not stir a flower
> Without troubling of a star.

Let us examine the situation a little more closely. We overgraze the watersheds of the plains country during the driest years. In the wettest years, as a direct result, disastrous floods occur on the lower parts of the rivers that drain these areas. In some parts of Europe there has been a great vogue for an even-aged stand of single species of trees. Results: elimination of brush, herbs and grasses, of beneficial insects and of hole-nesting birds, such as woodpeckers. Along with the decrease of friends of the forest has gone an increase in harmful bark-borers and other pests as well as deterioration of the soil and decline of wildlife. Now the tendency is toward restoration, so far as possible, of natural conditions as a practical proposition.

Here is the way things operate with us at present:

So-called "vermin" control sometimes eliminates too many of the flesh-eaters and fur-bearers, cutting down on the possible income from trapping on the farm and bringing new problems in rodent and insect control which the predators formerly helped to keep in line. The fur industry in the United States has declined from a gross total of $500,000,000 in 1929 to $150,000,000 in 1934. Fur on the farm and elsewhere has meant a cash income to farm boys and other trappers of $50,000,000 to $65,000,000 a year.

Rodent control often removes too many of the rodents, taking away the principal food of many rapacious species, and forcing them to turn to game, insectivorous birds, poultry or live stock.

Clean farming removes the brush and weeds along the fencerows and elsewhere, with the result that quail and other game and the fur-bearers find food and shelter much less favorable than would otherwise be the case. Insectivorous birds are reduced, for lack of food and nesting cover, and the supposed beneficial results in insect control may be largely non-existent.

A certain type of silviculture has taken out the hardwoods and alleged weed trees in the interest of releasing suppressed conifers. If a CCC camp girdles the water oaks, post oaks, red oaks, sweetgums, blackgums and hickories, the food for game is substantially reduced, and there is a grave question whether the elimination of these splendid trees, some of the handsomest in the forest, is desirable, even if some of the suppressed loblollies and shortleaf pines may be released.

Maintaining as nearly as possible a natural balance on a piece of uncultivated land or on the borders of cultivated land, for that matter, is the equivalent, in the field of wildlife and natural resources management, of *diversified farming in agriculture*. It is the extension of the principle of diversification to the whole field.

In wildlife management, as in agriculture, the one-crop method of administration is often easier, but is a highly artificialized procedure. It is putting all one's eggs in a single basket—too risky to be recommended as a general practice.

It is much better, say the wildlife specialists, to maintain the land under as nearly as possible natural conditions. Let us paint the picture in bold outlines as it might appear in a Texas pine forest.

We start with a normal stand of trees, mixed pines and hardwoods of various species or, at least, a mixture along the margins. Plenty of brush, herbs and grass appear in and about the clearings. Some of the forest trees are over-mature and some are dead. Some are "weed" trees. The population of song and insectivorous birds is at a maximum, since nest sites are available and a variety of insects and food plants is at hand as a result of the variety of vegetation. The dead branches and standing snags afford abundant sites for the valuable birds that nest in holes, such as the woodpeckers, wrens, bluebirds, sparrow hawks, chickadees and owls, all of which work on insects or rodents that at times may become over-abundant. Game species are present in maximum abundance. The deer have plenty of browse, found principally on the borders of clearings, and an abundance of thicket in which to escape their enemies. The quail find