proud as a Scotsman to have heard Dr. Crawfurd's reference to the Royal Medical Society of Edinburgh. Professor Welch said that all members of the New York Society would heartily appreciate the generous words in which Dr. Crawfurd had referred to its activities. The principal function of that society was in its lectureships, perhaps six or eight lectures being delivered during the year in the general field of scientific medicine, and it was obvious that there was no name in history which could be more appropriately used as the sponsor of such a society than that of William Harvey. Dr. Welch handed to the president an illuminated scroll on behalf of the New York Harveian Society, inscribed with cordial greetings on the occasion of the hundredth anniversary, and expressing appreciation of the significance of continuous corporate existence for so long a period: "An achievement so signal bears witness to the serviceableness to its members of any association. In medicine it bears evidence furthermore, to the success of its function in the maintenance of a high standard of scholarship and its usefulness in the dissemination of learning."

The society's centenary dinner was given by Mr. George Buckston Browne in the Hall of the Grocers Company of the City of London. After the loyal toasts, the president welcomed Prince Arthur of Connaught as a newly admitted honorary member of the society, and presented to him a commemorative bronze medal. His Royal Highness then proposed the toast of "Prosperity to the Harveian Society of London." He felt it a great—though perhaps an "irregular"—honor to be admitted to membership of the society, in company with Professor Welch, the doyen of the medical profession of the United States. The health of the visitors was proposed by Sir StClair Thomson. This feast, he said, gave an opportunity for the mingling of men of different occupations, as well as of men working in different branches of the same profession. Harvey, a man of wide humanity and culture, would have welcomed this occasion, for had he not exhorted his brethren to "dwell together in loving friendship"? Professor Welch, *The British Medical Journal* says, made in response a charming and spirited speech of appreciation for the way in which "such things are done in London." He regarded centenary celebrations as very valuable and interesting things, which appealed to him particularly as contributions to the history of medicine. Lord Dawson, who also replied, spoke of Professor Welch as a citizen of the world, exemplifying the unity of purpose of the English-speaking medical profession. He himself, during his visit to Canada and the United States last year to attend the annual meeting of the British Medical Association in Winnipeg, had observed the inexhaustible energy and enthusiasm of their octogenarian guest. On behalf of the Royal College of Physicians, with its long and intimate associations with Harvey, Lord Dawson congratulated the society on attaining its hundredth year.

The final event of the celebrations took the form of a pilgrimage to the tomb of William Harvey at Hempstead Church in Essex, near Saffron Walden. A party of about sixty, headed by Sir Thomas Horder, Sir D'Arcy Power, Sir StClair Thomson, Dr. Herbert Spencer and Professor Welch, journeyed by road from London on the morning of June 13. At Hempstead Church a brief service was held, and the Bishop of Colchester gave an address.

SCIENTIFIC NOTES AND NEWS

THE doctorate of science was conferred on June 15 by the University of Rochester on Dr. Harvey Cushing, Moseley professor of surgery at the Harvard Medical School and surgeon-in-chief at the Peter Bent Brigham Hospital.

AT the commencement exercises of Purdue University, the honorary degree of doctor of science was conferred on Dr. J. C. Arthur, professor emeritus of botany; on Dr. Stanley Coulter, professor emeritus of biology, and on Professor H. A. Huston, consulting agricultural chemist, Kew Gardens, New York, who was connected with Purdue from 1884 to 1903, the last year as director of the Agricultural Experiment Station.

THE University of Michigan conferred at commencement the degree of doctor of science on Dr. Warren Plimpton Lombard, for thirty-one years professor of physiology in the university medical school, professor emeritus since 1923. The doctorate of engineering was given to Clarence E. Grosbeck, of the class of 1898, prominent in public utilities, and on William Aiken Starrett, of the class of 1897, designer and builder of the Empire State Building in New York City.

MR. A. C. FIELDNER, chief engineer of the Experiment Stations Division, United States Bureau of Mines, Washington, D. C., was awarded the Lamme Meritorious Achievement Medal by the Ohio State University on June 8. This gold medal is awarded annually to a graduate of one of the departments of the university for meritorious achievement in engineering or the technical arts.

THE Monaco prize of 100,000 francs, established by Prince Albert of Monaco and awarded every two

years by the Paris Academy of Medicine to aid some French scientific man in his researches, has been given to M. Veillon, of the Pasteur Institute, in recognition of his work in bacteriology.

DR. L. J. COLE, professor of genetics at the University of Wisconsin, was recently elected a corresponding member of the Czechoslovak Academy of Agriculture.

A DINNER in honor of Dr. Alexander G. McAdie, who has retired as A. Lawrence Rotch professor of meteorology at Harvard University and as director of the Blue Hill Observatory, was given recently by the members of the Harvard Overseers' Committee appointed to visit the observatory.

A PORTRAIT of Dr. John M. Fisher, associate professor of gynecology at Jefferson Medical College, Philadelphia, and oldest ex-intern of Jefferson Hospital, was presented to the college on June 3. It was the gift of the alumni of the college. Dr. Frank C. Hammond made the presentation, and Dr. Ross V. Patterson, dean of the college, accepted it.

MR. J. D. FIGGINS completes his twenty-first year as director of the Colorado Museum of Natural History on July 15. Mr. Charles H. Hanington, president, and Mr. Walter C. Mead, vice-president, on behalf of the board of trustees, have expressed their appreciation for his long service and faithful work in building up the museum. They say: "Coming to us from the American Museum, New York City, when we were a new institution, it was through his untiring efforts that we have grown into an organization of nation-wide interest."

OFFICERS of the American Society of Clinical Pathology have been elected as follows: Dr. W. M. Simpson, director of clinical laboratories, Miami Valley General Hospital, Dayton, Ohio, *President-elect;* Dr. C. J. Bucher, department of pathology, Jefferson Medical College, Philadelphia, Pennsylvania, *Vice-president.* The following were elected as new members of the executive committee: Dr. K. M. Lynch (retiring president), professor of pathology, Medical School of the State of South Carolina, Charleston; Dr. A. G. Foord, Pasadena Hospital, Calif. The Ward Burdick award was made to Dr. W. G. Exton.

DR. JAMES R. CASH, since 1924 professor of pathology at the Peiping Union Medical College, China, has been appointed to the Walter Reed professorship of pathology at the University of Virginia, succeeding the late Dr. Harry T. Marshall as the second incumbent of the chair.

PROFESSOR G. H. HARDY, Savilian professor of geometry at the University of Oxford, has been elected to the Sadleirian professorship of pure mathematics, in succession to Professor E. W. Hobson, who has resigned.

THE General Board of the University of Cambridge was authorized on June 12 to reappoint Sir Horace Lamb, of Trinity College, to the Rayleigh lectureship in mathematics in the faculty of mathematics, without stipend, so long as he shall desire to hold that office.

DR. T. THOMSON FLYNN has been appointed to the chair of zoology in the University of Belfast. Dr. Flynn is a doctor of science of the University of Sydney, and is at present Ralston professor of biology in the University of Tasmania.

DR. FRITZ VON WETTSTEIN, of the University of Göttingen, has been called to Munich.

DR. CESARI FRUGONI, for nine years professor of special medical pathology at Florence, has been appointed professor of clinical medicine at Rome.

AT the recent annual meeting of the board of trustees of the Tropical Plant Research Foundation, Dr. William Crocker, director of the Boyce Thompson Institute of Yonkers, New York, was elected acting director and general manager of the foundation. It was decided to move the offices to Yonkers during a temporary period. Until further notice all mail to the foundation should be addressed to 1086 North Broadway, Yonkers, New York.

THE U. S. Department of Agriculture has announced the following appointments to its research staff: Dr. Edward Maris Harvey, formerly professor of horticultural research at the Oregon State Agricultural College, physiologist in the division of horticultural crops and diseases of the Bureau of Plant Industry, stationed at Pomona, California; Dr. Fisk Gerhardt, formerly assistant chemist at the Iowa Agricultural Experiment Station, physiologist, stationed at Wenatchee, Washington; Mr. Henry Hartman, formerly professor of pomology at the Oregon State Agricultural College, horticulturist in the Division of Horticultural Crops and Diseases of the bureau, stationed at Wenatchee, Washington.

MR. R. W. HARNED, of the State Plant Board of Mississippi, has been appointed leader of the division of cotton insect investigations of the Bureau of Entomology to fill the vacancy caused by the resignation of Mr. B. R. Coad.

AT the recent annual meeting of the American Association of Cereal Chemists at Louisville, Dr. D. A. Coleman, marketing specialist of the Bureau of Agricultural Economics of the U. S. Department of Agriculture, was made editor of *Cereal Chemistry,* the official organ of the association.

WE learn from the *Journal* of the American Medical Association that Dr. Edward N. Brush, associate editor of the *American Journal of Psychiatry* for many years and editor since 1904, presented his resignation during the annual meeting of the Amer-

ican Psychiatric Association on June 4, in Toronto. His successor, Dr. Clarence B. Farrar, formerly of Baltimore and now of Toronto, was introduced at a dinner for Dr. Brush, when an illuminated parchment and a purse of $1,200 were presented to him.

DR. RALPH H. CHENEY, professor of biology, Long Island University, has been made resident investigator (economic plants) at the Brooklyn Botanic Garden beginning on July 1. The Botanic Garden has recently entered into an agreement with Long Island University for cooperation with the university's department of biology. Courses given at the Botanic Garden which conform to academic standards approved by Long Island University will be accepted by the university for undergraduate credit. As the university has not yet established a graduate school, it does not confer credits leading toward a graduate degree. The professor of botany of the university will act in an advisory capacity to the Botanic Garden whenever called upon to do so.

MR. M. J. SEAVY has been elected president of the Palo Company. Mr. Seavy has been connected with the company for fifteen years and has been vice-president and manager for the last eight years. It is planned to enlarge the facilities of the company for furnishing laboratory supplies.

THE National Research Council will be represented at the meeting of the General Assembly of the International Research Council in Brussels on July 11 by three delegates: Dr. John C. Merriam, president of the Carnegie Institution of Washington, D. C.; Dr. A. E. Kennelly, professor of electrical engineering, emeritus, Harvard University, and Dr. Frank Schlesinger, professor of astronomy and director of the Observatory of Yale University. Dr. Schlesinger was a member of the committee of fifteen appointed two years ago by the International Research Council to draft a revision of the statutes of the council.

DESIGNATION of American delegates to the sixth International Congress on Industrial Accidents and Diseases, to be held at Geneva from August 3 to 8, under the auspices of the Swiss Federal Council, has been approved by President Hoover. The American delegation includes: Dr. Francis D. Patterson, of Philadelphia, chief surgeon of the Pennsylvania Railroad, specialist in industrial hygiene; Dr. Fred H. Albee, professor of orthopedic surgery in the College of Physicians and Surgeons of Columbia University; Dr. Francis D. Donoghue, of Boston, medical adviser of the Department of Industrial Accidents of the State of Massachusetts; Dr. Emery R. Hayhurst, professor of hygiene in the College of Medicine of the Ohio State University, and Dr. Emma F. Ward, of Baltimore, research investigator attached to the office of industrial hygiene and sanitation in the United State Public Health Service.

DR. CHARLES J. FISH, director of the Buffalo Museum of Science, has accepted charge of an international survey to determine the effect on the herring industry of the proposed power dam at Passamaquoddy Bay, Maine. Dr. Fish has received a leave of absence from the board of managers of the museum and will go on July 10 to the Canadian biological laboratory at St. Andrews, N.B., the seat of the two-year investigation. Other members of the commission are: Dr. A. G. Huntsman, director of the Atlantic Biological Station, Canada; O. E. Sette, in charge of North Atlantic investigations for the U. S. Bureau of Fisheries; W. A. Found, deputy minister of fisheries, Canada, and Dr. H. B. Bigelow, director of the Woods Hole Oceanographic Institution. Dr. Fish will be executive secretary of the commission and will have charge of the work in the field.

DR. FRANCIS R. FRASER has accepted an invitation to give the third series of the Abraham Flexner Lectures during the year 1932–1933 at Vanderbilt University. Dr. Fraser is director of the medical clinic and professor of medicine in the St. Bartholomew's Medical School and Hospital in London. He is a graduate in medicine of the University of Edinburgh, and spent some years in New York City at the Rockefeller Institute and the Presbyterian Hospital. Dr. Fraser recently filled an appointment as a special representative from England to confer with the medical faculties of Australia. While there he gave lectures and conducted clinics.

THE American Phytopathological Society will hold its third annual summer tour and conference from July 28 to 31, under the immediate direction of Drs. H. W. Anderson, Leslie Pierce, M. W. Gardner and C. T. Gregory. For those not driving cars will be furnished. Dr. H. W. Anderson, Illinois Agricultural Experiment Station, Urbana, should be addressed for further particulars and arrangements.

THE ninety-ninth annual meeting of the British Medical Association will be held at Eastbourne, from July 21 to 24, under the presidency of Dr. William G. Willoughby, Eastbourne.

WE learn from the *Harvard Alumni Bulletin* that the late Carroll Everett Edson, '88, A.M. and M.D. '92, just before his death prepared a will leaving the remainder of his residuary estate, after the death of certain life tenants and annuitants, to Harvard College for research in climatology, expressing the hope that the fund might be used for the establishment of a professorship under the name of the Edson Professorship of Climatology. As a sudden stroke pre-

vented the execution of this will, his sisters have executed an indenture of trust to carry out their brother's purpose.

THE *Journal* of the American Medical Association reports that the Leonard Wood Memorial Committee has completed its goal of a $2,000,000 endowment for the eradication of leprosy. The campaign was started in 1927 on the appeal of the late General Wood, then Governor-General of the Philippines, and was carried on after his death as a memorial to him. The actual amount received was $2,031,000, contributions being received from 50,000 persons.

AN Associated Press dispatch reports that the California State Park Commission has announced the successful completion of negotiations for purchase of additional forest lands for the park system with receipt of a check for $1,000,000 from Mr. John D. Rockefeller. Ten thousand acres of redwoods will be added to state parks. The campaign was sponsored over a ten-year period by the Save-the-Redwoods League, of which Dr. John C. Merriam, president of the Carnegie Institution of Washington, is the head. Mr. Rockefeller not only gave a million dollars unconditionally but pledged a second million to match private gifts as received. The sum to be matched had reached between $600,000 and $700,000.

THE *Harvard Alumni Bulletin* reports that the largest telescope in the eastern part of the country, a 60-inch reflector, has been secured by the Harvard Observatory and will be placed in eastern Massachusetts at a site not yet chosen, probably within 25 miles of Boston. The new telescope will be of the reflector type, similar in size and general structural features to the 60-inch telescope now being installed at the southern station of the Harvard Observatory in Bloemfontein, South Africa. Accessory equipment will include apparatus for the study of spectra and light variations of the stars, their temperatures, dimensions and motions. The Harvard Observatory equipment has heretofore been specially suited to covering fields of a large number of stars; the new 60-inch reflector will specialize in the closer analyses of individual stars and planets.

SIXTY geologists from various parts of Pennsylvania met at the Pennsylvania State College from May 29 to 31 for the purpose of studying the geology of Central Pennsylvania. The Paleozoic stratigraphic section from the Cambrian to the Pennsylvanian and the geologic structure of the region were observed on a field trip from Gallitzen to Altoona and Tyrone. The Oriskany gas horizon was also studied along its outcrop and a visit was made to the Bell Mine of the American Lime and Stone Company at Bellefonte. Optional trips were also scheduled to the various caves of the region. At an evening meeting it was decided to form a permanent organization for the purpose of conducting similar trips in other parts of the state. The following committee on organization was appointed: Dr. B. L. Miller, Lehigh University; Mr. R. W. Clark, of the Gulf Companies, and Dr. C. A. Bonine, Pennsylvania State College, *chairman*. The next conference will be held in the Lehigh Valley region under the direction of the Lehigh University and Lafayette College departments of geology.

SCIENCE SERVICE reports that a party of sixteen University of Chicago students under the supervision of Dr. Fay-Cooper Cole has begun excavation at Indian mounds near Lewistown, Illinois, in the hope of discovering information about the oldest known inhabitants of the region. These most ancient inhabitants have been named the "black sand" people. The name was given them because nine skeletons were found buried in black glacial sand beneath Indian mounds last summer. This year the expedition hopes to recover implements and ornaments which will shed light on the home life and customs of the tribe. The black sand Indians are estimated to have lived at least 2,000 years ago. Pointing out that the search for early inhabitants of the Mississippi Valley is highly important in solving problems of American prehistory, Dr. Cole stated that Fulton County, where the excavations are being made, contains "the most complete data for culture sequence yet found in the Mississippi Valley."

FORTY-SEVEN states and territories are now extending financial support to state forestry, most of them having state foresters and participating in fire control, extension, reforestation or other related activities, according to the Forest Service. State forestry appropriations for the last year reached a total of $7,297,935. Of this amount, $2,555,329 was appropriated for fire protection by 38 states in cooperation with private landowners and the Federal Government. A total of $1,106,711 was used by 40 states for growing tree-planting stock and for reforestation. More than $2,308,000 was appropriated for purchase, maintenance and improvement of state forest lands. Other appropriations were used to fight pests and tree diseases, and for education, research and extension work. In addition, large private expenditures were made in forestry activities in most of these states. State appropriations for the last two years showed a gain of more than $2,000,000 a year over similar forestry appropriations for 1927 and 1928. Cooperation between the Forest Service and the states was enlarged during the past year. The

Federal Government contributed more than $1,400,000 for protection and reforestation in cooperating states. Cooperative fire protection was extended to several million acres which had not previously been covered. The work of growing and distributing trees for forest planting also was enlarged.

DISCUSSION

CRYSTALLINE AMYLASE

NORTHRUP and Kunitz's recent announcement, in these columns, of the crystallization of trypsin, the pancreatic protease, prompts us to record here the crystallization of pancreatic amylase also.

From buffered alcohol-water solutions of pancreatic amylase, freshly purified by methods previously described from this laboratory, crystals have been obtained which show enzymic activity almost as high as the maximum observed in the highly purified preparations of this enzyme as previously prepared and studied.

The crystalline amylase is obtained as very minute isotropic elongated crystals which exhibit slight double refraction. Professor P. F. Kerr, of our department of mineralogy, to whom we are indebted for the crystallographic examination, reports further that the index of refraction as determined by immersion is approximately 1.54.

In view of the protein or protein-like nature of the crystals and their very slow deposition from the alcoholic systems, it is exceedingly important to work with a very small temperature gradient and in the region of hydrogen-ion activity corresponding to the isoelectric point.

The hydrogen-ion activity of the solution is adjusted by means of phosphate buffers in such concentration that they are not separated out at the temperatures employed. Both formation and yield of crystals are very dependent upon the hydrogen-ion activity of the system.

Careful study and rigorous observance of the best experimental conditions thus far found make it possible to obtain crystals with regularity; but as yet only in very small amounts. Furthermore, the crystals are so minute, so light and so unstable that even after they have been formed they must be handled by means of highly specialized and very time-consuming technique.

Hence it appears inevitable that further progress must be exceedingly slow and it therefore seems best to record, at this preliminary stage of the work, the fact that this much-studied and presumably typical amylolytic enzyme has been obtained in crystalline form, even if as yet only upon a small scale.[1]

M. L. CALDWELL
L. E. BOOHER
H. C. SHERMAN

[1] Contribution No. 661 from the Department of Chemistry, Columbia University, New York.

PSYCHIC ANALOGUES OF ALLERGY

WHEN a foreign protein comes in contact with the tissue cells of a normal organism these become irritated and enter upon a cycle of unwonted metabolic change, the results of which appear in a week or two.

The first of these results is a specific hypersensitiveness toward the foreign protein in question so that thereafter infinitesimal quantities of the latter may be able to irritate the cells.

Experiment has made it obvious that the acquirement of specific sensitization goes hand in hand with the development of extraordinary powers within the tissue cells for rapid destruction, digestion or neutralization of the offensive foreign protein. The effective cellular agents in these reactions we know as *antibodies*. Their varieties and qualifications transcend our knowledge.

While the details of these cellular evolutions are exceedingly complex it is manifest that they are all coordinated to effect a purpose; to protect the body against a foreign poison; to endow it with what we call immunity toward the harmful substance which first irritated the cells.

Study of the pathogenesis of various infections leads irresistibly to the conclusion that, by and large, the essence of all infectious diseases inheres in the foreign proteins liberated in the body through the presence of invading microbes. Obviously no range of human endeavor is more fraught with problems affecting human welfare than that which is concerned with the understanding and control of the poisons leading to immunity.

There are doubtless several ways by which the biological status of immunity may be attained, but only one concerns us here—that, namely, in which the foreign protein or "antigen," as it is called, on entering the normal body has been able in the course of a few days to excite the latter to develop essentially new vital powers objectively witnessed by specific hypersensitiveness and defensive antibody reactions. The normal body which has undergone such a course of cellular training is now said to be "immune" toward that particular antigen, or microbe, which started the disturbance. It is characteristic of the immune state that the body which has acquired it responds at once with defensive reactions calculated to inhibit or destroy the irritating antigen whenever thereafter the latter makes a new invasion.

It might safely be predicted that all future contests