slopes of Mauna Kea is not so far advanced as on windward Haleakala, although the rainfall and consequently the rate of erosion over the two domes is about the same. The principal volcanic center on Haleakala probably became extinct in the late Pleistocene, though the eruption of the cinder cones and lava flows in the summit depression evidently took place much later, since they are definitely younger than the lavas of the surrounding scarps. Subsidiary activity continued as late as 1750, when small flows from fissures not far from sea level on the southwestern side buried part of a Hawaiian village.

Whether all activity has ceased or whether further eruptions from lateral fissures or vents may yet take place is, of course, uncertain; the principal vent, however, appears to have been finally sealed. Subsidiary activity on Mauna Kea apparently ceased earlier than on Haleakala. Only two of the principal Hawaiian vents, Mauna Kea and Hualalai on the island of Hawaii, have become extinct since the cessation of the major eruptivity of Haleakala.

No evidences of glaciation have been found on Haleakala, while small moraines have been discovered at the summit of Mauna Kea (elevation 13,825 feet). The considerably lower elevation of the summit of the Maui dome (10,032 feet) probably accounts for this.

West Maui (elevation 5,788 feet) is a much smaller and older dome which has been greatly dissected by streams radiating from a small summit plateau, the center of the heaviest rainfall and the principal watershed. The fluviatile topography of the dome is submature, but the heavier rainfall over the windward slopes has caused more rapid erosion and consequently a somewhat more advanced topographic development of that section of the dome. The streams have cut very deep, narrow canyons, having huge, amphitheater-like heads and long extents of cliffed walls throughout their courses. The interfluves are fairly broad near the shore; inland, where the multiplication of tributaries has resulted in more extensive erosion of the dome, the divides are narrow, serrate ridges. The headward growth of the canyons has not yet reached its ultimate goal, hence the slightly dissected summit plateau, a remnant of the original constructional surface, has been preserved. Stupendous sea-cliffs have been cut into the northern and northeastern coasts; low cliffs are present locally along the leeward shores. Judging from the extent of fluviatile and marine erosion, the principal eruptive center on west Maui became extinct late in the Tertiary. As on all the extinct domes in Hawaii, activity continued intermittently from subordinate centers after the sealing of the main vent. The completion of the west Maui and the Kauai domes probably took place at approximately the same time. Kauai has been more deeply eroded, but this appears to be due to the heavier rainfall over its windward slopes and summit plateau, the larger area of its watersheds, the greater volume of its streams, and the consequently more rapid rate of erosion over most of its surface.

Splendid sections of the underground structure of the west Maui dome are exposed in the great canyons and in the sea-cliffs. Maui thus is an especially attractive field for the geologist, since side by side are two lava domes, one possessing, with only slight erosional modifications, the original constructional outlines, and the other exhibiting sub-surface relations as the result of the long erosion to which it has been subjected.

NORMAN E. A. HINDS
UNIVERSITY OF CALIFORNIA

THE AMERICAN ASSOCIATION FOR THE ADVANCEMEMT OF SCIENCE

MEDICAL SCIENCES AT THE WASHINGTON MEETING

(Reports for Section N and the Federation of American Societies for Experimental Biology appeared in Science for February 6.)

The American Physiological Society

President, A. J. Carlson.

Secretary, Walter J. Meek, University of Missouri, Columbia, Mo.

(Report by Walter J. Meek)

THE thirty-seventh annual meeting of the American Physiological Society was held December 29, 30, 31, with members present from all parts of the United States. Among the items attended to at the business meeting are the following: Announcement was made of the continuation of the Wm. T. Porter Fellowship for Physiological Research, administration of which has been entrusted to the Physiological Society. Dr. A. J. Carlson was reappointed as representative of the society to the National Research Council. As representatives to the Union of American Biological Societies, the Physiological Society reelected C. W. Greene and A. J. Carlson. Dr. Greene's report that plans for *Biological Abstracts* were well under way was heard with approval. The annual editorial and financial reports of the *American Journal of Physiology* and of *Physiological Reviews* showed a profitable year and a slight increase in the credit balance of these publications. Dr. D. R. Hooker was elected managing editor of the *American Journal of Physiology* for 1925. The council named

as the editorial board of *Physiological Reviews* for 1925 the following: William H. Howell, *chairman,* J. J. R. Macleod, H. Gideon Wells, W. J. Meek, C. W. Edmunds, Laurence J. Henderson and D. R. Hooker. The officers elected for the year 1925 are as follows: A. J. Carlson, University of Chicago, *president;* Walter J. Meek, University of Wisconsin, *secretary;* C. K. Drinker, Harvard Medical School, *treasurer;* Joseph Erlanger, Washington University Medical School, *councilor* for 1925–28. Twenty-two members were admitted to the society. It was decided that the annual meeting for 1925 should be held at the School of Medicine, Western Reserve University, Cleveland, Ohio.

The program throughout was of great scientific interest. Individual papers were well prepared and excellently presented. The range of subjects was wide, the majority falling however under the titles of "Internal secretions," "Circulation," "The nervous system" and "The effects of light." A total of 116 titles were presented to the Physiological Society. As a result of this large number many had to be placed on the title list. In the future, if necessary, the secretary was authorized to schedule simultaneous sections on special topics. Three joint sessions were held; the first with Section N and the Federation of Experimental Biology and Medicine, the second with the federation alone, and the third with the botanists and plant physiologists.

The last-mentioned program deserves a word of special comment. It was the first attempt to bring animal and plant physiologists together. The papers had to do with the biological effects of light. A very large audience attended the excellent presentations made by Drs. Popp, Arthur, Hinrichs, Hess, Clark, Steenbock and Moore. The feeling was general that such joint sessions on common fields of science are exceedingly stimulating and should be encouraged. Preceding adjournment the American Physiological Society passed a resolution thanking the executive secretary, Dr. E. B. Krumbhaar, and the local committee for their many courtesies.

The American Society for Pharmacology and Experimental Therapeutics

President, John Auer.

Secretary, E. D. Brown, University of Minnesota, Minneapolis, Minnesota.

(Report by E. D. Brown)

The sixteenth annual meeting of the society, held at Washington, was not a record breaker in point of attendance, there being a noticeable absence of some of our prominent veteran members, but it was nevertheless a grand success from the standpoint of character and number of papers presented. Several papers dealt with toxicity and impurities present in alcohols and the various general anesthetics, which were very interesting. About the usual number of papers were also presented which added to our knowledge of the arsenical compounds. Dr. Louise Pearce, of the Rockefeller Institute for Medical Research, gave a talk on the "Results obtained with tryparsamide in African sleeping sickness as indicated by examination of patients two to three years after treatment." Those who have been following the work done by Dr. Pearce will be interested to learn that the results obtained have been very promising. A fairly large percentage of the treated patients who have been under observation during the last two or three years have shown no symptoms of recurrence of the disease and examination of the cerebrospinal fluid showed no evidence of the presence of trypanosomes. The other papers on the program dealt with various subjects pertaining to pharmacology and were both interesting and instructive. They brought forth considerable discussion.

The demonstrations were unusually large in number and very interesting, but unfortunately the space available was inadequate to handle the crowd and afford an opportunity for those primarily interested to see them all.

The American Society of Biological Chemists

President, Philip A. Shaffer.

Secretary, D. Wright Wilson, University of Pennsylvania, Philadelphia, Pa.

(Report by D. Wright Wilson)

The American Society of Biological Chemists met with the other societies of the Federation of American Societies for Experimental Biology in association with the American Association for Advancement of Science in Washington, December 29, 30 and 31. Nearly 100 members attended the meetings. Of the many subjects discussed in the 51 papers presented at the sessions of the society only those of most general interest can be mentioned here. Studies of oxidations and reductions in the organism were discussed. The physical chemistry of blood received attention in studies on the ion activities in plasma and corpuscles. New observations on the molecular weights of proteins were reported as well as other studies on the chemistry of proteins. Many phases of metabolism were discussed in detail. Studies of carbohydrate metabolism were reported by many investigators from the points of view of the utilization of sugars, the formation of lactic acid and ketogenesis. Several reports on the action of insulin in the organism led to the general conclusion that many mysteries still

remain to be solved in connection with this interesting extract. Fat metabolism was studied chiefly from the point of view of determining the types of fat and fatty acids formed in the organism and present in the blood and in the feces. Mineral metabolism was discussed in detail with the main interest centering around the metabolism of calcium.

Among the most interesting papers of the whole program were a series on vitamins. Steenbock (University of Wisconsin) and Hess (New York City) each reported experiments on the recent discovery that ultraviolet light can impart antirachitic properties to certain substances previously inactive in this respect. Cholesterol is the only highly purified substance which the investigators have activated. This observation opens up a new point of view concerning the function of cholesterol in the body. Further reports were made on the reproductive vitamin (X or E). The investigations on vitamin B were placed on a more quantitative basis.

The more chemical papers of the joint meetings of the federation may be mentioned. L. J. Henderson (Harvard University) presented an outline of a mathematical study of the enormously important function of the capillaries in taking care of the greatly variable needs of the tissues. By great variations in the size of the capillary bed, oxygen may be furnished in suitable quantities and CO_2 may be removed. J. B. Collip (University of Alberta) reported the discovery of an extract of the active principle of the parathyroid which is capable of curing parathyroid tetany in dogs and raising the calcium of the blood in normal and parathyroidectomized animals. A startling result of an overdose of the extract is the great loss of plasma from the circulating blood. Mansfield Clark and collaborators (Hygienic Laboratory, Washington, D. C.) presented a study of the biochemical reduction of methylene blue with explanations which may be applied to reductions in living tissues in general. Gesell and collaborators (University of Michigan) reported the further studies on the stimulation of the respiratory center. Data were presented to prove that the reaction of the circulating blood is not the factor controlling the stimulation of the respiratory center. These investigators believe that the condition within the center itself is of greater importance.

The American Society for Experimental Pathology

President, A. S. Warthin.

Secretary, E. B. Krumbhaar, Laboratories, Philadelphia General Hospital, Philadelphia, Pa.

(*Report by E. B. Krumbhaar*)

Below is given a cursory summary of some of the most striking features of the Washington meeting of the society. Peyton Rous, of the Rockefeller Institute, gave a very suggestive and interesting report on the reaction to indicators of living mammalian tissues. The whole animal having been colored with the dye by injection, his tissues were examined (partly dissected and spread out under oil) and the color of the indicator seen to change under various treatments, such as etherization and asphyxia. A. W. Rowe, of Boston University, offered practical improvements in Dreyer's standards for vital capacity. Montrose Burrows, who has done such important work on tissue cultures, described a method of identifying growth-promoting substances *in vivo* and applied it to a study of a so-called ovarian hormone. Two papers by T. G. Miller, of the University of Pennsylvania, and Hartmann, of the Ford Hospital, Detroit, on blood sugar studies, emphasized the need of most careful controls of all the possible variables in increasing the value of the test and of the deductions that might be made. Thyroidectomy and thyroid feeding were found to have no effect on menstruation in the white rat (M. O. Lee), whereas Seecof found definite mitochondrial changes in the thyroid running parallel with experimental hyperplasia and hypoplasia. An interesting study by Weller, of Ann Arbor, of experimental meningo-encephalitis, produced by feeding lead to rabbits, showed the histopathology of this condition and demonstrated that extremely minute amounts of lead can now be detected in the tissues with the perfected Fairhall method.

A group of papers on hemolysis and allied topics was opened by two excellent presentations by McMaster and Elman, of the Rockefeller Institute, on the subect of urobilin. Whereas it has long been doubtful where urobilin is produced, the use of Rous and McMaster's bag for the collection of uncontaminated bile over long periods conclusively proved that urobilin is not formed in the liver and therefore must be formed in the intestine or in other places if bacteria have access. Its increase in hemolytic conditions shows its relation to hemoglobin and confirms the value of urobilin tests as indicators of the amount of blood destruction. Bodansky, studying the distribution between the blood plasma and corpuscles of unsaturated fatty acids, cholesterol and its esters in experimental anemia, claimed that they were kept not only within physiological, but within very close numerical limits. Whenever the size of the corpuscles was increased without any hemoglobin increase, there was an increase in the unsaturated fatty acids—an interesting sidelight on Bloor's hypothesis that red cells take up fatty acids to join with lecithin and other lipoids. The effect of cations on the sus-

ceptibility of erythrocytes to hypotonic hemolysis was found by S. C. Brooks, of the Hygienic Laboratory, as by previous observers, to be very different in different species. Cattle, for instance, unlike man, pigs and rats, have no potassium in their red cells. He also discussed Ashley's proposition that potassium chloride made cells rich in potassium more fragile, whereas sodium chloride made cells poor in potassium less fragile and vice versa. Mann, of the Mayo Clinic, divided the problem of experimental peptic ulcer into three chapters: (1) Formation; (2) healing; (3) chronicity. A method of forming ulcers had been devised whereby the current in the gut was so diverted that the alkaline secretion enters far from the acid. This almost always produced a chronic ulcer, which if untreated went on to perforation. Healing could be obtained in two ways; either by draining the stomach elsewhere (which, however, invariably produced a fatal ulcer in the new site) or by so anastomosing sections of the gut that the alkaline duodenal juice flowed over the ulcer. In two studies of renal function, F. M. Allen showed that the blood volume was increased in various experimental and clinical renal lesions, especially if water or salt solution was injected; and Isaac Starr, Jr., of Philadelphia, found that in unanesthetized rabbits prolonged injection of adrenalin produced albuminuria. In eviscerated, luminal dogs, temporary renal vaso-constriction, caused by asphyxia, carbon dioxide inhalation, or bleeding also caused albuminuria. This confirms Rich's prediction in 1922 that albuminuria could be caused by vaso-constriction. Clinical and experimental papers by Rowntree and Keith showed that the new drug Novasural had a marked diuretic effect on cases of cirrhosis and Banti's disease, but its mechanism was not made apparent by their experiments. Several metabolic papers were presented. Contrary to what one might expect, Smith and Anderson, of Yale, found that rats stunted by insufficient nourishment learned the intricacies of a maze with a food prize at the end quicker than their luckier and portlier companions. Discussion brought out, however, that there was also a psychological problem involved: necessity is the mother of invention and the hungry rats were undoubtedly under greater stimulus. One is reminded of the old story (fiction, of course) of the Yale and Harvard rats caught in a bucket of cream. The Harvard rat, realizing the hopelessness of the situation, soon drowned, while the Yale rat swam so hard looking for a way out that he soon churned a cake of butter on which he sat till help came. Two studies of energy metabolism should also be mentioned: one from the Michael Reese Hospital by Wang and her associates on under-nourished children, and one by Elizabeth Marsh, of the University of Rochester, on the effect of food and crying on the metabolism of full-time and premature infants.

On Wednesday morning Van Allen, of the Rockefeller Institute, introduced a simple but much more accurate method of determining blood coagulation. Taking as end point the first appearance of fibrin crystals under the microscope, instead of the usual test of clot consistency, he found a constant period in normal rabbit's blood between 20 and 30 seconds, which, however, was increased several hundred per cent. in abnormal conditions. This test was applied to Brown and Pearce's tumor-bearing rabbits. Dr. A. S. Warthin, the president of the federation, gave a clear summary of his experimental studies of the changes produced by irradiation in the cells of lymphangiomatous nevi. Clumping of cells, endothelial shrinkage, hydropic degeneration of epithelium, fusion into syncitial masses and stroma changes can only be referred to here. Continued persistence of clumps of viable cells emphasized the clinical fact that it is extremely dangerous to tamper with pigmented moles by insufficient means. If removal is attempted, it should be done most thoroughly, to prevent the dissemination of melano-sarcoma, one of the most malignant tumors known. A further study of experimental spirocheta cuniculi lesions in rabbits by Ruth Wanstrom, of Ann Arbor, confirms the conviction that the rabbit should be condemned as a laboratory animal on account of the frequency of spirochetal, bacterial and unknown spontaneous infections, which cloud the issue of experiments in such important diseases as syphilis, encephalitis and nephritis. The need for experimentalists to study the comparative pathology of this and other laboratory animals was also emphasized by this study. Fleisher, of St. Louis, found monilia in the feces, blood and skin scrapings of so many more cases of psoriasis than of normal individuals that he believes that a causal relationship exists. This view was strengthened by the clinical improvement that occurred after the use of vaccines prepared with these organisms. Nichols, the well-known syphilographer of the Army Medical School, from his studies on clinical yaws, in which he has found the gradual development of a positive Wassermann test, and of experimental yaws in the rabbit, believes that this condition is probably an unusual type of syphilis.

The Society of American Bacteriologists

President, A. Parker Hitchens.

Secretary, James M. Sherman, Cornell University, Ithaca, N. Y.

(*Report by James M. Sherman*)

The sessions of the Society of American Bacteriolo-

gists extended over three days, December 29 to 31, and included both morning and afternoon sessions, as well as two evening programs which were mainly social in nature. In all there were 104 scientific papers presented. Of these there were 36 papers dealing with general or pure bacteriology, 35 in the field of pathogenic bacteriology, pathology and immunology, 28 in the section on agricultural and industrial bacteriology, while a program of five selected papers was given at a joint meeting with Section N of the American Association for the Advancement of Science. The full proceedings of the meetings with abstracts of the papers will be published in an early number of the 1925 volume of *Abstracts of Bacteriology*. A number of important matters which affect the policies and activities of the society were dealt with in the business sessions, and among these the matter of the society's journals is one of the most important. The society voted to lend its support to and cooperate with the new *Biological Abstracts*, which is to begin publication under the auspices of the Union of American Biological Societies in January, 1926. The council of the society was authorized to negotiate with its publishers, with whom *Abstracts of Bacteriology* is jointly published, for the discontinuance of this journal at the end of 1925, so that the abstract work in the field of bacteriology may be consolidated with the new journal. This will allow the society to concentrate its efforts more on the publication of the *Journal of Bacteriology*, and the council was also authorized to negotiate for the publication of this journal as a monthly instead of bi-monthly, beginning January 1, 1926.

One of the most important transactions of the meetings had to do with the collection of type cultures which has been maintained by the Society of American Bacteriologists for the past few years. This collection was originally established at the American Museum of Natural History, by Dr. C.-E. A. Winslow, but was taken over a few years ago by the society, and has since been maintained by the society at the Army Medical Museum in Washington. The work of the past few years was made possible by a small grant from the society, together with the voluntary services of some of the bacteriologists located in Washington and the free housing facilities furnished by the Army Medical Museum. By means of a grant which has been secured by the National Research Council from the General Education Board, it has now become possible to make more adequate provision for the care and maintenance of this collection. Dr. Ludwig Hektoen, director of the McCormick Memorial Institute at Chicago, has offered the facilities of that institute for the housing of the collection, and arrangements have been made for its transfer to that institute in the near future. The general supervision of the collection will be vested in a committee representing the Society of American Bacteriologists, the Society of Pathologists and Bacteriologists, the American Phytopathological Society, the American Society of Zoologists and the McCormick Memorial Institute. The society also voted to continue the financial support which it has been giving the culture collection, in order to supplement the work which will be carried out under the enlarged program.

The officers elected for the year 1925 were: *President,* Normal MacL. Harris, Department of Health, Ottawa, Canada; *vice-president,* Hans Zinsser, Harvard University Medical School, Boston, Massachusetts; *secretary-treasurer,* James M. Sherman, Cornell University, Ithaca, N. Y.; *councilors,* C. C. Bass, E. B. Fred, I. C. Hall, K. F. Meyer. The 1925 meeting will be held at Madison, Wisconsin, December 29 to 31.

The Annual Conference of Biological Chemists

President, S. R. Benedict.
Secretary, Paul E. Howe, Washington, D. C.

(*Report by Paul E. Howe*)

The eighth annual conference of biological chemists was held in the Hotel Washington on December 29. The object of the conference is to promote biochemistry as a profession and as a unit of organization in the educational, research and industrial institutions of Canada and the United States.

This year Professor V. C. Myers, of Iowa State University, presented the report of a committee to propose "A model course of pathological chemistry for students of medicine." Subjects proposed for discussion next year were: "Could biological chemistry be made more useful to medical students, if, instead of a required course in physiological chemistry, or a unit of *formal* instruction, the special chemical phases of medicine were taught *informally* and whenever desirable, in a central laboratory, by a staff of teachers who would collaborate with officers in charge of major medical subjects or groups of subjects?" and "The teaching of quantitative biochemical methods in the medical curriculum." Discussion at the meeting this year indicated that there is considerable interest in both topics. It is not the intention of the organization to discuss solely biochemistry as related to medicine. The secretary will be glad to enter into correspondence looking toward the arrangement of meetings for the discussion of the problem of biochemistry as a profession or in other connections. The officers elected for next year are as follows: *President,* Professor W. R. Bloor; *vice-president,* Professor A. P. Mathews; *secretary-treasurer,* Professor Arthur Knudson (Albany Medical College, Albany, New York).