At La Jolla, $225,000 will be spent: library, museum and aquarium, $125,000; pier repairs and rehabilitation, $50,000; sea wall, $25,000; utilities, $25,000.

At Mt. Hamilton, $900,000 will be spent for a new reflecting telescope, and $75,000 for fire protection and rehabilitation of buildings.

At Riverside $420,000 will be spent on a library building, with auditorium, $300,000; on an insectary, $60,000; and on heating plant, $60,000.

At Santa Barbara College, $1,500,000 will be spent on new buildings.

THE MEDICAL HISTORY OF THE WAR

AT a meeting of representatives of the professional and administrative services of the Office of the Surgeon General, held in Washington on July 26, plans were discussed and progress reports were made on the medical history of the war, work on which has been in progress since August, 1941. It is being carried out under the direction of Colonel Albert G. Love, of the Army Medical Department, who was a member of the editorial staff that published the history of the Medical Department of the United States Army in World War I.

Editors have been selected for the volumes on the medical specialties and the administrative phases of the medical service. In addition to the research and editorial work to be done in the Office of the Surgeon General, historical investigations will be carried forward by officers assigned to the headquarters of overseas theaters. They will secure first-hand reports of over-all medical services, particularly those rendered under combat conditions, including evacuation of the wounded and the flow of supplies. Officers overseas who have had extensive experience with medical and surgical problems peculiar to this war are being asked to record their observations.

When first organized, the historical activities of the Medical Department relative to professional subjects were part of a joint plan to be undertaken in cooperation with the Subcommittee on Historical Records of the Division of Medical Sciences of the National Research Council. The administrative and organizational volumes were to be prepared by the Medical Department. This plan, however, was modified recently in accordance with the wishes of Surgeon General Norman T. Kirk, who believes that the Medical Department should assume full responsibility for its entire history.

SCIENTIFIC NOTES AND NEWS

DR. HARLOW SHAPLEY, Paine professor of astronomy at Harvard University and director of the observatory, and Dr. George David Birkhoff, Perkins professor of mathematics and dean of the Faculty of Arts and Sciences, have been elected to honorary membership in the Mathematical Society of Mexico.

THE University of Oregon conferred at its commencement exercises the doctorate of science on Dr. Ralph W. Chaney, professor of paleontology at the University of California at Berkeley, "in recognition of his penetrating researches in paleobotany in general and of the Oregon area in particular; his unique understanding of the historical geology of Western America in relation to that of Asiatic countries; and his deep appreciation of the kinship of science in its broadest aspects and its contribution to the understanding of human values."

ARTHUR PHILLIPS, professor of metallurgy at Yale University, has returned from a three months stay in Brazil. During his visit the University of São Paulo, Brazil, conferred on him the honorary degree of *doctor honoris causa,* in recognition of his contributions to metallurgy and of a series of lectures given before various Brazilian groups. He was one of three Americans who visited Brazil under the sponsorship of the Office of the Coordinator of Inter-American Affairs. The Associaco Brasileira de Metals presented him with a gold medal and elected him a director of the society. At the conclusion of the lectures, he was conducted on a two-week tour of the mining districts of Brazil, in order to learn at first hand the problems facing the metal producers there.

THE Cameron Prize in Practical Therapeutics of the University of Edinburgh has been awarded to Dr. Otto Loewi, research professor of pharmacology at New York University, in recognition of "his fundamental work on the chemical transmission of the nervous impulse."

PROFESSOR W. STORRS COLE, of the department of geology of the Ohio State University, has been elected a member-at-large of the National Research Council. He has been assigned to the division of geology and geography for a three-year term ending on June 30, 1947.

DR. E. F. KELLY has resigned as secretary of the American Pharmaceutical Association.

DR. GILBERT SHAW SCOTT, the first secretary of the British Institute of Metals, is retiring after having served for thirty-six years.

DR. G. E. POTTER, of the Agricultural and Mechanical College of Texas, has leave of absence to enable him to become visiting professor of biology at the

College of Agriculture and Mechanic Arts of the University of Puerto Rico at Mayaguez.

PROFESSOR CHARLES R. KEYES, professor at Cornell College, who retired two years ago, has been appointed visiting research professor in anthropology at the State University of Iowa. For a number of years he has been engaged in the study and excavation of Indian habitation sites and mounds in Iowa, a project which was subsidized in part through the university. He has assembled and classified a valuable collection of materials, which he has presented to the University of Iowa and to the Iowa State Historical Society. His assignment under the present appointment is to write a monograph describing and interpreting the collection.

DR. FREDERIC A. WOLL, professor of hygiene at the College of the City of New York and director of the department, having reached the age of seventy years, retired this month.

DR. ROBERT C. DISQUE, dean of the School of Engineering of the Drexel Institute of Technology, Philadelphia, has been elected president of the institute to succeed Dr. George Rea.

AN Associated Press dispatch reports that Alfonso Caso, the archeologist, has become president of the National University of Mexico to succeed Rudolfo Brito Foucher, whose resignation is said to have been forced owing to the opposition of the students to his administration.

DR. FRED F. MCKENZIE, head of the department of animal husbandry of the Utah State Agricultural College, has been appointed professor of animal husbandry and animal husbandman at the Oregon State College.

DR. LESLIE A. STAUBER, associate in pharmacology at the Squibb Institute for Medical Research, has been appointed assistant professor of zoology at Rutgers University.

DR. ANGUS E. TAYLOR, assistant professor of mathematics at the University of California at Los Angeles, has joined the Operations Analysis Section of the Army Air Forces, where he expects to carry on mathematical research. Others who have undertaken civilian work with the A.A.F. are Dr. Joseph Kaplan, professor of physics; Dr. Wm. Whyburn, professor of mathematics, and Dr. Paul G. Hoel, assistant professor of mathematics.

DR. HARDEE CHAMBLISS, professor of chemistry retired, and some time dean of the School of Engineering of the Catholic University of America, has joined the staff of the Geophysical Instrument Company, Arlington, Va., as consulting chemist. He will give a general introductory course in geochemistry at the Graduate School of the U. S. Department of Agriculture, in which geochemical prospecting for oil and minerals will be among the topics discussed.

DR. GEORGE A. ZENTMYER, of the Connecticut Agricultural Experiment Station at New Haven, has been appointed assistant plant pathologist of the Citrus Experiment Station of the University of California at Riverside, to succeed the late Dr. William T. Horne.

LIEUTENANT COLONEL MORTON A. SEIDENFELD, formerly director of rehabilitation of the Tuberculosis Institute of Chicago and Cook County, has become chief clinical psychologist of the Advisory Board on Clinical Psychology of the Office of the Adjutant General, of which Dr. Walter V. Bingham is chief psychologist.

AT Cornell University, Dr. E. M. Hildebrand, assistant professor of plant pathology, has resigned to become plant pathologist of the Research Division, Food Machinery Corporation at Dunedin, Fla., and Dr. V. L. Frampton, also assistant professor of plant pathology, has resigned to become research chemist in the new Cotton Institute at Dallas, Texas.

DR. WENDELL M. STANLEY, member of the Rockefeller Institute for Medical Research, and George B. Wells, president of the American Optical Company, have become members of the Board of Trustees of the Worcester Foundation for Experimental Biology.

DR. RAYMOND B. COWLES, associate professor of zoology at the University of California at Los Angeles, has left for Florida to take part in a study on the relation of temperature environment to animals, especially reptiles and amphibians, under the auspices of the American Museum of Natural History and the University of California. He will spend several weeks at the Archbold Biological Station at Sebring conducting an investigation of Floridan species.

DR. C. H. BEHRE, JR., professor of geology at Columbia University, has been granted leave during the summer to continue his work in charge of zinc and lead exploration in the southern Appalachians and the upper Mississippi Valley district for the United States Geological Survey.

E. S. RIGGS, honorary curator in vertebrate paleontology of the Museum of Natural History of the University of Kansas, has returned from western Kansas, reporting successful collecting from a pocket of Pliocene mammals, discovered last year. Dr. Claude W. Hibbard, curator, will remain in the field until September.

AN expedition of the Cranbrook Institute of Science and the University of Michigan returned in mid-August from the region of the new Mexican volcano, El Parícutin. The party made preliminary investigations of the effect of ash deposition on the survival of

plants and vertebrate animals at varying distances from the volcano, and obtained evidence of probable centers of repopulation of the denuded area. So far as known, this is the first attempt to study the subject of life, destruction and recovery from volcanic action that has been initiated while the forces of destruction were still active. Members of the party were Robert T. Hatt, Marcelle R. Hatt and A. N. Goddard, of the Cranbrook Institute, and William H. Burt, of the University of Michigan. They collected mammals, plants and geological material around the volcano at Angahuan and at Uruapan, 1, 11 and 35 kilometers, respectively, from the cone.

A TECHNICAL meeting of the American Institute of Electrical Engineers will be held at Los Angeles from August 29 to September 1. The program will be devoted to electrical applications to military aircraft.

THE International Business Machines Corporation presented to Harvard University, on August 6, an automatic sequence controlled calculator. It was accepted with appropriate ceremonies by President James B. Conant as a gift from the corporation. Commander Howard Aiken, now on leave as associate professor of applied mathematics at the university, originated the basic theory which led the corporation to assign its engineers to invent a machine which would carry out the calculation desired by Commander Aiken over a period of six years. Clair D. Lake, inventor of printing accounting machine mechanism, was placed in charge of the invention of the machine at the laboratory of the corporation at Endicott, N. Y., with Commander Aiken and Frank E. Hamilton, engineer. This group was responsible for the development of the invention. The calculator will be used by the Navy for the duration of the war.

BEGINNING with January, 1945, it is planned to bring out a *Journal of Clinical Psychology*. It will be a professional journal limited to the publication of original research and authoritative theoretical articles in the field of clinical psychology. The journal will appear quarterly and will contain about three hundred and twenty pages annually. Editorial and business offices will be at the Medical College Building of the University of Vermont, Burlington. One of the purposes of the *Journal* will be to work toward a more formal organization of professional resources in clinical psychology and to improve inter-professional relations with other sciences, including psychiatry.

THE *Journal* of the American Medical Association reports that the selection of a professor of nutrition at the Medical School at Tufts College is being considered. Last year a fund was established to commemorate the seventieth birthday of Miss Frances Stern, chief of the food clinic of the Boston Dispensary, the fund to be used by Miss Stern to extend the research and educational activities of the clinic. Recently a Frances Stern Committee on Nutrition was appointed, and one of its first actions was to approve the selection of a full professor of nutrition and to recommend a survey by members of the faculty who have included nutrition in their courses. The Charles Hood Dairy Foundation, a local group, has voted to contribute annually for three years half the amount that the nutrition committee estimates would be needed to begin the project.

THE third Postgraduate Course in Industrial Medicine will be given from October 16 to November 3 under the auspices of the Department of Preventive Medicine and Community Health of the Long Island College of Medicine. It will be conducted by more than fifty leading physicians in industrial practice, authorities in allied fields and members of the faculty of the college. Two similar courses were given in 1942 and 1943. The course this year will place particular emphasis on post-war conditions and problems associated with the return of workers from military service. Although designed for graduate physicians, it will be open to industrial executives, personnel workers, industrial nurses, hygienists, engineers and to others interested in industrial health. It will include afternoon and evening lectures, and seminars, supplemented by morning clinics and demonstrations arranged in cooperating hospitals and industrial medical departments.

CHEMICALS wanted by the National Registry of Rare Chemicals, Armour Research Foundation, 33rd, Federal and Dearborn Streets, Chicago 16, Illinois, include: Ammonium chlorate, ammonium bromate, aluminum carbide, 3,4-benzphenanthrene (.2g), cytosine, dibenzyl ketone, alpha-(2,5-dimethyl phenoxy) propionic acid, 3,4-dimethyl phenoxy acetic acid, folic acid, guvacine or guvacoline (1,2,5,6-tetrahydronicotinic acid and methyl ester), 25g, beta (4-hydroxy phenyl) lactic acid, mono and di-iron phosphides, 1-((N-methylol stearic acid amido) methyl) pyridinium chloride, methyl-n-amyl ether, 2-methyl-3-(beta hydroxy ethyl) pyridine, pyrazine, sodium salt of ethyl formyl acetate, sulfamide, triphenyl arsine and triphenyl boron.

IT is stated in the *Journal* of the American Medical Association that the organization of a National Vitamin Foundation was approved at a meeting on May 23 of fifty representatives of all sections of the vitamin industry in New York. Its objectives would be to award grants for research in the vitamins or related fields, the dissemination of information to the vitamin trade, medical profession and public with respect to the quality, purpose and uses of vitamins, adoption of terminology and standards of publicity practices in connection with the sale of vitamins, and to confer

and consult with medical societies, medical schools, health organizations, public health agencies and governmental agencies with respect to vitamins and the vitamin industry. The foundation will be administered by a board of trustees. Details of the organization are to be formulated by a committee of which Basil O'Connor, New York, president of the National Foundation for Infantile Paralysis, has been named chairman.

Industrial Standardization reports that the work of the British Standards Institution has been more than doubled since the beginning of the war as the result of requests from the government for standards for all kinds of war commodities. The institution is conducted by industry, but has a financial grant from the government. About 1,500 standards have been issued to date, and an active postwar program, particularly in the field of building materials, is being planned.

DISCUSSION

UNIPARENTALISM IN THE HYMENOPTERA AND ITS RELATION TO POLYPLOIDY

DURING the period from 1850 to 1853, Foerster[1] noted that the eulophid *Astichus arithmeticus* reproduced generation after generation in the absence of males. This was probably the earliest observation of the uniparental reproduction of females which now is known to occur commonly in the more primitive and biologically plastic groups of Hymenoptera. According to Clausen,[2] the uniparental reproduction of females is not yet known to occur in the Serphoidea, which is perhaps the most consistent of the superfamilies of the Hymenoptera both in host preferences and in relationships.

The capacity to produce males and females without fertilization is characteristic of the Hymenoptera; the normal hymenopterous male having only one parent, the normal female having either one or two parents.

In most, if not all, species each of the sexes produced uniparentally is morphologically capable of mating. The sex attraction, however, may be so weak that mating never occurs. This is known to be the case in certain species of Chalcidoidea and Cynipoidea.

In the majority of known species of Hymenoptera the progeny of the unmated female consist almost entirely of males. In such species the females are biparental provided the conditions of reproduction are those usually prevailing.

In many species, however, both sexes are usually, if not always, uniparental. In such species it is possible that mating may be necessary for providing a stimulus to oviposition.

Certain species consist of geographical races, reproduction being biparental in one and uniparental in the other. Many genera are made up of uniparental and biparental species.

Mackensen[3] observed 21 virgin queen honey-bees which produced bisexual broods. The number of uniparental females from any queen, however, was estimated not to exceed one per cent. of her progeny. The unmated workers of certain species of bees and ants commonly produce female offspring.[4]

The female of many hymenopterous species, therefore, is capable of producing two kinds of eggs; one kind yielding only uniparental females, the other either uniparental males, or, if fertilized, biparental females. Studies by Speicher and Speicher[5] on *Microbracon hebetor* indicate the probable origin of the two kinds of eggs. The occasional uniparental female appearing in this species originated from patches of tetraploid tissue in an ovary, which otherwise was diploid. The unfertilized eggs from such an ovary subsequent to the reduction process would be either haploid (male) or diploid (female).

It is not impossible that changes in the tetraploid and diploid composition of the ovarian tissues of the hymenopterous female result from changes in the environment. It has been observed in a number of species in which both sexes are uniparental that certain changes in the environment produce a marked change in the sex ratio. For example, when peach twigs bearing San Jose scale parasitized by *Prospaltella perniciosi* are brought into the laboratory, males and females of *P. perniciosi* emerge and mate.[6] The first generation reared under laboratory conditions in San Jose scale growing on cow-melons (*Citrullus*) also consists of both sexes. All the subsequent generations on cow-melons, however, consist only of females.

It is evident that the ovaries of females developing in San Jose scale growing on cow-melons are entirely thelyotokous, whereas in females developing in San Jose scale growing on peach twigs the ovaries either are entirely arrhenotokous (the haploid egg being fer-

[1] Arnold Foerster, "Hymenopterologische Studien," Heft 2—"Chalcidiae und Proctotrupii." Aachen, Ernst ter Meer. 152 pp. 1856.

[2] C. P. Clausen, "Entomophagous Insects." 688 pp. New York: McGraw-Hill Book Co., Inc. 1940.

[3] Otto Mackensen, *Jour. Econ. Ent.*, 36: 465–67, 1943.

[4] William Morton Wheeler, "The Social Insects." 378 pp. New York: Harcourt, Brace and Company. 1928.

[5] Kathryn G. Speicher and B. R. Speicher, *Biol. Bul.*, 74: 247–52, 1938.

[6] Stanley E. Flanders, *Jour. Econ. Ent.*, 37: 105, 1944.