the beginning of the recent war he gave unsparingly of his time and knowledge to the solution of a wide range of military problems. He served as a distinguished member of our Committee and of other national advisory committees. He was counselor and expert consultant on numerous occasions and directed many researches, and individually conducted both field and laboratory investigations to answer specific critical military problems. At the end of the war, he enthusiastically embraced the role of educator of the public in basic concepts and implications of atomic energy. The role of educator was not new to him; he had long been recognized as a great teacher effective in training and stimulating workers in diverse scientific fields. As colleague, friend, and critic, he was unique and has left an impress, both personal and scientific, that will endure.

# *NEWS and Notes*

**The program of biological research** at Pt. Barrow, Alaska, described in *Science* (August 22, 1947, p. 164) is now well under way. Through the Navy Department we have been able to obtain the four views of the installation shown on this week's cover. These are: (*upper left*) original laboratory, a quonset hut, 20 by 40 feet; (*upper right*) interior view of original physiological laboratory; (*lower left*) Laurence Irving, of Swarthmore College, scientific director of the Arctic Research Station, and an assistant, Walter Flagg, also of Swarthmore; (*lower right*) animal quarters for specimens under study. We are informed that at the present time there are three laboratories, all 40 by 100 feet, one for the Natural Sciences, one for the Physical Sciences, and the third for the Engineering Sciences. The first two are two-story structures.

## About People

**Wendell M. Stanley,** Nobel Prize winner in chemistry in 1946, will go to the University of California, Berkeley, in July as professor of biochemistry and director of a new Virus Laboratory. In addition to directing biochemical research on the Berkeley campus and at the Medical School in San Francisco, Dr. Stanley will cooperate closely with the state-wide program of the College of Agriculture in the same field. The proposed virus research center will be the only one of its kind anywhere in the world in a university.

**Serge A. Korff, Lowell Greenberg,** and **L. G. Collyer,** of New York University's College of Engineering, flew to Puerto Rico on January 16. While there, they will make cosmic-ray observations as part of a long-range program designed to determine intensity variation of these rays in various parts of the world. Tests to be conducted will also include the charting of cosmic-ray strength with respect to altitudes up to 20 miles. Rubber balloons 5′ in diameter will carry aloft a number of instruments for making the desired measurements.

**M. H. McVickar,** agronomist, Virginia Agricultural Experiment Station, has been appointed chief agronomist, National Fertilizer Association, effective February 1.

**H. J. Muller,** professor of zoology, Indiana University, will deliver the fifth Harvey Lecture of the current series at the New York Academy of Medicine on February 19, 1948. Dr. Muller will speak on "Evidence of the Precision of Genetic Adaptation."

**Robert Taylor Baldwin,** secretary and treasurer, Chlorine Institute, New York, retired December 31 as treasurer of the American Chemical Society after 16 years of service.

**Robert L. Pendleton,** Office of Foreign Agricultural Relations, U. S. Department of Agriculture, and Johns Hopkins University, left December 31 with an agricultural commission of the Food and Agriculture Organization to spend three months studying ways to improve the agriculture of Siam. The Mission's headquarters will be in Bangkok.

## Grants and Awards

**Charles Allen Thomas,** executive vice-president and technical director, Monsanto Chemical Company, St. Louis, Missouri, will receive the 1948 gold medal of the American Institute of Chemists. Presentation of the medal will be made at the annual meeting of the Institute in New York City, May 8. According to Foster D. Snell, president of the Institute, Dr. Thomas will receive the award for his work in the development of atomic energy, his leadership in research, particularly synthetic resins, and his administrative ability and encouragement of basic research.

**The Society of American Foresters' official organ,** *The Journal of Forestry,* carried in the August 1947 issue an article on "Cheatgrass—A Challenge to Range Research." This article, by A. C. Hull, Jr., and Joseph F. Pechanec, forest ecologists at the Intermountain Forest and Range Experiment Station, Ogden, Utah, has received the Journal's 1947 award of $100 because of its contribution to scientific knowledge, its readability, timeliness, and importance to the profession.

**Donald H. Menzel,** of the Harvard Observatory, has won the $500 A. Cressy Morrison prize awarded each year by the New York Academy of Sciences for the best paper dealing with research in particular fields. Dr. Menzel's paper dealt with the energy sources of giant stars. The award also went to the Harvard astronomer in 1926 and 1928 for two other papers on different aspects of the subject.

**The Bay State Society for the Crippled and Handicapped** has made a grant of $12,000 for the work of the Seizure Unit of the Neurological Institute, Children's Medical Center, Boston, Massachusetts.

**The College of Dentistry, Ohio State University,** has received a grant of $4,990 from the Research Grants Division, National Institute of Health, U. S. Public Health Service, to facilitate the teaching of pathology, diagnosis, and therapy of oral cancer by expanding the activities of the present staff and employing new personnel. The expanded cancer teaching program will be directed by Hamilton B. G. Robinson, professor of oral diagnosis and pathology at the College of Dentistry. Teaching methods will include clinics, microscopic conferences, seminars, and lectures.

## Colleges and Universities

**The long series of observations** necessary for making the many adjustments required before the 200-inch telescope at Palomar Mountain Observatory is ready to begin an actual research program began this month. Max Mason, chairman of the Observatory Council at CalTech, commenting on the first observations, expressed satisfaction that the test photographs could be obtained so soon, pointing out that there was a lapse of almost a year after the 100-inch mirror was taken to Mt. Wilson before the first test pictures were made. John A. Anderson, of CalTech, who figured the 200-inch mirror and supervised its grinding and polishing, was the first observer. Others in the group included Ira S. Bowen, who will be director of both the Mt. Wilson and Palomar Observatories when the latter is completed; Edwin Hubble and M. L. Humason, of the Mt. Wilson staff; Russell W. Porter, who designed the building and assisted in designing the telescope; Mareus H. Brown, who had charge of the CalTech optical shop during the 11 years of polishing and grinding; Bruce Rule, project engineer; Byron Hill, construction engineer; and J. G. Oort, visiting astronomer from the Netherlands.

**The University of Notre Dame** has increased its research expenditures for science and engineering this year from $120,000 to nearly $500,000. According to the Rev. Dr. Philip S. Moore, dean of the Graduate School, the expanded program includes projects in nuclear energy, electronics, cancer, new types of liquid fuels, synthetic rubber, penicillin pigments, insulin, germ-free animals for the study of different types of diseases, antimalarial drugs, vitamins, proteins, mineral metabolism, cause of tooth decay, nutrition, synthetic rubber, plastics, vaccines, toxins, and seed germination.

**The Photosynthesis Project,** established by the University of Illinois Graduate College in the Department of Botany and directed by Robert Emerson, has recently added two research assistants, Victor Schocken and Shimpe M. Nishimura. Eugene I. Rabinowitch, one of the editors of the *Bulletin of the Atomic Scientists,* is also a member of the group. At present the laboratory is extending its studies on the quantum efficiencies of photosynthesis.

**The University of Cincinnati Chapter of Sigma Xi** opened its 1947–48 program with an illustrated lecture on "Early Man in South Africa" by Dean George B. Barbour. The lecture was illustrated with colored slides and films taken during the course of a summer's field work as a member of the University of California Expedition to Africa (*Science,* June 13, 1947, p. 616). Prior to the arrival of the main party under Charles Camp, of the Museum of Paleontology at Berkeley, Dr. Barbour made a report on the cave sites in Makapan Valley now being excavated by the Bernard Price Foundation of the University of the Witwatersrand. The recent finds there of early paleolithic implements in association with a skull of Neanderthal affinities are being overshadowed by the discoveries made at Raymond Dart's original site at Taungs and at Limeworks Cave at Makapan, from which further Australopithecine fossil material has now been recovered. The other sites studied included the Sterkfontein cave, where Robert Broom this summer exposed new skeletal material of Plesianthropus. Attention was drawn also to the rich record of Stone Age cultures now being investigated by the South African scientists.

## Fellowships

**Smith College** has four graduate Fellowships in Zoology available for the year 1948–49. In addition to the Whipple-Wilder Fellowship ($900 including tuition) for full-time work leading to the A.M. degree in one year there are three Teaching Fellowships which are renewable for a second year ($800 for the first year and $900 for the second year, plus tuition). A requirement of part-time assistance in laboratory sections permits completion of work for the A.M. degree in two years under a Teaching Fellowship. Inquiries should be directed to: Chairman, Department of Zoology, Smith College, Northampton, Massachusetts.

## Symposium on Trace Elements in Plant Physiology

A Symposium on Trace Elements in Plant Physiology was held under the sponsorship of the International Union of Biological Sciences at Rothamsted Experimental Station, Harpenden, England, November 5–7, with B. Nemec, Laboratory of Plant Physiology, Prague, as chairman. M. J. Sirks, president of IUBS, has sent us the following report of the meeting, prepared by T. Wallace, of the Long Ashton Research Station, Bristol, England, acting chairman of the symposium:

In addition to Profs. Nemec and Wallace, the following were in attendance: D. I. Arnon, Berkeley, California; Winifred E. Brenchley, Rothamsted Experimental Station; H. Burström, Botaniska Laboratoriet, Lund, Sweden; J. Erkama, Biochemical Institute, Helsinki, Finland; L. Gisiger, Eidgen. Agrikulturchemische Anstalt, Liebefeld-Bern, Switzerland; E. J. Hewitt, Long Ashton Research Station; E. A. Jamalainen, Agricultural Experiment Station, Tikkurita, Helsinki, Finland; J. Lavollay, Conservatoire National des Arts et Métiers,

Paris, France; Marie P. Löhnis, Agricultural College, Wageningen, Netherlands; E. G. Mulder, Agricultural Experiment Station, Groningen, Netherlands; M. Odelien, Agricultural College of Norway, Aas, Norway; L. Seekles, Veterinary Faculty, University of Utrecht, Netherlands; F. Steenbjerg, Kgl. Veterinaer. og Landbohøjskole, Landbrugets Jorddyrkning, Copenhagen, Denmark; Margaret P. Thomas, Waite Agricultural Institute, Adelaide, Australia; Katharine Warington, Rothamsted Experimental Station; and S. N. Das Gupta (UNESCO), Paris, France.

The symposium was conducted in four sessions, at which 14 short papers were read to introduce the subjects for discussion. The work in progress on trace elements under Dr. Brenchley and Miss Warington at the Rothamsted Station was inspected at the end of the meetings.

The subjects presented covered a wide field, included items of current scientific interest and practical importance, and demonstrated the immense value of plant physiological studies in investigating problems of crop production and animal husbandry.

Prof. Nemec, in his opening address, outlined the development of methods of research on trace elements, referring in particular to the early water-culture experiments of Sachs and the influence of Prof. Stoeckard, of Tharandt Forestry School, Saxony, on this pioneer work. He exhibited a sample of gold obtained from the ash of plants of *Equisetum palustre* (grown on volcanic soils in Bohemia) and referred to the concentration of droplets of metallic mercury in the seed capsules of *Holosteum umbellatum* on some soils.

Prof. Wallace and Mr. Hewitt outlined methods in use in trace element research at Long Ashton. It was shown how visual methods can be applied to problems of deficiencies, excesses, and relationships of trace elements in plant nutrition studies and how the method can be applied to analyze the injurious effects of soil acidity. Mr. Hewitt described his technique for large-scale sand cultures by means of which he has been able to study problems relating to deficiencies of iron, manganese, boron, and molybdenum. The various points of these two papers were illustrated by a comprehensive exhibit of photographs.

J. Lavollay outlined his method for the determination of the coefficient of action of mineral nutrients and illustrated the application of the method to problems concerning magnesium nutrition, showing how yield is related not only to the supply of magnesium in the nutrient but also to the total concentration of salts in the medium. He demonstrated not only the beneficial effect of phosphorus on the action of magnesium and the antagonism which exists between magnesium and potassium, but also the similarity of action of potassium and rubidium.

Dr. Arnon, whose contribution was concerned with the criteria of essentiality for micronutrients, illustrated his points by reference to his investigations in California on the essential role of molybdenum in plant nutrition. He suggested as the three criteria of essentiality of any element: (1) The life cycle of the plant cannot be completed if the element is omitted. (2) The action of the element must be specific. (3) The effect on the plant must be direct. The paper and the discussion revealed the great practical difficulties of establishing "essentiality" for elements required only in traces; nevertheless, it was thought that further refinements of methods might disclose the essential nature of further elements.

Points of special interest in trace element nutrition were discussed in papers by E. C. Mulder, J. Erkama, and H. Burström. Dr. Mulder described experiments concerning the functions of copper and molybdenum in the metabolism of higher plants and microorganisms and also referred to the application of his results to field crops in the Netherlands. Copper is regarded as a catalyst of oxidation processes, and molybdenum has been shown to be necessary for the reduction of nitrate N in higher plants and for the fixation of nitrogen by *Azotobacter*.

Dr. Erkama in his studies has regarded the three elements Fe, Mn, and Cu as comprising one unit and has endeavored to determine their relationships. Manganese seems to be antagonistic to both copper and iron, and reactions with manganese seem to take place mainly in the vacuole sap. Copper, it is suggested, is able to remove iron from the vacuole sap and oxidize it in protoplasm.

Prof. Burström reported results on the action of manganese in roots. Manganese appears to catalyze nitrate reduction in roots and in this respect it may have a function similar to molybdenum in some plants. His results show that, in roots, nitrogen increases the length of cells, phosphorus is concerned with cell multiplication, while manganese appears not to affect the ultimate length of the root. Mn may shorten the meristem region and, while increasing the rate of root elongation, it also shortens the "grand period" of growth. Manganese thus seems to have effects apart from those concerned with nitrogen. This paper brought forth discussion on the differential effects of $NH_4$ and $NO_3$ with *Aspergillus*, excised roots, and attached roots in relation to redox systems.

The practical application of trace element investigations to crop-producing problems was discussed in the contributions of Dr. Gisiger, Prof. Steenbjerg, Dr. Löhnis, Prof. Jamalainen, and Dr. Mulder, Wilhelminadorp (this last being communicated by Dr. Löhnis).

Dr. Gisiger described investigations relating to crop failures in Switzerland during the war, resulting from overliming associated with deficiencies of boron and manganese. From his experiments he concludes that the damage from excess liming is due to the hydrating action of the $OH^-$ anion. Boron tends to counteract this effect by dehydrating action, this being an alternative hypothesis to the fixation of boron by lime action. The $OH^-$ ion is regarded as causing the unavailability of manganese over an intermediate range of pH, availability increasing at low and high pH values. The range of low availability is similar to that shown by Quastel, *et al.*, at which soil organisms are active in the oxidation of soil manganese.

Prof. Steenbjerg outlined the main problems of trace elements investigated in Danish agriculture. Iron and manganese deficiencies are common in horticultural crops; copper deficiency

occurs in crops on the sandy soils of Jutland. Cobalt deficiency in cattle has also been recognized. Investigations have been concerned largely with deficiencies of manganese and copper. With manganese the problems differ for sands and clays, and soil methods have been devised for advisory purposes. Organic matter is an important cause of copper deficiency, and the availability is greatly influenced by preceding crops. Grass is regarded as important in mobilizing soil copper. The copper content of plants has been shown not to be an infallible guide in the diagnosis of copper deficiency, since, when growth is severely stunted, the total copper content of the plant material (as percentage dry matter) may not be unduly low. A characteristic S-shaped curve is obtained relating dry matter production and total copper content. Deficiency values occur at the point of inflexion.

Discussion of this paper showed that many problems concerned in availability of manganese and its relations to other elements in plants, e.g. Mn/N, require further study.

Dr. Löhnis described her researches on the toxicity of manganese to crops in acid soils in the Netherlands. *Phaseolus vulgaris* and *Vicia sativa* were found to be highly susceptible, whereas oats and strawberries were resistant to damage. Resistance to excess manganese and susceptibility to manganese deficiency (as shown by oats) cannot be explained on the simple basis of "ease of absorption of manganese" from the soil, since some crops are susceptible (e.g. *Phaseolus*) and others resistant (e.g. strawberry) to both excess and deficiency of the element.

Prof. Jamalainen gave an account of the occurrence of deficiencies of boron, copper, and manganese in crops of Finland. Boron deficiency is prevalent in sugar beet, swedes, and apples, and occurs even on strongly acid soils, though the deficiency is accentuated by liming. Other crops affected are clover, celery, turnips, and white mustard. Copper deficiency is also an important problem, particularly on peats, but also on sands. Clay soils are less affected. Cereals, hay crops, potatoes, and root crops have all responded to copper dressings. As the soils of Finland are mainly acid, manganese deficiency is rare, though Marsh Spot of peas has been noted in Aland. The deficiency may occur on overlimed soils.

The contribution sent by Dr. Mulder concerned the occurrence of zinc deficiency in fruit trees in Europe and referred in particular to apples, pears, and cherries in the Zeeland province of the Netherlands and to reported instances in apples in Hungary, Denmark, and Switzerland. The Dutch examples occur on highly calcareous sands, and the deficiency can be cured by winter or summer sprays of zinc sulfate.

A novel paper of the symposium was contributed by Prof. Seekles. This referred to trace element problems in farm stock. The contribution showed clearly the similarity in plants and animals of many of the fundamental problems concerned with trace elements. Thus, in both there appear to be direct and induced (or "conditioned") deficiencies, and relationships between elements may be of great importance. Moreover, as Prof. Seekles pointed out, trace elements are concerned with many linked series of enzyme reactions in plants and animals, and the breaking of these series at different points from different deficiencies may result in varied or similar pathological conditions.

At the conclusion of the conference Dr. Arnon proposed that an endeavor should be made to adopt a term for universal use to replace the numerous current expressions used by different workers, viz. "trace elements," "trace nutrients," "minor elements," "oligo elements," "spuren-elements." He was prepared to suggest the term "micronutrient elements" as a basis for discussion and agreed to prepare a memorandum on the subject.

## Elections

**The Ecological Society of America**, at its annual business meeting in Chicago, December 30, 1947, elected the following officers for 1948: Paul B. Sears, Oberlin College, president; William A. Dreyer, University of Cincinnati, vice-president; William A. Castle, Mary Washington College of the University of Virginia, secretary; and Henry J. Oosting, Duke University, treasurer.

**The American Allergy Foundation** has elected Clyde Williams, director of Battelle Memorial Research Institute, Columbus, Ohio, as its national president for 1948. Walter M. Charman, Cleveland, Ohio, president of Ferro Engineering Company, was elected to the Board of Trustees. A. J. Carlson, well-known physiologist of the University of Chicago, is chairman of the scientific council of the Foundation, which is a public service movement for the support of scientific research and public education in the field of allergy.

**The National Malaria Society** held its 30th annual meeting conjointly with the American Society of Tropical Medicine and the American Academy of Tropical Medicine in Atlanta, Georgia, December 2–4, 1947. The following officers were elected for 1948: president, E. Harold Hinman, Wilson Dam, Alabama; president-elect, Wendell Gingrich, Galveston, Texas; vice-president, Nelson Rector, Atlanta, Georgia; director for a four-year term, E. L. Bishop, Chattanooga, Tennessee; and editor, Frederick L. Knowles, Memphis, Tennessee. Martin D. Young, Columbia, South Carolina, continues as secretary-treasurer.

## NRC News

**The Committee on the Public Health Aspects of Brucellosis** met recently at the National Academy of Sciences building in Washington to discuss the incidence, economic importance, treatment, and control of this disease which is prevalent in domestic animals and in man.

Brucellosis (Bang's disease, undulant fever or Malta fever) is, each year, responsible for heavy economic losses in cattle, swine, and goats in all parts of the world. It is estimated that, in the United States alone, it causes an annual loss of more than $50,000,000 to cattle owners and $10,000,000 or more to owners of swine. The organism causing brucellosis, first discovered by Bruce in 1887, was not known to exist in the United States prior to 1910, when the organism was isolated in Illinois.

Since that time scientists have discovered most of the fundamental facts about the disease. The Committee recognizes that there is urgent need for extensive researches, particularly in the field of immunology and chemotherapy. Brucellosis has thus far withstood every attempt made to cure the disease by drug or by artificial immunity produced by vaccination. Studies in immunology have been in progress for a period of 40 years or more. The vaccine, as developed by the Bureau of Animal Industry, U. S. Department of Agriculture, and introduced in 1940 as an effective weapon to be used against the disease in cattle, has received much favorable consideration and is utilized in all parts of the world. Vaccine, though conferring a fair measure of protection when introduced into young calves, has not produced a permanent form of protection. It is not generally used in mature animals, however, because of the reaction that occurs in too many vaccinated animals throughout their lives. That vaccine possesses both advantages and disadvantages should be explained to all people interested in its utilization in the control of the disease. The vaccine was recommended by the Government in 1940 as an adjunct to, and not as a substitute for, other well-known and proved methods of control. Vaccination is to be regarded as a supplementary measure in the control of the disease. Scientists, very early, perfected a highly accurate and dependable method of diagnosing the disease when it occurs in cattle. This test, known as the agglutination blood serum test, is regarded as being as dependable as is the tuberculin test used in the recognition of tuberculosis among cattle. The test is also valuable when used in swine but, to date, it is not as efficient as it is when applied to cattle. As far as swine brucellosis is concerned, the test is of great help when used in a herd of swine, but when individuals are tested, the method of diagnosis is not especially satisfactory.

The Committee is of the opinion that a more extensive educational program relative to the nature of the disease in the various animals, including man, is of utmost importance.

The disease is transmitted to man through contact of the skin with infected animals and their secretions, as well as fresh tissues. This makes it an occupational disease in large part, especially in packing plant employees, veterinarians, livestock producers, and farmers. Man also contracts the disease by the ingestion of unpasteurized milk. In recent years several epidemics have been traced to the ingestion of raw milk. There is some evidence that brucellosis in man may also result from inhalation of the organisms in contaminated dust.

It is not easy to ascertain the annual incidence of human brucellosis in the United States because of the difficulties encountered in making a correct diagnosis, and not all active cases are reported to proper authorities. Dr. Alice Evans has calculated that there are 30,000–40,000 active cases annually. A disturbing feature is the appearance of human cases due to *Br. melitensis*, which has occurred in Iowa, Minnesota, and Indiana. Hogs are the source of this more malignant form of brucellosis.

The diagnosis of human brucellosis is dependent upon laboratory procedures, and foremost among these is the isolation of *Brucella* from the blood by cultural methods. M. Ruiz Castaneda, director of Brucellosis Control in Mexico, has described a more suitable medium for this purpose, which is now being employed in several U. S. laboratories. The blood agglutination test is a dependable method for diagnosing brucellosis when the titer is 1 to 100 or higher. Blocking antibodies, analogous to the Rh blocking antibodies, may cause negative agglutination tests, as described by Dr. Griffitts, of the National Institute of Health. The Committee considered the opsonocytophagic and intradermal tests with *Brucella* antigens as being the least reliable diagnostic procedures and did not favor their general use.

The treatment of human brucellosis has remained in an unsatisfactory state. Recently, promising results have been obtained in active cases following the combined use of streptomycin and one of the sulfonamides, especially sulfadiazine. The treatment of the more chronic cases requires further investigation.

The Committee believes that scientists have discovered effective weapons to be used against the disease, and that if these are properly organized and used in a cooperative manner such as was done in the control of tuberculosis in cattle, brucellosis may be controlled in animals just as efficiently as tuberculosis.

The eradication of brucellosis in animals is dependent upon three general procedures. First, rules and regulations for the interstate movement of animals are essential. Second, the test and slaughter method should be carried out on an area basis. Accredited herd states should be encouraged, and more attention should be paid to owners of herds of animals free of the disease. Third, intelligent calfhood vaccination should be encouraged, and, in some instances, vaccination of calves should be combined with test and slaughter.

Calfhood vaccination for control of the disease is a step forward in the over-all control program. All of the vaccine in the process of manufacture is being properly supervised, but, unfortunately, some of the vaccination is not being properly conducted. Therefore, the Committee believes that if vaccination is not properly supervised, the use of vaccine may come into disrepute, resulting in the loss of a very effective weapon.

Since the disease is rarely transmitted from human to human, control of human brucellosis is dependent upon eradication of the animal reservoir. This can be accomplished only over a period of several years. In the meantime, the Committee recommends that all milk for human consumption should be pasteurized.

Membership of the Committee includes W. W. Spink (*chairman*), University of Minnesota Medical School; W. L. Boyd, University of Minnesota; L. M. Hutchings, Purdue University; C. F. Jordan, Iowa State Department of Health; Carl L. Larson, National Institute of Health; and Carl F. Mingle, Bureau of Animal Industry. B. T. Simms, Bureau of Animal Industry, John C. Ransmeier, NRC, and Raymund L. Zwemer, NRC, are members *ex officio*, and Alice C. Evans,

Washington, D. C., is consultant. Others attending the meeting were M. Ruiz Castaneda, Surg. Capt. R. A. Graff, of the British Navy, and J. J. Griffitts.

---

**The Atomic Energy Commission** has announced a realignment of its research program at Clinton National Laboratory, Oak Ridge, Tennessee. This realignment provides for consolidation at the Argonne National Laboratory, near Chicago, of the reactor development program projected for both Clinton and Argonne National Laboratories. The over-all reactor program will be under the direction of Walter H. Zinn. Transfer to Argonne of that phase of the reactor program originally planned at Clinton National Laboratory is expected to take from 12 to 18 months. During the transition period, the Commission will exert every effort to maintain the impetus in the program.

The Commission explained that consolidation in the planning and execution of reactor research and development is essential in order to secure the maximum results. It is hoped to bring together in the new Argonne reactor laboratory many of the people who have already contributed to this field, and to build a strong staff in both the science and technology of this new field.

Clinton National Laboratory will maintain its position as a center for basic and applied research in problems of atomic energy. Basic research programs will be maintained and developed there in the fields of biology, physics, chemistry, and health physics. A well-developed program also will be maintained in isotope research, production, and distribution and full use made of the graphite reactor situated at Clinton National Laboratory as a research tool. In addition, the Commission looks forward to an enlarged program in chemical engineering and chemical process development with emphasis on industrial application.

To carry on the Commission's research program at Clinton National Laboratory, the Commission has entered into an agreement with Carbide and Carbon Chemicals Corporation for operation of that facility. A definitive contract which is now being worked out by AEC and Carbide will run through 1951. The contractual concept in relation to the Laboratory's activities provides for permanent operation of the Laboratory as a national facility. Meanwhile, a letter agreement has been signed between AEC and Carbide for the assumption of operation of the Laboratory not later than March 1, 1948. Monsanto Chemical Company, which has operated the Laboratory since July 1, 1945, will continue as interim operator of the Laboratory until Carbide assumes operations.

The contract with Carbide for operation of Clinton National Laboratory will provide for a strong program of basic research. The contractor has assured the Commission of his best efforts toward this objective.

Other factors in the operation of Clinton National Laboratory as a national facility are:

(1) The Oak Ridge Institute of Nuclear Studies, Inc., composed of 14 member universities in the South and Southwest, will play a leading part in the Laboratory's activities and help in carrying forward the basic aspects of the training program.

(2) Construction of new permanent buildings as well as alterations and improvements to existing utilities and facilities will be an important part of the revised program. The extent and character of the construction program will develop from proposals the contractor will be asked to submit to the Commission.

(3) The definitive contract under which the Carbide and Carbon Chemicals Corporation will operate the Laboratory will provide that the Laboratory, as a facility, will be an altogether different function from the present U-235 production phase which Carbide also operates at Oak Ridge.

Originally scheduled to take over operation of Clinton National Laboratory on January 1, 1948, the University of Chicago withdrew from the contract for operation of the Laboratory at the request of the Atomic Energy Commission due to the realignment in research and will center its efforts on operation of the expanded program at the Argonne National Laboratory under the new arrangement.

The Argonne Laboratory will continue and further develop its present research program in the related basic sciences in cooperation with 29 associated educational and research institutions of the Middle West.

**The U. S. Department of Agriculture's Graduate School** is sponsoring a special seminar series on Food Technology—Principles and Practices during the spring semester starting in February. Leading specialists from the food industry will speak on the various aspects of the subject, including processing, preparation, packaging, and storage. A. H. Warth, research director, Crown Cork and Seal Company, and members of the Maryland Section, Institute of Food Technologists, have technical direction of the series. Seminars are to be held from 7:00 to 9:00 P.M. on Wednesdays, beginning February 4. Those interested may register in Room 1031, South Building, Department of Agriculture, Washington, D. C. The fee is $18.

**The two-week course in the Laboratory Diagnosis of Parasitic Diseases,** to be given by the Laboratory Division of the Communicable Disease Center, U. S. Public Health Service, 291 Peachtree Street, Atlanta, Georgia, for laboratory directors and senior staff members (*Science*, November 21, 1947, p. 489), has been scheduled for March 8–19.

## Make Plans for—

**Conference on "Current Trends in Social Psychology,"** March 4–5, University of Pittsburgh, Pittsburgh, Pennsylvania.

**Optical Society of America,** winter meeting, March 4–6, Hotel Pennsylvania, New York City.

**American Association of Immunologists,** March 15, Atlantic City, New Jersey.

**American Physiological Society,** March 15–18, Convention Hall, Atlantic City, New Jersey.

**American Society for X-Ray and Electron Diffraction and Crystallographic Society of America,** April 1–3, Yale University, New Haven, Connecticut.