of swelling there appeared a total opacity of the lens cortex with degeneration of the cortical fibers, but the lens nucleus retained its crystalline transparency. It was clear that inadequacy of the basic milk diet had produced the disease, because it was lacking in other larvae from the same egg-masses fed on a series of synthetic beef muscle diets. Ten animals from the milk-fed groups had visible cataracts when changes were made in the rations. Increase of vitamin A or of vitamin G was ineffective in preventing development of the disease; nine new cases of the eye defect appeared. In another group of larvae fed on one of the milk-powder-casein diets, one case of cataract was developing when dietary addition was given. With purified cystine as food supplement and no change in the vitamin supply, the other members of this group remained free from the eye opacity.

ESTHER M. PATCH

UNIVERSITY OF WISCONSIN

THE NORTHWEST CONIFEROUS CLIMAX

IN a recent note[1] the assumption is made that the coniferous climax of the Pacific Northwest can be attributed to the winter activity and hence the longer growing season enjoyed by the coniferous evergreens. The writer has no quarrel with the possible importance of length of growing season and consequent total growth as a factor in determining the climax forest (though Hemenway's evidence must be made quantitative as well as anatomical before the relative influence of winter activity on rate of growth can be properly evaluated), but does wish to protest the total disregard in the above note of other important ecological and physiological factors. Differences in longevity, seed production, resistance to injury and disease, and ability to germinate and survive under heavy shade and severe competition are some of the factors that must be considered along with rate of growth in any sound explanation of the resultant climax.

In the opinion of the writer, Hemenway is not justified, without due consideration of such factors, in assuming that the coniferous climax in the Northwest can be explained predominantly upon winter activity in the evergreen conifers.

I. T. HAIG

U. S. FOREST SERVICE
MISSOULA, MONTANA

REPORTS

APPROPRIATIONS FOR GRANTS-IN-AID BY THE NATIONAL RESEARCH COUNCIL

THE Committee on Grants-in-Aid of the National Research Council at its December meeting, out of 119 requests, made thirty-six grants for the support of research projects, as follows:

PHYSICAL SCIENCES

Mildred Allen, associate professor of physics, Mount Holyoke College, "the effect of tension on the electrical resistance of single crystals"; Richard A. Beth, assistant professor of physics, Worcester Polytechnic Institute, "detection of photon spin, in accordance with the quantum theory of light, by direct mechanical means"; John H. Clouse, professor of physics, University of Miami, "x-ray crystal structure"; J. M. Cork, associate professor of physics, University of Michigan, "nuclear disintegration under high potential"; Curtis R. Haupt, assistant professor of physics, Pomona College, "ionization of mercury vapor by electron impact"; Otto Struve, director of the Yerkes Observatory, and C. T. Elvey, assistant professor of astrophysics, Yerkes Observatory, "measurement of accurate contours of the absorption lines in B and A type stars"; Benjamin A. Wooten, professor of physics, University of Alabama, "energy distribution in certain nebulae and stars having continuous spectra."

ENGINEERING

H. Diederichs, director of the Sibley School of Mechanical Engineering, Cornell University, "heat transmission coefficients for steam in condenser tubes."

CHEMISTRY

John G. Aston, assistant professor of chemistry, Pennsylvania State College, "the heat capacities of simple organic compounds"; Simon Freed, instructor in chemistry, University of Chicago, "magnetic optic problems of crystals"; W. D. Harkins, professor of chemistry, University of Chicago, "the force constant for atoms of ordinary and heavy hydrogen in compounds"; W. George Parks, assistant professor of chemistry, Rhode Island State College, "the e.m.f. method for determining heats of dilution"; Milton J. Polissar, assistant professor of physics and chemistry, Armstrong College, "studies of chemical kinetics"; L. H. Reyerson, professor of chemistry, University of Minnesota, "preparation of gases of the methane series with the heavy isotope of hydrogen."

GEOLOGY AND GEOGRAPHY

George H. Anderson, research fellow in geology, California Institute of Technology, "alternations and replacements occurring in a granite batholith in the Inyo-White Mountain Range of California-Nevada"; Elmer H. Johnson, industrial geographer, Bureau of Business Research, University of Texas, "physical and economic characteristics of natural areas of the southwest Gulf region"; Christina Lochman, Chicago, Illinois, "the fauna of the Upper Cambrian Cap Mountain formation of Texas"; Edwin T. McKnight, associate geologist, U. S. Geological Survey, "igneous complex at Prospect

[1] Hemenway, SCIENCE, 78: 437.

Mountain, near Litchfield, Connecticut''; W. A. Tarr, professor of geology, University of Missouri, ''chemical and bacteriological studies of the lead deposits of southeastern Missouri.''

MEDICAL SCIENCES

G. Howard Bailey, associate professor of immunology, School of Hygiene and Public Health, The Johns Hopkins University, ''heterophile antigens of bacteria and plant and animal tissues''; Raymond L. Garner, assistant in medicine, School of Medicine, The Johns Hopkins University, ''enzymatic liquefaction of clotted human blood''; R. W. Gerard, associate professor of physiology, University of Chicago, ''the activity of nerve tissue and the central nervous system''; Balduin Lucké, professor of pathology, School of Medicine, University of Pennsylvania, ''a neoplastic disease of the common leopard frog, *Rana pipiens*''; John R. Paul, assistant professor of medicine, and James D. Trask, associate professor of pediatrics, School of Medicine, Yale University, ''comparison of different strains of poliomyelitis virus''; Arthur H. Smith, associate professor of physiological chemistry, School of Medicine, Yale University, ''the influence of various 'inorganic' ions upon the body weight and blood changes of experimental animals.''

BIOLOGICAL SCIENCES

Ernest Anderson, professor of chemistry, University of Arizona, ''the composition of the polyuronides occurring in the wood of the Black Locust, *Robinia Pseudo-acacia*''; Edward D. Crabb, associate professor of biology, University of Colorado, ''comparative spermatogenesis in four species of viviparous snails''; Arthur T. Henrici, professor of bacteriology, University of Minnesota, ''ecologic survey of bacteria in a fresh-water lake (Lake Alexander, Minnesota)''; R. R. Huestis, professor of zoology, University of Oregon, ''inheritance of color character in *Peromyscus*''; Joseph C. Ireland, professor of plant breeding, Oklahoma Agricultural and Mechanical College, ''chloroplast development in virescent kafir seedlings''; Charles P. Smith, teacher of botany and economic biology, Senior High School, San Jose, California, ''study of the lupines of the Lindley Herbarium at Cambridge, England''; Harold B. Tukey, chief in research in pomology, New York State Agricultural Experiment Station, Geneva, New York, ''artificial cultures of embryos of decidous fruits.''

ANTHROPOLOGY AND PSYCHOLOGY

Peter H. Buck, 1933–34 Bishop Museum traveling professor of anthropology, Yale University, ''the material culture of the Cook Society and Austral Island groups in the South Pacific''; Frank A. Geldard, associate professor of psychology, University of Virginia, ''the limits of palmesthetic sensibility of various skin areas''; Melville Jacobs, instructor in anthropology, University of Washington, ''the recording of Indian languages and songs in the Northwest''; Morris E. Opler, research assistant in anthropology, University of Chicago, ''the cultural relationships of Apache tribes.''

The National Research Council will be ready to consider further requests for research assistance this spring. Applications should be filed with the Committee on Grants-in-Aid before March 15, 1934. Action upon these applications will be taken about the middle of May.

ISAIAH BOWMAN,
Chairman

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A NEW CULTURE MEDIUM FOR CLADOCERANS

IN recent investigations in this laboratory it has been necessary to use numbers of cladocerans. In order to raise these animals in quantities and under controlled conditions various culture media for cladocerans have been reviewed and tested. Most of the existing media call for manure to supply the organic matter, but as manure is such a variable the substitution of materials of more constant composition was tried. Wiebe[1] has pointed out that soybean meal is superior to manure for plankton production in pond fertilization, and more recently the U. S. Bureau of Fisheries has found cotton-seed meal quite, if not more, desirable for this purpose. It seemed logical, therefore, to substitute cotton-seed meal for manure in cladoceran culture media. This was done and a very satisfactory culture medium has been produced, having several advantages over the manure infusions as suggested by Banta.[2]

Pond water was filtered through coarse filter paper and added to a mixture of fine garden soil and cotton-seed meal (commercial cotton-seed meal, as used in dairy feeds), in the proportions of 1 liter of filtered water to 90 grams of garden soil and 17 grams of cotton-seed meal. After a thorough stirring, the mixture was set aside at room temperature in large Erlenmeyer flasks for five days. During this period the mixture fermented and produced considerable gas. At the end of five days the supernatant liquid was decanted off and strained through muslin. Analyses made by the Bacteriology Department of the University of Missouri showed that the strained fluid contained an almost pure culture of *B. coli*. The strained fluid was diluted with filtered pond water before using and re-strained through muslin whenever bacterial masses developed. The pH of the final diluted product was adjusted to 7.2 by the addition of sodium carbonate.

In strong concentrations of this medium bacterial

[1] A. H. Wiebe, *Bull. U. S. Bur. Fisheries*, 46: 137, 1930.

[2] A. M. Banta, SCIENCE, 53: 557, 1921.