

is extremely difficult and cumbersome.

One producer, Chas. Pfizer and Co., has substantially cut its budget for agricultural research and development and has transferred scientific personnel from its agricultural research center to other divisions. The scientists will be returned to agricultural research if legislative revision or changes in interpretation reduce the difficulties now faced by the company in getting its products cleared for veterinary use.

Another pharmaceutical firm, Eli Lilly and Co., is shifting its agricultural research efforts from work on hormones and thyroxin blockers for use as feed additives to pesticides for household, farm, and industrial use. The company has found that in some instances, and in some animals, these compounds have caused hyperplasia—an increase in cell growth which is sometimes a forerunner of cancer. A compound that causes hyperplasia may come under the amendment's Delaney Clause, which prohibits the use of any amount of any cancer-causing agent in any animal or human food.

Companies that make direct food additives such as emulsifiers, antioxidants, and preservatives have been less affected by the new amendment. Such companies, reports *Chemical and Engineering News*, are continuing their re-research on the present basis—in some cases even expanding it. For direct additives, the magazine reports, the amendment's effect is merely to formalize the testing procedures the companies had been following all along.

Many chemical products never looked upon as food additives—for example, paper, plastics, and petroleum-based materials—must now be considered in an entirely new light. These products go into the making of cartons, containers, and packages used by the food industry. Rubber items such as conveyors, hose, gaskets, seals, and parts for milking machines also must be re-evaluated.

Effects of the amendment in other areas are not yet clear-cut, the magazine reports. Pesticides, for example, have become suspect in the public mind, even though pesticides do not come under the Food Additives Amendment. So far, the magazine finds, the search for new pesticides and for new uses for older ones continues unabated. But pesticide manufacturers are joining with producers of food additives in criticizing the Delaney Clause of the new amendment.

## Office of Education Studies University Finances

The approximately 2000 colleges and universities in the United States are receiving increased financial support, are spending more on educational activities, and are extending their holdings, the U.S. Office of Education announced in releasing advance totals from its biennial survey of the finances of higher education institutions. The survey covers the year 1957–58. Expenditures by colleges and universities for day-to-day activities rose 29 percent, from \$3.5 billion in 1955–56 to \$4.5 billion in 1957–58.

Total expenditures for additions to plant totaled \$686 million in 1955–56 and \$1.1 billion in 1957–58. To reach these levels of expenditure for plant, institutions transferred \$130 million in 1955–56 and \$171 million in 1957–58 from current operating funds.

Altogether, more than \$3.6 billion was spent on educational activities at the 1940 institutions included in the survey. This figure is about 30 percent above the 1955–56 level.

### Government Supports Research

The institutions expended \$734 million for organized research during 1957–58, 45 percent above the level of 1955–56. However, almost 75 percent of the \$734 million was paid by the federal government.

Other items of expense reported in the study were fellowships, scholarships, other forms of student aid, and such expenditures as maintenance of dormitories and student dining halls.

While expenditures increased, the value of plant and endowment rose 25 percent, from \$12.7 billion to just under \$16 billion. Buildings, grounds, and equipment of the institutions were valued at more than \$11 billion in 1958, as compared with something over \$8.9 billion 2 years before. Endowment funds totaled \$4.6 billion in 1958 and something over \$3.7 billion in 1956.

During these years the increase in student enrollment was nearly 15 percent and the per capita income of the nation rose nearly 10 percent. The colleges and universities obtained almost one-third of their income for educational purposes from state appropriations. Another one-fourth was obtained by tuition payments from students. The remainder came from the federal government, from private gifts, from local governments, and from other, miscel-

laneous sources. These figures are the totals for both publicly and privately controlled institutions.

Processing of the data obtained in the study has not yet reached a point where analysis by type of control (public or private) or by location of institution is practicable.

## Mathematics Study Group Announces New Paperback Series

A new paperback series entitled *Student's Mathematical Library*—designed to present mathematics as “a meaningful human activity” to students and readers in general—will begin publication early in 1961. Published jointly by Random House and Wesleyan University, the books will sell for less than \$1 each.

Headquarters for the *Student's Mathematical Library* will be New York University's Institute of Mathematical Sciences. Lipman Bers, chairman of the department of mathematics at NYU's Graduate School of Arts and Science, is chairman of the Library's editorial panel, and Anneli Lax, assistant research scientist at the institute, is the Library's technical editor.

Many of America's leading mathematicians and scientists will be contributors. The first books to appear will be concerned with irrational numbers, infinity, mathematical logic, logarithms, and calculus.

Through the series, readers with no more than a rudimentary knowledge of mathematics will have the opportunity to advance to subjects previously presented only at advanced levels.

The new series is an activity of the School Mathematics Study Group, a national association whose goal is to improve the study of mathematics in American schools and to introduce to capable students and interested laymen aspects of mathematics that most of today's courses do not treat. Formed with the financial aid of the National Science Foundation, the Study Group has its headquarters at Yale University.

## Grants, Fellowships, and Awards

**Essay prizes.** Prizes totaling 100 guineas are offered by England's Imperial Chemical Industries Limited, publishers of the quarterly scientific review *Endeavour*, for essays on scientific subjects. In addition to the cash prizes the

prizewinners will receive invitations to attend the whole of the 1960 meeting of the British Association for the Advancement of Science, to be held in Cardiff from 31 August to 6 September. All expenses will be paid, including traveling expenses within the United Kingdom.

As one of the primary purposes of these awards is to stimulate younger scientists to take an interest in the work of the British Association, the competition is restricted to those whose 25th birthday falls on or after 1 June. Five prizes will be awarded: a first prize of 50 guineas; a second prize of 25 guineas; a third prize of 15 guineas; and two special prizes of 5 guineas each for competitors who have not passed their 18th birthday on 1 June.

The subjects for the essays are "The Structure of the Atomic Nucleus," "Science and Agriculture," "The Moon," "The Role of Chance in Scientific Discovery," "Modern Methods of Chromatography," and "The Ocean Depths." The essays, which must be in English and typewritten, should not exceed 4000 words in length; only one entry is permitted from each competitor. All entries should be addressed to: The Deputy Secretary, British Association for the Advancement of Science, 18 Adam St., Adelphi, London, W.C.2, and the envelope should be clearly marked "Endeavour Prize Essay." The latest date for receipt of entries is 1 June.

The essays must be submitted without signature. The competitor's full name and address and date of birth should be given in a sealed covering letter attached to the essay and addressed to the Deputy Secretary of the British Association, who will acknowledge all entries. Special attention will be paid to originality of approach and to syntax and literary style. The competitor's age will also be taken into account. The essay winning the first prize will be published in *The Advancement of Science*, journal of the British Association.

**Heart reporting.** The American Heart Association (44 E. 23rd St., New York 10) has announced that 1 May is the deadline for entries in the annual competition for its Howard W. Blakeslee Awards, made in recognition of outstanding reporting in the field of heart and blood-vessel diseases. Newspaper and magazine articles, books, radio and television programs, and films published or produced between 1 March 1959

and 29 February 1960 are eligible for the competition.

The Blakeslee Awards, which carry an honorarium of \$500 each, will be presented in the fall. The number of winners to be selected will be determined by the AHA Awards Committee. The awards are given to "individuals whose creative efforts in any local or national medium of mass communication are judged to have contributed most to public understanding of progress in research, and in the prevention, care, and treatment of heart and circulatory diseases."

## News Briefs

**Laboratory animal diseases.** The seventh annual course on the pathology of diseases of laboratory animals, presented by the Armed Forces Institute of Pathology, Washington, D.C., is scheduled for 26-30 September. The course is designed to provide training for scientists who are responsible for the recognition and interpretation of lesions in experimental animals, or who have charge of procurement and maintenance of animal colonies. Although this course is primarily designed for military personnel, a limited number of civilian scientists may attend. Application forms may be obtained by writing to the Director, Armed Forces Institute of Pathology, Washington 25, D.C. Applications should be submitted before 15 August.

**High-school biology.** Sample units of the American Institute of Biological Sciences' new motion-picture biology course for high schools will be shown on request at meetings of teachers, school administrators, state or regional high school parent-teacher associations, and other groups. H. Burr Roney, project director for the course, reports that biological scientists will bring the films to such meetings and will speak about the content and use of the course. There will be no charge to sponsoring organizations. Program chairmen may obtain speakers and showings of the films by writing to Jack Steuerwald, AIBS Film Series, 200 P St., NW, Washington 6, D.C.

**Crustacea.** The first issue of a new quarterly journal, *Crustaceana*, was published in January by E. J. Brill, of Leiden, The Netherlands. The objective of the new international journal is rapid

publication of papers on crustacean research in all its aspects, including taxonomy, ecology, physiology, anatomy, genetics, paleontology, and biometry. Information may be obtained in this country from editorial board member Professor Arthur G. Humes, Department of Biology, Boston University, Boston 15, Mass.

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**Pacific science.** The 10th Pacific Science Congress of the Pacific Science Association will be held at the University of Hawaii, Honolulu, from 21 August to 6 September 1961, under the sponsorship of the U.S. National Academy of Sciences and the Bernice P. Bishop Museum, with the cooperation of the University of Hawaii. Scientific sessions will be held from 21 August to 2 September, to be followed by a field trip that will continue through 6 September.

This congress will include a Section of Science Information, with Burton W. Adkinson as section organizer. Adkinson is head of the Office of Science Information Service, National Science Foundation, Washington 25, D.C. Science information will be discussed in terms of improving scientific communication and documentation practices between countries in the Pacific Ocean area.

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**Russian biology review.** The Institute of Biology, 41 Queen's Gate, London S.W.7, is collaborating with the Department of Scientific and Industrial Research and with Oliver & Boyd, Ltd., in the production of an English translation of *Russian Review of Biology*. The first issue of the translation has been released.

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**Neuropathology.** The 4th International Congress of Neuropathology will be held in Munich, Germany, 3-8 September 1961. The main themes are histochemistry and related biochemistry of diseases of the central and peripheral nervous systems, electron microscopy of the central and peripheral nervous systems and of the myoneural junction, and cell biology and cell culture of nervous tissue. Deadline for abstracts of papers on these themes is 1 June 1960. There will also be papers on perinatal neuropathology and free papers. Those wishing to attend should notify the chairman of the American committee: Dr. Orville T. Bailey, Neuropsychiatric Institute, 912 S. Wood St., Chicago 12, Ill.