

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