full professor, in accordance with an earlier agreement.

The combination of Moore and Bolza in analysis, and Maschke in geometry, was a strong one at the University of Chicago. The university became at once one of the leading graduate schools of mathematics in America and its students are widely scattered in the departments of mathematics of American universities. Many of us owe our interest and training in mathematics to Bolza in particular, though every one who studied at Chicago at that time must also have been greatly influenced by Moore and Maschke. They were all three most able scholars and skilful lecturers.

In 1908 Maschke died, and the Chicago environment became a very sad one for Bolza. Their friendship from student days had been an ideal and very intimate one. This sadness, together with the fact that his mother in Freiburg was very old and seemed to have at most a few years more to live, were undoubtedly most influential in deciding Bolza to return to Freiburg permanently. But he himself has said that he was also much influenced by the feeling that by that time there were many younger men well trained in mathematics in America, and that he should make way for some of them. He was also interested to find that he would be appointed at the University of Freiburg to an honorary professorship which would permit him to lecture on mathematics as much or as little as he desired. So in June, 1910, after eighteen years at the University of Chicago, Bolza was appointed non-resident professor of mathematics there and returned to Germany with, as he himself wrote, "warm feelings of thanks and admiration for this country, which at a critical time in my life had given me the opportunity to develop my possibilities and follow my inclinations."

As honorary professor at the University of Freiburg Bolza continued at a moderated pace his lectures on a variety of mathematical subjects and his mathematical research. In the summer quarter of 1913 he lectured again at the University of Chicago and renewed with great pleasure his friendships in America. The first world war of course disturbed him greatly and in the end cut short his research activity in mathematics. In 1922 at the age of sixty-five he gave up his mathematical research, and in 1926 he interrupted his lectures at the University of Freiburg.

At this time he became interested seriously again in languages, especially Sanskrit, and in religious psychology. In the latter field he published a book entitled "Glaubenslose Religion" under the pseudonym F. H. Marneck. It was an absorbing interest during the latter part of his life.

He had one last return to his lectures on mathematics at the University of Freiburg during the years 1929–1933 and then gave them up finally at the age of seventy-six. Just about that time one of his earlier and most intelligent Ph.D. students, J. H. McDonald, of the University of California, visited him for several weeks in Freiburg. A result of this visit was a renewed interest in the theory of the transformation of hyperelliptic to elliptic integrals. Bolza wrote and published in 1933 on this subject his last mathematical paper.

Bolza's principal mathematical interests were in the reduction of hyperelliptic integrals to elliptic integrals (eight papers), elliptic and hyperelliptic functions (seven papers), and the calculus of variations (twenty-eight papers). In these fields, and others of lesser interest to him, he made important contributions. In the calculus of variations especially he has been a most notable contributor, and his principal book on the subject, entitled "Vorlesungen über Variationsrechnung," published in 1909, is an example of the finest scholarship, indispensable to every one interested in the field.

Thus has passed a potent figure in American and European scholarship, a brilliant lecturer and a man beloved by his students and colleagues. At the suggestion of one of his former students he wrote and published privately in 1936 an autobiography of about forty-five pages entitled "Aus meinem Leben." It is a most interesting document, now in the hands of many of his mathematical students. From it was taken much of the material in the preceding paragraphs.

G. A. BLISS

## RECENT DEATHS

DR. CARL C. BRIGHAM, professor of psychology at Princeton University, died on January 24, at the age of fifty-two years.

DR. GEORGE BORIS KARELITZ, professor of mechanical engineering at Columbia University, known for his work on lubrication, died on January 19 at the age of forty-eight years.

DR. JOHN RATHBONE OLIVER, formerly professor of the history of medicine at the Johns Hopkins University, died on January 21, at the age of seventy-one years.

DR. WINFORD LEE LEWIS, inventor of lewisite gas, until 1924 professor of chemistry and head of the department at Northwestern University, later director of the Scientific Research Institute of the American Meat Packers Association, died on January 20. He was sixty-four years old.

WILLIAM MASSEY CARRUTH, for twenty-six years Samuel F. Pratt professor of mathematics at Hamilton College, died on January 23, at the age of sixty-three years.

DR. HERMANN JOHANNES BOLDT, emeritus professor of gynecology of the New York Post-Graduate School of Medicine of Columbia University, died on January 13, at the age of eighty-six years.

DR. JAMES MARSHALL BRANNON, assistant professor and assistant chief in dairy bacteriology at the College of Agriculture of the University of Illinois, died on January 21, at the age of sixty years.

# SCIENTIFIC EVENTS

## MICROFILM RECORDS OF THE LINNEAN COLLECTIONS AND MANUSCRIPTS

THE Carnegie Corporation of New York in April, 1941, made a grant to the Linnean Society of London to enable that organization to prepare a photographic record of all the extant Linnaean natural history specimens, and the Linnaean manuscripts in the possession of that society. After surveying the possibilities, the council of the Linnean Society decided to have microfilm records made. In making its appeal for a grant, the council of the society agreed to deposit a complete set of the proposed photographic records in some American institution. It has actually exceeded this condition in that after the microfilm records were made, two sets of positives were delivered to the Arnold Arboretum, each containing about 60,000 exposures. The ultimate plan is to deposit complete or partial sets in selected European and Colonial institutions.

The council of the Linnean Society selected Harvard University as the place of deposit of one set and directed the delivery of the second set to the Smithsonian Institution. Thus two American institutions benefit through this action of the Linnean Society and through the generosity of the Carnegie Corporation in making a grant to cover the cost of preparing this extensive microfilm record.

The Harvard University set, in so far as it appertains to botany, will be deposited at the Gray Herbarium, and the remainder at the Museum of Comparative Zoology. The second set has been delivered to the Smithsonian Institution. A very extensive series represents all the specimens in the Linnaean Herbarium, while other rolls represent the insects, molluscs and fishes in the Linnaean collections. An even larger part of the microfilm record represents Linnaean manuscripts and his published texts wherein he had made corrections and additions.

Arrangements will ultimately be made whereby specialists in other institutions may be able to have access to this most important record. All biologists realize the fact that the Linnaean collections are absolutely basic to the binomial system of nomenclature and that in order to interpret various Linnaean species it is essential that his material be examined, either the original specimens or photographic records of them.

E. D. MERRILL

## ASSETS OF THE UNIVERSITY OF MICHIGAN

ASSETS of the University of Michigan amounted to $83,014,263 for the fiscal year ending June 30, 1942, according to the annual financial report of Shirley W. Smith, vice-president and secretary, which has been approved by the University Board of Regents.

This year's total is an increase of $3,054,708 over last year, with the greatest rise shown in current assets—cash, including restricted expendable gifts, student loans, inventories, etc., which jumped $1,258,281, and plant and endowment funds which rose $848,928 and $683,379, respectively.

The total value of the educational assets, including lands and buildings, this year is $59,972,085, a rise of $823,988. The increase was largely in equipment and buildings whose value rose $384,119 and $323,404, respectively, over the figures for 1941.

The increase of $105,454 in lands is due to the purchase of the site for the Rackham Memorial Building in Detroit, partially offset by the sale of property in Ann Arbor, various transfers and reallocations. Increase in the amount for buildings is due principally to the completion costs of $175,582 for the Rackham Building in Detroit and initial construction costs of $143,615 for the School of Public Health Building.

Current operating income of the university was listed at $12,100,716, which includes $2,452,334 hospital receipts, or 20.27 per cent. of the total amount. State appropriations of $4,972,084 were the chief items of income, amounting to 41.09 per cent., while student fees amounted to $2,292,199, or 18.94 per cent. The only other appreciable item of current income is the total of $1,328,089 in gifts and grants for current use, or 10.97 per cent. of the total. The four other receipt items were each less than five per cent.

The current operating expenditure reached $10,702,896 this year, with the outstanding item of expense being $4,974,710 or 46.48 per cent., for instruction, followed closely by the University Hospital, which cost $2,420,522, or 22.61 per cent. of the grand total. Only one of the other nine items of expense