PROFESSOR WILDER D. BANCROFT, of Cornell University, addressed the technical section of the Canadian Pulp and Paper Association on January 25 at its annual conference at Montreal, Canada. His subject was "Science and Cellulose."

DR. LEONOR MICHAELIS, of the Johns Hopkins University, spoke on "Physiological Applications of Oxidation-Reduction Potentials" on February 7 at the American Museum of Natural History. An informal dinner was held before the lecture.

PROFESSOR HOWARD B. LEWIS, head of the department of biochemistry in the University of Michigan, has accepted the invitation of the biochemical society of Jefferson Medical College to be the next speaker in the series of physiological chemical lectures given each autumn. Former speakers in this series are: Drs. Gies, Columbia; Stockard, Cornell; Wells, Chicago; Shipley, the Johns Hopkins, and Sherwin, New York. Dr. Lewis's lecture will be the first given in the new college building now under construction.

DURING February and March members of the geological faculty of the State University of Iowa are giving a course of lectures at the Davenport Public Museum on the "Geological Past of Iowa," as follows: February 4, "The Ice Age and the Geology of Iowa," Dean George F. Kay; February 14, "The Ice Ages of Iowa," Dean Kay; March 4, "Life in the Past Ages of Iowa," Professor A. O. Thomas; March 18, "The Mississippi River," Professor Arthur Trowbridge. In connection with the lectures a special geological exhibit was arranged with the aid of C. H. Belanski, research assistant at the university.

DR. C. A. HEILAND, professor of geophysics at the Colorado School of Mines, Golden, Colorado, will give a series of lectures in geophysical prospecting at Columbia University. The courses will comprise torsion balance, magnetometer, seismograph and electrical prospecting, and will be given from the beginning of February up to the middle of March.

DR. S. A. GOUDSMIT, of the University of Leiden, lectured before the Franklin Institute on January 31 on "The Atomic Model in Modern Physics," and on February 7 Dr. Elmer O. Kraemer, of the E. I. du Pont de Nemours and Company, spoke on "Some Current Problems in Colloid Science."

A. W. BICKERTON, professor emeritus of astronomy at Canterbury College, University of New Zealand, died in London on January 31 at the age of eighty-seven years.

PROFESSOR RICHARD HENRY YAPP, Mason professor of botany in the University of Birmingham, died on January 22 at the age of fifty-seven years.

WALTER BURT ALCOCK, the mathematician, senior fellow of Emmanuel College, Cambridge, died on January 18 at the age of seventy-one years.

PROFESSOR SICARD, of the Paris faculty of medicine, died on January 28 at the age of fifty-five years. He had devoted most of his life to the study of nervous diseases.

THE death is announced of Dr. Piero Giacosa, occupant of the chair of pharmacology in the University of Turin.

DR. E. L. MARK, director of the Bermuda Biological Station for Research, writes that biologists with definite research problems can be accommodated for a moderate sum at the Bermuda Biological Station for Research during June and July this summer. Detailed information will be furnished on request. Applications should be sent to Professor Mark, at 109 Irving Street, Cambridge, Mass., on or before April 20.

THE committee on scientific research of the American Medical Association invites applications for grants for aid in research on problems bearing on clinical medicine. Inquiries may be addressed to the committee at 535 North Dearborn Street, Chicago. During 1928 this committee made twenty-two grants, the total amount granted being about $12,000.

THE ninth summer term of the American School of Prehistoric Research, under the direction of Dr. George Grant MacCurdy, of Yale University, will open in London on July 1 and close on the continent early in September. The purpose of the school is to fit students to teach, to do field work and research in prehistory, and for museum positions. Undergraduates as well as graduate students and faculty members of universities and colleges are admitted.

UNIVERSITY AND EDUCATIONAL NOTES

THE University of Chicago announces recent gifts to a total of $500,000 toward the support of the University Clinics over a five-year period beginning July 1, 1929. Of this amount $125,000 each has been pledged by Max Epstein and Albert D. Lasker, and $250,000 by the Julius Rosenwald Fund. The gift of the Julius Rosenwald Fund is conditioned upon the university's securing from local sources pledges amounting to $250,000 in addition to the gifts now announced. Dr. Franklin C. McLean, professor of medicine at the university since 1923, has been appointed as director of University Clinics. As a part of the duties of this new position he will assist the president in the medical affairs of the university.

JACKSON JOHNSON, late chairman of the board of the International Shoe Company, has bequeathed $250,000 to Washington University Medical School as a fund to aid students.

THE issue of SCIENCE for February 1 contained a note relating to the gift of Mr. John D. Rockefeller, Jr., to the laboratory of anthropology at Santa Fe. It was there stated that the gift was made to the University of Chicago, whereas the university is only one of several institutions participating in the work.

ASSEMBLYMAN JAMES R. ROBINSON, of Ithaca, has introduced a bill in the legislature providing $1,000,000 for the construction of a home economics building at Cornell University.

BY the will of the late William Lyman Underwood, the sum of $20,000 is left to the Massachusetts Institute of Technology for the benefit of the biological department, with which he was connected for many years.

DR. HAROLD LINDSAY AMOSS, associate professor of medicine of the Johns Hopkins School of Medicine, has been elected professor of medicine at Duke University.

DR. J. V. HOFMANN, assistant director of the Pennsylvania State Forest School, has been appointed head of the division of forestry at the State College of North Carolina at Raleigh, N. C.

M. LÉON BRILLOUIN, assistant director of the laboratory at the Collège de France, has been appointed the first incumbent of the new chair of theoretical physics at the Sorbonne.

DISCUSSION

ON THE PRESENCE OF ALUMINUM IN PLANT AND ANIMAL MATTER

IN an article entitled, "A Study of the Possible Rôle of Aluminum Compounds in Animal and Plant Physiology," by E. V. McCollum, O. S. Rask and J. Ernestine Becker, published in the *Journal of Biological Chemistry*, Vol. 77, p. 753, 1928, these authors arrived at the conclusion that aluminum is not a constituent of either plant or animal matter. Since this conclusion is so contrary to what has been found by practically all previous investigators, we have checked the work of McCollum and coworkers in the laboratory and have found that they are quite in error. Using the Hilger quartz prism spectrograph, as they did, we found aluminum to be present in egg, potato, carrot, English walnut meat, peach pit, apricot pit, pop-corn, lima bean, navy bean, lupine bean, peanut kernel, lean beef, beef tendon and human cancerous tissue excised from the breast by the surgeon. The complete experimental details will soon be ready for publication.

LOUIS KAHLENBERG,
JOHN O. CLOSS
CHEMICAL LABORATORY UNIVERSITY OF WISCONSIN, MADISON, WISCONSIN,
FEBRUARY, 1929

TO DEMONSTRATE THE COURSE OF SAP ASCENT IN PLANTS

THE usual methods for demonstrating the course of the ascending sap stream, or transpiration stream, through the wood of the vascular bundles of land plants, are open to manifest objection. The commonest method—that of allowing an amputated plant or branch to draw up a colored solution (*e.g.*, red ink) through the cut end—is undesirable because of the tendency of the dissolved pigment either to diffuse or to attach itself to *ad*sorbent walls. The usual alternative to this—a suspension of insoluble particles such as finely ground India Ink, which is also drawn up by the ascending sap stream—while it carries admirably, is also objectionable because it does not stay in place when one attempts to make sections of the tissues into which it has been drawn. One may engage in the time-consuming processes of fixing, imbedding, microtome sectioning, etc., in order to avoid dragging or scattering the carbon by the knife or razor-blade.

But it has occurred to me that one may have the advantages of a non-diffusing suspensoid without the risk of dislocation by sectioning, if one use a suspension of finely ground starch. This innocuous material will also be drawn up through the ducts. When the process has continued as far as one wills, the granular starch may be fixed in place by subjecting the plant or branch to sufficient heat to make paste. The part may then be sectioned, stained with iodine, and examined. The starch will be found to be more or less completely filling the ducts.

Experiment made by Mr. Edwin D. Woodhouse, one of our graduate students, showed that starch was drawn up through six internodes by castor bean (*Ricinus communis*) branches in about twenty-four hours, and that it was drawn through six inches of leaf stalk in about half an hour, in the warm dry air of the laboratory. While Mr. Woodhouse and I are proceeding with our investigation of what he has called sap hydraulics, presently publishing our results elsewhere, I believe this method is so remarkably useful for demonstrations that I should be glad to have it used in this way while we are testing it in others. It is obvious that we shall be able, by using