losophy in a letter which was circulated widely among students of bacteriology: "To those who have the urge to do research and who are prepared to give up most things in life eagerly pursued by the man in the street, discovery should come as an adventure rather than as a result of a logical process of thought. Sharp, prolonged thinking is necessary that we may keep on the chosen road, but it does not necessarily lead to discovery. The investigator must be ready and on the spot when the light comes from whatever direction. . . . The joy of research must be found in doing since every other harvest is uncertain and even the prizes do not always go to the discoveries to which we would assign them. . . . In the three different environments in which I have spent my active life I have always taken up the problems that lay spread out before me in the new environment, chiefly because of the easy accessibility of material without which research can not go on; for in the early years material and resources were exceedingly scant and this meagerness determined the direction and scope of all research. My interest in a problem usually lagged when certain results could be clearly formulated or practically applied. To continue and analyze still further every link of the established chain either failed to hold my interest or was made difficult or impossible for causes lying outside the problem. As I look back it is precisely these links that have provided innumerable problems to others. Each link has grown into a chain and the end of successive chain making is not in sight."

Theobald Smith lived one of the most useful lives of modern times. His contributions to mankind are comparable with those of any citizen rendering conspicuous service of world moment during the past century. He received honors in abundance from foreign countries and from numerous universities. His friends and colleagues will always regret that certain institutions and international organizations failed to honor themselves by awarding him their recognition. However, in the minds and hearts of scientific men he occupies a place of far greater importance than would be indicated by any further tangible reward which might have come to him. Time will add increasing luster to this great name. Theobald Smith is lost to the world, but his achievement will remain one of the most significant chapters in the history of medicine.

SCIENTIFIC EVENTS

PHOTOGRAPHS TAKEN FROM THE STRATOSPHERE

PHOTOGRAPHS taken from the stratosphere, showing the earth's actual curvature on the horizon more clearly than ever before, and revealing how the world looks from the greatest height at which pictures ever have been made, have been developed from films exposed during the stratosphere flight of the National Geographic Society–Army Air Corps balloon on November 11.

The photographs were taken by Captain Albert W. Stevens, commander of the expedition, while the stratosphere balloon was at its "ceiling" of 72,395 feet, a new world altitude record, over Parmelee, South Dakota.

The picture showing the lateral curvature of the earth includes a stretch of the horizon 220 miles in length. This represents more than three degrees of a circle—nearly 1/100th of the total circumference of the earth. The curve of the horizon is easily noticeable when the picture is projected on a screen. When the edge of a ruler is laid along the horizon line the curvature is even more plainly visible.

In taking this picture the Fairchild camera used by Captain Stevens "saw" a distance of approximately 300 miles, far beyond the range of the human eye. The horizon showing in the photograph is estimated to have been at that distance from the camera. The photograph was taken by infra-red light which is capable of piercing distant haze. All the other colors of sunlight are shut out of the camera by a red filter in making this kind of long-distance photograph.

The picture shows a vast stretch of western South Dakota, covering roughly 33,000 square miles, equivalent to the area of the state of Maine. The Black Hills, from which the flight started and which have an area of about 6,000 square miles, appear as a large dark area at one side of the picture 160 miles in the background. Mountain peaks, rivers, and in the foreground towns and farms, are visible.

The horizon line in the photograph is represented by a stratum of haze estimated to lie about 10,000 feet above the earth. This stratum of haze, however, conforms closely to the sea-level surface of the earth and its curvature reflects accurately the curvature of the earth itself.

The only other photograph showing the lateral curvature of the earth along the horizon also was made by Captain Stevens while flying over the Andes in South America in 1930, from a height of 21,000 feet. The new photograph, however, shows a stretch of horizon three times as long as the earlier picture and so reveals the curvature much more plainly.

Both still and motion pictures taken directly downward from the stratosphere balloon while it was at its ceiling of 72,395 feet, the highest-altitude pictures of the earth ever taken, also were made by Captain Stevens. They show the earth as a huge plain marked

with tiny checkerboard-like farms and fields. Cutting into the level, smooth farm lands are regions of erosion, with innumerable small stream courses, arroyos and creek beds, forming intricate patterns of delicate tracery like frost on a window pane. Roads appear as thin, knife-edge lines. Towns are practically invisible. The still pictures of the earth were made with a Fairchild aerial camera mounted in the bottom of the gondola.

THE ACADEMY CONFERENCE

THE Academy Conference will hold its annual session at 4 P. M. on Monday, December 30, in the Hotel Jefferson, St. Louis. The complimentary dinner given by the American Association for the Advancement of Science, about which Dr. Henry B. Ward, permanent secretary, is writing to each academy, will be held at 6:15 P. M., and will terminate in time for the delegates to attend the opening general session.

At a meeting of the Executive Committee of the association, held in Washington on October 27, it was voted that the Academy Conference membership include the representatives of affiliated academies designated by those bodies as members of the Council of the Association.

The following topics will be presented for discussion at the Academy Conference:

"A Brief History of the Accomplishments of the Academy Conference," H. E. Enders.
"Work Planned by the Academies," S. W. Bilsing.
"Ways in Which the *Science News Letter* May Help Junior Academy Members," Watson Davis.
Report of the Committee on Coordination of Science Clubs, and upon Source Materials for Junior Academies.
The General Secretary's Report upon State Academy Research Grants.
Other topics if time available.

The secretary of the Academy Conference is assembling news notes from state academies and these will be mimeographed for distribution at the meeting.

S. W. BILSING,
Secretary, Academy Conference
OTIS W. CALDWELL,
General Secretary, American Association for the Advancement of Science

THE ST. LOUIS PROGRAM

A CHANGE in the announcement of the Phi Beta Kappa lecture scheduled for a public session of the winter meeting of the American Association for the Advancement of Science has been made necessary by the serious illness of Professor Frederick J. E. Woodbridge and the recent death of Mrs. Woodbridge. It is expected that the address, "The Claims of Science," which Dr. Woodbridge had prepared for the occasion, will be published in *The American Scholar*. Dr. Woodbridge felt that the meeting was too important to have the lecture read by some one other than the author.

Fortunately Dr. William Allan Neilson, president of Smith College, has been secured to make this first annual Phi Beta Kappa lecture. President Neilson was graduated by the University of Edinburgh and Harvard University, where he taught English for many years. He has been chairman of the Board of Trustees of the Carnegie Foundation, a Phi Beta Kappa Senator, co-editor with Charles W. Eliot of the "Harvard Classics," editor-in-chief of Webster's "New International Dictionary" and author of many notable works in the field of English literature. He has been for four years a member of the editorial board of *The American Scholar*. President Neilson has chosen for this meeting the subject, "The American Scholar To-day." He proposes to discuss Ralph Waldo Emerson's ideal to see how far it fits our time and takes in science. The lecture will be preceded by musical numbers by Barbara Hecker Schmitt. The chairman will be Dr. Robert A. Millikan.

The United Chapters of Phi Beta Kappa is an affiliated member of the American Association and was invited by the association to sponsor this annual lecture representing the association's recognition as scientists of the humanistic ideal. Delegates who attend the five days of technical discussions will welcome this variation in the program. The meeting will be open to the public and all Phi Beta Kappa members in the community will be especially invited. The lecture will be held in the Opera House of the Municipal Auditorium in St. Louis at 8:15 on Wednesday evening, January 1.

The association will welcome as a guest at its meeting in St. Louis one of the most distinguished of South American scientific men, Dr. B. A. Houssay. He came to this country recently as a visiting lecturer at Harvard University and will appear in the same rôle at a later date at other institutions.

Dr. Houssay is professor of physiology in the faculty of medicine at the Institute of Physiology of the University of Buenos Aires, Argentina. He is an authority on the physiology of the endocrines, particularly upon the hypophysis and its relationship to metabolism. It was his work that brought out the very startling relationship between the anterior pituitary and the pancreas. He was able to demonstrate that when both the pituitary gland and the pancreas were removed no marked diabetic condition resulted, in sharp contrast with results when the pancreas alone was removed. In addition to this he succeeded in obtaining from the anterior lobe of the pituitary gland an extract which when injected into normal animals