o'clock. Conference on Astrophotographic Problems: Professor Harry H. Plaskett presiding.

The Harvard Collection: Dr. Annie J. Cannon, curator of astronomical photographs.

The Physics of the Photographic Process: Professor G. B. Kistiakowsky, department of chemistry, Harvard University.

A Survey of Photographic Astrometry: Professor Frank Schlesinger, director, Yale Observatory.

The Current Photographic Programs of the Harvard Observatory: Dr. Harlow Shapley, director, Harvard Observatory.

II. AFTERNOON SESSION. The Observatory Library at 2 o'clock.

A. Acceptance by President Lowell of the Keys to the new Astrophotographic Building from Mr. Charles A. Coolidge, president of the Harvard Alumni Association, representing the architects.

B. Conference on *The Time Scale*, under the auspices of the Harvard Chapter of Sigma Xi: Dr. Harlow Shapley presiding.

On the Concept of Time: Professor Percy W. Bridgman, department of physics, Harvard University.

The Astronomical Measurements of Intervals of Time: Professor Robert H. Baker, director of the observatory, University of Illinois.

The Age of Mankind: Professor Ernest A. Hooton, department of anthropology, Harvard University.

The Radioactive Base Line of Time Estimates: Professor Alfred C. Lane, department of geology, Tufts College.

The Geological Time Scale and its Applications: Professor Arthur Holmes, Durham University, England.

The Stability of the Solar System: Professor E. W. Brown, department of mathematics, Yale University.

Meteors and the Age of the Universe: Professor Ernst J. Öpik, Tartu University Observatory, Esthonia, lecturer in astrophysics, Harvard University.

C. Reception to members of Sigma Xi and invited guests in the director's residence.

III. EVENING SESSION. The Observatory Library at 8 o'clock. Joint Meeting of the Bond Astronomical Club and the Staff of the Harvard Observatory.

The Zodiacal and Planetary Symbols: Dr. Cecelia H. Payne, Harvard Observatory.

Astronomical Sketches: Members of the Bond Club and the Observatory Staff.

TESTS TO DETERMINE THE NATURE AND SOURCE OF THE COSMIC RAYS

DR. ARTHUR H. COMPTON, professor of physics at the University of Chicago, has left for Panama, where he will make the first of a series of tests in various parts of the world to determine the nature and source of cosmic rays. Dr. Compton's work will be part of a cooperative study, involving a dozen physicists working in several parties under his direction, to measure the intensity of the rays which apparently come from interstellar space.

The cosmic ray meter consists of a steel "ionization chamber," containing argon at 30 atmospheres pressure. The cosmic rays penetrating the chamber set up an electrical current in the gas (argon) which is measured with an electrometer. A series of lead and copper spheres, weighing in all 200 pounds, shield the ionization chamber from local rays, permitting only the cosmic rays to enter. The Carnegie Foundation and the University of Chicago will share the expense of the projected study.

The objective of the expedition, according to Dr. Compton, is "more complete knowledge of the nature and place of origin of cosmic rays. A survey such as this should give the most adequate test that has yet been devised to distinguish whether the cosmic rays are photons, such as light and x-rays, or electrons, such as give rays to the earth's aurora. Because of the effect of the earth's magnetic field, electrons would give less intense rays near the equator than near the poles, and presumably there should be other variations with the geographical location."

The present project continues work which Professor Compton did last October on Mount Evans, Colorado, and in the Swiss Alps. The new measurements will be made at altitudes ranging from 7,000 feet to 26,000 feet. The tests on Mt. Chico in Panama will be followed by studies at Huancayo, Peru. Mt. Cook in New Zealand, Mt. Kosciusko in Australia, Mauna Kea in Hawaii and Mt. McKinley in Alaska are the next objectives. At the end of the summer Dr. Compton will return by way of Colorado, where further studies will have been made.

Three other cooperating parties will report at the end of the summer. One will take measurements on the Volcano Lanin in Patagonia and at Punta Arenas in Chile. A second, in charge of Professor S. N. Naude, of the University of Cape Town, will climb Mt. Winterhoek in South Africa, and possibly Mt. Brukkaros. In India, Professor J. N. Benade, of Punjab University, Lahore, will go to Mt. Nunga Purbat in Kashmir, third highest peak in the world, and will, if possible, make tests at several altitudes ranging as high as 20,000 feet or more. Professor Benade will then proceed to Kandy, Ceylon; Singapore, Straights Settlement, and Mt. Tjerimai, Java, for further measurements.

Negotiations are also being made with several independent groups, which are planning expeditions to the

North and South Polar regions within the next two years for the inclusion of physicists in the parties to make further cosmic ray measurements.

CONFERRING OF THE CHANCELLOR'S MEDAL OF THE UNIVERSITY OF BUFFALO ON DR. FRANK A. HARTMAN

AT commencement exercises on February 22, the University of Buffalo awarded the chancellor's medal, its highest honorary badge, to Dr. Frank A. Hartman, professor of physiology in the School of Medicine, for his work in extracting the vital hormone of the adrenal cortex. Dr. Hartman is the first member of the faculty to receive the medal, since it is reserved for the few who by some outstanding act or achievement bring greater dignity and honor to Buffalo in the eyes of the outside world. An excerpt from Chancellor Capen's remarks in making the award follows:

The dominant function of the university is now no longer the preservation of the past; it is the creation of the future. How does the university create the future? By research, by experiment, by reducing the area of the unknown, by making new knowledge and reinterpreting old knowledge in the light of the new, and so furnishing society with new instruments to make life safer, more generous and more lovely. The terms "university" and "research" have come to be indissolubly associated.

But the situation contains a paradox. The university, especially in America, now has many obligations. Its historic obligation to transmit the past bulks large and is very costly. It has acquired still other obligations that are contemporary with the moment, that consume much energy and attract perhaps undue attention. In consequence, research, which experience has shown to be the university's most important activity, shares always disadvantageously in the apportionment of funds and facilities. Research is still far too often in the American university a work of supererogation. It is a surplus good work performed at the sacrifice of ease and profit, out of devotion to a wholly idealistic cause. It is performed by a minority of the members of the university. But from these works of supererogation, from this treasury of grace, if one may continue the theological figure, have come not all, to be sure, but a large proportion of those facts and points of view which within the last two generations have ameliorated and enlarged social living.

In the field of medical investigation the university has long had a practical monopoly. To university research in Europe and America the world owes most of the great discoveries that have controlled or vanquished one after another of the seemingly hopeless maladies to which humanity is subject.

Those who see only the occasionally spectacular results of research in the medical sciences have little idea of what lies behind them. In hundreds of laboratories all over the world the process is going forward, quietly, without public notice, almost as a matter of daily routine. It is not attended by sudden revelations. The advance toward the goal which the investigator seeks is inch by inch. Unexpected blockades and dashed hopes are frequent, and retreats to a point whence a fresh start can be made. There enter into the process imagination, bold and hazardous conjecture, the patient distrustful following of leads, the endless repetition of checks and tests to make sure that nothing has been overlooked and that the same procedures will bring every time the same results. For most workers this is all, this and the recognition by fellow workers of foundations solidly laid for the future advance of science.

Once in a while there comes to the rarely resourceful investigator brilliant success, then the applause of his professional associates, perhaps fame. Surely the man whose imagination and learning and technical skill have brought him to an important scientific discovery needs and wants no other reward. His cup is full.

But whether he wants it or not is beside the point. These institutions that are dedicated to research may properly seize the occasion to say: "This is what we mean. This is the business to which we are committed. This servant of the common good is our man, an exemplar of our craft."

For some months the University of Buffalo has been in a position to speak thus of one of its members. The discovery and preparation of cortin were in the best tradition of medical research. Years of baffling and painstaking experiment preceded the modest announcement of our colleague's success. Then, quite unheralded, followed the multiplying demonstrations of the effectiveness of the discovery; then renewed study and experiment, and at length national recognition modestly, almost reluctantly, accepted.

The university to which he has brought honor now delights to honor him. Fortunately it is able to present him with a tangible token of its approval. The medal established by former Chancellor Charles P. Norton was intended to signalize publicly just such distinguished achievement.

Frank Alexander Hartman, teacher, scholar, persevering and dauntless experimenter, discoverer of cortin, the council of the University of Buffalo awards the Chancellor's Medal to you, because through your investigations you have won rank among the leaders in the science of endocrinology and in so doing have "dignified Buffalo in the eyes of the world."

SCIENTIFIC NOTES AND NEWS

AT a recent meeting of the senate of the University of Dublin it was decided to confer the degree of Sc.D. on Dr. Ross G. Harrison, professor of comparative anatomy at Yale University.

ON the occasion of the dedication of the Graduate Education Building of the University of Chicago, the honorary degree of doctor of science was conferred on Dr. Edward Lee Thorndike, professor of educa-