nounced discovery of the positive electron, or "positron." Because of the tremendous energy of the individual cosmic ray, it is capable of producing nuclear disruptions much more violent than those resulting from the most powerful artificial sources. Thus a recent photograph by Blackett shows no less than twenty pieces presumably ejected from the nucleus of a single atom by the action of one cosmic ray. The energy of the particles flying from this burst is not less than several billion electron volts. It will be a long time before the laboratory will produce ten billion volt electrons. Until that time we may expect to find cosmic rays of unique value for studies of nuclear structure.

OBITUARY

WILLIAM HENRY HOLMES

WILLIAM HENRY HOLMES, anthropologist, geologist and artist, died April 20 at Royal Oak, Michigan, at the age of eighty-six years. Born near Cadiz, Ohio, on December 1, 1846, his parents Joseph and Mary Heberling Holmes, he received the schooling available in the forties, progressing till he graduated at the Hopedale Normal School. For several years he taught in the district and normal schools, until his preference for art prevailed over other interests.

Dr. Holmes entered into science by a fortuitous avenue which the ancients attributed to destiny or fortune. On a visit to Washington the youth was found in the Smithsonian Institution enjoying himself in drawing birds displayed in a case. One of the ornithologists happened by and saw the drawing, appreciated the evidences of his skill, and got him employment for work at the Institution. From that time on his pencil and brush were requisitioned for illustrations of the various reports. On that horizon Dr. Holmes viewed his future course in the development of his art. With this in view he later studied in Europe at several German schools. In the course of events he was drawn into the work of the U. S. Geological Survey and took the field in 1872 as artist under F. V. Hayden, becoming an assistant geologist in 1874. During this period he produced hundreds of drawings showing the physiographic features, of which those of the Grand Canyon of the Colorado are classics in geology. In charge of the survey of the San Juan region in Colorado, he stepped into a field that was to dominate his scientific life. This region, the homeland of the ancient Pueblo Indians, strewn with ruined pueblos and cliff dwellings, exerted its fascination to Dr. Holmes, and we find him in 1875 writing the first report on these archeological sites, his first contribution to anthropology. Many of these ruins he was the first white man to see, and he entered houses where the dust had not been disturbed for a millennium. Returning in 1889 to Washington he became connected with the Bureau of American Ethnology, pursuing researches on the geological history of man in America, of which subject he was the outstanding student. From 1894 to 1897 he was non-resident and resident professor of anthropic geology in the University of Chicago and curator of anthropology in the Field Museum. During this period he prosecuted an archeological survey of the ruined Maya cities of Yucatan, the report demonstrating his skill as an artist, architect and archeologist. Again returning to Washington, he became head curator of the Department of Anthropology of the U. S. National Museum, and for a few years he devoted his efforts to museum science, building this branch of the museum to an enviable state of excellence.

As a master of museum science Dr. Holmes was without rival. In the harmonious arranging of cases for exhibit he applied the laws of structure implanted in him. To questions near to museums of the time he brought a consummate taste and unerring judgment as to ways and means. The group cases illustrating the races of man were designed by him as pictures telling the story in the most artistic manner. These groups show he had the knack to present science in an instructive and pleasing setting. For these reasons the groups are favorably and widely known as climaxes of achievement in museum installation. In a multitude of objects in the National Museum his taste and near approach to perfection are evident. Mention should be made of the models of ancient temples of Yucatan as examples of this outstanding artistic ability.

In anthropology the branch in which Mr. Holmes was especially proficient was archeology. To this nascent branch he contributed much of the groundwork which has remained unshaken to this day. To his early work in the Southwest he added explorations of ancient works broadly over the whole United States. It remained to him to correlate much of the data secured by personal fieldwork and the work of others. Confining his work to America, he took the leadership in controverting the application of European terminology and sequences to this field, advancing a restricted view as to the antiquity of man in the Western Hemisphere. In the era of sometimes bitter controversy that marked the adolescence of anthropology, Holmes was always to the front with well-reasoned contributions serving to clear up the subjects in question.

The body of anthropological literature contributed by Holmes in extent seems alone a life work. The larger works appeared in the annuals of the bureau. Among these are: Stone Implements of the Potomac-Chesapeake Tidewater Province (15th ann.); Aboriginal Pottery of the Eastern United States (20th ann.); Handbook of American Antiquities. Part 1. Introduction. (Bull. B. A. E. no. 60). During his administration of the Bureau the Handbook of American Indians, Bulletin 30, was brought to completion and published.

Throughout his career he displayed a remarkable ability to grasp a subject at once or to see the implications of a problem as unerringly as his pencil followed the subtle outlines of his model. The driving force that was within Holmes never ceased its urge till near the close of his busy life. Whatever he undertook was carried forward under pressure of his indomitable will. This characteristic is observed in his youth when despite obstacles he trained himself in art.

Many honors came to Holmes during his busy life. He was a member of the National Academy of Sciences, president of the Washington Academy of Science and of the Cosmos Club. He was honorary member of the University of La Plata, Argentina, and prominent in Spanish-American conferences, meetings of the Americanists, and in many other movements. On his 70th birthday he was presented with a magnificent anniversary volume of anthropological essays by his friends and co-laborers.

WALTER HOUGH

SCIENTIFIC EVENTS

THE McDONALD OBSERVATORY

DR. OTTO STRUVE, director of the Yerkes Observatory of the University of Chicago, has announced that Mt. Locke, a 6,790 foot peak in the Davis Mountains in southwestern Texas, has been chosen as the site of the new McDonald Observatory.

The McDonald Observatory will be a cooperative enterprise on the part of the University of Texas, which is to build the telescope and observatory buildings from a part of the bequest of the late W. J. McDonald, of Paris, Texas, and the University of Chicago, which is to provide the staff for the observatory. The agreement between the two universities is the first cooperative effort in astronomy made in this country. Although enabling them to build a much larger and effective instrument than would have been possible had two independent observatories been constructed and staffed, the cooperative agreement will mean a saving of over a million dollars to the two universities.

The decision of Dr. Struve to place the McDonald Observatory on Mt. Locke was made following the return this week of an expedition headed by Professor George Van Biesbroeck, of the Yerkes Observatory. This expedition, which spent seventeen nights on Mt. Locke making observations, confirmed the findings of two earlier expeditions made by Assistant Professor Christian T. Elvey last November and by Dr. Struve in December.

A tract of 200 acres, which includes Mt. Locke, has been given the University of Texas for the observatory site. The Mt. Locke site is about fifteen miles from the nearest town, Fort Davis, and Dr. Struve believes that it offers the best conditions for astronomical research to be found in the United States.

Because the solar system is unsymmetrically situated among the stars of the galaxy, and more than nine tenths of the stars and nebulae interesting to astronomers are south of the equator, the farther south an observatory the better the conditions. Were unlimited means available, the McDonald Observatory probably would have been established south of the equator, in New Zealand.

The southern latitude of Mt. Locke, approximately 31 degrees, makes many stars visible which are never above the horizon at Yerkes Observatory at Williams Bay, Wisconsin. Atmospheric conditions are much better in the Davis Mountains also, the nights being uniformly clear and the stars being twice as bright as they are in the latitude of Chicago. The elevation of Mt. Locke exceeds that of the Mt. Wilson and Lick Observatories, and is just a little short of the elevation of Lowell Observatory near Flagstaff, Arizona, but the McDonald Observatory will have a much larger instrument.

Definite specifications for the equipment at the McDonald Observatory have been made and submitted to instrument builders in this country and abroad. Dr. Struve expects that the order for the telescope will be placed in the near future, and completion of the observatory may be possible a year ahead of the contract date of July 1, 1938.

The mounting of the McDonald telescope is to be constructed in such a way that the light of any star may be concentrated in a room of constant temperature, where it may be analyzed with the aid of prisms, photo-electric photometers or other analyzers. There will be a plateholder for the direct photography of comets, stars, planets and nebulae, and several specially designed lenses which will improve the optical definition of the instrument.

Second only in light-gathering power to the 100-