

Evening: Dinner at El Tover Hotel.
Powell Lecture by Dr. J. C. Merriam.

THURSDAY, APRIL 30, EXCURSIONS AT
THE GRAND CANYON

Morning: Visit to Yavapai Point Observation Station followed by drive along Hermit Rim Road (Trip "B"). Visit to Yavapai Point Observation Station followed by all day trip down Kaibab Trail to the Colorado River (Trip "D").

Afternoon: Visit Grandview and Moran Point, and Wayside Museum of Archeology (Trip "C").
Evening: Lecture and entertainment.

The officers of the Southwestern Division are: *President*, H. S. Colton, Museum of Northern Arizona, Flagstaff; *Vice-president*, Jesse Nusbaum, Mesa Verde National Park; *Secretary*, V. C. Kiech, University of New Mexico, Albuquerque.

SCIENTIFIC NOTES AND NEWS

DR. CHARLES L. REESE, formerly director of the E. I. du Pont de Nemours and Company, on the occasion of the fiftieth anniversary of receiving the doctorate of philosophy from Heidelberg University, received the following letter from Dean A. Seyboldt: "Fifty years have passed on the twenty-sixth of February since you were promoted in Heidelberg to doctor of philosophy. Robert Bunsen was your teacher together with Hermann Kopp and August Beruthsen. We know you have retained a friendly remembrance of your teachers as well as of Heidelberg and of the country whose guest you were at that time. The university, which will celebrate the five hundred and fiftieth year of its existence shortly, is thinking to-day of its pupil. You have contributed in a measurable manner to the building of the chemical industry of your country. The two largest scientific associations of your branch have chosen you as president. The University of Heidelberg and especially the faculty of natural science and mathematics congratulate you on the great success of your life and hopes you will continue to have good years. With the same mail, I am sending you a renewal diploma of doctor of natural science."

DR. GEORGE GRANT MACCURDY, of Yale University, and director of the American School of Prehistoric Research, has been elected to honorary membership in the British Speleological Association. Dr. MacCurdy has also been delegated to represent the Southwest Museum, Los Angeles, Calif., at the International Congress of Prehistoric and Protohistoric Sciences to be held in Oslo, Norway, during the month of August.

DR. OLIVER R. WULF, of the Bureau of Chemistry and Soils of the U. S. Department of Agriculture, is the recipient of the Hillebrand award "for outstanding research." The award is made by the Washington section of the American Chemical Society, in recognition of his work on the origin of ozone in the upper atmosphere.

LIEUTENANT LEONARD CHARLES HILL, the master of the *R.R.S. Discovery II*, has been appointed an Officer of the Civil Division of the Order of the British Em-

pire for his services in connection with the search in the Antarctic for Lincoln Ellsworth and Herbert Hollick-Kenyon.

PROFESSOR LUDWIG ASCHOFF, professor of pathologic anatomy in the University of Freiburg in Breisgau, celebrated his seventieth birthday on January 10.

A FLORIDA ACADEMY OF SCIENCE has been founded by members of the University of Florida, the Florida State College for Women and the University of Miami. A charter was applied for and granted in February. The officers are: *President*, Dr. Herman Kurz, botany, Florida State College for Women; *Vice-president*, Dr. Robert C. Williamson, physics, University of Florida; *Secretary*, Dr. J. H. Kusner, mathematics, University of Florida; *Treasurer*, Dr. J. F. W. Pearson, zoology, University of Miami.

DR. HANS ZINSSER, professor of bacteriology and immunology at the Harvard Medical School since 1923, has been appointed Charles Wilder professor of bacteriology and immunology. He succeeds Professor Milton J. Rosenau.

DR. ARTHUR MICHAEL, who has been professor of organic chemistry at Harvard University since 1912, has resigned and has been appointed professor emeritus.

PROFESSOR GEORGE P. BACON, since 1929 dean of the engineering school of Tufts College, has resigned. He was previously for ten years head of the department of physics.

DR. HENRY JOHNSON LONG has recently been named president of Greenville College, Greenville, Ill., succeeding Dr. Leslie Ray Marston, who resigned to become bishop of the Free Methodist Church of North America. Dr. Long, a native of Oklahoma, has been professor of chemistry at Greenville since 1927 and prior to that was professor of chemistry at Central College, Kans., and assistant instructor in chemistry at the University of Kansas.

DR. C. O. EDDY, associate entomologist of the Ken-

tucky Agricultural Experiment Station, has joined the staff of the Louisiana Agricultural Experiment Station as head of the department of entomology.

PROFESSOR JOHN KAY JAMIESON has been appointed to the chair of human anatomy and embryology at the University of Dublin made vacant by the death of Dr. Andrew Francis Dixon. Dr. Jamieson has been professor of anatomy since 1910 and dean of the School of Medicine at the University of Leeds since 1918. He is a member of the General Medical Council.

JOHN C. PAGE, chief engineer of the Reclamation Bureau, has been appointed to relieve R. F. Walter as acting reclamation commissioner. Mr. Walter, who had been in charge of the bureau since the death of Commissioner Elwood Mead, has returned to Denver to resume his work there.

CHESTER CHARLES DAVIS, administrator of the Agricultural Adjustment Administration, has been requested by President Roosevelt to make a survey of the economic policies of European nations. Mr. Davis sailed for Europe on March 20, to be absent for two months. Dr. H. R. Tolley, director of the Gianini Foundation of the University of California, who has been assisting Mr. Davis, has been appointed acting director. He will be in charge of developing the programs under the new Soil Conservation and Domestic Allotment Act.

HARRY A. NOYES, chemist and bacteriologist, has joined the staff of Arthur D. Little, Inc., consulting chemists and engineers of Cambridge, Mass., as a food technologist.

THE Committee on Research of the American Medical Association has awarded grants as follows: To Dr. H. E. Eggers, professor of pathology at the University of Nebraska College of Medicine, for the prosecution of his work on the effect of tetramethylarsonium gluconate on cancer; to Dr. Gustav J. Martin, of the Trudeau Sanatorium, New York, for the study of the lipoids of the tubercle bacillus to determine the chemical basis of virulence in the tubercle bacillus, and to Drs. Lester R. Dragstedt and G. M. Dack to aid them in the study of the relation of *Bacterium necrophorum* to chronic ulcerative colitis. The work will be done in the laboratories of bacteriology and hygiene, surgery and medicine, of the University of Chicago.

DR. CHARLES FINLAY sailed from New Orleans for his home in Havana on March 4. Dr. Finlay had been in New Orleans to attend the recent Southeastern Surgeon's Congress.

In addition to members of the faculty of the Harvard College Observatory the staff of the Summer

School of Astronomy in 1936 will include among its visiting lecturers: Dr. Peter van de Kamp, University of Virginia; Dr. Alfred C. Lane, Tufts College; Dr. Knut Lundmark, University of Lund, Sweden; Dr. Paul W. Merrill, Mount Wilson Observatory; Dr. Henry Norris Russell, Princeton University; Dr. Meghnad Saha, University of Allahabad, India, and Dr. Frank Schlesinger, Yale University.

DR. STEPHEN REID CAPPS, geologist of the Alaskan branch of the U. S. Geological Survey, gave the Grant Memorial Lectures on February 25, 26 and 27 at Northwestern University.

DR. GEORGE H. PARKER, emeritus professor of zoology at Harvard University, gave an illustrated lecture on "Coloring in Animals" on March 4 before the Lancaster Branch of the American Association for the Advancement of Science. On the following day he addressed the Pre-Medical Club at Lafayette College on "Animal Coloration and the Nervous System."

AT a recent open meeting of the Dartmouth Scientific Association, Professor M. L. Fernald, of Harvard University, was the guest speaker. The subject of his address was "Plant Survivors of Continental Glaciation in Eastern America."

PROFESSOR FAY-COOPER COLE, of the department of anthropology of the University of Chicago, spoke on February 27 on "An Anthropologist's Concept of Race" at the Iowa State College. On February 26, as guest of Sigma Xi, he spoke on "The Coming of Man."

THE annual lecture to initiate at the University of Pittsburgh Chapter of the Society of the Sigma Xi was given this year by Professor William C. Rose, of the department of biochemistry of the University of Illinois on February 26. The title of his address was "The Nutritive Rôle of the Amino Acids."

DR. HARLAN T. STETSON, of Harvard University, lectured on "The Sun's Effect on Human Affairs" under the auspices of the Sigma Xi at the Worcester Polytechnic Institute on March 16. Dr. Stetson spoke on the same topic on February 20 at the Academy of Science and Arts at Pittsburgh.

THE American Astronomical Society will meet in Cambridge, Mass., from September 2 to 5. At this meeting there will be special addresses by Sir Arthur Eddington, Dr. Antonie Pannekoek and Professor Henry N. Russell as contributions to the Tercentenary Conference.

THE ABBÉ H. BREUIL, authority on Old World prehistory, will be in charge of the 1936 summer term of the American School of Prehistoric Research. He will be assisted by Harper Kelley, a former student

of the school. The term will open in Paris on July 1. The tentative program includes lectures, museum studies, practise in excavating and excursions to important prehistoric sites in various parts of France, Spain and England. The term will close in England the latter part of August. Prospective students should apply for enrolment before the end of March, sending their applications to Dr. George Grant MacCurdy, director of the American School of Prehistoric Research, Old Lyme, Conn.

DURING the seventeenth annual meeting of the American Geophysical Union the Section of Seismology will hold joint sessions in Washington, D. C., with the Eastern Section of the Seismological Society of America. The first session will be held in the library of the National Academy on Friday morning, May 1. Two additional sessions will be held in Copley Hall, Georgetown University, on Saturday morning and afternoon, May 2. Members of both organizations have been invited to present progress-reports on seismological projects or brief papers on special seismological investigations of general interest. The term of office of the secretary of the Section of Seismology of the American Geophysical Union expires on June 30, 1936. The chairman of the section has appointed the following Committee on Nominations: Frank Wenner (chairman), L. H. Adams and John P. Delaney, S.J. F. W. Sohon, S.J., of Georgetown University, is secretary of the Eastern Section of the Seismological Society of America and H. E. McComb, of the U. S. Coast and Geodetic Survey, is secretary of the Section of Seismology of the American Geophysical Union.

Nature states that the third International Congress for Investigation of Light will be held at Wiesbaden from September 1 to 7, under the presidency of Professor W. Friedrich, when discussions will be held on the biology and physics of light and treatment by light. Further information can be obtained from Dr. H. Schreiber, Robert Koch Platz 1, Berlin, N.W.7.

WITH the issue of the fourth number for 1935, *The American Fern Journal* has completed its twenty-fifth volume. Its publication was begun in the summer of 1910, and it was adopted as the official organ of the American Fern Society the following year. Three thousand four hundred and thirty-two pages have been issued, including both popular and technical articles on ferns and their allies from many viewpoints, and a cumulative index to this material is now in preparation. The editorial board consists of Dr. R. C. Benedict, Brooklyn Botanic Garden; Dr. William R. Maxon, U. S. National Museum; C. A. Weatherby, Gray Herbarium, and E. J. Winslow, of Brattleboro,

Vermont. The surplus stock of back numbers is stored at and distributed from the Brooklyn Botanic Garden. The American Fern Society, which sponsors the *Journal*, is now over forty years old and has a membership of about 325, distributed through 33 states and 13 foreign countries.

THE London *Times* reports that two expeditions will leave Aberdeen shortly for Siberia and Japan to observe the total eclipse of the sun in June. One party will be stationed at Omsk, on the borders of Kirghiz and Siberia, and will be led by Professor J. A. Carroll, of the University of Aberdeen. The other expedition will be under Professor Stratton. Professor Carroll's party, which is being financed by the Joint Permanent Eclipse Committee, the University of Aberdeen, and private sources, will consist of Professor Carroll, William Alexander, Aberdeen, Miss F. K. McBain, assistant in the natural philosophy department, Aberdeen, E. G. Williams, Cambridge, and Captain S. I. Luck, London. They expect to leave London for Leningrad on April 22, reaching Omsk between May 5 and 10. The expedition will take twenty-five cases of instruments, weighing about three tons. Six weeks will be required to erect the instruments in concrete foundations and to adjust them. The duration of totality of the eclipse will be 135 seconds. At Omsk a supply of electricity for a variety of purposes, including warming the instruments at night and cooling them during the heat of the day, will be available.

ACCORDING to the London *Times* the Royal Society, which has been consulted by the British Secretary of State for the Colonies, has recommended that a scientific expedition should be sent to Montserrat in the Leeward Islands to undertake an expert investigation in connection with the occurrence of earth tremors in that Presidency, and to report to the Governor of the Colony. The Royal Society has undertaken to organize the expedition, and will contribute a sum of £300 towards the cost.

THE constitution of the Circolo Matematico di Palermo, revised to bring it in accord with recent legislation, appears in full in no. 1, vol. 59, of the *Rendiconti*. The president and vice-president are henceforth to be appointed by the Minister of Education (with the advice of the society); the editorial board of the *Rendiconti* as well as all other officers of the society are to be appointed by the president. The latter has full administrative powers, and only such business as he has placed on the agenda can be discussed in meetings of the society. The new constitution empowers the Minister of Education to further the expulsion from the society of any member unworthy of belonging to it; although the final decision presumably rests with the president, the society is ex-

pressly forbidden by the constitution to discuss or vote on such a matter. The by-laws of the society must be approved by the Minister of Education. It is provided that at least two thirds of the correspond-

ing members must be Italian. At present less than one third are so, and the new constitution provides that no non-Italians be admitted to membership until the desired ratio is attained.

DISCUSSION

ORIGIN OF THE SOUTHERN APPALACHIAN GRASS BALDS

WITH the opening of the Smoky Mountain National Park the attention of an increasing number of scientists will be directed to the southern mountain bald problem. At the higher altitudes local grass areas varying from 1 to 100 acres in size are to be found sharply delimited in a setting of either balsam-spruce forest or the high altitude deciduous trees, such as northern red-oak or chestnut. Andrews Bald (alt. 5,860 feet) on the end of a south spur of Clingman's Dome Mountain, near the center of the park, is an excellent example of a grass bald. Roughly approximating a square in outline it presents 75 acres of nearly pure mountain oatgrass (*Danthonia compressa*), changing to a sedge (*Carex flexuosa*) at its upper wet margin. This luxuriant, deep-sodded, local grassland contrasts most amazingly with the dark virgin balsam-spruce forest which arises sharply on every side of it. From the depth of the humus layer and from the asymmetric growth of the trees bordering it, the area is known to antedate the settling of the region by white men.

To plant ecologists of the eastern United States, the origin of the grass balds has been an unsolved riddle. If natural forces (including fire) have been involved, why haven't much larger areas of the high mountains in the last ten or twenty centuries gone over into "bald"? But the balds are mere dots on the mountain landscape.

On the basis of intensive studies made during the past summer, the hypothesis is presented here that many of the grass balds are in reality ecological artifacts of Indian origin; they represent old Indian, high mountain, summer camp sites, which when abandoned went through a ruderal stage into the oatgrass subclimax, a community which under the climatic conditions of the high ridge and mountain tops of the southern mountains is able to resist the invasion of the original forest almost entirely and to a marked degree the shrubs of the environment as well.

The Indian encampment hypothesis is supported by the following facts: Indians preferred the ridge trails for travel and hunting. The grass balds are generally located on broadly rounded ridge or knob tops (never on sharp ridges useless for camp purposes) and on the warm southern exposures of these. Unusually good springs may be found at or near the lower margins

of the grass areas. Disturbed areas in certain balds were found in which the plant succession leading to the grass was taking place, a succession never noted following the destruction of the forest by logging or fire.

This grass bald succession into a subclimax may be observed frequently on the high altitude trails. In fact, many long trail sections in rather open forest are nothing but linear grass balds, showing in every respect the true bald character. And the initiation of these trail balds is wholly due to human interference operating at the soil level.

Fire in balsam-spruce is universally followed by the "fire-cherry" community, which under repeated fire succeeds itself by basal shoot regeneration. Fire alone can not explain the origin of the grass balds nor, it is believed, can any other natural factor or combination of natural factors.

A fuller presentation of this hypothesis is in preparation which, it is believed, will go far in solving the riddle of the origin of the Southern Appalachian grass balds.

B. W. WELLS

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BEHAVIOR OF THYROID FOLLICLES IN THE HARVEY-LOOMIS CENTRIFUGE MICROSCOPE

AT Uppsala Universitet, with the collaboration of Professor The Svedberg and Kai O. Pedersen, I observed the extrusion of the colloid from the thyroid follicles in the ultra-centrifuge at a centrifugal force of 100,000 to 200,000 times gravity and the precipitation of thyroglobulin in the colloid immediately after its extrusion. It was observed that the thyroid cells were heavier than the colloid. In order to observe the details of this process I have placed rat and *Necturus* thyroid in the Harvey-Loomis centrifuge and observed it while subjected to a centrifugal force of 10,000 times gravity. This force is not sufficient to cause the colloid to pass through the connective tissue capsule of the thyroid follicle at any appreciable rate. However, the mechanism of its liberation from the thyroid follicle itself can be seen. Occasionally a number of cells of the thyroid follicle break loose and fall through the colloid, thus leaving a hole in the follicle through which colloid could escape if it could get out through the connective tissue layer. Since in the living animal there are lymph spaces and blood