pitted. Likewise the tufa domes southwest of Searles Lake in California are but slightly affected by solution, although they are believed to be of late Wisconsin age. On the much older and higher terraces of this lake, which the writer correlates with an earlier (Tahoe) glacial epoch,[12] the tufa domes are even more honeycombed by solution than the limestone blocks at Meteor Crater. These facts alone suggest that the latter may belong to the last interglacial age.

A study of the ravines and small graded valleys on the parapet indicates that the latter has suffered more erosion than the latest (Tioga) glacial moraines, but hardly so much as those of an older epoch. It is also significant that one of the graded dry "washes" which runs out from the parapet into the general surface of the plateau shows no change of form or geomorphic age in passing from the débris mass out over the plateau. This indicates that the entire ravine as seen to-day has developed since the débris cone was built upon the plateau. From this one may conclude that the crater is older than the present sub-cycle of erosion of the plateau surface.

As a fifth source of evidence, the present condition of the talus slopes within the crater affords instructive suggestions regarding the physiographic history. A close scrutiny of the talus shows that it is no longer growing but has been extensively eroded into a series of ravines between which a few wedge-shaped remnants of the talus still remain. The talus is therefore the product of an earlier age, long since past. It is a well-known fact that talus formation is particularly favored by the wedge work of ice ("frost action"), and aridity tends to prevent it. In all our deserts to-day talus slopes are, with local exceptions, wasting away. On the lower slopes of Death Valley only a few small remnants of talus now remain as relics of a previous age when climatic conditions were favorable to its growth. If we suppose the crater to be of Pleistocene age, the moist cold climate of the last glacial epoch would have promoted frost action and talus growth, whereas the arid interglacial and Recent epochs would have suppressed such growth and induced the ripping of the talus by sudden torrents ("cloudbursts"). It is these torrents that are now enlarging the alluvial fans which have crept out over the lake beds.

It seems very significant that the evidence along these five independent lines points to a long period of atmospheric action and also rather definitely to climatic changes from warmer and drier to colder and moister and back to dry again. From these considerations the writer is led to suspect that the crater was made during the last interglacial (or post-Tahoe) epoch, perhaps 40,000 to 75,000 years ago. Of course no finality can be claimed for this estimate, but as a counterbalance for the current view that the crater is only a few thousand years old it has considerable value.

[12] Eliot Blackwelder, "Pleistocene Glaciation in the Sierra Nevada and Basin Ranges," *Bull. Geol. Soc. Am.*, Vol. 42 (1931), pp. 865–922.

SCIENTIFIC EVENTS

REORGANIZATION OF FEDERAL SCIENTIFIC BUREAUS

A REORGANIZATION of the federal executive departments will be effective in February upon executive orders issued under Congressional authority by President Hoover, unless Congress rejects the plans. Science Service summarizes the major changes in the scientific and engineering bureaus of the federal government as follows:

The U. S. Public Health Service, now in the Treasury Department, will be transferred to the Interior Department and made part of the new division of education, health and recreation which will include bureaus with these functions which are largely already in the Interior Department.

A new Division of Public Works is also established in the Department of the Interior in which practically all the non-military engineering activities of the War Department, which include river and harbors, flood control and similar work are incorporated.

The Bureau of Public Roads, now in the Department of Agriculture, is placed in this public works division, thus giving it jurisdiction over the extensive federal aid highway program.

The Treasury's Supervising Architect office is also transferred to the Public Works Division and numerous commissions and offices also dealing with government construction and purchasing are brought together in the same division for more economical administration.

The General Land Office of the Interior Department is given to the Department of Agriculture and grouped with the Forest Service, the Biological Survey and the Bureau of Chemistry and Soils already in the department into a division of land utilization.

The Hydrographic Office of the Navy and the Naval Observatory are incorporated into a new Department of Commerce Merchant Marine Division, and the Hydrographic Office is merged with the Coast and Geodetic Survey. The same subdivision of the Department of Commerce will include the United States Shipping Board Emergency Fleet Corporation.

The Weather Bureau, long in the Department of

Agriculture, is fitted into the Department of Commerce among bureaus that serve commerce and industry. The National Advisory Committee for Aeronautics, which has been an active research independent establishment since world war days, is merged with the Bureau of Standards.

REDUCTIONS IN THE FEDERAL BUDGET FOR SCIENTIFIC WORK

IN the budget estimates submitted to Congress on December 5, by President Hoover, many of the scientific bureaus are given reduced appropriations. The following figures, selected by Science Service, show the individual appropriations affected. These cuts are in addition to those covered by the economy legislation passed at the last session.

The Department of Agriculture shows the following decrease: Office of Experiment Stations, $44,797, which will affect the the work in stations in Hawaii and Puerto Rico; Office of Extension Service, $12,846, involving cutting down agricultural exhibits at fairs; Weather Bureau, $92,568 for weather service and research, $4,200 for horticultural protection, and $107,835 for supplying information regarding weather conditions to aviation; Bureau of Dairy Industry, $19,803, which represents the amount appropriated in 1932–33 for completing a nutrition laboratory at the Beltsville, Maryland, experiment station; Bureau of Plant Industry, $29,185 for cereal crop investigations, $11,905 for forage crops and diseases, $10,462 for sugar plant investigations and $7,950 for western irrigation agriculture; Bureau of Chemistry and Soils, no changes affecting research; Bureau of Entomology, $4,775 for investigations relating to fruit and shade tree insects, $4,400 for forest insects, $10,390 for cereal and forage insects and $5,820 for household and stored-products insects; Bureau of Biological Survey, $4,810 for studies of food habits of birds and animals, and the remainder of the $156,270 decrease for this bureau is planned to be accomplished by delaying purchase of lands and sites for wild bird and wild life refuges.

Bureau of Agricultural Engineering, $28,603 for engineering investigations; Bureau of Agricultural Economics, $11,430 for research concerning marketing and distribution of farm products; Bureau of Home Economics, $4,724 from investigations.

The Bureau of Plant Quarantine, however, is given $39,501 increase so that additional work may be done in preventing the spread of the pink bollworm of cotton, the gipsy and brown tail moths, and the Japanese beetle. Less money is allowed for preventing the spread of the date scale, the thurberia weevil and the European corn borer—the total sum of these last items amounting to $85,015, in decreases.

The Bureau of Standards is untouched this year excepting for an increase of $188,720 to do away with the 1933 administrative furloughs.

The Coast and Geodetic Survey was given an apparent decrease of $1,239,813, but this sum represents the emergency relief appropriations of 1933.

The Bureau of Mines has $26,025 less for investigating mine accidents, and $7,090 less for helium investigations.

The Geological Survey's planned appropriations have been increased by $399,000, made up as follows: Salaries, $15,000; topographic surveys, $184,000; geological surveys, $40,000; fundamental research, $10,000; volcanologic surveys, $5,000; Alaskan mineral resources, $5,000; gaging streams, $70,000; classification of lands, $10,000; printing and binding, $20,000; geologic and topographic maps, $15,000, and mineral leasing, $25,000.

Increases for international agency expenses recommended for the State Department would include, $10,000 for the Gorgas Memorial Laboratory; International Institute of Agriculture at Rome, $5,400, and International Council of Scientific Unions, $5,042. The last two were not appropriated for in 1933.

It is recommended that the Public Health Service should receive a net increase of $173,266, but the principal increases are $220,000 for pay of personnel and maintenance of hospitals and to provide additional facilities in new hospital buildings constructed as a part of the Federal building program and $55,000 for purchase of equipment for new quarantine stations. Reductions in the force which have been made during the year, however, mean $34,984 decrease for pay of acting assistant surgeons and $25,000 has been cut from the estimate for field investigations and $50,000 from studies of rural sanitation.

The Smithsonian Institution is given certain slight increases in the estimates, mostly for supplies, materials, printing and binding.

UNEMPLOYED CHEMISTS IN NEW YORK CITY

THE New York Committee on Unemployment and Relief for Chemists and Chemical Engineers announces that nineteen colleges and universities will cooperate in research projects to be carried on by unemployed chemists. Columbia, Princeton, New York and Rutgers Universities have pledged laboratory space and materials. Similar cooperation will be extended by a number of hospitals in the metropolitan area. Research workers have been placed in the laboratories of Columbia University and the Medical Center with funds provided by the committee. Other researches will be started as soon as they can be financed.

It is estimated that about 2,000 of the 10,000 chem-