lowing officers were elected for the ensuing year: *President,* Hazel E. Branch, University of Wichita; *First Vice-president,* Roger C. Smith, Kansas State Agricultural College; *Second Vice-president,* Wm. H. Matthews, Kansas State Teachers College at Pittsburg; *Treasurer,* Ray Q. Brewster, University of Kansas; *Secretary,* George E. Johnson, Kansas State Agricultural College; additional council members, Wm. B. Wilson, Robert Taft, F. U. G. Agrelius and A. W. Barton. The section chairmen are as follows: *Chemistry-Physics,* Robert Taft; *Biology,* Mary T. Harman; *Psychology,* J. C. Peterson, president of the Kansas Psychological Association; *Entomology,* George A. Dean, president of the Kansas Entomological Society. The academy will meet at the university at Lawrence in April, 1930.

A SPECIAL health commission has been appointed by Governor Roosevelt to study the working of the public-health law of New York State and the various state and local authorities dealing with the promotion of health, as well as recent progress in public health in other states and abroad. The announcement of the creation of the commission stated that while New York has "one of the best public health laws of any of the states," and has a state health department which has wide recognition as a leader in its field, the great discoveries in medical science make it desirable every few years to have an appraisal to determine the possibility of a more effective application in actual practice of the latest results of scientific research in the means of preventing disease and conserving health. The governor stated that Dr. Livingston Farrand, president of Cornell University, has been asked to serve as chairman of the commission. Others invited to become members are Dr. George W. Cottis, Jamestown; Dr. Simon Flexner, Homer Folks, Dr. Edward L. Keyes, John A. Kingsbury, Mrs. Henry Goddard Leach, Henry Morgenthau, Gerard Swope, Miss Katherine Tucker and Dr. Linsly R. Williams, all of New York City; Dr. Matthias Nicoll, Jr., White Plains; John M. O'Hanlon, Troy; Dr. Thomas Parran, Jr., state commissioner of health, Albany, and Dr. William H. Ross, Brentwood.

DISCUSSION

THE NATIONAL FOREST RESERVATION COMMISSION AND FOREST RESEARCH RESERVES

READERS of SCIENCE for May 24 and June 28, 1929, will recall that the U. S. Forest Service has announced a policy of setting aside portions of the national forests, representative of virgin or relatively undisturbed conditions in each important forest type, as "research reserves" for scientific study; and that the National Forest Reservation Commission last spring approved the purchase, for its scientific value, of one hundred acres of original growth, known as Heart's Content, as a part of the Allegheny National Forest in Pennsylvania.

The report of the National Forest Reservation Commission to the Senate for the year ending June 30, 1929, will encourage the belief that the Forest Service is now in a much improved situation to carry out its announced policy with respect to research reserves. Owing to the extremely low price at which the bulk of the lands have been purchased for national forests in the East, very little virgin forest is now in federal ownership. Here and there, however, there are within the boundaries set for federal purchases privately owned tracts of original forest growth which, provided the National Forest Reservation Commission is willing to pay the prices asked for heavy commercial stands, may be added to the national forests. The commission's recent report, from the pen of its president *pro tempore,* Ray Lyman Wilbur, Secretary of the Interior, indicates a new attitude toward such purchases. It includes among the objectives of the acquisition program "promotion of reforestation and timber production on forest lands—by creating means for development of the principles and practices of silvicultural management necessary for successful timber-growing." What this phrase means may be inferred from the inclusion among the "outstanding features of the work of the National Forest Reservation Commission for the year" of "recognition of the desirability of the preservation of unmodified or virgin forest areas as nature laboratories for the promotion of silviculture." Further on in the report is the following reference to the purchase of the Heart's Content area:

> Notwithstanding the high commercial value of the heavy stand of white-pine timber, it is deemed eminently desirable that the government should acquire this property, not as a museum site or as a recreational tract but as a laboratory for the promotion of silviculture within which to study both the physical and biological aspects of the changes which take place in such forests, the concomitant changes in the white pine-hemlock forest type and the manner in which knowledge of these changes may be of value in guiding the development and management of the several hundred thousand acres of cut-over white-pine lands eventually to be acquired as the larger part of the Allegheny National Forest.

These principles, applied to future purchase programs, ought to result in the acquisition of other tracts suitable for research reserves. Their area can

not, of course, be large, but their value viewed from the scientific point of view will be all out of proportion to their size.

R. D. FORBES

ALLEGHENY FOREST EXPERIMENT STATION

SAND-STORM ELECTRICITY

THE discussions on atmospheric electricity in SCIENCE[1] called to mind an electrical display which accompanied a sand-storm which I witnessed in 1902.

I was on the White Mountain Apache reservation, in Arizona, on the day in question, when an ordinary desert whirlwind whirled into view from just around a southerly projecting point of land north of White River from the now abandoned Fort Apache. I had just crossed a flat area among the hills where an ancient lava flow once spread out, forming a "lava lake," an area probably six miles across from the afore-mentioned point to the mountainous hills to the northwestward, up which I was then ascending. In a moment it began to gain momentum on entering the level country and in a minute more it was a roaring funnel that was hurling immense quantities of dirt and sand skyward so that they formed an umbrella-like cloud around the apex of the whirling center.

As the twister was coming directly in my direction, I shifted southward over a gulch to another ridge to escape its fury. On it came. It entered the canyon in which I had been only a minute before. Here as the canyon both wedged-in and ascended toward the mountains in the direction it was going, the rushing whirl became "angry," as it were. The day had been perfectly clear. Yet in a moment there were chain lightning and ripping thunder on every side, while at the same time the whirler uprooted trees and tore large-sized boulders from their places on the canyon walls, finally destroying itself in that canyon.

From my observations I am inclined to believe that the electrical display that accompanied this whirl was due to the friction caused by the whirling débris.

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"SOUR SAP" IN TREES OF THE GENUS PRUNUS

ANNUALLY there occurs in stone fruits in the deciduous-fruit-growing sections of California a considerable loss of trees from a disease which is locally known as "sour sap." In certain seasons sporadic epidemics of this trouble occur when thousands of trees, usually from about three to ten or twelve years of age, die suddenly in an unaccountable manner and with no previous warning. The disease is primarily one of winter or early spring. Trees which appeared to be in perfect condition at the end of the season either fail entirely to start the following spring, lose one or more of the main limbs or linger along into the summer only to die before the end of the season. Various climatic combinations have in the past been held responsible for sour sap, although it has never been definitely known at just what time of the winter the initial injury actually develops. The name refers to a condition of the bark or cortex region of affected trees which is attended by decided souring and death of this portion of the host. The disease has been known for many years, and although many attempts have been made to discover the cause or causes of this mysterious trouble, only of late has its true nature been understood.

We have found that there are two distinct souring diseases of trees of the genus Prunus, one caused by bacteria and one due to the presence of stagnant soil water which affects the roots during the early growing period of the host.

The disease caused by bacteria is the more common of the two and is entirely distinct from the other. The bacterial organisms usually attack the host through wounds, such as pruning or grafting cuts, during the winter months and cause a progressive disease of the cortical bark region, usually in the trunk above the bud union or in the main crotches but sometimes killing only certain limbs or one side of the tree. The roots are rarely affected, in fact, an infection in the trunk usually stops its extension abruptly at the surface of the ground and the tree then sends up a mass of suckers from the root. The parenchymatous tissues, including the cambium, are invaded, producing a highly discolored, plasmolyzed appearance with a water-soaked, very sour advance, in which bacteria can be seen in the cells and in the intercellular spaces. The bacteria are usually present in zoogloeal masses but at times are quite free and motile. Extensive epidemics of this disease occur only in occasional seasons at irregular intervals, and it seems certain that some correlation must exist between certain seasonal climatic or soil moisture conditions and the development of sour sap. While many theories have existed in regard to this correlation we have really no definite information at all as to the nature of these conditions or even as to the specific time when they occur.

Our work covers a period of seven years of field observations and three years of inoculation experiments on a wide range of Prunus species and varieties, including peach, cherry, wild and cultivated plums, apricot and almond, with the result that the

[1] March 30, 1928; May 3, 1929; October 18, 1929, and January 24, 1930.