

PLANT PHYSIOLOGY

Setting-up Exercise Makes Sensitive Plant "Stronger"

SETTING-up exercises—a routine of weight-lifting—make the leaf-stem of a sensitive-plant "stronger," Drs. W. E. Burge and G. C. Wickwire have found in experiments performed in the physiological laboratory of the University of Illinois. (*Science*, Sept. 27)

The two physiologists selected a healthy specimen of the common sensitive-plant *Mimosa*, which responds to stimuli by folding up its leaves, at the same time folding down its leaf-stems. They attached a tiny weight to one of the leaves, leaving another leaf of similar size unweighted, as a "control."

Then they stimulated both leaves. When the weighted leaf returned to its normal position, of course it had to carry the added weight up with it. Again and again the two leaves were stimulated, so that the loaded one had to go through a course of weight-lifting exercises.

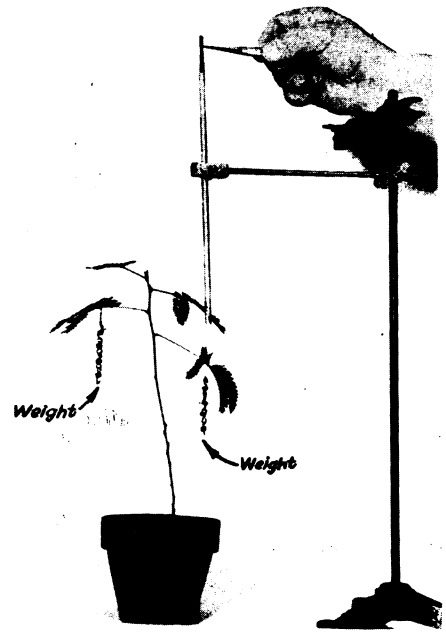
Every day for five days the weights

were increased a little, and the setting-up exercises were repeated. Then the weights were gradually decreased, but the exercises still kept up.

Finally, after a month of this "training," similar weights were attached to both the weight-lifting leaf and the unweighted control leaf, and their respective lifting abilities compared. It was found that the exercised leaves performed 41 per cent. more work than the unexercised ones. Moreover, when repeated effort was demanded, the unexercised leaves became "tired" more easily.

"From the preceding experiments," Drs. Burge and Wickwire conclude, "it may be concluded that the performance of physical work increases the capacity of the leaves of the plant, *Mimosa*, to do work and renders them more difficult to fatigue, an effect very similar to the action of physical work on the muscles of animals."

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"READY—EXERCISE!"

The *Mimosa* leaf was stimulated to its weight-lifting stunt by dropping a tiny cylinder of wood on it, through a glass tube, to insure correctness of aim and a uniform stimulus every time.

ANTHROPOLOGY

Age of Oldest Americans Is Still an Unsolved Mystery

SOLVING the mystery of America's first inhabitants promises to be one of the longest, most persistent detective hunts on record.

Hundreds of years from now, scientists in this country will still be working on facts, clues, and rumored discoveries that add up to form the picture of the first people who roamed the vast continent.

This is the long look ahead taken by archaeologist Charles Amsden of the Southwest Museum, Los Angeles, who considers discoveries of Ice Age Americans so far announced as merely a promising beginning of possible revelations.

Drawing a comparison with scientific efforts to reveal the dawn men of the Old World, he points out that most of the knowledge of early man in Europe comes from France. And France is a smaller area to explore than the single state of Texas.

"Centuries must pass," he predicted in a Science Service address over the Colum-

bia Broadcasting System, "before we'll know America as thoroughly as we know France. And what we learn may change the picture completely."

Here is one discovery, cited by Mr. Amsden, and showing how a revelation of America's early people comes in some new quarter:

"Recently, in the southern California desert, archaeologists have found hundreds of camping places, with thousands of stone implements, most of which bear a strong resemblance to the European types of the last Old Stone Age, say 15,000 years ago. These camps line the banks of three streams that no longer exist, their dry channels choked with drift sand. Native American camels and horses lived along these streams. We find their fossil bones strewn around the camps in thousands of fragments. When was the bleak California desert such a well-watered spot? Apparently not since the glaciers melted, the geologist answers.

and by their melting created a humid climate."

Emphasizing that much of what is said regarding early Americans is conjecture, Mr. Amsden sums up certain facts "as plain as the nose on your face":

"Man was in America when most of the big game animals were of the Ice Age group, not the modern group we know today. He was here when the climate was far cooler and more humid than it is today. He made weapons that resemble most closely the types of the late Old Stone Age and the early New Stone Age in Europe. He apparently avoided the glaciated area of North America, for his remains are never found within it."

The most conservative conclusion to be drawn from these facts, Mr. Amsden finds, is that man was already in America while the land lay under the spell of the last great surge of the ice wave. The minimum extent of American prehistory is thus, by the evidence, traced to the twilight of the Ice Age, the archaeologist reasons.

But he adds: "Don't let anybody tell you we've necessarily reached as far back as the maximum."

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Ancient Chinese tried having tame deer draw their carriages.