



### A Million Acres of Peace

SCIENTISTS and government officials of the United States and Mexico are examining the possibilities of a proposed International Peace Park in the Big Bend country of the Rio Grande. If established, it will comprise 1,200,000 acres of United States and Mexican land, a virgin wilderness inhabited only by native species of plants and animals, a sanctuary of peace for these children of nature and a monument to the will toward peace now shared by the two nations. It will be a southern counterpart to the already existing international area on our northern boundary, where Glacier National Park adjoins a great Canadian National Park.

The Big Bend region seems well suited for the purposes of a national park, and appears to meet the rather exacting standards held up by the U.S. National Park Service. It is a circle of wild mountains, lifting themselves up to 10,000 feet above a surrounding desert and semi-desert region. The mountains split themselves into awesome canyons, lift their tops to command thrilling hundred-mile views over mesa and river-valley.

It is a biological island, comprising three separate life-zones as recognized by ecologists, with cactus-covered plains at the base, and rising at the summit into the majestic yellow-pine forests of the Southwest. Within its limits meet plants and animals that represent the desert West and the more humid East, the hot Mexican South and the cool North of the Rockies. It harbors bear, coyotes, the rare peccary or wild pig, a few mountain lions, and an abundance of deer of three species. For these, partial peace has already been secured through the action of the Texas Legislature, which has severely limited the

hunting of the most threatened kinds of animals.

Other problems remain for solution: the severe over-grazing of the lowland areas, over-killing of animals still unprotected, vandalism such as the carrying off of cacti by the thousands by collectors for Eastern markets and the misguided setting of "clean-up" fires. But these can without much doubt be adequately met by a combination of police power and public education.

Future visitors will find no lack of scientific oddities to divert as well as educate. There are places where fragments of dinosaur bones fairly pave the earth. There are fossil oyster-shells thirty inches across. There are living rattlesnakes, solemnly vouched for by thoroughly competent and absolutely sober scientists, that flash before your startled eyes in vivid shades of green and pink.

*Science News Letter, January 30, 1937*

#### AGRICULTURE

## Find South American Potato Suitable for Arctic

"NONE of the agricultural crops in Europe suffers from such a great number of diseases as the potato," declares Academician N. I. Vavilov, vice president of the Lenin All-Union Academy of Sciences and director of the All-Union Institute of Plant Cultivation. "Hundreds of thousands of centers of potatoes perish every year from various diseases and from cold. At the same time the importance of this crop is growing yearly. Potatoes have become not only one of the staple food and fodder crops, but also a rubber bearing plant, since synthetic rubber is now made from potato alcohol. In the U.S.S.R. the area under potatoes reached 7,000,000 hectares in 1936. It is quite clear how important was the problem of creating varieties of potatoes which will resist disease and cold.

### Hardy Potatoes Found

"This problem can now be considered as solved. In the search for new stable varieties of potatoes the All-Union Institute of Plant Cultivation sent a number of scientific research expeditions to South America, the native land of potatoes. During six years, since 1926, the Soviet scientists thoroughly explored vast territories from California down to southern Chile, where a great number of varieties of potatoes, both cultivated and wild, are concentrated. The last of these expeditions was in 1932-1933.

"During the past three years the Institute has studied the collected varieties and in 1935 published an extensive work entitled 'South American Varieties of Potatoes,' summing up the results of our work.

"These results went beyond our boldest expectations. It appears that hitherto Europeans practically have not known potatoes because only a few varieties, brought to Europe from Chiloe island (southern Chile) in the 17th century, have been at their disposal. The entire modern European and North American potato culture originated from these few tubers.

### 17 New Varieties Discovered

"Around the isolated Indian villages in Ecuador, Peru, Bolivia, etc., our scientists discovered 17 cultivated varieties of potatoes, quite unknown to science, and each was represented by many sorts.

"Besides, a great number of wild varieties have been discovered in Mexico and the Andes, which proved particularly valuable, as they resist phytophthora, the most dreaded disease of potatoes.

"Now, as a result of long experimentation, these varieties have been crossed with the usual potato in the experimental fields of the All-Union Institute of Plant Cultivation, and in 1926 the cross-breeds were sent to the fields of the Soviet collective and state farms.

"In the mountains of Peru and Bolivia, at heights of 4,000-4,500 meters, we found a remarkable wild species of potatoes, *acaule*, which is capable of resisting frost of 8 degrees below zero Centigrade [17 degrees above zero Fahrenheit] and which can be successfully grown in the Transarctic region. Our usual potatoes suffer from the early spring and autumn frosts even in the central belt of the U.S.S.R. (*Turn to next page*)

### Resists Disease and Cold

"The Institute is now completing its work on the creation of a new hybrid by means of crossing our varieties with the South American wild varieties. The new cross-breed gives a high yield and resists disease and cold. One of such hybrids is already being cultivated, this year, in Khibiny, in the Transarctic region.

"The cultivated varieties of the Peruvian and Bolivian potatoes, distinguished by their high yield, are also used for crossing with the old European varieties, and a great quantity of the

most valuable sowing material has already been evolved.

"These discoveries are literally revolutionizing the selection of potatoes, opening wide prospects for the complete transformation of this important crop.

"A few years will pass," said Academician Vavilov, "and Europe will entirely abandon the old varieties of potatoes, substituting for them new hybrids possessing the most valuable qualities of the wild varieties discovered in the Andes."

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### GEOLOGY

## New Kind of Rupture Found Under Immense Pressure

**W**HAT happens to those materials which lie buried hundreds of miles deep down in the earth? How may scientists expect them to behave?

It is true that these questions are not of primary importance in our daily life, for it will surely be a long, long time before man has to dig down to such extreme depths for his raw materials. But nevertheless they are not without some practical significance. Many earthquakes are known to have their origin far below the surface.

The main feature of these great depths is the enormous pressure which exists there. One hundred miles down the pressure is almost a million pounds per square inch. It might seem to be asking a lot of laboratory equipment to expect that it should stand any such strain as this.

Prof. P. W. Bridgman of Harvard University, however, has developed ap-

paratus that "can take it." He is able to put a piece of some substance into his machine and then watch what would happen to it if it were a hundred miles under ground.

Prof. Bridgman describes (*Journal of Geology*, September), for the benefit of geologists some of the main features of his findings. The phenomena which he has brought to light are, in general, so complicated as to cause him to remark that "the immediate consequence of their discovery is likely to be embarrassment."

The embarrassed individual is, according to this Harvard physicist, the geologist who would speculate about the effect of underground forces without having a host of facts at his disposal—facts not only concerning just what kinds of materials are involved, but also about the past history of these materials.

The two principal features of high

**● RADIO**

*Feb. 2, 5:15 p.m., E.S.T.*  
**QUEER FOODS OR QUEER PEOPLES**  
 —Matthew W. Stirling, Chief of the  
 Bureau of American Ethnology.

*Feb. 9, 5:15 p.m., E.S.T.*  
**FISH AS PETS**—Fred Orsinger of the  
 U. S. Bureau of Fisheries.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.

pressure behavior which Prof. Bridgman emphasizes are:

1. The ability of materials to resist "shearing" force is increased many times by very high pressures. Shear is that type of force which tries to make one part of a solid material slide over another part. This means that many substances which were hitherto believed to be flowing like liquids are really behaving in the stiff manner characteristic of solids.

2. The high pressures cause about one-third of all materials to undergo a change of crystalline form. It was formerly believed that such changes were relatively rare.

A new kind of rupture was also disclosed. Usually when a substance is twisted until it breaks it comes apart. Not necessarily, however, when the pressure is high. Prof. Bridgman found that many things would break when twisted, only to take hold again at a new place and be just as strong as ever. He remarked that this type of rupture was likely to be involved in deep-seated earthquakes.

Related to this was found an almost universal tendency for solids to weld fast to one another. When squeezed together hard enough two solids become as a single piece. Under sufficient pressure the molecules of the two pieces come within range of each other's attractive forces and the two pieces lock together.

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