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."

Science News Letter, January 30, 1937

GEOLOGY

New Kind of Rupture Found Under Immense Pressure

WHAT 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 apparatus 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 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.

Science News Letter, January 30, 1937

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.