

the sinking would be at the rate of about an inch in a thousand years. There is some slight evidence that this is happening in the Rocky Mountain area and perhaps in some other disturbed regions of the world.

This does not apply to the major ocean basins, which presumably have changed very little in shape or position since the cooling of the planet.

A difficult problem is the distribution of the radioactive elements—uranium, actinium, thorium, and radium—throughout the earth. There are extremely minute amounts of radium in the crust, particularly in the granite rocks. But if the same amounts were distributed uniformly through the planet as a whole, so much heat would have been generated that, calculations show, it would have exploded millions of years ago.

Apparently, the most recent investigations at the Geophysical Laboratory have shown, these elements, together with all but four or five of the 92 known basic building stones of creation, are confined entirely to the crust. The most rigid analysis of the dunite from North Carolina shows it to be absolutely free of radium, and it is probably representative of at least 85 per cent of the planet.

How did this happen? A plausible explanation is that the earth “froze” from the bottom up, not from the top down like a pond. First the more abundant elements entered into the simplest possible chemical combinations and crystallized. Thus was formed the dunite. Then

slightly more complex crystallization resulted in the basalt, leaving for the granite, last to be formed, all the leftovers.

Another serious problem, toward the solution of which little progress has been made, is that of the observed variation in the planet's rate of rotation—that is, the length of the day. This variation, amounting to a second or more, takes place about once in a century. The late Professor E. W. Brown of Yale sought to explain it by the hypothesis that just below the basalt layer is a thin shell of some material at or near a critical temperature, so that with a very slight temperature change it increases greatly in volume and causes the crust above it to bulge outward, giving the sphere a larger radius.

The origin of the ocean basins and the continents offers a fruitful field for speculation. Some authorities have held that the land areas, covering about a fourth of the earth's surface, once formed a single mass which was shattered into six or seven major fragments, and that these have been drifting apart ever since. Another hypothesis is that the granite formed like masses of scum on the underlying semi-liquid basalt. Perhaps it was one mass in the beginning, which broke up almost at once after the cooling of the planet.

None of these problems can be completely solved except by slow, patient observation and experimentation which may well require centuries.

Science News Letter, June 7, 1941

AGRICULTURE

Growing Seed for Defense Is Very Specialized Job

Amateurs Warned Not to Experiment Unless They Have Had Experience; War Has Increased Our Demands

THE Department of Agriculture is getting letters from all over the country from eager Americans who want to help defense and make some money by growing vegetable seed.

The answer is—Don't! Not unless you already have experience, and capital besides.

Raising the seed that produce the nice red tomatoes and all the other vitamin-filled fresh vegetables for a better nourished America is a very specialized business. So government scientists emphasize.

Seed growing calls for some knowledge of plant genetics. Then too, the seed business requires a good deal of hand labor, and even employed laborers need to know which types of seed-producing plants to “rogue out,” as sure to produce poor stock. Spinach plants, for instance, that go to seed too rapidly are undesirable. Farmers want spinach that will produce its green harvest to full perfection.

The United States is not going so far with amateur vegetable gardening and

“all out” efforts to boost the food supply as it did in the first World War, it appears at present. The Department of Agriculture is encouraging those who live on the land to grow their own gardens, and farmers are especially asked to grow more tomatoes because of British needs and for our Army's vitamin C supplies. But back-yard gardeners are not being asked to plow up their small flower beds and plant cabbage as in World War I. And while war conditions have cut off our supplies of vegetable seed from many countries, the seed problem is being tackled by experienced growers and research scientists, with success on most fronts.

Spinach, for example: The United States used to import ten times as much seed for growing spinach as it produced at home. Almost all of our spinach seed came from the Netherlands. The forecast now is that we shall produce enough spinach seed this year for our needs and there may be a surplus. We could have produced it before, but it was more economical to import.

Cauliflower seed, on the other hand, is proving harder to raise in the United States. Growers here are having to fight harder against insects and diseases, which probably do not plague Dutch seed growers so seriously.

The weather has been unfavorable for producers of beet, carrot and onion seed this spring, so that crops may be somewhat smaller than early forecasts indicated. But in general more vegetable seed of nearly all kinds is expected to be harvested in the United States this year, compared to last year. Far from being dependent on other countries, as a rule, for all kinds of seed, the United States is the world's leading producer of carrot seed. It has been “running ahead,” as government statisticians put it, in production of such seed as beans, peas, carrots, and squash, and a good deal of American seed is going to other countries, notably England.

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Fido may carry *ivy poison*, explains the Department of Agriculture—brushing against the plants, a dog may get the chemical irritant on his hair, and a person who pets the dog transfers the substance to himself.

In a study of 8,000 pupils in a typical American city, about 2% of the children in kindergarten wore *eyeglasses*, and the percentage steadily increased in successive grades, showing 23.7% wearing glasses in the twelfth grade.