AGRICULTURE

NATURE RAMBLINGS

by Frank Thone

Food for Giants

MAN, it has more than once been pointed out, is relatively a giant among animals. We are so used to feeling small in the presence of whales and elephants, and short as compared with giraffes, that we tend to lose sight that only a few dozen animal species are bigger than we, as against thousands that are smaller.

Being big, we have favored big plants as food sources. Like all mammals we depend mainly on grasses for our nourishment, and we have made the giant grasses our own. In a world of plants most of whose members are ankle-high or at most knee-high, we have chosen those that reach a convenient waist- or shoulder-high level where we can get at them without too much trouble: wheat, rye, oats, barley, rice.

We have also gone after the biggest grasses of all, grasses that stand high above our heads: corn, millet, sorghum, sugarcane, bamboo. What we would have done had there been grasses even larger than these it is hard to guess. Very likely we would have ignored them. Although bamboos produce heavy crops of seed (although at infrequent intervals) they are not harvested for food to any great extent. The principal food use of bamboo is the Oriental practice of cooking the young shoots as an asparagus-like vegetable dish.

We even breed our tamed grasses to be convenient for harvesting at our own height. One of the points in producing new strains of corn is to have the ears between waist-high and shoulder-high to a man. And we strive against too-short straw in barley, too-long straw in rye.

If a plant insists on producing its edible parts near or below ground level, we in turn insist that it make them big enough so that we can get a meal without bending over too often. There are plenty of plants with low-growing or subterranean parts that are tiny but tasty, but we ignore them and go after potatoes, yams, turnips and onions. We breed berries to be bigger, bean-pods to be longer and fatter.

So resentful are we of such incurable low tendencies on the part of some plants, like beets and onions, strawberries and cranberries, necessitating much bending or going on hands and knees to harvest them, that labor sociologists have invented a special term of obloquy for them: "stoop crops." We would, if we could, grow them on tall stalks, so that tending them would not be beneath the dignity of upright-walking man.

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PHYSICS

Power of Matter To Attract Other Matter Is Remeasured

COMPLETION of a new measurement of the power of matter to attract other matter, known as the constant of gravitation, has just been announced by Dr. Paul R. Heyl, physicist of the National Bureau of Standards.

The new figures for the constant (multiplied by 100,000,000) are 6.673 plus or minus 0.003, as compared with the generally accepted value of 6.670 plus or minus 0.005, which was also obtained by Dr. Heyl at the Bureau in 1930.

The very small difference between the two values bespeaks the high accuracy of both measurements. That the new value is more accurate than the old is evidenced by the "probable error," 0.003 of the new value, as compared with 0.005 for the old.

This increase in accuracy, Dr. Heyl stated, was due to two improvements made in the apparatus, which otherwise was the same as that used in 1930. Many improvements were suggested and some were tried but only two adopted, Dr. Heyl said, and he believes that the limit of accuracy has about been reached and that any substantial further improvement will require that a radically different method be found.

The constant of gravitation may be defined as the force with which two particles of matter, each having a mass of one gram, attract each other when one centimeter apart. (A gram is the 28th part of an ounce and a centimeter is about 0.4 of an inch.)

Since, in the words of Newton, "Every particle of matter in the universe attracts every other particle. . . ," any two objects on the earth, of whatever material, should attract each other. They do, and this attraction is precisely what is used in determining the gravitational constant. But the force is so exceedingly small, as compared with that of the enormously greater earth which is evidenced as weight, that only an extremely sensitive instrument can detect or measure it.

This instrument has nearly always been a refined form of the torsion balance invented by Cavendish 150 years ago. It is a kind of pendulum whose time of swing is changed when the positions of two massive weights nearby are altered. It is very impressive to observe that when a bottle of mercury (which is very heavy) is removed from a nearby shelf and put somewhere else, the swing of the pendulum is altered.

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