• New Machines and Gadgets •

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., Washington 6, D. C. and ask for Gadget Bulletin 439. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

⚙ *WARM-AIR FURNACE, a coal burner that can be easily converted for firing with gas or oil, has a stainless steel combustion chamber and is one of the first coal-fired heaters to use this material which increases service life. Blowers and an induced draft fan for the heater are mounted on a single shaft, powered by a single motor.*

Science News Letter, November 6, 1948

⚙ *BLOOD COUNT MICROSCOPE, which automatically counts red and white blood cells and hemoglobin with speed and accuracy, is a simple instrument that can be operated without special training or technical knowledge. A photoelectric eye counts and averages all the corpuscles on a given area of the counting chamber and records the results on a meter.*

Science News Letter, November 6, 1948

⚙ *SPECIALTY TOOL, for hard-to-reach parts and places, consists of a flexible cable shaft encased in a flexible housing tube which can be curved as desired to work around corners or S-turns. The shaft has expanding and retracting fingers, operated by thumb pressure applied at the opposite end, to grip a hard-to-get-at object.*

Science News Letter, November 6, 1948

⚙ *SELF-BREATHING APPARATUS for firemen, shown in the picture, is for use in smoky fires and gas-filled rooms where oxygen is not otherwise available. The breathing bag, which fits over the chest, contains a canister of potassium tetraoxide which generates oxygen when activated by moisture from the breath.*

Science News Letter, November 6, 1948

⚙ *SELF-OPENING VALVE, for use on aviator's oxygen cylinders, permits the oxygen line to become pressurized immediately when the valve is attached. Flow is regulated by a control valve in the line near the pilot. When the coupling is disconnected from the cylinder valve, oxygen flow is automatically cut off.*

Science News Letter, November 6, 1948

⚙ *MEASURING INSTRUMENT for lacquer deposits on engine pistons contains two high-voltage terminals, one of which is attached to the piston and the other placed touching the lacquer deposit. The instrument measures the amount of voltage required to burn through the lacquer.*

Science News Letter, November 6, 1948

⚙ *NON-TIPPABLE "WALKER," an improved type designed to help disabled patients learn to walk, has a wide metal frame with adjustable arm-rests and is so built that a patient can maneuver his wheel-chair into position and pull himself up to a walking position without help.*

Science News Letter, November 6, 1948

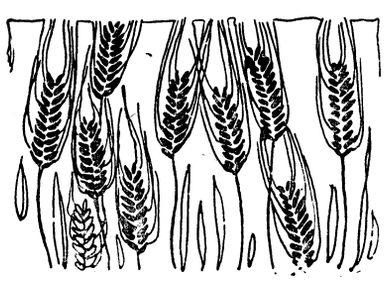
• Nature Ramblings by Frank Thone •

➤ PRACTICALLY all of the plants we depend on to supply staple foods for ourselves, feed for our animals and fibers for clothing and other fabrics complete their life cycles from planting to harvest in a single growing season. All the grains, most vegetables and all melons, as well as sugarbeets, soybeans, cotton and linen are annual crops.

There are certain definite advantages to this year-by-year farming. For one thing, it offers flexibility in planning, for the farmer who has a choice of crops to grow and a rotation schedule to maintain does not need to commit any given field for more than one season at a time. Also, since our principal foods are either seeds, roots or tubers, it is natural to turn to plants that produce these in largest quantity, and these plants are either annuals like the grains and legumes or biennials like sugarbeets and cabbage, that are harvested before they finish their life cycles.

However, there is one great offsetting disadvantage to year-by-year farming—so great that it has become an agronomic nightmare. These crops that have to be planted every year naturally require that the soil be plowed every year, and in many cases also demand several surface stirrings afterwards, to kill competing weeds. This means soil that is naked or nearly so almost all the time, inviting deadly erosion by wind and water.

Needed: Perennial Crops



It would be a great advantage if some of our staple crops could be perennials like the grass in our best pastures. A few of our hay crops are, notably alfalfa; but these are usually handled on a relatively short-term basis, not more than three or four years from planting to plowing-up, as a rule.

Perennial wheat varieties have long been a goal of agronomists. Usually the effort to obtain them is made by crossing a winter wheat with a related longer-lived wild grass such as quackgrass. Such crosses made in this country and Canada have resulted in hybrids more valuable as range grasses than for grain. Just before the war two Soviet breeders named Tsitsin and Derzhavin reported production of short-lived perennial (triennial) wheat varieties with good grain yield. What happened to these is not known; perhaps the war interfered with their general distribution. At any rate, the main wheat crop, in Russia as elsewhere, is still on the old year-to-year basis.

Science News Letter, November 6, 1948