



### Survival of the Lucky

► **PRODIGAL** production of seed is thrust upon our notice especially strikingly when trees shed their unharvested crops. City sidewalks littered thick with the winged hopes of maples and elms, suburban lawns whitened with cottonwood down as with a light snowfall, autumn woods so thick with acorns that you crunch a half-dozen of them under foot at every step, all register themselves indelibly on even the least receptive observation.

Lesser plants, too, are quite as prodigal—even more so. A grass stalk may have eight or ten leaves, but the seed-head at the top will contain from 20 to 50 or more seeds. In the cultivated grasses which we call grains this disproportion has been deliberately exaggerated by human selection and breeding. Count the grains on an ear of corn, some time when you have no more pressing occupation.

This apparently wasteful lavishness inevitably sets one to wondering why seeds are produced, anyway. The old schoolbook dictum, that the function of a seed is to produce a new plant, simply is not and cannot be true in nature. There just isn't room enough for all seeds to sprout and grow—not room enough for a billionth of them.

Taken by and large, every bit of space on earth on which a plant will grow already has a plant growing on it. If a new plant is to spring up, an old one must make way. Opportunities for large numbers of new plants at once, such as are provided by floods, forest fires, plowing, etc., are catastrophic and exceptional.

When an oak tree falls, the gap it leaves in the forest will eventually be filled by another tree, survivor of some dozens or hundreds of seedlings that started in the patch of sunlight that

reached the forest floor. Yet that tree may have stood there for two or three centuries, raining millions of acorns which its own shade has kept from any chance for development. Similarly, even the shortest-lived of annual plants can be succeeded by only one plant of its own size and kind, out of the scores or hundreds that are potential in its crop of seed.

Young animals that find their birth-spot too crowded may migrate and seek less congested quarters. Darwinian survival of the fit may operate in their case. But seeds have to stay where they fall, and if that does not happen to be a suitable spot for growth no amount of innate superiority will do the young plant any good. With them, life seems to be to a very considerable extent simply a survival of the lucky.

*Science News Letter, August 5, 1944*

### ENGINEERING

## "No Smoke" Is Promise Of Postwar Home Heating

► A **NEW COAL** stove so constructed as to utilize every bit of coal that goes into it, including the gases and smoke that formerly went up the chimney, has been announced by the Bituminous Coal Institute. It does away with smoke and gas that, until now, made it necessary for American housewives constantly to wipe smudge and soot from the walls.

The new stove operates on a unique scientific principle, which combines three factors, an ample supply of air delivered at the right points by means of fan-driven jets, a series of high temperature refractory flues, and a path of travel for the gases which causes them to burn completely up. This new design gives the consumer 50% more heat from the same amount of coal and the volume of ashes is reduced about one-third.

The only evidence of smoke comes immediately after firing, and since the 100-pound coal capacity of the stove makes refueling less frequent, there is less smoke, if any at all. It will keep a four- or five-room dwelling comfortably warm for 72 hours without attention.

The stove is actually ready for production and only the release of certain critical materials is needed to place it on the market. The new unit is expected to cost around \$60.

A kitchen range, incorporating the same principles of design and operation, has also been developed and should be available to the public at the same time as the stove.

*Science News Letter, August 5, 1944*

### CHEMISTRY

## Featherweight Plastic Expands An Inch a Second

► A **NEW** featherweight plastic which grows like Jack's beanstalk and is lighter than cork has been developed in General Electric's plastic laboratory in Pittsfield, Mass., for an undisclosed military use.

Lighter than rock wool, glass or cork and lower in heat conductivity than any of the three, it promises to have many peace-time applications, especially as an insulator.

The new material, whose chemical composition has not yet been disclosed, has remarkable self-raising properties. When placed in a test tube with no heat applied, the molasses-like mixture starts "growing" in less than two minutes and continues to grow at the rate of an inch a second. In ten minutes it expands 30 times its size.

*Science News Letter, August 5, 1944*



**"GROWING" PLASTIC** — Foam plastic that "grows" faster than cork promises to have many uses in insulation. Placed in a test tube in General Electric's laboratory, it begins immediately to "grow" at the rate of more than an inch a second.