products AND ideas OF THE WEEK

An editorial service to readers; more information on items can be secured from the manufacturers. Prices are sometimes changed without notice.

Hand measuring microscope

This 30 power hand measuring microscope is 6½ inches long. Useful to inspectors, engineers and toolmakers, the unit has a one-inch diameter adjustable eyepiece, a 360-degree rotatable reticle with 90-degree crosslines and .001 inch divisions.

Price: $19.80
Titan Tool Supply Co., Inc.
P.O. Box 1682, Dept. 103
Buffalo, N.Y. 14216

Laser tool

The beam from this carbon dioxide laser tool will weld, cut, drill, melt, surface dry or ignite materials such as plastics, glass, paper and leather. Designed as a component for industrial apparatus, this 10- to 30-watt sealed unit is simple to install and ready for operation as soon as a cooling system and power are supplied. The 10-pound device is approximately 4 inches in diameter and 52 inches long.

Price: $995.00
Resalab Inc.
4000 Campbell Ave.
Menlo Park, Calif. 94025

Surface pyrometer

Surface temperatures of plastics, wood, rubber, chemicals and many other materials can be quickly determined without contact by this radiation pyrometer that requires no battery or other power supply. The reading is shown on a gauge on the handle of the instrument, which has a range of 70 to 500 degrees F., with an accuracy of plus or minus 3 percent. The sensing head can be turned to vertical, horizontal or angular positions.

Price: $375.00
EPIC, Inc.
150 Nassau St.
New York, N.Y. 10038

Improved protractor

Useful to students, architects, illustrators, surveyors and engineers, this new protractor consists of a circular cut-out with degrees marked on the inner edge of the circle. The protractor contains a movable cross strip within its circle so that angles can be easily bisected. The outer construction is rectangular, 6x6½ inches in size, with metric and inch divisions on opposite sides.

Price: $1.00
Arnold J. Frey
7434 Craigmere Dr.
Cleveland, Ohio 44130

LETTER FROM BOMBAY

Agricultural research blossoms

Fighting the inefficiency that brings starvation

With as many hungry mouths as India has to feed, she cannot afford to waste any of her food-raising potential. Yet the sad fact is that India in agriculture is among the world's least-efficient nations.

Seventy percent of the Indian people, some 60 million families, are employed on the land and produce more than half the national income. Yet the yield of rice per acre is the lowest known in the world.

In response to this situation the Indian Council for Agricultural Research has proposed a giant program of research in the agricultural sciences. Some 25 projects with an estimated cost of $21.6 milion already have been approved and presented to Parliament by the Ministry of Food and Agriculture. Other projects are being designed.

The research will cross state and provincial boundaries and will be organized instead along the lines of zones of similar climatic and soil conditions. Research stations are being set up in each zone.

Work will be undertaken in a wide variety of disciplines, ranging from agricultural engineering to soil science to the study of new strains of food, fodder and industrial crops. Projects this year will involve studies of cotton and allied fibers, soybean and other oil seeds, pulses (peas, beans, lentils and so on), rice, barley, tuber crops other than potatoes, and various fruits.

Projects involving tobacco, sugar cane, coconut, cashew nuts and various vegetables and forage crops have been drawn up and are about to be submitted for approval by the Government.

An area of particular interest is the development of crops which will produce high yields under drought conditions. Another specific problem needing solution is that of the increasing soil salinity in many parts of the country; it has been proposed that a central laboratory for soil salinity research be established.

One of the proposals calls for the establishment of a nuclear research laboratory at the Indian Agricultural Research Institute in Delhi. This idea has been approved by the United Nations Development Project. The lab would study ways in which the atomic age can move into Indian agriculture.

Cooperating with the Bhabha Atomic Research Center in Bombay, the institute lab would develop nuclear tools for the study of plant nutrition, root development, soil fertility, and the movement of surface and underground water. Also studied would be nuclear approaches to pest and disease control. Nuclear reactors might provide cheap power for agricultural uses and the possible eventual fixing of atmospheric nitrogen for fertilizers.

Currently being studied at Bhabha is the preservation of food by mild irradiation. It has been found that radiation can extend the life of foodstuffs such as garlic, onions and potatoes from two to seven months. Radiation also will delay the ripening of fruits such as mangoes and bananas, spreading their seasons of availability.

In addition, similar treatment can kill insect pests in stored grains, a major source of loss in India. Radiation for this use has been effective in other countries, including Turkey.

A line of research that shows promise is the development of dwarf varieties of grain. If one can produce a smaller plant with the same seed or grain yield one can squeeze in more plants per acre and increase total yields. And as it turns out dwarf varieties often have better yields per plant than conventional strains.

The yield from a new triple dwarf wheat developed by the institute, for instance, is 3 times that of conventional plants. The dwarf stands about 1.5 to 2 feet tall, compared with over 6 feet for regular varieties. The yield is about 3,240 kilograms of grain per acre, compared with the average of 400 kg per acre yield of India's rice lands.

Another feature of this variety is that since the ears are heavily bearded the grain is well protected by bristles and is fairly impervious to raids by pigeons, sparrows and parrots.

In the institute are also found dwarf barley only two feet high, believed to be the only of its type grown anywhere in the world.

With such positive action backed by exhaustive research it is hoped that India can attain self sufficiency in food by balanced agricultural production, newer varieties of crops, and improved hybrids. Wastage of grains and other perishable food which today accounts for about 10 million tons per year can also be wiped out.

S. K. Ghaswala

Science Service, Inc. is collaborating with JSTOR to digitize, preserve, and extend access to *Science News*. www.jstor.org