• New Machines and Gadgets •

For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE SERVICE, 1719 N St., N.W., Washington 6, D. C., and ask for Gadget Bulletin 904. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

⚙ *CASTING ROD GRIP designed to cradle the thumb is for use with all closed-face spin casting reels. The device holds the thumb in a natural position on the brake of the reel. It is said to give better support and makes casting easier and less tiring.*

Science News Letter, October 12, 1957

⚙ *EXTENSION HANDLE for outboard motors provides throttling and steering control from a forward position in the boat. Made of aluminum, the tubular extension telescopes to any length from 28 to 38 inches. It is designed to fit most outboards from five hp and up made since 1954.*

Science News Letter, October 12, 1957

⚙ *HAND TRUCK made of magnesium is lightweight enough to be operated by a secretary if need be. The truck has a rachet-operated tightening device to hold objects. The spring-loaded belt rewinds automatically out of the way when not in use. The truck also has crawler treads for climbing stairs.*

Science News Letter, October 12, 1957

⚙ *MECHANICAL BLOTTER soaks up excess moisture from golf courses and other recreational areas. The machine, shown in the photograph, is self-propelled and has a 24-inch-long cellulose sponge roller that absorbs moisture as it rolls across wet grass. The sponge is squeezed by a wringer and the water sent to a removable sump pan.*

Science News Letter, October 12, 1957

⚙ *PORTABLE SANDER provides professionals and home handymen with both straight-line and orbital sanding action. The double-action electric sander has a directional key for its two-way action. Sandpaper or steel wool can be used with the sander.*

Science News Letter, October 12, 1957

⚙ *COAT HANGER has built-in de-moth units in each end of the hanger. Molded of plastic, the anti-moth devices hold moth crystals that can be readily replaced or refilled. Available in bronze, ivory, or pinto, a mixture of bronze and ivory, the hanger also has a wide non-slip pants bar.*

Science News Letter, October 12, 1957

⚙ *UTILITY GLOVES for both at work and around-the-house feature color and a non-slip grip for added safety. The gloves are available in various styles and in several colors designed to be used as job codings. The fabric is described as being imbedded with thousands of plastic dots.*

Science News Letter, October 12, 1957

⚙ *RADIO CONTROLLED GARAGE DOOR operator is described as impossible to trigger by accident and requires no FCC license. The device automatically unlocks, opens, lights, closes and locks any overhead garage door at the push of a button in the owner's car. A combination radio carrier wave and signal impulse modulator works the mechanism.*

Science News Letter, October 12, 1957

Nature Ramblings

By HORACE LOFTIN

Debunking Jack Frost

➤ A BUSY character named Jack Frost is generally credited with the change of forest color from bright green to the brighter golds, browns and reds of this season of the year. However, the work of scientists makes it appear that Jack Frost's job has been over-rated as a cause of change in leaf coloration.

On the basis of completed research, apparently it is the shortening length of daylight rather than the lowering of temperature that leads to the forest's repainting in autumn. As a matter of fact, early frosts can make drab the autumn dress by injuring or killing leaves before the colors reach their heights of brilliance.

In general terms this is what happens: in late summer or early fall, shortening length of day seems to result in a decrease in production of the plant hormone, auxin. This results in the formation of a layer of small cells, the abscis layer, at the base of each leaf. These cells act to cut off the

leaves from the branches, so that little food, water or other materials can be transferred back and forth. Each leaf becomes isolated.

The production of the green pigment, chlorophyll, now halts in the leaves while the old chlorophyll wastes away.

When this green covering is gone, it reveals two yellow pigments—carotene and xanthophylls — which have been masked under the summer green. These account for much of the yellow color, such as is seen in the sycamore leaf in fall.

The brightest hues, red and purple reds, also result from the isolation of the leaves by the abscis layer. These colors are due to a group of red, blue and purple pigments called anthocyanins. Anthocyanins are produced from plant sugars. When a leaf cannot pass the sugars it manufactures through the abscis layer, these sugars accumulate, furnishing abundant raw material for the creation of the colorful anthocyanins.

Red maple, many oaks, dogwood and black gum are examples of trees whose autumn leaves are highly colored by anthocyanins.

Eventually, the isolated leaves become starved and parched, since the chlorophyll necessary for food has been destroyed and water cannot be brought in to the leaves from the main plant.

Soon the cells of the abscis layer become separated from one another, weakening the support of the leaves. Wintry blasts of wind then rip off the leaves, and the forest is bare till spring.

Science News Letter, October 12, 1957