SCIENCE NEWS

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HILLCULTURE

COMMON weeds successful in checking erosion of productive cropland are regarded as more valuable than wheat or corn, according to a statement issued by the U. S. Department of Agriculture.

At a time when obtaining a maximum yield per acre is vital to victory, the U. S. Soil Conservation Service is developing new and more effective ways to halt fissuring and cross-wash of top-soil, which have already ruined 50 million acres of American farmland.

On the 1,700 acre experiment station at Beltsville, Md., of the Department, an effort is being made to single out those strains of plants that make the best growth on poor, eroded soils, require a minimum of cultivation, and at the same time bring in the best income for the farmer. This phase of conservation is called hillculture because it is designed to discover safe and profitable ways of farming steep lands.

Now under observation are trees that produce high-quality wood for furniture, poles and posts; shrubs bearing fruit that can be used for jellies and jams; grasses and legumes that are succulent feed for livestock.

Hillculture has under way such projects as production of sumac for use in tanning fine leathers, milkweed floss as a substitute for imported Java kapok, and devil's shoestring roots for the manufacture of insecticides. Remarkable progress has been made in improving the raising of tobacco on sloping land.

One of the outstanding achievements of hillculture has been in developing the shipmast locust for use as posts, a great improvement over the abundant crooked-trunk black-locust stock.

A nursery is maintained at Beltsville. It is used to increase the growth of superior erosion-resistant plants. Many native and exotic species and varieties are under study and propagation.

ITEMS

AN all-time record of 15,374,698 patients, exclusive of newborn babies and outpatients, were admitted to hospitals in this country during 1943, according to the annual census of hospitals of the American Medical Association. This figure is an increase of 2,829,088, or 22.5 per cent., over the previous year. Births in hospitals during 1943 were 1,924,591. The number of hospitals increased by 310, while the number of hospital beds increased by 265,427 plus 5,686 more bassinets. "This recent growth is the equivalent of a new 727 bed hospital for each day of the year." The enormous expansion is due to wartime needs. The largest gain in number of hospitals occurred in the federal group, which would include Army, Navy and Marine or Public Health Service hospitals, and Veterans Administration Facilities. This group now numbers 827, as compared with 474 in 1942; their bed capacity is given as 476,673, an increase of 255,735 since 1942.

WOOD veneer on metal surfaces is now possible with a new adhesive developed at Akron, Ohio, by scientists of the Goodyear Research Laboratory. With the new binding material, called Pliobond, a sheet of wood as thin as one forty-eighth of an inch can be firmly cemented to a metal sheet, and the combination can be bent into any chosen form or cut with shears or stamping press without injury. Steel, aluminum and other sheet metal, to which a thin layer of wood is attached with this bonding material, have many possible uses, including panelling walls in office buildings and homes, cabins in aircraft, and cars in light-weight streamlined trains. In veneering the metal, the Pliobond is spread on it, the layer of wood put in place, and moderate pressure and heat applied for 15 minutes.

COMPACT, lightweight, radio-noise filters, developed for use in aerial navigation, were described at the Cleveland meeting of the American Institute of Electrical Engineers by C. W. Frick and S. W. Zimmerman of the General Electric Company. The filters give excellent noise suppression, especially from 200 to 20,000 kilocycles, mounted in any position and operating over a wide temperature range. The new filters comply with U. S. Army Air Forces specifications, including the requirements for vibration and acceleration. It was pointed out that "careful planning is necessary to get the fullest use from both power and radio equipment, and not overburden the aircraft with attachments solely to make the radio work." As electricity is used for engine ignition, lighting, and many other purposes as well as for radio, the probability of interference with radio reception is high. These filters help to provide the high-fidelity radio reception necessary in aerial warfare.

A NEW alcohol process for the recovery of glycerin, basis of nitroglycerin, from domestic fats saved by housewives and butchers, has been developed and is now being satisfactorily used commercially by soap manufacturers, according to du Pont chemists. Recovery of the glycerin by this new method is said to be more economical than by the older processes, and also more complete. Equipment used is smaller and more compact. Iron vessels, instead of the more costly vessels of stainless steel or other alloys, may be used because the reaction is carried on at ordinary temperatures and pressure. And the glycerin produced is water-free. Soap manufacturers are permitted to continue to make soap only if they recover the glycerin from the fats for the Government's needs in war activities. Coconut oil, formerly imported from the Pacific islands and used in large quantities in making soap, is no longer available. For this reason every ounce of animal or other fat not consumed as food must be saved and made available for the explosives based on glycerin.