

SCIENCE NEWS

Science Service, Washington, D. C.

PRE-FABRICATED HOSPITALS

PRE-FABRICATED postwar homes and small buildings may be transported by air to the site where they are to be erected, as a result of the development of a portable hospital shelter which can be transported by air in two thirds the cargo space of a C-47 airplane. It weighs 3,700 pounds complete, and can be erected by a four-man team in two hours.

Two types of shelters have been developed. One is for use in warm, tropical climates, and provision for adequate ventilation has been stressed in its design. The other is for use in the Arctic, and suitable insulation has been incorporated into its construction.

Each unit has two rooms, one 16 by 16 feet and the other eight feet square. Windows can be opened or closed. Provision is made for the use of electricity, and there is a stovepipe outlet in the gable. Each unit has three doors, one to the outside from each of the two rooms, and the third connecting the rooms.

Developed by the Equipment and the Aero Medical Laboratory of the Air Technical Service Command, the small eight-foot entry room is large enough so that when a patient is brought in, the outer door can be closed before the inner door is opened. In cold regions this feature conserves heat, and in the tropics it keeps out insects and other pests. Each unit can accommodate twelve patients on litters, with enough space left for the room to be used for operations and as a dispensary.

If much space is needed, the units can be set up in combinations to meet the requirements of the local situation. Probably one of the greatest uses of the hospital shelters will be at advanced air bases. Here they can be erected near the airstrip so that a hospital plane can taxi up to the shelter and the patients, still on the original litters, can be loaded from the shelter to the plane for rapid transport back to more completely equipped hospitals.—ROBERT N. FARR.

ITEMS

MINIATURE electron tubes recently developed in the laboratories of the Radio Corporation of America, at Camden, N. J., will permit the construction of smaller home radio receiving sets and compact radio-television-record player combinations in postwar days. They are now in use in war equipment. Typical savings of 20 per cent. to 40 per cent. in equipment size will result. The new tubes, some as small as the little finger, are a "wedding" of the acorn type tube, developed in the ultra high frequency field, and the filament-type miniature tube developed in 1938. By merging the special features of the two earlier types, a combination is made of the efficient high frequency performance of the acorn with the smaller size and lower cost of the miniature. The new tube has the cathode-type inner structure of the acorn, and the small envelope and base of the filament-type miniature.

THAT synthetic rubber is here to stay on its own merits, and it will no longer be used merely as a substitute for natural rubber, is reported by E. F. Riesing, chairman of

the National Division of Rubber and Plastics of the American Society of Mechanical Engineers, and chief automotive engineer of Firestone Industrial Products Co. At the New York meeting of the society he pointed to the superiority of the synthetics in specific physical properties such as resilience, efficiency, low-temperature flexing, low-temperature brittleness, high-temperature stability, oil resistance, resistance to ultraviolet rays, ozone, acid, gas diffusion and other important properties. The facts presented by Mr. Riesing were based upon extensive tests simulating temperature conditions in the African desert and in Alaska. One type of synthetic rubber, a polybutadiene compound, will not freeze or become brittle under stratosphere low-temperature conditions. This particular type of rubber freezes at 100 degrees below zero Fahrenheit.

A NEW seven-cylinder air-cooled radial engine that develops 700 horsepower on inexpensive low-octane fuel has been announced by G. W. Vaughan, president of the Curtiss-Wright Corporation. Known as the Cyclone 7, the new engine will permit airplane manufacturers to design short-range cargo planes and military trainer planes around a 700 horsepower installation. The new engine is similar to the nine-cylinder Curtiss engine which powers more than eighty per cent. of the nation's airlines. Close resemblance between the two makes it possible to interchange many parts, thus reducing maintenance problems. The combustion chamber is designed for gasoline of an octane rating much lower than that of planes in the air to-day. Horsepower output would be correspondingly greater if higher-octane fuels were used. The new engine is provided with a two-speed supercharger drive. The higher supercharger ratio is adequate for the development of maximum engine power at high-altitude airports. The lower supercharger ratio supplies extra power for high performance at airports situated at low altitudes. To improve lubrication within the engine, oil jets have been provided in the crankcase to direct a continuous flow of oil into each cylinder barrel.

BUILDERS of modern aircraft, like the giant B-29 Superfortress which has over ten miles of electrical wiring, may benefit from a new connector block system of electrical connecting that eliminates many of the plugs and sockets, yet permits additional electrical systems to be added with ease. Developed by the Technical Board of the Society of British Aircraft Constructors, the new system employs a series of connector blocks with leads directly to the main power source, a generator or batteries. Simplified plug-in leads extend from the connector blocks. The blocks, made from lightweight plastic, are available in two-, three-, five- and 15-way units, either in single or double tiers. Should it become necessary to increase the number of leads, another connector block of larger capacity is added. Compact in size, the new connector blocks are not much larger than an ordinary match box. The five-way unit measures 2½ inches wide, 1½ inches high and 1½ inches deep. The new system is standard for all new types of British aircraft.