ENGINEERING

High-Speed Sawing

New method of cutting hard aircraft metals at extremely high speeds is announced. Two half-inch pieces of armor plate cut at one time.

➤ AIRCRAFT METALS are being sawed at extremely high speeds by a new method, Arthur A. Schwartz of the Bell Aircraft Corporation, announced at the meeting of the American Society of Tool Engineers.

Engineers started with a wood saw on which the blade travels 12,000 feet per minute. After making some carbon steel blades, they experimented with such factors as temper and set of the teeth. Results were surprising.

"We cut non-ferrous materials and ferrous materials," Mr. Schwartz declared, "soft steels and very hard steels, in fact, the harder the steel, the easier it cuts."

Two half-inch pieces of armor plate are sawed by the new device at one time. Heat generated by friction of the saw teeth is so intense that the metal is melted and most of it turns into gas.

Eighteen such saws are now in use at Bell Aircraft for such operations as trimming of aircraft metals, and making boiler plate dies.

Cutters, used to mill aircraft metals, can be made faster, cheaper and better, Mr. Schwartz also suggested to the engineers. Remove six out of seven teeth on the large multi-bladed milling cutter commonly in use, he urged. Only four teeth are needed. With each taking a healthy bite, faster production and smoother finish results. This simplified machine also removes the old problem of not having enough power.

Pounds of critical high-speed steel are saved; cost and time are saved; and the cutter lasts longer at faster speeds.

To further conserve high-speed steels and carbides and speed production, Mr. Schwartz recommended that engineers use a wider selection of cutting materials for metal working.

Cast alloys have not been used as much as they should, he asserted. Tantung, one of the alloys, is now giving better results in certain phases of aircraft production than the usual high-speed steel or carbide.

Science News Letter, April 3, 1943

BOTANY—CHEMISTRY

Manifold Uses of Rubber

➤ RUBBER'S manifold uses in war, and the heroic efforts made by both botanists and chemists to overcome the handicap imposed on the United Nations by the Japanese seizure of the lands that formerly supplied 90% of the world's rubber needs, occupied attention at the Ninth Annual Chemurgic Conference in Chicago. Representatives of leading rubber companies, of a large research institute, and of a chemical firm took part in the discussions.

Dr. H. L. Trumbull of the B. F. Goodrich Company and Dr. Lewis Knudson of Cornell University both told of different phases of a special research program on rubber-producing plants carried on at Cornell's college of agriculture. Controlled conditions in greenhouses simulate the desert climate demanded by such rubber shrubs as guayule and rabbit brush, while botanists seek information on factors that may increase their production, and carry on experiments trying for the best methods of extraction.

Of especial promise in this program, Dr. Trumbull stated, is the vine milkweed known botanically as cryptostegia, that grows freely in the Caribbean region. It bleeds latex from cut stems as a pruned grapevine bleeds sap. Frequent tapping—as often as every 48 hours—increases the yield without injuring the plant. X-ray studies indicate that the molecules of its rubber are identical with the product of the hevea tree. It is at present neither abundant nor cheap, but in the speaker's opinion is worthy of vigorous further attention.

Science News Letter, April 3, 1943

Family to Increase

➤ THE PRE-WAR rubber industry was likened by Dr. M. C. Teague of the United States Rubber Company to a mother with only one child; after the war, he prophesied, there will be many children, of most diverse talents and abilities. Dr. Teague showed samples of several new rubber and rubber-like products, all of which are taking part in the war program in some capacity, from gas masks and Army raincoats to tires and tank-tread blocks. Whereas before the war the effort necessarily was to adapt the one known kind of rubber to many diverse uses, in the post-war world there will be many diverse kinds of rubber and rubber-like plastics, each to meet the one special use for which it will be "custom-built".

Science News Letter, April 3, 1943