

METALLURGY

Magnesium Alloys Improve

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► IMPROVEMENT in the resistance of magnesium alloys to destructive corrosion, by reducing the iron content, has resulted in renewed interest in possible applications of the lightweight alloy. These facts were revealed by P. T. Stroup, G. F. Sager, and J. B. West, of the Aluminum Company of America, New Kensington, Pa., at the meeting of the American Society for Metals, held in Cleveland.

While sheets of magnesium alloy cost more per pound than sheets of other commercial structural metals, the light weight of the alloy makes it possible to fabricate more articles per pound from magnesium than from other metals. As an illustration, the authors stated that four times as many objects can be made from magnesium sheet as from steel sheet, and 1.5 times the number from aluminum sheet.

The resistance to corrosion of magnesium alloys is greatly underrated because of the poor behavior of the metal in the early days of its use, the authors commented. The inherent resistance of magnesium to corrosion has been greatly improved by extensive studies on the effect of metallic impurities such as iron, nickel, cobalt, copper and chromium on the corrosion resistance of magnesium. A decrease in iron content of magnesium alloys resulted in improved resistance to corrosion.

Since corrosion reduces the tensile strength of metals, the more corrosion-resistant magnesium sheet has such characteristics as "outstanding machinability," "excellent welding characteristics," and it is "resistant to alkalis and fluorides," the authors reported.

The spreading of liquids over the surface of solids is important in many engineering fields. In metallurgy, this phenomenon is interesting because of problems which arise in the brazing and coating processes. For example, it is difficult to get liquid silver to flow over a smooth clean surface of iron.

Ways by which liquid metals may be caused to spread very readily on metallic surfaces were revealed to the meeting by E. R. Parker, of the University of California at Berkeley, and Roman Smo-

luchowski, of the Research Laboratory, General Electric Company, Schenectady, N. Y.

The behavior of a liquid on a solid metallic surface depends upon the condition of that surface, the authors stated. Liquid metal, they pointed out, spreads best on finely ground, or on polished and etched surfaces, both of which have fine capillary structure. It does not spread on polished surfaces under the same conditions.

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INVENTIONS

Reduction in Inventions And Research Due to War

► THE FACT that thousands of scientists and engineers who are normally engaged in peacetime research are now in military service or devoted to war problems has resulted in a marked reduction in fundamental research and inven-

tion, R. J. Dearborn, president of the Texaco Development Corporation and chairman of the National Association of Manufacturers committee on patents, concludes in a report recently made public.

War stimulates the application of accumulated knowledge rather than the pioneering on the frontiers of science and technology, he pointed out. Not since the first ten years of the 20th century has the number of applications for patents, and the total of patents granted, fallen to the low point of today's record. Only 14,000 patents were issued during the first six months of this year. During the same period in 1939, about 21,000 patents were issued.

"We are burning up America's backlog of scientific knowledge during the war just as we are using up our natural resources," Mr. Dearborn declared.

To prevent a decline in the normal rate of scientific and technological progress, he stated that incentive must be provided for research and invention. A strong patent system, Mr. Dearborn urged, will stimulate and encourage inventors and research workers to produce new ideas that can be transformed into useful products. This would provide, in his opinion, the incentive necessary to regain this lost scientific momentum.

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CHAIN SAW—Powered by a motor similar to the type used to propel out-board motor boats, the chain saw weighs about 100 pounds, and is so well balanced that it can be operated in any position. All operations are controlled by the operator on the left.



G. I. MULE—He is carrying a chain saw which will cut through a tree or hard wood log 12 inches thick in twelve seconds. Photographs by Fremont Davis, Science Service Staff photographer.

MEDICINE

Mid-Life Change in Men.

Condition relatively rare, can be treated satisfactorily with the appropriate sex hormone. Psychoneurotic conditions are not benefited by the treatment.

➤ A GLANDULAR change in mid-life, such as invariably occurs in women, does also occur in men and, as in women, can be treated satisfactorily with the appropriate sex hormone. Dr. Carl G. Heller, of Vancouver, Wash., and Dr. Gordon B. Myers, of Detroit, report (*Journal, American Medical Association*, Oct. 21).

The change, scientifically termed the climacteric, is relatively rare in men, however. It may occur as early as the third decade of life, but probably only a small proportion of men who live into old age are affected.

Sometimes the nervousness, psychic depression, inability to concentrate, hot flashes and other symptoms that characterize the climacteric in men are due not to glandular failure but to a psychoneurotic condition. Such cases are not benefited by sex hormone treatment. This fact gives physicians one way of distinguishing between the two conditions. The diagnosis may also be made

by laboratory tests.

The laboratory tests gave Dr. Heller and Dr. Myers objective evidence that 23 of 38 patients complaining of the physical and psychic symptoms of the climacteric owed their symptoms to sex gland failure. Disappearance of the symptoms following treatment with the male sex hormone confirmed the evidence of the laboratory tests.

The hormone is given by hypodermic injection three times a week, or by implantation of pellets of the hormone under the skin in the thighs. Such a hormone bank will be effective for six to 10 months. Doses of the hormone by mouth were not successful.

The hormone treatment is not advised for patients with cancer or any suspicion of cancer, for those having any dropsy, or for any patient showing normal sex gland function. In this connection the two doctors warn that "ill advised treatment with testosterone (male sex hormone) may cause permanent sterility."

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PUBLIC HEALTH

Unwarranted Fears Of Malaria Are Debunked

➤ SO MUCH has been said and written about the dangers of malaria to our troops fighting around the world and to civilians when the troops return that many persons may have developed unwarranted fears on the subject.

Malaria is and has been for some 2,500 years the "most serious disease in the world," students of this plague believe. It is held responsible for some 3,000,000 deaths among 300,000,000 victims a year. In the chronic form which develops in natives of highly malarious regions it has persistent incapacitating effects.

However, you need not worry about such effects in that serviceman of yours who has been exposed to or perhaps attacked by malaria.

"The fear that malaria, once acquired lasts for life, is unfounded," the Preventive Medicine Division of the Office of the Surgeon General, U. S. Army, points out in a statement on malaria.

Vivax malaria, which is the most common type, very rarely persists for more than one to two years, and three years is the maximum time, when the disease is properly treated, Lieut. Col. Francis R. Dieuaide, Medical Corps, Chief of the Tropical Disease Treatment Branch of the Medicine Division, said. There also is no evidence to support the fear that the disease leaves any permanent damage in its victims.

Named after the species of malaria parasite which causes the benign tertian form of the disease, vivax malaria rarely causes death. Its attacks of chills and fever occur every other day.

The malignant form of the disease is known as falciparum malaria. Atabrine, a synthetic substitute for quinine, has been found to be a cure for a high percentage of the cases of this form of malaria.

Discussing the Army's experience with vivax malaria, Col. Dieuaide said that "patients have usually had fever for only two or three days. Persistent incapacitating effects of chronic malaria, such as are often seen in natives of highly malarious regions, have rarely developed."

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The deepest hole in the world is a Texas oil well recently drilled to a depth of 15,279 feet, nearly three miles; it is 20 inches in diameter at the surface and tapers to less than eight inches at the bottom.