

METALLURGY

**Titanium-Alloy Engines
Lessen Weight, Corrosion**

➤ LIGHTER ENGINES for jet propulsion, using a titanium alloy instead of steel, are scheduled for production in the near future.

One great value, besides saving weight, is that the alloy is not subject to corrosion either from salty air or the gases to which a jet engine is subjected.

Experimental engines using the alloy have proved a success, Westinghouse engineers state in Pittsburgh. The alloy is now ready for application to the newest models of production engines that will be only three-fifths as heavy as steel engines of equal strength. Many Westinghouse jet engines are used in carrier-based Navy aircraft where salt-air corrosion resistance is of great importance.

Titanium and its alloys are relatively new in the engineering field, since commercial production of the metal from its plentiful ores is largely a post-war development and is still costly. This, however, will not prevent its use in military aircraft where cost is secondary. When cheaper methods of obtaining the metal are developed, it will have many hundreds of applications.

One of the principal deterrents to use of this metal and its alloys is a lack of knowledge relative to the metallurgy of titanium, since they have not been available long enough to develop the metallurgy fully. Much has been learned, however, in the past two years relative to the structures of titanium and its alloys, the effects of heat treatment and how it can be machined, forged and joined.

The rise of titanium, its metallurgy and its uses in jet engines is outlined in *Westinghouse Engineer*. It is described as a self-protecting metal, and one of its principal properties is its indifference to sea water.

This makes it suitable for use on shipboard, such as in lightweight piping systems to handle salt water, condenser tubes, plumbing fixtures, pump rods and rotor shafts. Titanium has high resistance to moist chlorine gas, nitric acid and many other common chemicals.

Science News Letter, August 2, 1952

PSYCHIATRY

**Hospital Without Beds
For Mental Treatment**

➤ YOUR MENTAL picture of a hospital probably has something to do with beds. You may see them in white-sheeted rows or a single one, high, with cranks and pulleys and other contraptions.

You probably know that hospitals are measured by the number of beds they contain. They are spoken of as 150-bed hospitals, 1200-bed hospitals, and so on.

A new development in mental hospitals is the day hospital, or the "hospital with-

out beds." This new kind of hospital is described by Drs. Ruth I. Barnard, Lewis L. Robbins and Fred M. Tetzlaff of the Menninger Foundation, Topeka, Kans., in part as follows:

"One of the major concerns of psychiatry is how to extend treatment to a greater number of people without making the treatment less effective. Out-patient shock treatment, brief psychotherapy and some forms of group therapy are attempts in this direction, or have this result as a by-product.

"The day hospital is a more recent example. It has been in use at The Menninger Foundation for three years and has already proved its worth in 'stretching' our limited facilities to serve a greater number of patients. It has also proved beneficial in other and more important ways.

"It was in 1946 that Dr. D. E. Cameron of the Allan Memorial Institute in Montreal described his new day hospital, and labelled it an experiment. The Menninger Foundation's own day hospital also began as an experiment, but after three years has so proved its value in psychiatric treatment that it has become an integral part of the Foundation's treatment program.

"As the name implies, the day hospital is for patients who need many of the therapeutic activities available in the hospital but who do not need the 24-hour protection inherent in living in the hospital. The day patient uses the hospital facilities for the hours from nine to five—or a portion of them—but lives in the community. He is not to be confused with the outpatient, whose therapy consists only of regular appointments with his doctor."

Science News Letter, August 2, 1952

METEOROLOGY

**Temperature Is High
On California Desert**

➤ FEELING WARM these days?

A temperature reading of 150 degrees Fahrenheit is reported by Dr. Thomas Clements, University of Southern California geologist. It was this hot, he found, on California's Mojave Desert, where he was leading a scientific expedition.

Dr. Clements shoved a thermometer into the ground at a point about 30 miles east of Barstow and obtained a reading of more than 100 degrees. When he held the thermometer three feet off the ground the mercury climbed to 150 degrees. His report appears in the current issues of *Explorers Journal* (Winter-Spring).

Highest official temperature for the United States on record at the U. S. Weather Bureau is 134 degrees Fahrenheit recorded at the Greenland Ranch, Death Valley in 1913. The highest official temperature on earth was recorded in Azizia, Libya, in 1922—a reading of 136 degrees.

Official Weather Bureau temperatures, the Bureau explains, are always taken in well-ventilated shelters away from the direct or reflected rays of the sun.

Science News Letter, August 2, 1952

IN SCIENCE

INVENTION

**Snow on Your Roof?
Invention Removes It**

➤ IF THERE were snow on your roof right now, you would probably indignantly reject an invention granted a patent recently. But next winter it may be just the thing. It is a snow removal device which can be maneuvered from indoors so you won't have to go outside and get all cold and shivery.

The inventor, Edward G. Fischer, Holliston, Mass., points out that: "In all climates where snowfalls occur a serious condition now arises whenever large amounts of snow accumulate upon the roofs and in the gutters of buildings, particularly dwelling houses having sloping roofs."

By standing on the floor below the roof, opening the window and adjusting the inventor's apparatus, the homeowner who doesn't want to get cold can scrape off the snow merely by manipulating a convenient hand lever.

The device consists of a rake with a shaft appropriately curved or bent and of sufficient length to be projected above the roof. The bottom end of the shaft is fitted to a rod which leads into the window. The homeowner operates the rake by pushing the rod back and forth through the window. Mr. Fischer received U. S. Patent number 2,603,892 for his invention.

Science News Letter, August 2, 1952

GENERAL SCIENCE

**Use of Sponges
Is 3,000 Years Old**

➤ THE USE of sponges for washing dishes, cleaning table tops and other household chores is not new, according to Dr. Arthur Patch McKinlay, emeritus professor of Latin at the University of California at Los Angeles.

Sponges were used at least 3,000 years ago, he says, and refers to Homer's *Odyssey* to prove his point.

"Before a dinner party for Ulysses," he points out, "the maids were instructed to wipe off the tables with sponges."

"There are other instances, including the use of sponges in a manner somewhat akin to that of doctors today. Just as sponges are used now to absorb excess blood in operations, the *Odyssey* proves sponges then were used to pick up the blood resulting from Ulysses' killing of his wife's suitors."

Science may be able to invent new methods of making sponges, declares Dr. McKinlay, but the uses for them are as old as our civilization.

Science News Letter, August 2, 1952

E FIELDS

STATISTICS

Lives Getting Longer After Ages 50 and 70

► HERE IS cheerful news for grandfather and grandmother. Life expectancy for those of 50 and 70 has definitely improved during the first half of this century.

Some statistical studies seemed to indicate, a few years ago, that old folks now were not living as long as their parents and grandparents. But a careful inquiry by Dr. Robert J. Myers of the Social Security Administration shows there has been no significant worsening of mortality among the aged during the early part of the century.

Life expectation at age 20 has risen steadily and significantly for both men and women, with the increase over the past half-century amounting to about 15% for men and 20% for women. The expectations for men aged 50 and 70 and for women aged 70 remained more or less constant over the first 30 years of this century. Since 1930 they have risen definitely and significantly. Expectation for women aged 50 increased slowly during the first 30 years and more rapidly thereafter.

For white men age 50, 22.44 more years, white women same age, 26.16 more years.

Science News Letter, August 2, 1952

PSYCHOLOGY

Home Care of Aged Promotes Happiness

► "TOO WORRIED to know what to do, and too wearied to do it, even if I knew what."

That is how 65-year-old Mrs. A. put it in summing up her reasons for wanting to enter a Home for Aged Women. But three months later, Mrs. A. by her own choice and decision had got a job which she held against much younger competitors, was caring for herself in her own home, and had reached much better physical and emotional health.

This success story is told in a report from the National Institute of Mental Health on an experiment launched by the Peabody Home in New York City.

Facts had shown that a considerable number of the old people actually did not need immediate institutional care. It was really financial need, housing problems, fears relating to mild present ailments or future illness, poor family relationships, and loneliness which consistently accounted for about 85% of all admission applications.

The Board of Directors, therefore, decided to try first to remove as many as possible of the sources of anxiety in the

applicant's normal environment—and then watch what happened. In essence, the plan combined the Institution's services with community resources and extended them into the old person's own environment.

Two years later the group of non-residents was studied and compared with a similar group of women who had entered the Home at the time the program was started. All the non-residents were still living and in better health. They were happier and showed more interest in outside affairs. They were self-reliant, did not think of themselves as old and often referred to the resident group as "those poor old ladies at the Home."

Finally, the cost of helping the women in their own homes was about 15% to 20% of the cost, per capita, of maintaining Home residents.

Science News Letter, August 2, 1952

ENTOMOLOGY

Ant Queen Rediscovered After Years in Jungle

► A QUEEN who has led an army in the jungles of Panama for five years has been rediscovered by an American Museum of Natural History expedition.

She is a queen Army Ant. In 1947 she was marked in order that the movements and the life cycle of these insects might be studied. This year she was rediscovered after long travels with her colony, miles from where she was last seen.

Her colony, numbering hundreds of thousands of ants, marched through the tropical jungle, destroying all small forest life in their path. The queen produced more than 1,500,000 eggs during these predatory and marauding wanderings.

Now the queen is performing the final phase of her functions as queen.

The expedition led by Dr. Theodore C. Schneirla, expert on insect psychology, brought back a colony of Army Ants, 40,000 strong. It is on public view and will emerge from cocoon stage in a few days. New York is so hot in summer that the exhibit case for these tropical ants must be air conditioned to cool them down to tropic temperatures.

Science News Letter, August 2, 1952

INVENTION

Carburetor Deicer Uses Hot Gases

► A CARBURETOR deicer has been invented by James T. W. Moseley, Richmond Heights, Mo., and assigned to the Carter Carburetor Corp., St. Louis. It received patent number 2,603,199.

The deicer utilizes hot exhaust gases in a by-pass which extends across the carburetor flange. This by-pass, the inventor claims, has been found to counteract effectively the icing tendencies around the carburetor throttle and the idling ports.

Science News Letter, August 2, 1952

OPHTHALMOLOGY

Safety Rules For Child's Eyes

► CHILDREN IN the United States have more eye accidents than South American children, Dr. Etta C. Jeancon of Los Angeles has reported to the National Society for the Prevention of Blindness.

She gives three reasons for this. 1. South Americans have fewer mechanical and electrical gadgets that children can get hold of; 2. South Americans supervise their children more constantly; 3. Children in South America are better disciplined.

Rocks, ball sticks and BB guns cause many unnecessary eye accidents. One little girl used an icpick to open a knot in her shoe lace. The pick slipped and penetrated her eye, Dr. Jeancon reports. A four-year-old had her lower eyelid cut off when she fell on a broken dish. A boy of five was shot in the eye with an arrow.

Safety rules for parents to follow so that their children's eyes, eyesight and health can be saved from avoidable accidents are given by Dr. Jeancon as follows:

1. Never leave the baby alone in the bathtub. Let the doorbell ring or wrap a towel around the baby and take him with you.
2. Keep medicines and poisons out of reach. Many liquids and medicines which can cause injury look harmless and taste sweet.
3. Keep matches and cigarette lighters out of reach, and keep the little ones away from stoves, bonfires and heaters.
4. Keep handles of pots turned away from the front of the stove.
5. Keep scissors, icpickers and other sharp instruments completely out of reach.
6. Remove loose parts of toys such as glass eyes on dolls that babies play with.
7. Warn against throwing rocks, tin cans, playing with stiff wire, and fighting with make-believe spears, swords, sling-shots, etc.

Science News Letter, August 2, 1952

CHEMISTRY

Moisture Corrodes Fuel Storage Tanks

► SCIENTISTS AT the Naval Research Laboratories in Washington have found that corrosion of motor fuel storage tanks often is due to moisture absorbed by the fuel from the atmosphere.

When exposed to air, the fuel and air exchange moisture until an equilibrium has been reached. Then if the fuel is cooled, the moisture settles out as water droplets, causing corrosion and fuel-handling troubles.

The amount of moisture absorbed depends upon the relative humidity of the air. It also depends upon the solubility of water in the fuel.

Data that may help to lick the corrosion problem are released in a Department of Commerce research report.

Science News Letter, August 2, 1952