

ENGINEERING

Navy's Future Subs May Use Atomic Power

► ATOMIC POWERED navies of the future will make the submarine a major fleet unit of greater importance than ever before, Rear Adm. H. G. Bowen, chief of the U. S. Navy's office of research and inventions, predicted in outlining the Navy's plans for the development and use of atomic energy.

Even with the present state of atomic energy development, Admiral Bowen described the installation of atomic power for submarines as "a very attractive proposition."

"Since oxygen or oxygen-bearing fuel will no longer be required, we will be able to realize submerged speeds, and submerged radii of action, which will put the submarine in a distinct class by itself, and make it a major combatant unit," the Navy research chief declared.

"Its development into a much larger vessel, capable of successfully carrying out many missions, is clearly indicated," he said.

Terming the Navy the greatest single user of power, Admiral Bowen warned that unless the use of atomic energy is faced "in the grand manner, we will fall flat on our faces."

"The Navy has no time to lose in adopting atomic power for surface ships and particularly submarines," he added.

On Navy ships, he foresaw atomic piles replacing boilers to produce steam for driving turbines and reciprocating engines. Citing speculation that atomic piles may not be expected to weigh less than 100 tons, the Admiral pointed out that present weights of power units in Navy ships far exceed that amount.

Science News Letter, June 22, 1946

MEDICINE

Mobile X-Ray Machines Help Fight Tuberculosis

► X-RAY MACHINES are taking to the road to help wipe out tuberculosis. Mounted in buses or trailers, these units roll along the highways from one village or small town to another, where they help to find unsuspected cases of the white plague.

Each case discovered and brought under treatment means not only a chance for recovery for that patient but the breaking of one more link in the chain by which the disease spreads to new victims.

Surgeon General Parran of the U. S. Public Health Service has recently accepted a new mobile X-ray laboratory made by General Electric X-ray Corporation in Chicago.

In Buffalo, N. Y., members of the National Tuberculosis Association have viewed a similiar X-ray unit on wheels made by Westinghouse Electric Corporation.

Advantage of these mobile units is that they can go into rural areas too far from medical centers for the population to be X-rayed and too small to afford an X-ray unit of their own.

The unit the Public Health Service has purchased at a cost of \$18,000 can X-ray as many as 60 persons per hour. In actual service in the country, it is expected to X-ray 100 persons daily. This means that one or two previously unsuspected cases of tuberculosis could be found each day.

Army and civilian experience with mass chest X-ray procedures in recent years has shown that 12 cases of tuberculosis are found in every 1,000 adults X-rayed. The annual death toll of the disease in the United States is 55,000. Half the victims are between 20 and 44 years of age.

Science News Letter, June 22, 1946

HORTICULTURE

Corn Severely Damaged By Japanese Beetles

► JAPANESE BEETLES often damage corn severely by eating the silk as fast as the ears are set. In this way fertilization of the kernels is partially prevented and grain production reduced, says B. F. Coon, entomologist of the Pennsylvania State College's corn and tobacco research laboratory at Lancaster.

The insects cause severe injury if they feed on a silk within about six hours after hand-pollination, Mr. Coon stated. Some corn hybrids seem less subject to this type of injury than others. Sweet corn as well as field corn may be damaged.

When Mr. Coon simulated the damage done by Japanese beetles by cutting the silks and a half-inch of husk from ears six hours after hand-pollination, the injury to the corn was typical of that caused by the insects. When the cutting was done seven hours after pollination, however, little damage resulted. Presumably the pollen tubes had grown down past the cutting point in seven hours.

Science News Letter, June 22, 1946

IN SCIEN

INVENTION

Conical Rotating Valve For Combustion Engines

► AN INTERESTING effort to get away from poppet valves on internal combustion engines is represented in two patents granted to Waldo G. Germandt of Detroit, on a conical rotating valve that fits into the cylinder head.

The cone of the valve terminates in a stem by which it is suspended from the top of the cylinder head, and which serves as bearing and as means of rotation, through suitable gear connections.

A wide passage is cut through the cone from its base to one side. The upper opening receives the fuel-air mixture when it is turned opposite the intake port; when turned to the exhaust port it permits the scavenging stroke of the piston to clear out the combustion products. When the opening is turned to face the spark plug, the cavity within the cone serves as the ignition chamber.

Special features on which the patents are based are forced oil lubrication, with a suction pump to remove excess oil, and provision for cooling. The two patents, Nos. 2,401,630 and 2,401,631, are assigned to the Briggs Manufacturing Company.

Science News Letter, June 22, 1946

AGRICULTURE

Grain Sorghums Important Crop

► GRAIN SORGHUM promises to become one of the great agriculture crops of Texas, Oklahoma, Kansas, New Mexico, Colorado, Nebraska, Missouri and Iowa it was predicted at the Second Southwest Chemurgic Conference by Terris A. Manley of Phoenix, Ariz.

One of the reasons for increased acreage of grain sorghums is that due to mechanical handling, from soil preparation to harvesting, one man alone can produce 160 acres of this crop. A minimum amount of moisture is needed adapting it to the drier areas.

Whisky and beer malt can be made in part from grain sorghum, while a starch that replaces imported cassava root for tapioca manufacture comes from the waxy types.

Science News Letter, June 22, 1946

CIE FIELDS

GENERAL SCIENCE

Gigantic Research Center For Automotive Problems

► RESEARCH and engineering work on the mechanical problems of the automobile business will occupy the largest portion of gigantic new laboratories and experimental shops to be erected by the Ford Motor Company at Dearborn, Mich.

The announcement was made June 4, the 50th anniversary of the day that the original Henry Ford drove the first Ford car through downtown Detroit. The center is dedicated to him, and to his son, the late Edsel B. Ford.

Construction will start as soon as materials are available. When completed, it will probably be the largest development of its kind in industry. Eight buildings are to be erected at an estimated cost of \$50,000,000. They will be grouped around an artificial lake on a 500-acre tract of land, and will include the most modern equipment for work in chemistry, physics, metallurgy and mechanics.

Science News Letter, June 22, 1946

SURGERY

The Lame Walk After Nerve-Cutting Operation

► A FORMER MAIL carrier who could not walk more than 300 feet can now walk unlimited distances and is back at work carrying mail.

An amusement park operator whose job required a great deal of walking but who could not walk a block without pain can now walk continuously for three hours without pain.

A veteran who had already lost his left leg was saved from having his other leg cut off above the knee.

A laborer can now walk four blocks instead of two and is able to do indoor work though for years he could not work at all.

These and 21 other patients who owe their ability to walk, saving of a leg and freedom from pain to a nerve cutting operation are reported by Drs. Geza de Takats, Edson Fairbrother Fowler and Paul Jordan, and Capt. Thomas C. Riskey, of the University of Illinois College of Medicine and the Veterans Facility at Hines, Ill. (*Journal, American Medical Association*, June 8).

The patients were unable to walk, threatened by gangrene and amputation, and suffered unbearable pain in some cases because of hardening and narrowing of arteries in their legs. The "excellent" results obtained by cutting nerves which influence constriction and dilation of the affected blood vessels are due to the release of normal tone of the blood vessel walls which in turn insures an even blood flow.

Science News Letter, June 22, 1946

AERONAUTICS

Fan Type Propeller Reduces Aircraft Sound

► FAN TYPE propeller with a large number of blades and a low tip speed is the only method by which the sound level of an airplane can be reduced, Theodore Theodorsen and Arthur A. Regier of the National Advisory Committee for Aeronautics told the National Light Aircraft meeting of the Institute of the Aeronautical Sciences in Detroit.

They discussed the practical use of conclusions made as a result of experiments at Langley Field. The so-called Gutin formula, with which aviation experts are familiar, permits the convenient calculation of the sound level of any aircraft propeller. A simplification of the formula, achieved by graphs, gives the function for the sound level in the direction of maximum intensity.

Airplane control from the viewpoint of the pilot's needs was discussed at the meeting by Wolfgang Langewiesche of Kollsman Instrument Division, Square D Company. Controls, he said, are much more than merely a means of obtaining rotational motion about the three axes; they are in essence a means by which the pilot fixes definite flight conditions. For example, he explained, a pilot knows that he is proceeding at high angle of attack largely by being aware that he is holding back pressure against the stick.

He suggested that present airplanes are so difficult to handle, not because of the essential nature of airplane control, but because the essential nature of the controls is falsified by such effects as torque and change of trim with change of power.

It is suggested further, he said, that airplanes would be easier to fly if manufacturers set themselves new standards of stability and control, calculated more closely to fit the pilot's needs.

Science News Letter, June 22, 1946

ICHTHYOLOGY

Starfish Apparently Come In Seven-Year Cycles

► STARFISH, one of the worst enemies of oysters, apparently come and go in seven-year cycles, Martin D. Burkenroad of the Bingham Oceanographic Laboratory, Yale University, reports in *Science* (June 7).

Mr. Burkenroad's conclusion is based on a study of all available records of starfish numbers, going back to the middle of the last century. When they are most numerous, there may be more than half a ton of starfish to the acre, he says.

The last peak period for these oyster-destroyers ended with the season of 1943. Mr. Burkenroad expects the decline to continue until 1950, and the next maximum to come about 1957. Advantage may be taken of this knowledge, he believes, in planning oyster-planting and starfish-fighting activities.

A starfish attacks an oyster by wrapping its arms around the shell until the oyster begins to suffocate and has to open up. That's the end of the oyster.

Science News Letter, June 22, 1946

EDUCATION

Nuclear Energy To Be Studied at Oak Ridge

► AN INSTITUTE of nuclear studies, a sort of superuniversity of the atomic age, is being organized in connection with the atomic energy operations that are concentrated in Oak Ridge.

Sponsored by a group of southeastern universities, this new educational institution would carry out research at the Ph.D level and above in the fields of physics, chemistry, biology, medicine and engineering. It would provide formal channels for cooperative research between government, universities and the industrial agencies involved in the atomic energy project at Oak Ridge.

Plans for the establishment of the Oak Ridge Institute of Nuclear Studies are announced in the scientific journal, *Science* (June 14). W. G. Pollard of the University of Tennessee and P. W. McDaniel of the Manhattan Engineer District are named chairman and secretary respectively of the organizing executive committee. TVA, Duke University, Carbide & Carbon Chemicals Corporation, Tennessee Eastman Corporation, Vanderbilt University and Monsanto Chemical Company are also represented on the Committee.

Science News Letter, June 22, 1946