

LIFE OF THE PAST
 Fascinating 10 million year old fossil-bearing rock. Perfect desk ornament, paper weight, educational gift! Each sample generous in size, rich with fossil remains. Hand gathered and graded—signs of plants, animals, shells—many no longer exist. Satisfaction guaranteed or money back.
 Regular \$1.00 Large Size \$1.50
 (please add 25¢ shipping and handling)
 Andy & Peter Dept. B, Box 85, Rye, N.Y. 10580

OUTER-SPACE MAP
 Giant 42"x33", 8-color space map shows our entire solar system and each planet's orbit, size and distance relationship to the sun and earth.
 Only \$1.00 Postpaid.
CHESPA SALES
 P.O. Box 117-SN Barrington, N.J. 08007

NEW GIANT 148-Pg. CATALOG FREE!
 Completely new, 1968 edition. New items, categories, illustrations, easy-to-read pages with nearly 4000 unusual bargains. Enormous selection of Astronomical Telescopes, Microscopes, Binoculars, Magnifiers, Lenses, Prisms, parts, accessories, math learning aids, do-it-yourself kits, exciting exclusives. Write for free Catalog "Q"
EDMUND SCIENTIFIC CO., 300 EDCORP BUILDING BARRINGTON, N.J. 08007

SEE MIRACLE OF BIRTH
\$4.98 POST PAID WITH SIX QUAIL EGGS
 (\$3.25 Without Eggs.)
 You get the new clear plastic dome CHICK-BATOR with 6 Bobwhite Quail Eggs (available year-round) and Egg Hatcher's Guide Book. Complete—nothing else to buy. Send check or Money Order today
G.Q.F. MFG. CO., DEPT. CL, BOX 152, SAVANNAH, GA.

BOOK ORDER SERVICE
 For the convenient purchase of any U.S. book in print you may avail yourself of Science News Book Order Service, 1719 N. St., N.W., Washington, D. C. 20036. We pay postage. 25¢ handling charge if price is less than \$2.00. Regular retail prices on all books.

Doctors Trim 2 Inches Off Flabby Waists!
 German doctors at the famous Max-Planck Institute have discovered an instant-workout method that can reduce waistlines in 30 days. Called "isometric Contractions," one 60-second daily workout can reduce waistline fast. 10 simple exercises can put the whole family in shape fast. No sweat, strain or tiring repetitions. Acclaimed internationally by physiologists, coaches, athletes. Results guaranteed. Free, illustrated information. Write **AWARD-WINNING ISOMETRICS, 37 Centuck Station, Yonkers, N. Y. 10710.**

STOP WATCH
 TIMES UP TO 60 MINUTES only **4.95**

FULL SWEEP SECOND HAND
 Time races... all sports events. Accurate—times up to 60 minutes—fun to use. Perfect for track & field, swimming, horse racing, lab experiments. Time against world record holders. Domestic made by Ingraham Co. Only \$4.95 + 36¢ shipping charges. Money back guaranteed. Send cash, check or money order, or order COD (\$1 deposit).
ROYAL ADVERTISING CORPORATION
 DEPT. 967 LYNBROOK, NEW YORK

LETTER FROM TOKYO

Peaceful atoms only, please

Japan is trying to catch up with other advanced nations in peaceful nuclear programs, well aware that progress would have been swifter except for the Japanese syndrome Prime Minister Eisaku Sato calls "nuclear allergy."

Even though atomics is a fast growing industry in Japan, with over \$650 million (\$278 million Government, \$372 million private) poured in during the last dozen years, growth would have been brisker but for memories of Hiroshima and Nagasaki, and the horror of all things nuclear in most Japanese minds.

Government and business circles fear that Japan may be left astern in the science and technology of the new world being fashioned by nuclear energy.

Begun in 1957, the Japanese nuclear program now has six reactors in operation at Tokai Village, north of Tokyo, and one under installation. Three were imported from the U.S., one from Britain, and three are home-manufactured. Japan owns 10 experimental reactors, one being completed this year, and two electric power generating reactors; and is busily constructing more. By 1975, 11 reactors will be generating electric power commercially with a combined output of 5.2 million kilowatts.

By 1988, 70 percent of Japan's power will be reactor-born with a 54 million kw total. Even today, 550 firms are engaged in the atomic energy business and orders tripled in 1967 over 1966.

The Government intends to construct a nuclear-powered ship, perhaps by 1972. But Japan has yet to manufacture its own first land-based power-generating reactor.

Plant construction has been delayed at several sites because the political left plays on residents' fears of atomic poisoning or explosion. The argument is, as well, that such plants will be converted to nuclear arms manufacture and indeed Japan does have a recognized ability to make such weapons already. Foreign scientists claim plutonium bombs can be made in Japan in three to five years, given Government's green light.

National uranium resources are poor but the Japanese have the knowhow to produce a nuclear reactor able to extract plutonium from used nuclear fuel. Japan negotiates with France for importing separation and abstraction systems for plutonium reprocessing.

Japan also possesses testing devices

for measuring the critical amount of plutonium and has the precision machinery and electronic capability to make a trigger for an atomic bomb.

Production of bombs with enriched uranium presents more baffling obstacles, not impossible to overcome though, if costs can be borne. Lack of lithium resources apparently rules out hydrogen bomb production.

In potential delivery systems, Japan has the Lambda-A, with thrust and range capable of being used as an intermediate-range ballistic missile, and a four-stage solid Mu, comparable to America's Minuteman, but there is room for improvement in accuracy and reliability judging by two failures to orbit a small scientific research satellite last year. U.S. expertise may be loaned for later space shots (SN: 4/6 p. 342).

The Government is trying to force greater internal cooperation, to unify space development programs between Tokyo University Institute of Space and Aeronautical Science and the Science and Technology Agency.

Although capable of producing nuclear weapons within five years, Japan is not likely to make its own nuclear arms any time soon. Deterrents arise from powerful opposition within and without. Japan is likely to sign the U.S.-U.S.S.R. treaty on non-proliferation of nuclear weapons.

Japanese express fear that the inspection provision might retard atoms-for-peace projects. They want China and France to sign the pact (which is unlikely in the extreme). And they want the treaty to provide a total ban on nuclear weapons or at least bar transport of such arms into other countries.

The Government's position is clearly stated in four points: Japan will not produce, possess, or permit entry of nuclear weapons; will strive for reduction and eventual abolition of such arms; will promote peaceful use of nuclear energy, and will rely on America's nuclear umbrella as its ultimate defense.

The basic problem for Japan is not whether it will start nuclear arms production, for it won't do that soon, but rather how it can best assemble resources for promoting atoms-for-peace programs.

The Government feels an urgent need to catch up with advanced technology being developed in the West, and, especially, not to fall behind China.

Stuart Griffin