



WAVE TRAPS—Man-made harbor is built with wave traps of three parallel panels of fabric and plastic hanging from floats, reducing the waves rolling in from the sea.

GENERAL SCIENCE

"Federal Universities" Seen

► **GOVERNMENT** and private research laboratories could curtail the drastic scientific manpower shortage by joining with colleges and universities to teach the nation's future scientists.

This is the view of Dr. Alvin M. Weinberg, director of the Atomic Energy Commission's Oak Ridge National Laboratory in Tennessee.

The conversion of "Federal laboratories would mean that the Federal Government would have to establish Federal universities," he states. Federal support of education at research labs makes as much sense as the support of research at educational institutions.

Although the operating budget for "Big Science" has increased five times that of 1950, Dr. Weinberg points out, the number of Ph.D.'s in science and engineering has only doubled. This decrease in qualified personnel, especially in the "old" disciplines, prompted the President's Science Advisory Committee to find better connections between the communities of education and research.

Dr. Weinberg proposes a gradual conversion of the large Federal laboratories into MIT-type institutions, with research and education sharing top-level scientists and students.

Universities, he says, are tending more toward research sponsored and financed by the Government. While the quality of the laboratories and amount of research opportunity draw top-level graduate students, more professors are finding less time to teach.

Why not reverse this procedure in Government and private research laboratories by placing top-notch researchers in part-time teaching positions?

The positive features are unlimited. Scientists become tired after years of research after leaving the universities. Fresh, inquiring students would stimulate renewed or finer thinking, Dr. Weinberg states. They

would also lead their teachers into other, perhaps more promising, fields of thought.

Students would also be exposed to the finest brains in the country, Dr. Weinberg reports in *Science*, 136:27, 1962.

• *Science News Letter*, 81:244 April 21, 1962

ASTRONOMY

Halley's Comet Will Return in May, 1986

► **HALLEY'S COMET** will return in May, 1986, an Argentine astronomer reported in Cambridge, Mass.

Dr. Pedro E. Zadunaisky of the Faculty of Sciences, Buenos Aires, and the Smithsonian Astrophysical Observatory in Cambridge, said that this famous comet, which last appeared in 1910, had an extremely stretched-out orbit. At its farthest point from the sun, Halley's Comet is near the orbit of Neptune, but it also went within 50,000,000 miles of the sun in 1910.

The comet's outermost path is 70 times the distance it is when closest to the sun, Dr. Zadunaisky told the American Astronomical Society meeting in Cambridge, Mass. He said he had studied some 3,000 observations of Halley's Comet made in 1909, 1910, and 1911, continuing the work of another Argentinian, now dead.

When a comet goes near the sun, Dr. Zadunaisky noted, it ejects gases at a very great speed. This could have a jet effect, which is what he is trying to find. He hopes to confirm the indications he has found for this jet effect by the end of 1962.

Dr. Zadunaisky said this is done by taking into account the effects of all the planets in the solar system on the motion of Halley's Comet, then looking for an otherwise unexplained speed-up in motion. The calculations are complicated, so he uses an electronic computer to aid in the determination.

• *Science News Letter*, 81:244 April 21, 1962

ENGINEERING

"Wave Traps" Designed For Stormy Seashores

► **DESTRUCTIVE SEA WAVES** may soon be "trapped" by floating structures designed to protect ship harbors and marinas, aid refueling and rescue operations and combat beach erosion.

The wave traps are coated fabrics hung from plastic foam floats riding on the water surface. They are being developed by the United States Rubber Company scientists to act as portable breakwaters for near-shore and open-sea projects and areas.

The company believes waves over ten feet could be reduced to a few inches by the new structures. They are self-regulating in high seas and should withstand hurricane-force waves, the company said.

• *Science News Letter*, 81:244 April 21, 1962

SCIENCE NEWS LETTER

VOL. 81 APRIL 21, 1962 NO. 16

Edited by WATSON DAVIS

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N.W., Washington 6, D. C., NORTH 7-2255. Cable Address: SCIENSERVIC.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; ten or more copies in one package to one address, 7½ cents per copy per week; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

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Printed in U.S.A. Second class postage paid at Washington, D. C. Established in mimeograph form March 13, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index. Member of Audit Bureau of Circulation.

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