TECHNOLOGY

Tomorrow's Atomic Fleet

➤ THE ATOMIC MERCHANT SHIP now being planned is just the beginning.

Scientists have taken a long look into the future and come up with this picture of tomorrow's merchant fleet:

1. Fishing vessels will be floating factories. All the steps involved in processing, including the new atomic method of food preservation by irradiation, will be carried out aboard one big ship that will remain at sea all year. The finished products will go straight from ship to market.

2. "Mining ships" will drill for oil on continental shelves far from their sources of fuel and supplies. There may be less reliance on Middle Eastern oil fields.

3. Rough weather will not be a cause of seasickness on tomorrow's atomic vessel. Ships will simply submerge beneath the waves into the undisturbed subsurface waters. Today's large vessels are unable to do this because conventional fuels require oxygen.

4. Icebreakers will be able to smash through Arctic ice packs without making the long return voyage for supplies each fall. They will be able to remain locked in frozen northern waters all winter if necessary, because space which would be used for fuel today can be used for food tomorrow.

5. The merchant ships of 1980 may be much faster than those of today. Scientists say no one knows the limits of an atomic ship's speed.

6. The ships will be larger and will therefore require larger canals.

The scientists base their predictions on the known advantages of atomic power. Atomic ships will be able to go one to two years without refueling. Fuel will take up less space. The larger the atomic reactor, they point out, the more economical it is to operate.

The pioneer atomic ship, whose first outlines will appear on drawing boards within a few weeks, may be either a large tanker, a dry cargo ship or a combined cargo-passenger vessel. No definite type of reactor has been decided upon, but scientists say the quickest to build would be a pressurized water system similar to that used on the atomic submarine, Nautilus.

The Atomic Energy Commission is considering about 20 other types of reactors.

Science News Letter, August 25, 1956

BIOLOGY

Pictures of Insect Noises

➤ PICTURES of insect noises can be made by anyone with a tape recorder, Scotch tape and magnetic powder, an American husband and wife research team report.

Their method for producing pictures of sounds is "simple, direct and uses no expensive equipment," Dr. Hubert and Mable Frings of Pennsylvania State University state in *Nature* (Aug. 11).

To make visible the patterns of sounds, which they call "ferrograms," the recorded surface of the tape is drawn through a thin layer of dry carbonyl iron powder spread on smooth paper. The excess powder is then blown or snapped off the tape.

The powder sticks on the tape where is has been uniformly magnetized by the recorded sound. The images thus formed can be photographed or removed from the tape by applying to it the sticky surface of Scotch tape. The adhesive tape can be fastened on white paper or on film for permanent storage and detailed study.

After the pattern has been copied or removed, the recording tape is wiped free of powder.

Spacing of the bands on the tape is related to the frequency and time distribution of the sound. Density of the clinging iron powder shows how intense the sound was.

Recording level must be relatively high to develop the patterns, Dr. and Mrs. Frings warn, since there is a point below which no powder will stick. The method is thus "particularly suitable" for such noises as the sounds of many insects, because the instantaneous intensity of the note may be very high, although the average intensity is not.

Their technique is a modification of one reported by F. Pasquinelly, who used a liquid suspension of ferromagnetic powder to make visible pictures of animal sounds.

Since the speed of the recording tape is known, the husband and wife team point out, the duration of the chirps in the "song" of a grasshopper can be measured directly, even though the notes are only one-fiftieth to one-tenth of a second apart.

Their work was supported in part by a grant from the National Microbiological Institute, National Institutes of Health, Public Health Service, in Bethesda, Md.

Science News Letter, August 25, 1956

NATURAL RESOURCES

Plastic Film Saves Water on Farms

➤ LININGS of plastic films are being tried to prevent loss of water by seepage from farm reservoirs and irrigation ditches.

Experiments by the U. S. Department of Agriculture's Agricultural Research Service and the Utah Experiment Station show that both vinyl and polyethylene (PE), when used as film for lining reservoirs and canals, will reduce the loss of water.

Science News Letter, August 25, 1956

Questions

ASTRONOMY—Where can Mars be seen? p. 122.

□ □ □

CHEMISTRY — How have chemists obtained new knowledge on the background of missing link animals? p. 120.

□ □ □

ENGINEERING—Why are scientists studying brick masonry? p. 118.

□ □ □

MEDICINE—What is the best treatment for heatstroke victims? p. 121.

□ □ □

NATURAL RESOURCES—What is Mission 66? p. 119.

□ □ □

PUBLIC HEALTH—How much has a vaccine cut incidence of adenovirus diseases? p. 119.

□ □ □

Photographs: Cover, Bell Telephone Laboratories; p. 115, Corning Glass Works; p. 119, Philco Corporation; p. 128, Pioneer Plastics.

PUBLIC HEALTH

Two-Thirds of U. S. Has Hospital Insurance

➤ TWO-THIRDS of the population of the United States is now covered by hospital insurance, either Blue Cross-Blue Shield or some other kind.

As of July 31, the Health Insurance Council in New York estimated some 110,000,000 persons, an all-time high, were covered by hospital insurance, while 94,000,000 had surgical protection, 58,000,000 had policies that cover regular medical expenses and 7,000,000 were insured against major medical expenses.

Science News Letter, August 25, 1956

Do You Know?

Creosote is the best known *wood* preservative.

Some species of *mites* have as many as seven to eight generations a year and in orchards may run 150 to 200 individuals per leaf.

Regular semi-conductor grade of *silicon*, used in electrical and electronic devices such as transistors, is priced today at $350 a pound.

After 38 years of silviculture testing, three species of *trees*, boxelder, green ash and the shrubby silver buffaloberry, emerged as suitable for farm wind-breaks in the severe climate of the northern Great Plains.

Clay mineral *crystals* are made up of atoms arranged in layers, much as eggs are arranged in layers in an egg crate.