First the plane is trimmed to fly with a slight climb when the motor is running at a normal speed and the plane flying in a straight line or in a very large circle. This may take several test flights.

To do a simple stunt: After the plane is up to a safe altitude, start a rather sharp turn. The plane will now lose lift on the wing because its wing is tilted from the normal flying position. Gravity begins to take over and the rudder begins to lift the tail higher than normal. The plane starts to dive in the turn. The tighter the spiral, the faster the dive. Now, with the speed much higher than normal, the command is given that turns the rudder the opposite direction for a short time and the plane levels out into normal flying attitude. The rudder is then set for normal flight, but the high speed gives the wing much more lift than normal. The plane then climbs very rapidly and it is most likely to continue flying through an inside loop.

In a somewhat similar manner rolls, wing overs and even more complicated things like Cuban eights can be done.

There is much satisfaction in the completion and flying of any model airplane. Most people consider the graceful flight of models a thing of beauty and if it is a model better than the one that you made previously, pride of ownership and your own accomplishment make it more beautiful in your eyes.

Model airplanes are much more expendable than the real thing. Much of the thrill of flying can be had through flying them.

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CONSERVATION

Nation's Water Crisis

Although the United States now has an adequate water supply and protective measures have been instituted, water resources must be more skillfully managed.

➤ COUNTLESS little watersheds built on land where the rain first falls have protected precious water for the United States.

These small dams have helped stop soil erosion and water run-off damage on rural lands, Sen. Herman E. Talmadge (D-Ga.) said in Philadelphia. They also provide for irrigation and more efficient drainage, as well as supply water for municipal needs, and furnish new opportunities for recreation, he told the Tenth National Watershed Congress.

Six major kinds of water problems face the United States today, he said. These are problems of water supply, variability, distribution, floods, quality and pollution.

The problem of water supply is most acute in the Southwest, where potential water demand exceeds the long-term supply. More water is being drawn from the ground than is being supplied, he said.

Variability in the amount of water flowing in streams is most severe in the Great Plains and the Southwest.

Distribution problems are severe in the West where streams of any large size are few and far between.

Floods are a problem everywhere in the United States, except part of the Southwest, Sen. Talmadge pointed out. They are a serious problem in New England, along the Atlantic Coast from Washington, D. C., to New England, in the Ohio River region, Missouri River region, Columbia River region, and the lower Mississippi region.

The quality of water is a problem in many parts of the country. Chemical and sediment problems are especially troublesome in the Great Plains, the Southwest, the Great Basin, a narrow strip paralleling the lower Mississippi River, and in the Piedmont area of the Carolinas, Virginia and Maryland.

Today the United States uses about 250 billion gallons of water per day, Sen. Talmadge told the congress. By 1980 we will be using about 600 billion gallons per day. Since the manageable supply of water available is 1,160 billion gallons per day, the problems can generally be solved, even though solutions may be costly.

The United States has an adequate supply if managed properly. But we must manage our water resources more skillfully than we have in the past, he warned.

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PUBLIC HEALTH

New Methods to Remove Foam Wastes Found

➤ AN ENGINEER has come up with a relatively simple solution to clean up U. S. water supplies—fight detergents with other detergents so that they neutralize each other.

The resulting sediment drops to the bottom where it can be readily removed, and the water will flow clear and clean again.

The new method, devised by Dr. William R. Samples of the California Institute of Technology, Pasadena, works well in the laboratory, and is now being successfully tested on a larger scale with sewage from Los Angeles.

There are three chemically different types of detergents. One type is anionic, which means that when the detergent is put in water, its molecules ionize to form electrically negative organic ions. These negative ions cause the foaming in water.

The second type of detergent is cationic, which means that positive organic ions are formed when the detergent is added to water. Cationic detergents are used in mouth washes, many disinfectants, shampoos and as algae controllers in swimming pools.

The third kind of detergent is nonionic, and remains electrically neutral in water. This type of detergent is used so rarely that it presents no pollution problem.

Dr. Samples' system simply involves adding cationic (positively charged) detergent to waste water containing anionic (negatively charged) detergents and mixing them.

Since unlike electrical charges attract each other, the active ions of the two different types of detergents are attracted to each other. They combine with each other to form large electrically neutral molecules in only a few minutes. This chemical merger eliminates the foaming action.

When an inexpensive coagulant, such as alum, is added to this mixture, the neutral molecules then form into gelatinous clumps that sink to the bottom of the water where they can be readily removed.

Detergents are posing serious problems of pollution throughout the nation because they resist being broken down by bacteria in sewage treatment plants. These foaming detergents are contaminating streams, rivers and water sources.

A law banning the sale of detergents that cannot be at least 80% decomposed by bacteria has been passed in West Germany. Similar legislation is being considered by the U. S. Government and by the legislatures of California and several other states.

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PUBLIC HEALTH

Swimming Pools Treated With Iodine Preferred

➤ SWIMMERS' EYES were less irritated in swimming pools treated with iodine than in those disinfected with chlorine, a California study has shown.

Studies on the safety of iodine in swimming pools were made in three outdoor swimming pools at Stanford University by request of the State of California.

Before beginning research on 30 young students, the investigators removed all chlorine from the pools. After 24 hours, the treatment with potassium iodide in the commercial form of Hio-Dine was started. The pools were tested on an average of four times daily.

Changes both in blood iodine and urine were reported insignificant and the bacteria count was within accepted limits.

The swimmers either preferred iodine or had no preference. One student who wore contact lenses said his eye irritation had improved in a "miraculous" way after the pool was treated with iodine. Three swimming team members discontinued use of protective goggles, and others who had experienced extreme eye irritation with chlorine said they had none under the new system.

Drs. Oliver E. Byrd, Harold M. Malkin and George B. Reed, with Hal W. Wilson, campus director of public health and safety, reported the study in Public Health Reports, 78:393, 1963.

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