

AERONAUTICS

Women as Test "Pilots"

Aircraft traffic problems can be solved for any airport in the world with laboratory simulator. "Night-club lighting" and wives of CAA personnel are used in the tests.

► WITH 18 women acting as mock pilots, scientists are studying how to cope with airport traffic jams.

They can find out more about the flow of aircraft in and out of a field in a few days in their laboratory than could be learned after months of actual tryouts.

The women are wives of Civil Aeronautics Administration personnel at Weir Cook Municipal Airport, Indianapolis, Ind. They are used because the irregular working schedule makes it impossible to keep trained "pilots."

During the tests, the wives sit behind a battery of motor-driven projectors, each shining a spot of light representing an airplane on a large map of the area under study. They control the path of the light with an instrument panel behind the projector and communicate with the "control tower" with microphones.

As the women pilot their "planes" in and out of the airport represented on the map, a television camera picks up their position and communicates it as a radar blip to the "tower."

With the setup, the laboratory can exactly duplicate the air traffic situation in airports at Paris, Cairo or any other area in the world. In the experiments, the scientists purposely overload the field with air traffic to reproduce the most rigorous conditions. All sorts of aircraft, including jets, can be brought in and out of the field in the mock operation.

Different approach and take-off patterns are tried out and changes are recommended to increase the capacity of the field.

The setup, called the Dynamic Air Traffic Control Simulator, has been in operation for four years. A complete evaluation of the air problems of the Chicago area has just been completed. It took only a month.

T. K. Vickers, director of the operation, explained that if an airport tried to do what his group was doing, it would cost tens of thousands of dollars and would produce a great deal of confusion on the field. It would cost perhaps a thousand dollars just to move one field shack, which the laboratory does electronically, he said.

The simulated control tower is lighted very much like a night club. On the ceiling is a fluorescent light fixture with red, green and blue bulbs. The total effect of the three colors is a dim blue-white light deficient in yellow wavelengths. Deep amber filters are put over the radar screens to absorb the light and make the blips easy to read.

Mr. Vickers said they had tried using small desk lamps for the light necessary to keep records, but this made the radar screens difficult to read. Operators' eyes got red and began to water after a few hours.

The new lighting system, believed to be the first of its kind, gives enough light for paper work, yet keeps the radar screens dark.

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range hope of utilizing solar energy lies in photo-electricity. Prof. Daniels expects man to be able to duplicate within a short time what the green leaf can do in storing up sunlight energy and do it with much higher efficiency.

Direct generation of electricity in transistor types of photovoltaic cells as recently announced appears very promising. Atomic energy will also add to the future source of world power, but man will have to learn to control radioactivity, just as he learned to control fire.

Prof. Daniels suggested that more emphasis should be placed on simplicity and low cost of nuclear reactors rather than on precision and perfection.

A plentiful supply of the chemicals obtained from petroleum that make plastics, dyes, paints, and synthetic fibers and films will be forthcoming in the next few years, W. G. Poland of the California Research Corporation, Richmond, Calif., told the scientists.

These products are based upon the family of organic acids known as the phthalic acids, which are now made from constituents of high octane gasolines called xylenes. Oil refineries are now geared to produce large quantities of these materials.

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NATURAL RESOURCES

Rush Described on Off-Shore Oil Deposits

► SINCE THE war there has been a rush on the rich oil deposits in the Gulf of Mexico, even though off-shore installations are more expensive than land operations.

In May, 1946, the first post-war exploration was started off the coast of Louisiana. Today over 500 wells have been drilled and 60 floating structures suck up the underwater "black gold." An average of 47,000 barrels of oil and condensate are drawn daily from over 260 producing wells.

The rush on the off-shore oil bears very little comparison to the great California gold rush. Gold prospectors went west with a pick, a shovel and a pan, but off-shore oil production is a million-dollar proposition.

The three main types of welling operations now being used are the platform and tender, the mobile platform or barge rig, and the self-contained platform. The last is the most expensive to install, but also the most economical to run.

The costs for a well of the three varieties, subtracting the cost of salvage, are \$768,000, \$520,000, and \$1,255,000, respectively.

Altogether, the states of Louisiana and Texas have sold leases on approximately 1,850,000 acres of off-shore area for about \$78,000,000.

The installations have to be rugged to stand up against rough weather. Hurricanes, however, are less troublesome than squalls and winter "northerners."

These facts were reported after a study by Dean A. McGee, president of Kerr-McGee Oil Industries, Inc.

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GENERAL SCIENCE

Foresee Enough Energy

► FUTURE GENERATIONS in the world will continue to have energy and raw materials, despite gloomy predictions to the contrary, it is evident from scientific reports at the American Association for the Advancement of Science meeting in Berkeley, Calif.

Evan Just, vice president of Cyprus Mines Corporation of New York, believes that no raw material shortage can be foreseen that will cramp our expanding world economy or endanger cultural progress.

Some minerals may be depleted eventually, even though supplies may be extended very far by discoveries of new deposits, new methods of utilization or by curbing waste. Nevertheless, Mr. Just finds that mineral materials may be considered practically inexhaustible.

An era of discovery of minerals by scientific prospectors is foreseen, similar to the

extraordinary result of oil explorations in recent years.

Oil, lead, zinc, copper, tin and the ferroalloys will last for hundreds of years for their essential uses. When they finally come to an end, they will be eliminated altogether in favor of materials of common rocks or ceramic materials.

So far as energy is concerned, Prof. Farrington Daniels of the University of Wisconsin predicted that utilization of solar energy by two methods will rescue the world from an energy death, even after the coal, petroleum and gas to which our present civilization is geared are exhausted within a short time. Prof. Daniels foresees that solar energy will compete with animal power and manpower in non-industrialized areas.

"The world needs a poor man's solar engine," Prof. Daniels said. The long-