

## GENERAL SCIENCE

# Resources for 300 Million

A rosy future with better food, housing, education, culture and recreation is painted for the 300 million population of the U.S. in the year 2000—By Watson Davis

► THE UNITED STATES population of more than 300 million in the year 2000 will live well.

There will be ample and better diets, better housing, more goods for people to use, more educational and cultural opportunities and more recreational facilities.

Projecting what will happen to America's future resources in the next four decades, a comprehensive survey by the Ford Foundation-supported Resources for the Future research organization, located in Washington, paints a rosy future for the United States. Severe temporary and regional shortages may develop, and agricultural surpluses are expected to persist for the next decade or two.

Land used by cities will double in the rest of the century and recreational areas will triple. Land for food and fiber crops will be adequate to meet increased needs with continuing improvement in crop yields.

To yield enough forest products at century's end, such as lumber, paper, pulp, etc., 300 million acres of forest would need to be added to the present 484 million acres of commercial forests. As this is considered impossible, multiple use of land is suggested, supplemented by substitutes and imports to supply the expected deficit.

Water will become an increasing problem, with severe shortages in the West and severe pollution in eastern U.S. More dams, reservoirs, desalinization and conservation will be needed in the West.

The total demand for energy will triple by 2000. Through the 1970's there will be little increase in cost with oil, natural gas and coal supplying as now, but at the century's end nuclear energy will rise in importance in electrical generation.

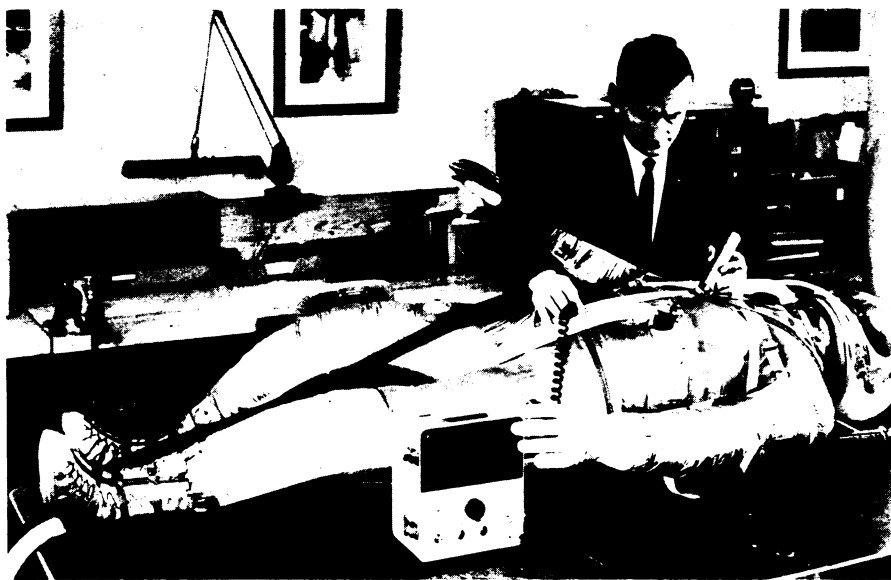
Need for major metals will grow faster than the population, with steel requirements increasing 200%, aluminum by 800%, and even lead need up 100%. The experts consider that domestic sources will not meet demands for more than a brief time at present costs.

The thousand page report was written during a five-year period by Drs. Hans H. Landsberg, Leonard L. Fischman and Joseph L. Fisher and is being published by Johns Hopkins Press.

The authors' main conclusions are:

"Vastly greater quantities of natural resources will be required in the future. Neither a long view of the past, nor current trends, nor our most careful estimates of future possibilities suggest any general running out of resources in this country during the remainder of this century or for a long time thereafter. The possibilities of using lower grades of raw material, of substituting plentiful materials for scarce ones, of getting more use out of given amounts, of importing some things from other countries, and of making multiple use of land and water resources seem to be sufficient guarantee against across-the-board shortage."

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Delcon Corporation

**LEAK DETECTOR**—An ultrasonic probe that picks up high frequency sounds heard only by dogs enables Project Mercury technician, Joe Schmitt, shown here, to detect leaks smaller in diameter than a human hair in the double space suit worn by U.S. astronauts.

## PSYCHIATRY

## Success Seen for Mental Health Program

► SUCCESS for President Kennedy's "bold new approach" to the nation's mental illness and mental retardation appears likely for at least two reasons.

One is the cooperation promised by the American Medical Association. The other is the fact that a number of communities throughout the country have already made a beginning on the modern approach to mental problems.

In California, San Mateo County and San Diego both have excellent community health centers. Fort Logan, Colo., has both day and night hospitals and an emergency walk-in psychiatric unit where suddenly ill persons may come in for immediate consultation and treatment. Illinois has begun six regional community health centers, and in New York State, especially in New York City areas, good programs are underway. Tennessee also has community health centers.

Research is being expanded in the numerous problems of mental retardation, as well as plans for better education and care of such patients. No longer are either mentally ill or retarded persons to be left in custodial care that so often has been totally inadequate and many times cruel.

Secretary of Health, Education and Welfare Celebrezze outlined details of the President's plan, first proposed in a special President's Message to Congress Feb. 5, before a House Commerce subcommittee.

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## GEOLOGY

## Search for Oil Aided By Benzene Traces

► BY DETECTING benzene in salty water underneath the earth's surface, scientists can tell if there is an oil field nearby.

Benzene, a colorless volatile liquid, is one of the compounds in the complex mixture of hydrocarbons that form petroleum. Since hydrocarbon is very soluble in water and does not evaporate easily, geologists can find it in large amounts. The concentration of the benzene hydrocarbons in salty water increases as an oil field is approached.

This method of oil prospecting was reported by William M. Zarrella of the Gulf Oil Corporation to the American Chemical Society at Los Angeles.

Benzene in the brine below the soil can be analyzed by two methods developed and patented by the Gulf Oil Corporation. One method involves extraction and ultraviolet absorption of benzene; the other uses gas chromatography to analyze the volatile gas.

Oil in the earth has often gone undetected even though it was just a few yards away from a drilled well.

The new method of benzene detection can eliminate this error. By testing samples of brine in one spot, geologists have found an oil field a mile and a half away.

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