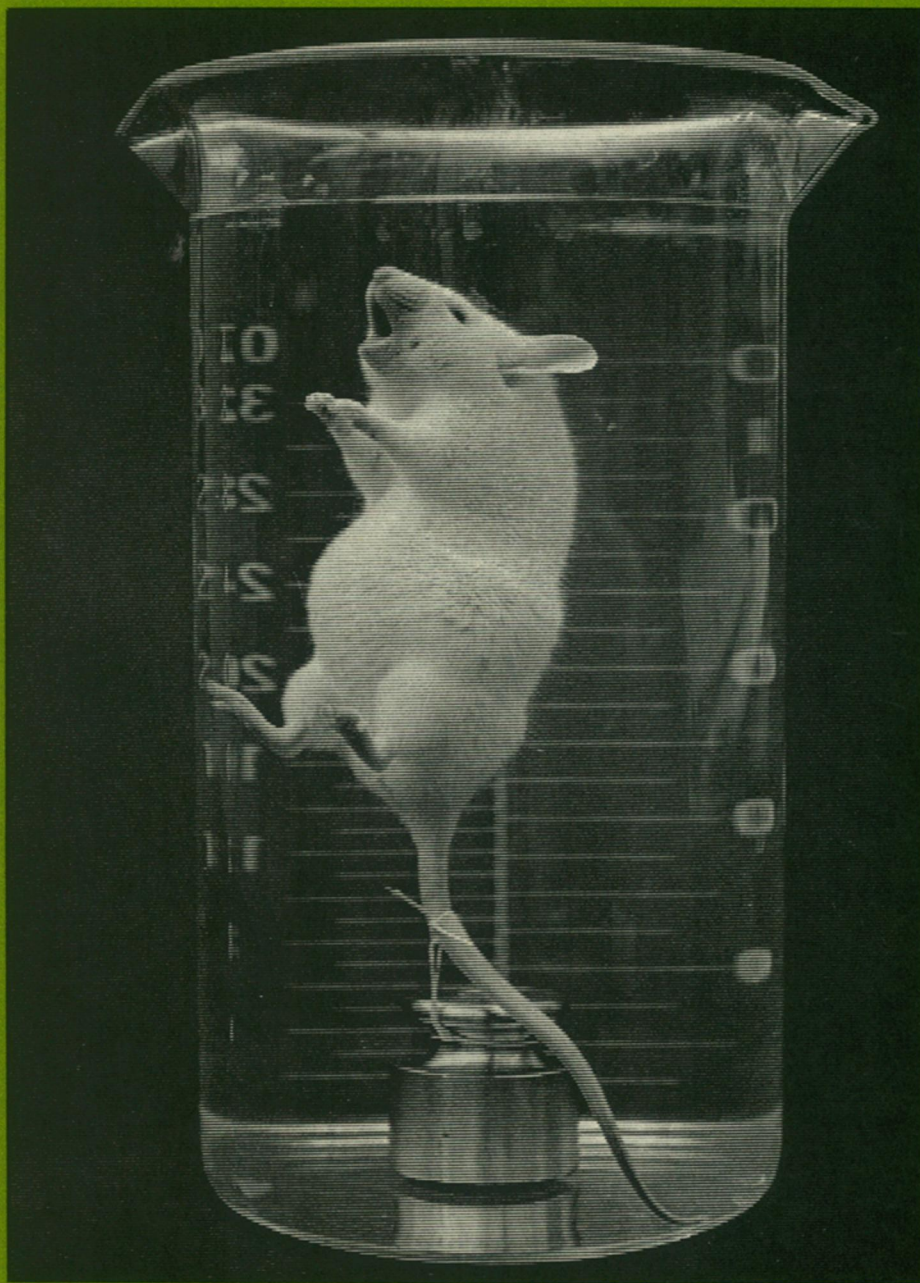


# science □ news

September 28, 1974  
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## Breathable Liquids

# Conversation Pieces

Technically intriguing items  
from TRW, guaranteed to add luster to your  
conversation and amaze your friends.

**Ob Say Can You See** Discussions about whether or not we should continue to "go into space" often overlook a fundamental point—namely, that we are in space already. Each of us is an astronaut on a spacecraft called earth traveling around the sun at 67,000 miles per hour. The biological community that lives on the spacecraft has a fragile life support system—the thin film of soil, air and water in which we dwell. During the past century, the number of passengers aboard the spacecraft has increased tremendously; so also has their ability to consume its finite supplies. We see some of the results in the pollution of our environment and the decay of our resources.

As astronauts we need to monitor our spacecraft to see that we are not doing irreparable damage to its life support system. NASA has undertaken several programs which involve the development of advanced sensors. From a satellite or aircraft, these sensors can monitor air quality, determine the condition of crops, or help locate mineral resources. Currently, TRW is developing such a sensor for NASA. It is called MOCS, an acronym for Multichannel Ocean Color Sensor.

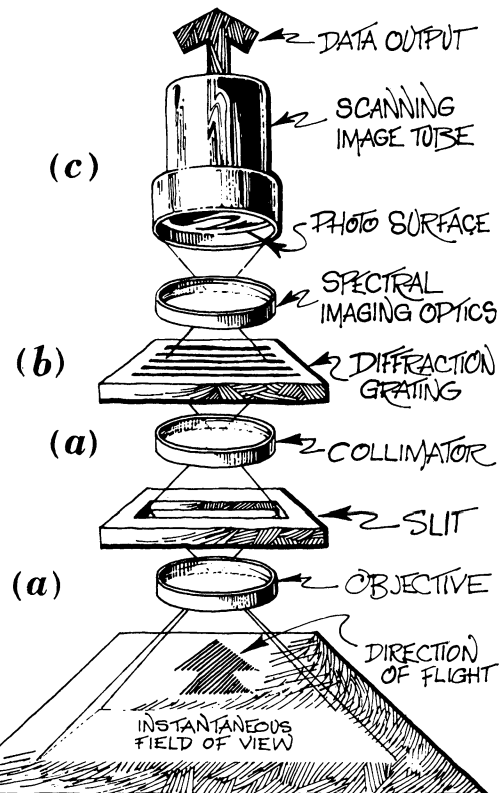
MOCS is based on the principle that sea water, plankton, and such pollutants as oil spills, sewage, and river sediments, all reflect light at different wavelengths and in varying proportions. MOCS measures these subtle differences with great sensitivity and better spectral resolution than any other available scanner. Its value lies in its ability to map the spread of pollutants as well as their effect on the chlorophyll content and other signs of health or sickness in the world's plankton beds. Only with a historical record based on hard facts, can all the arguments be settled as to whether ocean pollution has reached dangerous levels or not.

MOCS weighs less than 20 lbs., has no moving parts, and uses only 7½ watts of power. Yet it has produced some fascinating information about the spacecraft on which we live. Recently, for example, we tested MOCS by flying it in an aircraft at 37,000 feet over Clear Lake in California. MOCS showed that the lake teemed with sediments, algae growth, and foreign matter. In fact, the only thing clear about the lake was its ironic name.

We're happy to be associated with the excellent work NASA is doing in remote sensing. We hope that MOCS and other NASA sensors will help make spacecraft earth a habitable home for us all.

## The Multichannel Ocean Color Sensor

Lenses (a) focus light through a slit onto a diffraction grating (b) which separates the light into its spectral components. These are focused on a dissector tube (c) which shows spatial variations of light across the field of view in one direction and spectral variations in the other. The raster scan then gives an electronic signal proportional to the spectral radiance of each spectral band in each element across the field of view.



For further information, write on your company letterhead to:

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SYSTEMS GROUP

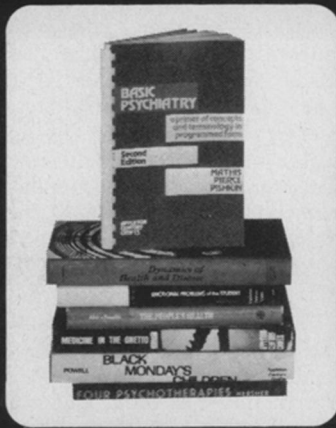
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# 7 books from APPLETON-CENTURY-CROFTS that put physical and mental health in perspective

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An introduction to the complex spectrum of human health and disease and the ways in which society organizes to deliver health care services. It is written for the reader with little or no background in the health sciences, and technical terms are defined at the bottom of each page. Physical, mental, social, and economic aspects of health care are discussed, and the volume is replete with historical and contemporary illustrations from all over the world.

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**By Gloria J. Powell**

In the frequent and often impassioned debates on the subject of school desegregation and busing, little attention has been paid to the effects various policies have on the children themselves. The author of this book has made an exhaustive study, by means of questionnaires, of the self-image of white and non-white students in both segregated and desegregated Southern schools. The results are fascinating, and often surprising, and highly significant.

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## BASIC PSYCHIATRY

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## EMOTIONAL PROBLEMS OF THE STUDENT

**By Graham B. Blaine, Jr., and Charles C. McArthur**

What are the paralyzing problems often facing college students? How can these problems be adequately treated before these young men and women are prevented from realizing their potential? This book attempts to answer these questions of vital importance to students and those working with them. The approach is both broad in scope and detailed in treatment. Some areas discussed are: Depression, Suicide, Dropouts, Studying, Foreign Languages, Drugs, and Graduate Studies.

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## THE PEOPLE'S HEALTH Anthropology and Medicine in a Navajo Community

**By John Adair and Kurt W. Deuschle**

One of the most important tasks facing medical educators attempting to bring health care to a remote and technologically underdeveloped community, be it domestic or foreign, is that of trying to bridge cultural gaps that often interfere with comprehension and performance. This book reports the work of a team of anthropologists and health professionals seeking to provide the most successful medical care by integrating it with the community structure and world outlook of a Navajo tribe.

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**Edited by John C. Norman**

One of the most heated issues of the day is how to bring adequate health care to everyone, including those individuals confined by social, economic, and cultural forces to isolation in the ghettos of our large, urban centers. Outstanding health care professionals, educators, community leaders, public officials, and journalists attempt to come to grips with the variety of problems afflicting health care delivery in the ghettos and describe plans and prospects for its improvement.

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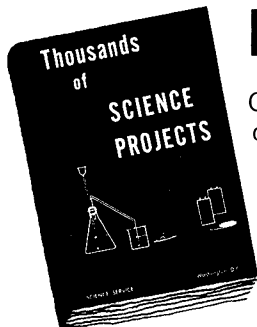
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local science fairs, the International Science and Engineering Fair, and the Westinghouse Science Talent Search. Some projects are so basic they have been done thousands of times. Some are largely original.

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## Advice to youth from a science fair judge:

Winning a prize is more satisfying than not winning.

Judges favor projects they understand.

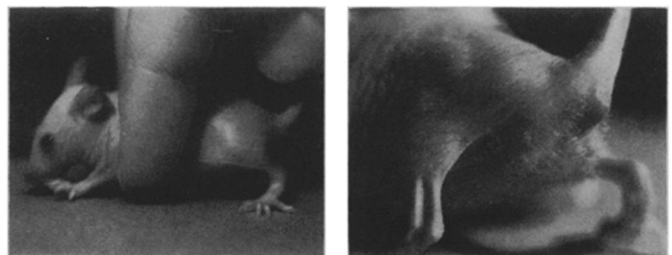
Even projects good enough to get all the way to the big International Science and Engineering Fair are not PhD theses. Those who judge a PhD thesis must be on top of all existing knowledge that directly locks into the missing piece the candidate offers. Not so for science fair judges. They may not be that sharply tuned to your topic and to your every word of written and spoken explanation. They have to move along to finish the judging.

Photography might get through to them. Not necessarily a dim little snapshot or two that mumbles in a dull tone, "The following apparatus was employed." That you may need anyway, but consider also a very short movie or a few stills that shout, "**HEY, LOOK! THIS IS WHAT YOU COULD HAVE SEEN!**" After that, the cold facts.

If you have some ideas of your own, our free package of photographic hints for science fair contestants may prove useful. Request it from Kodak, Dept. 841, Rochester, N.Y. 14650.



Any questions?



At the 1974 International Science and Engineering Fair, Theresa Tomilo of Comstock High, Kalamazoo, MI. showed with these pictures she had taken just how hairless a hairless mouse can be and what happened after injection with DNA extracted from embryonic cultures of haired strains. She walked off with prizes and honors from the U.S. Army, the U.S. Navy, and the American Dental Association, and a prize for photography from Eastman Kodak Company.

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