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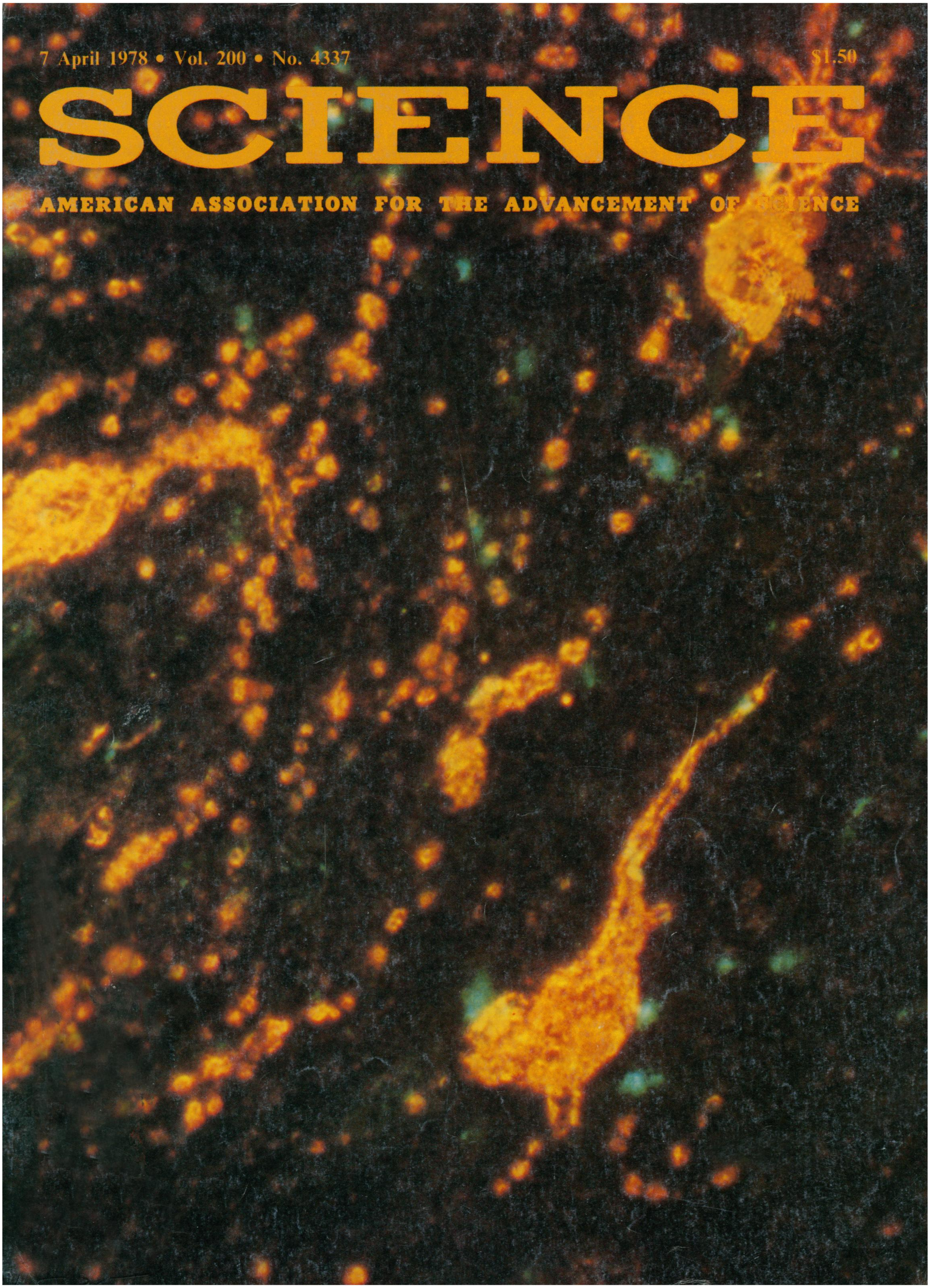
SCIENCE

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



Attention: **Hawaii, Alaska, Washington, Oregon, California, Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, and Maine**

As you are well aware, your states have a special asset and a special responsibility. You have seacoast. A lot of your coast or a crucial bit of it, as the case may be, is marshland. Once upon a time marsh (where ladies' and gentlemen's shoes get all muddy) was considered *ugh!* Since property values reflected this, well-meaning folk proceeded to upgrade their possessions. Thereby, as you have since learned, they downgraded your coast's ability to sustain the sea life without which the ocean is merely a wet, chilly, and dangerous waste of valuable space.

Now you are probably spending a fair amount to halt further deterioration. You have biologists surveying your coastal marshes and lawyers trying to back them up against continued destruction. Before there can be a master plan, it is necessary to ascertain where there is room for compromise and where compromise would be tragic. So your biologists spend much time in travel in order to take inventory.

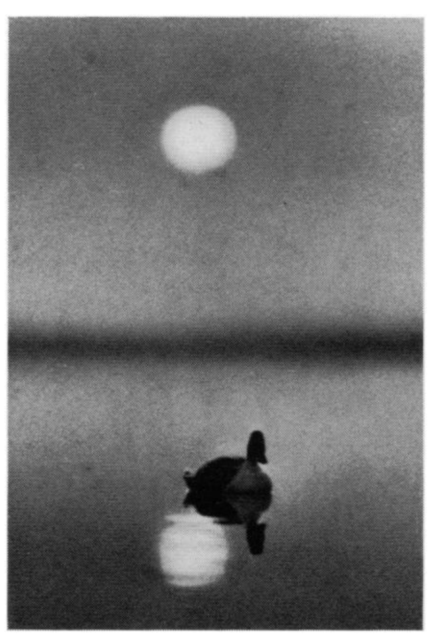
We have omitted South Carolina from the above roster because our purpose here is to call to the attention of the other coastal states how that state in two years for $65,000 has done as much inventorying of tidal wetlands as has cost four years and $1.2 million elsewhere.

South Carolina's method depends on the differences in color with which a certain Kodak aerial film renders different vegetative communities in accordance with their reflectivity into the near infrared. From a minimal amount of ground truth, aerial photography within an hour of low tide has proved right from 6,000 feet for distinguishing eight types of land. These are then entered on the topographic maps. Data are digitized for storage.

The name of the film is Kodak Aerochrome infrared film 2443.

More important to you, the name of one of the South Carolinians who would be proud to give colleagues in other states details on how they did it is Robert H. Dunlap, Jr. His address is Office of Conservation and Management, South Carolina Marine Resources Center, P.O. Box 12559, Charleston, S.C. 29412.

Kodak



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Simultaneous demonstration of catecholamines and neuropeptides-rhesus monkey supraoptic nucleus. A technique for the simultaneous demonstration of monoamines and neuropeptides was used to visualize catecholamine varicosities (blue) which appear to contact the soma and dendrites of a neurophysin-containing neuron (orange). The method is applicable to numerous neuropeptides, including GnRh, vasopressin, somatostatin, and others (about ×750). See page 72. [T. H. McNeill and J. R. Sladek, Jr., University of Rochester School of Medicine, Rochester, New York]

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SCIENCE

Organization of the Climate Program

A year ago the new Administration announced three general administrative policies that have affected scientific activities, especially in the environmental area. These policies are (i) to reverse the trend toward centralized, White House direction by emphasis on "cabinet government," (ii) to improve effectiveness by reorganizing agencies, and (iii) to reduce drastically the number of advisory and interagency coordinating bodies. There are valid reasons for each of these policies and they may be justified in most areas of government; but in the scientific area they have negative consequences.

Departments now make high-level appointments of science administrators without direct involvement of the director of the Office of Science and Technology Policy (OSTP) (the President's science adviser). The OSTP staff, never large, has been reduced, and the range of its activities and responsibilities has been further limited. Committees of the former Federal Coordinating Council for Science, Engineering, and Technology have been allowed to expire. Perhaps most important, the tendency of individuals to think in line with narrow agency interests rather than broader national objectives, which has always been strong, has been further strengthened.

The costs of these new policies are likely to be greatest in fields in which activities are spread over many agencies. For example, atmospheric research is carried on by ten or more agencies having a wide range of missions. Agency budgets tend to be focused on objectives within the mission and reach of the agency, while broader national objectives often lose out in the grinding of the budget process. Scientific leadership and manpower are dispersed throughout the academic and industrial communities, as well as through the various agency laboratories and centers. Under these circumstances, major programs in support of broad national objectives, such as the Global Atmospheric Research Program, have been possible only through the joint efforts of several government agencies together with the nongovernmental scientific community.

The U.S. Climate Program is an especially complex interagency program whose organization is at a critical stage. It addresses the problem of anticipating and reducing the impacts of climate change on society, it has been planned with participation by the nongovernmental community, and it is responsive to the interests of Congress as well as the agencies. As the Climate Program is developed problems of coordination and management must be anticipated, and as results are obtained vital national policy decisions affecting food production, energy, and land use will be called for. Unfortunately, the new Administration policies make it more difficult to develop the necessary structures for handling these problems.

The Climate Program cannot be developed within a single agency, no matter what plan emerges from the present reorganization study, and the academic community and users of climate information must be active partners in the Program. To ensure that there will be a clear channel to levels where policy decisions can be reached and agency conflicts resolved, responsibility for policy guidance and oversight should be centered in the Executive Office of the President. Some imaginative innovation might be productive at this point. For example, a joint government-nongovernment Climate Commission could provide the necessary expertise and breadth of view. The Commission could be the focus for consideration of major policy issues. It would take on many of the responsibilities of the National Academy of Sciences Climate Research Board, but in addition it would be directly responsible for making policy recommendations to the Executive Office.

—ROBERT G. FLEAGLE,* *Department of Atmospheric Sciences, University of Washington, Seattle 98195*

*On leave in 1977–1978 at the National Oceanic and Atmospheric Administration, Rockville, Maryland 20852. This editorial is based on a paper delivered at the meeting of the American Meteorological Society, Savannah, Georgia, 30 January 1978.

RESEARCH NEWS

(Continued from page 38)

a small resistive mantle drag force and a ridge push that is about the same size as the net pull from trenches. They reached these conclusions by constructing a mathematical model relating plate driving forces to plate stress. In much the same way that the combination of plate forces had been adjusted to fit observed plate motion in other models, they adjusted the relative sizes of the forces until the stress distribution generated by the model most closely resembled that observed.

Although the presence of compressional stress in the plates is often cited as evidence against the importance of slab pull, Forsyth and Uyeda believe that their model is generally consistent with current stress data. This is possible, they say, because the net pull from the trenches is small. Although ridge push is small and is counteracted by a number of smaller opposing resistances in the system, it is still able to compress the plates, they say.

The situation may be more complicated than even these multiple force models indicate. Turcotte has suggested several other possible sources of stress in addition to the forces driving the plates. He believes that these stresses may be induced by the cooling of newly created plates, the nonspherical shape of the earth, or changes in the weight of plates because of erosion and sedimentation.

Additional kinds of geophysical evidence bearing on the question of what drives the plates may be accessible to current survey techniques. Patterns of mantle convection should depend on how the mantle interacts with the plates above it. Such patterns may be detectable as patterns of gravity, heat flow, and crustal elevation variations over oceanic plates. Combining the latter two types of data, Kevin Furlong and David Chapman of the University of Utah have found what they consider to be a strong suggestion of long, longitudinal convection cells in the central and eastern Pacific. Chapman points out that, although their interpretation is debatable, he believes that it tends to argue against the plates being driven by the mantle.

Current data are obviously not decisive, but they are expected to improve in quantity and quality. Modeling of historical plate behavior, refinement of global geophysical surveys, and extension of plate stress measurements will continue, but, as Forsyth puts it, "No one is willing at this time to stake a reputation on what drives the plates."

—RICHARD A. KERR

BOOKS RECEIVED

(Continued from page 43)

How to Use a Pocket Calculator. A Guide for Students and Teachers. Henry Mullish. Arco, New York, 1977. 192 pp., illus. Cloth, $8.95; paper, $3.95.

The Human Brain. M. C. Wittrock with seven others. Prentice-Hall, Englewood Cliffs, N.J., 1977. xiv, 214 pp., illus. Cloth, $8.95; paper, $3.95.

Hydraulic Behaviour of Estuaries. D. M. McDowell and B. A. O'Connor. Halsted (Wiley), New York, 1977. viii, 292 pp., illus. $27.50.

Image Formation and Cognition. Mardi Jon Horowitz. Appleton-Century-Crofts, New York, ed. 2, 1978. xviii, 398 pp., illus. $18.95.

In Small Things Forgotten. The Archeology of Early American Life. James Deetz. Drawings by Charles Cann. Anchor/Doubleday, Garden City, N.Y., 1977. x, 184 pp., illus. Paper, $2.50.

In the Deserts of This Earth. Uwe George. Translated from the German edition (Hamburg, 1976) by Richard and Clara Winston. Harcourt Brace Jovanovich, New York, 1977. viii, 310 pp., illus. + plates. $14.95. A Helen and Kurt Wolff Book.

Introduction to the Mathematics of Inversion in Remote Sensing and Indirect Measurements. S. Twomey. Elsevier, New York, 1977. x, 244 pp., illus. $65. Developments in Geomathematics 3.

Issues in Cross-Cultural Research. Proceedings of a conference, New York City, Oct. 1975. Leonore Loeb Adler, Ed. New York Academy of Sciences, New York, 1977. vi, 754 pp., illus. Paper, $42. Annals of the New York Academy of Sciences, vol. 285.

Language and Mental Development. Pierre Oléron. Translated from the French edition by Raymond P. Lorion. Erlbaum, Hillsdale, N.J., 1977 (distributor, Halsted [Wiley], New York). x, 182 pp. $16.50.

Microbial Ecology. R. Campbell. Halsted (Wiley), New York, 1977. vi, 148 pp., illus. Paper, $9.75. Basic Microbiology, vol. 5.

Mountain Monarchs. Wild Sheep and Goats of the Himalaya. George B. Schaller. University of Chicago Press, Chicago, 1977. xviii, 426 pp., illus. + plates. $25. Wildlife Behavior and Ecology.

Panic in the Pantry. Food Facts, Fads and Fallacies. Elizabeth M. Whelan and Fredrick J. Stare. Atheneum, New York, 1977. xxii, 232 pp., illus. Paper, $3.95. Reprint of the 1975 edition.

Paradox. The Case for the Extraterrestrial Origin of Man. John Philip Cohane. Crown, New York, 1977. x, 182 pp., illus. $10.

The Perceptual World of the Child. T. G. R. Bower. Harvard University Press, Cambridge, Mass., 1977. vi, 90 pp., illus. Cloth, $6.95; paper, $2.95. The Developing Child.

Perspectives on Social Psychology. Clyde Hendrick, Ed. Erlbaum, Hillsdale, N.J., 1977 (distributor, Halsted [Wiley], New York). vi, 362 pp., illus. $19.95.

Rocketship. An Incredible Voyage through Science Fiction and Science Fact. Robert Malone with J. C. Suarès. William E. Maloney, Ed. Harper and Row, New York, 1977. 128 pp., illus. Paper, $6.95.

Scleractinia of Eastern Australia. Part I, Families Thammasteriidae, Astrocoeniidae, Pocilloporidae. J. E. N. Veron and Michel Pichon. Australian Institute of Marine Science, Townsville, Queensland, 1976. vi, 86 pp., illus. + plates. Paper, A$4.70. Australian Institute of Marine Science Monograph Series, vol. 1.