

# SCIENCE NEWS

The Weekly Newsmagazine of Science

A Science Service Publication  
Volume 124, No. 12, September 17, 1983

E. G. Sherburne Jr. Publisher  
Joel Greenberg Editor  
Dietrick E. Thomsen Senior Editor/  
Physical Sciences  
Joanne Silberner Managing Editor  
Judy Klein Production/Design  
Director  
Wray Herbert Behavioral Sciences  
Joan Arehart-Treichel Biomedicine  
Linda Garmon Chemistry  
Cheryl Simon Earth Sciences  
Julie Ann Miller Life Sciences  
Janet Raloff, Policy/Technology  
Ivars Peterson  
Jonathan Eberhart Space Sciences  
Wendy McCarren Assistant to the  
Editor  
Sarah Steinberg Science Writer Intern  
Jane M. Livermore Books  
Donald R. Harless Business Manager

Scherago Associates Advertising  
Fred Dieffenbach, Sales Director  
1515 Broadway, New York, N.Y. 10036

Copyright © 1983 by Science Service, Inc.,  
Editorial and Business Offices,  
1719 N St., N.W., Washington, D.C. 20036.  
Republication of any portion of SCIENCE NEWS  
without written permission of the publisher is  
prohibited.

Subscription Department  
231 West Center Street, Marion, Ohio 43302

Subscription rate: 1 yr., \$27.50; 2 yrs., \$47.50; 3  
yrs., \$67.00. (Foreign postage \$5.00 additional per  
year.) Change of address: Four to six weeks' notice  
is required. Please state exactly how magazine is to  
be addressed. Include zip code. For new  
subscriptions only call (1) 800-247-2160. Printed in  
U.S.A. Second class postage paid at Washington,  
D.C. Title registered as trademark U.S. and Canadian  
Patent Offices. Published every Saturday by  
SCIENCE SERVICE, Inc. 1719 N St., N.W.,  
Washington, D.C. 20036. (202-785-2255)  
ISSN 0036-8423

## Letters

### Visual and emotional health

There is an interesting corollary to your report of Flach and Kaplan's finding of grossly high incidence of visual defects among the mentally ill (SN: 8/20/83, p. 126). If we could correct all cases of visual defects before they had much chance to create emotional problems, we would reduce the incidence of mental illness.

Those who have not lived through years of an uncorrected visual defect cannot imagine the damage it can do. In sports you are a boob, an all-round failure, the player neither team wants. ... In school you are judged dumb because you read the fuzzy writing on the blackboard haltingly and with much error if you can read it at all. In social situations you cannot read faces either to recognize people or to see nonverbal responses. The poor-sighted can carry a heavy burden of failures, reproaches and poor ability to participate. Glasses help, of course, but they do not bring back lost development opportu-

## This Week

- 180 Alcoholics' Odd Blood Suggests Genetic Disease
- 180 Test-tube toroids and other chemical waves
- 181 Natural Mars laser: A beacon for SETI?
- 181 The Russians are not coming — to Beams '83
- 182 How emotions affect involuntary nerves
- 182 Global study probes lower atmosphere dynamics, composition
- 183 Getting to the core of the TMI accident
- 183 A plan for improving science education
- 183 Antelope horns: Female perspective?

## Research Notes

- 186 Chemistry
- 187 Behavior
- 187 Science & Society

## Articles

- 188 Forgotten Dreams
- 189 The Dirty Face of Coal

Cover: Translucent, thin sections of coal, observed under a microscope, show striking natural colors. In one example, the cellular structure of woody tissue is clearly visible, while the other sample reveals traces of spores (yellow) and other plant material (reddish). At the molecular level, however, coal's structure is poorly understood, partly because the composition of coal can vary greatly. (Photos: Bureau of Mines)



## Departments

- 178 Science on the Air
- 178 Books
- 179 Letters
- 190 Commentary

Science Service Institution for the public understanding of science founded 1921; a nonprofit corporation.

Board of Trustees — President, Glenn T. Seaborg; Vice President, Gerald F. Tape; Treasurer, Willis Harlow Shapley; Secretary, Julius Duscha; Joseph W. Berg Jr.; Edward Bliss Jr.; Bowen C. Dees; David A. Goslin; Milton Harris; Hilleary F. Hoskinson; Elizabeth F. Neufeld; O.W. Riegel; H. Guyford Stever; John Troan; Deborah P. Wolfe.

Director: E. G. Sherburne Jr.; Assistant Director: Dorothy Schriver; Business Manager: Donald R. Harless.

## Brain power and evolution

The article about Wilson, Kunkel and Wyles ("The brain's behind evolution's drive," SN: 8/13/83, p. 101), reminded me of an earlier theoretical work which might help further develop these ideas. Lancelot Law Whyte, in his "Internal Factors in Evolution" (Braziller, 1965), summarizes his argument thus: "1. Organisms are highly coordinated structures. 2. Only certain avenues of change are compatible with their conditions of coordination. 3. The formative and selective action of these internal conditions is theoretically and empirically different from that of Darwinian selection. 4. Mutations in the mode of coordination of the genetic system lie outside the scope of the classical arguments purporting to show that natural selection is the only directive agency. 5. The coordinative conditions constitute a second directive agency."

Considering behavior as an internal factor may allow Whyte's systematic perspective, conclusions, and questions to enrich this debate.

E. Todd Waymon  
Silver Spring, Md.

nity nor do they automatically cancel habits developed in response to visual problems. It comes as no surprise that visual defect is a major, likely causative factor in mental illness.

Volney Wallace  
Dugway, Utah

## Methane economy

I disagree with a conclusion expressed by Messrs. Stevens and Brodie in regard to farmers purchasing methane digesters for generating electricity ("Dung power and milk-warmed water," SN: 7/30/83, p. 74).

They stated that if 10 years of energy savings were less than the cost of the equipment then it would not make "economic sense." This analysis fails to include the capital value of the purchased equipment. If the annual energy savings divided by cost of the purchased equipment is greater than the farmer's average return on investment, then the purchase would make sense.

Allen Arata  
Hawthorne, Calif.

SEPTEMBER 17, 1983

179