

# science news<sup>®</sup> to the editor

A Science Service Publication  
Vol. 103/March 10, 1973/No. 10  
Incorporating Science News Letter

## OF THE WEEK

|                                |     |
|--------------------------------|-----|
| conflict over cloud seeding    | 148 |
| kitt peak's 158-inch telescope | 149 |
| saturn's rings probed by radar | 149 |
| insights into pku              | 150 |
| nutrition news briefs          | 150 |
| endangered species agreement   | 151 |
| instant islands from agnes     | 151 |

## NOTES

|                     |     |
|---------------------|-----|
| behavioral sciences | 152 |
| earth sciences      | 152 |
| astronomy           | 154 |
| natural sciences    | 154 |

## ARTICLES

|                 |     |
|-----------------|-----|
| solar neutrinos | 155 |
| water on mars   | 156 |

## DEPARTMENTS

|         |     |
|---------|-----|
| books   | 146 |
| letters | 147 |
| films   | 159 |

**COVER:** Huge volcanoes on Mars, like Nix Olympica, can emit water vapor. There is strong evidence that channels on Mars were cut by large flows of water at some time in the past. Scientists are trying to explain where the water could be now, how Mars evolved before and since, and what it might all mean to the possibility of finding life. See p. 156. (Photo: NASA/Mariner 9)

|                                |  |
|--------------------------------|--|
| <b>Publisher</b>               | E. G. Sherburne Jr.  |
| <b>Editor</b>                  | Kendrick Frazier   |
| <b>Aerospace</b>               | Everly Driscoll  |
| <b>Behavioral Sciences</b>     | Robert J. Trotter  |
| <b>Medical Sciences</b>        | Joan Arehart-Treichel  |
| <b>Natural Sciences</b>        | Jonathan Eberhart  |
| <b>Physical Sciences</b>       | Dietrick E. Thomsen  |
| <b>Science and Society</b>     | John H. Douglas  |
| <b>Copy Editor</b>             | Nadine Clement   |
| <b>Assistant to the Editor</b> | Esther Gilgoff   |
| <b>Production Manager</b>      | David A. Daemon  |
| <b>Books</b>                   | Margit Friedrich   |
| <b>Circulation Manager</b>     | Lawrence Cope  |
| <b>Advertising</b>             | Scherago Associates, Inc.<br>11 W. 42nd St., New York, N.Y. 10036<br>Fred W. Dieffenbach<br>Sales Director |

Copyright © 1973 by Science Service, Inc., 1719 N. St., N.W., Washington, D.C. 20036. Republication of any portion of SCIENCE NEWS is strictly prohibited.

Subscription Department  
231 West Center Street  
Marion, Ohio 43302

Subscription rate: 1 yr., \$10; 2 yrs., \$18; 3 yrs., \$25. (Add \$2 a year for Canada and Mexico, \$3 for all other countries.) Change of address: Four to six weeks' notice is required. Please state exactly how magazine is to be addressed. Include zip code.

Printed in U.S.A. Second class postage paid at Washington, D.C. Established as Science News Letter® in mimeograph form March 13, 1922. 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). Cable SCIENSERV.

march 10, 1973

## Classical black holes

"Newtonian black holes," letter from Elliott Krefetz (SN: 2/17/73, p. 99).

The "prediction" of black holes by a combination of classical gravitational theory and special relativity referred to by Krefetz is quite erroneous. I am not arguing here about the intrinsic doubt that surrounds such a mixed theory (which Krefetz intimates), but rather the neglect of the gravitational effect of the kinetic energy, which would at least be expected qualitatively. If, for example, one were to say in such a theory that the change in mass-energy,  $c^2 dm$ , is to be equated to the work done against the gravitational force, and one allows the mass to vary as it does in special relativity, then  $c^2 dm = -GmMdr/r^2$ . Integrating and putting in the limits  $m$  and  $m_0$  corresponding to the limits  $r = R$  and  $r = \infty$  respectively, one obtains  $m = m_0 \exp(+GM/c^2 R)$ .

This expression merely predicts that as the radius  $R$  of the massive body  $M$  becomes exceedingly small, the mass  $m$  of the projectile becomes very large. This is achieved in special relativity by allowing the escape velocity to approach the speed of light (not to exceed it), the limit occurring at  $R = 0$ . Thus no black hole is predicted.

It is preferable to say that the apparent connection between the classical escape velocity and the Schwarzschild radius is purely accidental. Setting  $v = c$  is just a mnemonic for obtaining the radius.

C. W. Tittle  
Department of Physics  
Southern Methodist University  
Dallas, Tex.

**Krefetz's** involvement of special relativity on why escape is impossible from a body with a  $c$ -plus escape velocity is totally misleading. Escape would be impossible strictly on a Newtonian basis, since a photon would not exceed the body's escape velocity.

William T. Thomas Jr.  
President, Thomas Optical  
and Physical Laboratory  
Daytona Beach, Fla.

## Unscientific scientists

"Life's dependence on earth's ultraviolet screen" (SN: 2/17/73, p. 101) shows some very unscientific traits of people I would expect to be rigorous scientists.

Harold Johnston suggested that nitrogen

oxides from SST exhaust could catalyze destruction of the atmosphere's ozone layer.

Why did the National Academy of Sciences set up a panel to investigate possible effects of increased ultraviolet radiation? Why didn't they set up a panel to find if SST exhaust would change the ozone layer?

Harold Johnston told SCIENCE NEWS, "... We still don't know how much that would change the ozone."

This suggestion of change of the ozone was used to stop development of the SST. It seems very unscientific not to build the experimental models of the SST and make some tests to find the results.

James F. Jackson  
Carlisle, Ind.

## 'Knowledge for its own sake'

The article "Science dissenters and social policy makers" (SN: 1/6/73, p. 5) deserves some added comment.

Many fields are being plagued with "egalitarian" protesters of a self-appointed nature nowadays. These include some who wish to invade the spotlight of science without going through the rigors of the scientific curriculum necessary to be a qualified, contributing member of the society. Their logic often also entails lack of such fundamental bases. Unfortunately, included in fellow-travelers of this group, are a number of unscientific scientists whose political bias permits them to adopt a position which would invoke *tyranny* upon other scientists, if not all of science.

When the scientist is not able to choose his own field, or work, as in a free society, and when a "democratic" vote of the radically biased element determines scientific policy, we have achieved the ultimate in illogic. Some of the uninformed attack all of science with the generalizations inherent in racism, and take up the time of the vital scientific virtuoso with back-fence drivel, as though all science was funded with public funds, or they were ultimate authorities in all fields.

"Knowledge for its own sake" is one of the important tenets of research and of science in general. The scientist can best serve humanity by maintaining necessary aloofness from logic-binding gasconading, nonsense peddlers.

E. J. Schoneberger  
Research Scientist  
Los Angeles, Calif.

Address communications to Editor,  
Science News, 1719 N Street, N.W.  
Washington, D. C. 20036

## SCIENCE SERVICE

Institution for the Popularization of Science founded 1921; a nonprofit corporation

**Board of Trustees**—Nominated by the AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE: **Bowen C. Dees**, The Franklin Institute; **Athelstan Spilhaus**, Woodrow Wilson International Center for Scholars; **Deborah Partridge Wolfe**, Queens College. Nominated by the NATIONAL ACADEMY OF SCIENCES: **Gerald F. Tape**, Associated Universities; **Allen V. Astin**, National Bureau of Standards; **Frederick Seitz**, Rockefeller University. Nominated by the NATIONAL RESEARCH COUNCIL: **Gerald Holton**, Harvard University; **Jacob Rabinow**, National Bureau of Standards; **Glenn T. Seaborg** (President), University of California at Berkeley. Nominated by the JOURNALISTIC PROFESSION: **Norman Cousins**, "World"; **Julius Duscha**, Washington Journalism Center; **O. W. Riegel** (Secretary), Washington and Lee University. Nominated by the E. W. SCRIPPS TRUST: **Milton Harris** (Treasurer), Washington, D.C.; **Edward W. Scripps II** (Vice President and Chairman of the Executive Committee), Edward W. Scripps Trust; **John Troan**, Pittsburgh Press.

Director: E. G. Sherburne Jr.; Assistant Director: Dorothy Schriver; Business Manager: Donald R. Harless; Things of Science: Ruby Yoshioka.

147