SCIENCE NEWS®
A Science Service Publication
Vol. 116/July 28, 1979/No. 4

COVER: This is a model of the 10-meter telescope that astronomers of the University of California would like to build. Will they convince supporters that the operation is necessary? Will the operation be a success? Will astronomy survive? Tune to page 76. (Photo: Lick Observatory)

Editorial and Business Offices
1719 N Street, N.W.
Washington, D.C. 20036

Subscription Department
231 West Center Street
Marion, Ohio 43302

Subscription rate: 1 yr., $15.50; 2 yrs., $27.00; 3 yrs., $37.50 (Add $3 a year for Canada and Mexico, $4 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. 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) TWX 710-822-9433 SCIEN NEWS. ISSN 0036-8423

LETTERS

Proposal for breakeven

I have followed the progress of the two branches of fusion research reported in SCIENCE NEWS and elsewhere. Researchers report improvements in inertial and magnetic containment, but are still far away from breakeven. Are we missing an approach to inertial containment that may prove fruitful?

Consider two storage rings of tritium intersecting at a reaction chamber (like Stanford's intersecting beam accelerator). The reaction would be continuous (a requirement for commercial power generation). I feel an intuitive energy saving would result from substituting one-dimensional inertial containment for the present three-dimensional approach.

I would be interested in any analytical or economic merit inherent in this approach.

Robert C. States
Cambridge, Mass.

(Ideas of this sort have been proposed, generally using a multiplicity of intersecting paths instead of just two [e.g. Bogdan Maglic's migma cell (SN: 6/16/73, p. 392)]. The problems with using directed collisions of accelerated ions for fusion is that the beam density and focusing would not provide sufficient fusion rates to be practical. Acceleration is also costly in both capital and electricity. It still seems better to most physicists to seek random collisions in a thermal plasma or imploded pellet, hoping to achieve a density high enough to get a breakeven fusion rate. Breakeven will depend ultimately on the density of fusible particles available, and a colliding beam apparatus starts from a much lower level than a plasma or a pellet. —Ed.)

Subtle competition

I am pleased to see the energetic effort the Smithsonian Museum of Natural History has made on their new exhibit "The Dynamics of Evolution" (SN: 7/7/79, p. 10). However, I would like to point out a questionable exhibit that was reported.

A photograph of one of the exhibits showed two male antelopes (sic) locked in an embittered battle. The caption read, "In the clash for reproductive success, the strongest survive to pass on their genes." This statement is reminiscent of the "tooth and claw" perception of evolution the neo-Darwinists had, that survived to some degree until recently. Recent popular books like *The Selfish Gene* by Richard Dawkins (Oxford U. Press, 1976) and *Sociobiology: The New Synthesis* by Edward O. Wilson (Harvard U. Press, 1975) have attacked the traditional view of evolution.

Instead of the "survival of the species" view, the new view suggests that the individual of a species has many "allegiances" — to himself, to his family, to his tribe, etc. — that may contradict each other. If this is true, competition should be subtle, the "weak" individual should have more of a chance at reproduction than previously predicted.

In practice, this sociobiological theory seems to hold up pretty well. When animals fight, there are deciding factors besides strength. For instance, the holding of territory may enhance an individual's fighting ability. Furthermore, often competition between males for mating privileges has more to do with who has the largest horns, the most colorful tail, the spectacular leap, etc., all of which do not necessarily have to do with strength.

While I have this criticism, I highly admire the Smithsonian's effort, and hope to see other museums follow suit in the future.

Josh Levitt
Philadelphia, Pa.

Mistaken identity

In "Everywhere a black hole" (SN: 7/7/79, p. 2), there seems to be a glaring inconsistency.

Cassiopeia A, which is a remnant of a supernova, is 9,000 light years away from our time reference. That which we see today, either by light or X-ray, happened 9,000 years ago. Therefore, extrapolation, in reverse, of the visible rate of expansion of gas from the supernova, to arrive at a starting date, in our time reference stated as being in the late 17th century, is impossible. It could have happened 9,310 or 20 years ago. As a consequence, no earthly recorded history exists.

Harry M. Green
Greenville, S.C.

For me, astronomy is only a hobby. I like to look at planets, stars and galaxies with my telescope. I like to read everything on the subject, especially about black holes and Cassiopeia A.

"Everywhere a black hole" points out that a supernova should have happened in the late 17th century and that it was never recorded. From my source, Cassiopeia A exploded in 1572; it increased in magnitude until it was bright as Venus and could be seen in daylight. Within two years it faded from view.

If it was never recorded, how do I know about it?

Doug Edwards
Cliffwood Beach, N.J.

(The spectacular explosion that was observed in 1572 was not Cas A but rather Tycho's supernova, named after its discoverer, the Danish astronomer Tycho Brahe. Like Cas A, it is now a shell of expanding gas in the constellation Cassiopeia, but larger and dimmer. To observers on earth, the supernova explosion that gave rise to Cas A "took place" in the late 17th century. If visible, it would have been first seen then. The actual explosion occurred 9,000 years earlier, the time it takes light to travel from Cas A. —Ed.)