SCIENCE NEWS
A Science Service Publication
Volume 120/August 1, 1981/No. 5

COVER: Attempts to extend the vigorous and productive years of life first require means to monitor the aging process. At a recent meeting scientists discussed characteristics ranging from biochemistry to behavior that might be useful markers of aging in clinical and animal studies. See p. 74. (Photo: National Institute on Aging)

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231 West Center Street, Marion, Ohio 43302

Subscription rate: 1 yr., $19.50; 2 yrs., $34.00; 3 yrs., $47.50 (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. 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

Dirac clarification

I enjoyed reading your excellent article on the Dirac conference (SN: 6/20/81, p. 397).

I am particularly gratified that you chose to mention my presentation. Unfortunately, either because I had not made myself completely clear, or because space limitations demanded drastic condensation, I feel that my tribute to Dirac has not been accurately presented.

At the conclusion of my talk, I tried to make two points: (1) Mach's principle strongly motivated Einstein's work on general relativity. Even though Einstein's final theory does not incorporate Mach's principle, Mach's inspirational role should not be overlooked. Dirac's Large Numbers Hypothesis can be the inspiration for future theorists, just as Mach's principle had been for Einstein. (2) We have attempted to understand the Large Numbers Hypothesis, particularly the variation of the gravitational constant, in terms of a unified theory of fields. But this is a very conventional viewpoint. Dirac may have something much more profound in mind. Many physicists do not consider the Large Numbers Hypothesis a fundamental hypothesis. This is only because they are used to thinking in terms of local differential laws such as the unified field theories. Dirac's Large Numbers Hypothesis may be a pioneering example of global laws of physics. By considering the universe as a whole, we can gain a better understanding of "fundamental" interactions.

S.-H. Hsieh
Pittsburgh, Pa.

Your articles on P. A. M. Dirac and his work are excellent. They would have been more exhaustive if you had mentioned one of his other "failures": magnetic monopoles. The paper in which he postulated their existence is an example of exactness, simplicity and economy of thought.

Your introductory paragraph lists the names of the physicists who have built modern science. It would have been fair to include the name of L. de Broglie. Of the founders of quantum mechanics, only de Broglie and Dirac are still living. Like Dirac, de Broglie is a loner and has an eye for beauty. However, being older, he is now less active than Dirac is.

Guy Faucher
Montreal, Quebec

I have, for some time, been an avid reader of your magazine, but the issue on Prof. Dirac was particularly moving. I have been an admirer of Prof. Dirac for many years and his kind mention of our work here at the University of Texas is something we will cherish.

E.C.G. Sudarshan
Austin, Tex.

Dream debate debate

The "Dream Debate" (SN: 6/13/81, p. 378) discussants missed a vital point. It appears at present that physiology and psychology are in series, not parallel, as causes of dreams. Does an apple fall off a table because it is on the edge of the table or because of the law of gravity? Both are necessary for the apple to fall, and presumably for the dream to occur.

We know that dreams have physiological components as all animal behavior does. We know that dreams show psychological responses because distressing dreams follow highly painful experiences. There are other correlates between personal events and dream content.

The burden of proof would be on the physiologists to explain dream content in every detail to rule out the evident possibility that the dream is related to the psychological state of the dreamer.

Harrington V. Ingham, M.D.
Los Angeles, Calif.

Ignorance is not paranoia

I and my whole family enjoy your magazine very much. The latest issue, however, contains an article ("Ignorance is paranoia" SN: 7/11/81, p. 24) that I question. My two (or perhaps one) cents worth follows.

Visual and aural recognition are an isolated pair until additional recognition provides a relationship between the two. If the relationship between visual and aural senses is made to exist in an unrecognizable form through a loss of hearing, then a new pattern of relationships must be learned. The only alternative is to create imaginary facts in order to "explain" recognition errors in terms relating to changes in the "external world," thus regaining a sense of coherency with respect to sensory input. This latter option is contrary to survival since it establishes false data relationships through imaginary operators. This choice is in the direction of paranoia. It is a defective (contrary to survival) mental process that tends to produce complex explanations and evaluations of experience. Part of the complexity comes from the necessary "justification" process which attempts to render the revised explanations or evaluations coherent in the face of prior personal history (memory).

On the other hand, survival demands that the new limits of hearing be learned; an entirely new "map" of visual and aural relationships must be learned from experience. A shift in operation toward a more basic process of definition clearly indicates an attempt to re-group; a stripping of the chrome-plated accessories in order to get down to an operable level where a failure of an unknown extent can be dealt with, in terms more relevant to basic survival. The "evaluative language" used by such a person will most certainly reflect a transition to a more basic level of quantification of experience.

A "hallmark of paranoia"? Such a conclusion is funded by a hallmark of defective definition. Ignorance is not paranoia. Ignorance may very well produce fear, and fear will produce either paranoia, or a corrective process which will display a change in "cognitive, emotional, and behavioral functioning," and in the direction indicated by the evidence gained from the experiment. A characteristic of survival has been demonstrated; a more simple language, not a more complex language which would represent a counter-survival characteristic. Of course this is only my opinion. I like it better than yours. Yours will have to conclude that survival is not possible, on the average.

Harvey Cranor
Bowie, Md.

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