

How can a graviton escape?

In your recent article about black holes (SN: 12/25/71, p. 419), you mentioned that we may be able to infer their presence in a binary system by the gravitational perturbations they would create in the orbital motion of the companion star. Since photons cannot escape because of the overwhelming gravitational forces, how can the gravitons, the hypothetical carriers of the gravitational force which are assumed to propagate at the velocity of light, escape from the black hole to depict its presence?

Harry Galanty
Atlanta, Ga.

Real gravitons, such as would be detectable in a graviton counter (if such a thing existed) or would represent the waves detected by Prof. Weber, would be infinitely redshifted in a black hole and, like real photons, would not be able to get out. However, if gravitons exist (and some physicists are rather scornful about it), forces are mediated by virtual gravitons. Virtual gravitons are exchanged by the bodies subject to the force without being detected by a third party. Virtual particles, because they are undetectable, are allowed to violate many laws of physics and they can get out of a black hole.—Ed.

General accuracy

The article on prostaglandins and arthritis (SN: 12/25/71, p. 423) was especially interesting to us in view of our work in this area. The accuracy of the reporting of this particular article attests to the general accuracy of your reporting, and I wish to extend my congratulations on a fine publication.

Peter S. Cammarata
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G. D. Searle & Co.
Chicago, Ill.

Another point of view

The letter from Reed F. Stewart expressed great sympathy toward your reporter at the American Anthropological Association meeting (SN: 1/1/72, p. 4), implying that he did an unrealistic and uninformative article. It seems as if Mr. Stewart himself has a biased point of view. I found the article of excellent taste, relevant and very informative.

Marc Temme
Sheboygan Falls, Wis.

Biological difference

There is an inaccuracy in your note on my paper on leeches and newts (SN: 12/18/71, p. 407). I did not say that leeches placed in a solution of tetrodotoxin seemed to develop a resistance, I said they seemed to be resistant. Biologically that's a very different thing.

F. Harvey Pough
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Hormones and intelligence

Your article on "Prenatal Sex Hormone Levels: A possible link to intelligence" (SN: 1/1/72, p. 8) omits one possible explanation of the relationship between hormone level and I.Q.

In America, particularly (and I suspect elsewhere, as well), women of the high socioeconomic strata are more likely than others to seek out medical care. On the opposite side of the coin, physicians are more likely to provide such women preferential treatment.

On the average, the higher the socioeconomic status of a person, the higher their measured I.Q. Accordingly, Dr. Money's findings may be reflecting the selective recruitment of higher I.Q. mothers (and hence higher I.Q. babies) into his sample of study rather than showing relationship between hormone level and I.Q.

Herschel Shosteck, Ph.D.
Silver Spring, Md.

Chairpeople

For the edification of David V. Walker, who commented on the use of the term "chairperson" in "The Psychologist as Social Engineer" (SN: 9/11/71, p. 166): You are correct in objecting to the use of the term "chairperson." The terms are "chairman" and "chairwoman" according to my dictionary. But if a new term needs to be coined, it is in the plural: "Chairpeople." The word "chairperson" would imply that the sex of the person conducting the meeting is undetermined.

You are incorrect in your "logical" parallels with the terms "women" and "human." The word "woman" derives from old English and means "wife of a man." I won't ask who, other than a female, you would expect to be wife of a man.

The term "human" derives from *Homo sapiens*, that is. And I believe the female is as much a member of the species as the male, without further qualification.

Your reply was "cute," but better check your dictionary before jumping to the egotistical conclusion that every word ending in "man" or "men" refers to the male. (cf. specimen, omen, albumen, etc.)

M. A. Merrill
Fullerton, Calif.
A female of the species

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YANOMAMA: A MULTIDISCIPLINARY STUDY. 16mm, color, sound, 43 min. Illustrates the field techniques used by a team of specialists—from such disciplines as human genetics, anthropology, epidemiology, dentistry, linguistics and medicine—in one of a series of biological-anthropological studies of the Yanomama Indians in the dense jungles of Brazil and Venezuela. One of the aims of the project was to discover how physical and cultural factors influence a primitive and isolated population's genetic and demographic characteristics—data basic to understanding man's genetic legacy. The main body of the film deals with each investigator's role in the study and how he goes about collecting data—such as dental cases, blood samples, language materials, genealogies—and the often warm interpersonal relationships between the researchers and the Yanomama. Audience: college anthropology and genetics classes, general. Purchase and rental information from National Audiovisual Center, Dept. SN, Washington, D.C. 20409.

AN INTRODUCTION TO THE THEORY OF CRYSTAL GROWTH. 16mm, b&w, sound, 15 min. The growth of crystals is detailed, with the aid of special effects cinematography. The student is able to see the actual development of the surface of different types of crystals. Film was made in Bulgaria. Audience: high school, college. Purchase \$120 or rental \$12 from McGraw-Hill Films, Dept. SN, 330 West 42nd St., New York, N.Y. 10036.

SIGHT, LIGHT AND COLOR. 16mm, color, sound, 14 min. The technical expertise of several scientists is used to explain the relationship among sight, light and color. A doctor explains the classic analogy of the eye and the camera. A physicist describes the scientific principles of light and color. An illuminating engineer refers to H. G. Wells' "Invisible Man." Next comes color. Additive and subtractive color processes are illustrated with colored lights, an artist, and a circus clown. Scattering is defined and color temperature is discussed with reference to the Kelvin scale. Spectral emission is covered in detail. Color analysis by use of a prism is shown and explained. Audiences: high school, college, adult. Purchase \$160 from General Electric Educational Films, Dept. SN, 60 Washington Ave., Schenectady, N.Y. 12305.

THE BITTER AND THE SWEET. 16mm, color, sound, 29½ min. In the world today, there are more than 700 small-capacity desalting plants which produce about 350 million gallons of fresh water daily. All of these plants use conventional sources of power such as coal, oil or gas to drive their conversion systems. However, if man is to meet the growing demands for more and more desalted water, he must eventually turn to nuclear energy as his cheapest source of power. All aspects of desalting technology are discussed in this film, as well as a capsule report on the status of commercial desalting in the Western Hemisphere. The film blueprints the Agro-Industrial Complex-idea and endorses the belief that the technologies of desalting and nuclear energy must converge, if man is to turn back the threatening growth of world poverty and starvation. Audience: technical, semitechnical and lay audiences. Purchase and free loan information from Office of Information Services, Dept. SN, U.S. Atomic Energy Commission, Washington, D.C. 20545.

Listing is for readers' information of new 16mm and 8mm films on science, engineering, medicine and agriculture for professional, student and general audiences. For further information on purchase, rental or free loan, write to distributor.