

ASTRONOMY

Saturn May Have Tenth Moon, British Astronomer Suggests

Six Million Mile Gap Between Eighth and Ninth Satellites Should Have Something In It

SATURN, whose nine satellites make it the champion among the planets in this respect, may really have ten companion bodies, it is now reported to the British science journal, *Nature* (Feb. 5).

John Miller, London astronomer and member of the British Astronomical Association, suggests that a tenth satellite may be found in the region between the present eighth and ninth satellites of brilliant Saturn. The orbit of the tenth satellite, if it exists, should be about 2,000,000 miles farther out from the one known as Iapetus and 4,000,000 miles

inside the orbit of the outermost satellite, Phoebe.

The 6,000,000-mile gap in space between Iapetus and Phoebe has long intrigued astronomers. If the approximate placing of the satellites follows the astronomical rule known as Bode's law, then satellite 10 should be found at the distance Mr. Miller suggests.

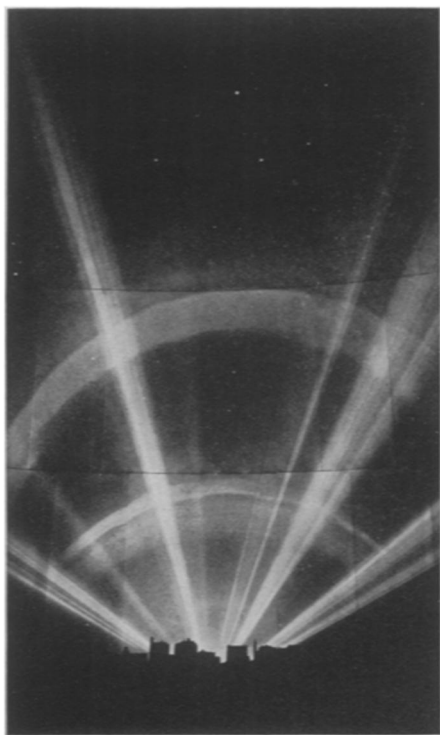
Bode's law is a long-known empirical rule which has no physical explanation. The so-called law states that there is a regular progressive increase in the mean distances of the planets from the sun. The law holds good for all the planets except Mercury and Neptune and cannot be regarded, says Mr. Miller, as merely coincidental truth.

If one takes the distance of Mercury's orbit from the sun as a starting point and calls the distance from Mercury's orbit to the orbit of Venus 3, then the distance of the other planetary orbits from that of Mercury turn out to be roughly in the geometrical progression 6, 12, 24 etc. This same general relationship seems to apply also to satellites, states Mr. Miller.

In his report to *Nature* Mr. Miller sets up two tables of values; one for the observed distance in miles between the orbits of the respective known satellites and another giving the distances based on geometrical progression. In most cases the agreement for the nine known satellites is fairly good. There is only one large discrepancy. That is the blank hole in the table which Mr. Miller suggests is the spot for the yet undiscovered satellite.

In 1905 Prof. W. H. Pickering reported a faint satellite of Saturn which has never been confirmed. Mr. Miller suggests that perhaps the tenth satellite is the missing object reported 33 years ago by Pickering.

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AURORA INDOORS

This spectacular effect showing the streamers and arcs of the Northern Lights was produced in the Hayden Planetarium to demonstrate the colorful and awe-inspiring by-products of the current epidemic of sunspots which has aroused world-wide interest. As on the real sky, this man-made Aurora Borealis dips and dances and changes its colors from apple green to glowing red. The picture was made by Charles Coles, chief photographer of the American Museum of Natural History.

GENERAL SCIENCE

"Brains of the World, Unite!" Might Rescue Troubled Globe

THE realization is growing that something must be done, in the interests of intellectual freedom and progress, to bring the scientists and scholars of all nations closer together.

Language differences, varying philosophies, political conditions, economic rivalries, military conquests and other disturbing factors jeopardize the peace and freedom under which science can do its best work. Fascism and communism, as well as extreme actions and ideologies in democratic countries, often provide barriers to certain phases of scientific research and application.

National scientific groups, such as the American and the British Associations for the Advancement of Science, vocalize the fervent hope of scientists and scholars that science remain "wholly independent of national boundaries and race."

While there is, and quite rightly, much viewing with alarm with regard to the international science situation, an immense amount of quiet, almost rou-

tine, cooperation occurs day by day. Scientific literature flows freely, except in isolated instances. International congresses are held. The unfortunate thing is that there is not enough sounding of the trumpets over such accomplishments of peace and science. Nutrition studies that may very well result in better food for millions inevitably receive less notice than a bombing of a civilian population.

Defensively aggressive are the necessary rescues of intellectual refugees from the dictator-ridden countries. Protective protests at encroachments on intellectual freedom must continue.

"Brains of the World, Unite!" For a long-time pull of educational effort, such a slogan might be a catalyst to bring to the round world's conference table the scientists, scholars, educators and the other intellectual workers who could in a generation remould our ideas and ideals. If inhibiting precedents can be unshackled, there are enough brains in the intellectual organizations of today to determine how this can be done.

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