9-80

THE PRAIRIE ASTRONOMER

Volume 20, Number 10 September 30, 1980

They Found Another (Yawn!) Moon For Jupiter

Photos snapped by two Voyager spacecraft have led to discovery of a 16th satellite orbiting Jupiter, the National Aeronautics and Space Administration has reported.

It is the third new satellite located in pictures taken by the Voyagers as they swept past the planet last year. It has been tentatively assigned the identification number 1979 J3.

The 16th Jovian moon was spotted in a Voyager 1 photo three weeks ago by Dr. Stephen Synnott of NASA's Jet Propulsion Laboratory, Pasadena, Calif. He reported that at first he thought it was a confirmation of the 14th moon.

"But when I coupled data from Voyagers 1 and 2, I found the object I was looking at was on the opposite side of the planet", Synnott said. "So it had to be a new one." Synnott also discovered the 15th satellite last May.

He said the 16th moon is about 25 miles in diameter and is circling Jupiter once every 7 hours, 4 minutes, 30 seconds at an altitude of about 35,000 miles above the cloud tops. It appears to be orbiting near the outer edge of Jupiter's ring.

Before the Voyager missions, scientists felt there were only 13 Jovian moons.

The detection of the three satellites adds to the impressive list of Jupiter scientific observations made by the Voyager twins. Among the discoveries are a ring of particles around the planet, considerable volcanic activity on the satellite Io and tremendous bolts of lightning in the planet's atmosphere.

Both Voyagers are en route to Saturn, with Voyager 1 scheduled to fly by that planet in November and Voyager 2 to follow next August. The second Voyager is then to continue on to Uranus with planetary encounter in January, 1986. (Voyager 1 goes up and out of the solar system with no further planetary encounters.)

Don't Forget "COSMOS"

As if you could escape $4 million worth of publicity, there might still be the chance you will forget Carl Sagan's personal view of the universe, "COSMOS", for the next 13 Sundays on KUON-TV (Channel 12). Sagan occasionally ruffles feathers in the

(Continued on Page 4)

SEPTEMBER MEETING NOTICE

The September meeting of the Prairie Astronomy Club will be held

(Continued on Page 2)

Observer's Handbook 1981-- A Change Of Pace

Last year, we ordered OBSERVERS HANDBOOKs from the Royal Astronomical Society of Canada on the strength of verbal requests from members--and got stuck with copies nobody would buy.

So, this year we are going to try a different tack: At the September meeting, you may order and pay for your copy of the RASC Handbook. No orders will be accepted without advance payment, and only the number of copies paid for at the meeting will be ordered. It is regrettable that we must do business this way, but expenses are such that the club cannot afford to "swallow" the cost of unclaimed copies of the handbook.

For those unfamiliar with the book, the 1981 edition is a 144-page guide to astronomical data and phenomena, and is the most extensive book of its kind on this continent. The sections in the Observer's Handbook deal with time and the calendar, planetary data, sunrise and sunset, moonrise and moonset tables, and there is a 24-page section on "The Sky By The Month", which is the heart of the book. There are 30 pages of authoritative tables dealing with the properties of stars, star clusters, nebulae and galaxies and 6 pages of useful star maps. The sections on asteroids and on deep-sky objects have been considerably expanded for 1981.

The single copy price is $5.00 if ordered by individuals. The club will sell the books at $4.00 (advance). Copies ordered now will be delivered in November, in plenty of time for use in 1981.

MEETING NOTICE (From Page 1)

Tuesday, September 30, at 7:30 p.m. Meeting place is Hyde Observatory in Holmes Park. Prospective members may attend without charge.

The Hyde Observatory Committee will meet, as usual, one hour earlier at 6:30 p.m.

TELESCOPE MAKING MAGAZINES ARRIVE

Telescope Making Magazine, issue No. 8, has arrived and will be available at the meeting for $1.25. Those who ordered the magazine should plan to pick one up. One extra copy is available, first-come, first-served.

THE PRAIRIE ASTRONOMER is published monthly by the Prairie Astronomy Club, and is free to club members. Yearly subscription without club membership is $5.00. Regular membership (includes one-year subscription to Sky & Telescope, club newsletter, and four quarterly issues of the Astronomical League newsletter), is $14.00. Family membership (includes all regular privileges, plus one additional vote in club elections) is $16.00. Newsletter editor, Lee Thomas, 489-3855. Address all correspondence to PRAIRIE ASTRONOMY CLUB, INC., P.O. Box 80553, Lincoln, Nebraska 68501.

Clues To Stellar Explosions To Be Sought Below The Oceans

Tests have been concluded off Hawaii that, a number of physicists believe, have demonstrated the feasibility of one of the most novel and ambitious experiments ever undertaken to detect and study extremely high-energy events in the cosmos.

The project,known as Dumand, for Deep Underwater Muon and Neutrino Detection, would use a volume of deep ocean water a half mile on each side. Instruments attached to a multitude of buoyed lines rising from the ocean bottom would record flashes of light generated within the water when neutrinos and muons, extremely high-energy subatomic particles,plunge from the sky.

The project's sponsors hope to complete specifications this fall for a relatively modest version of the array as an initial step, known as Mini-Dumand. The cost of this phase, to test the feasibility of the larger scheme, would be about $5 million, and funds will probably be sought from interested countries, such as Japan and West Germany, as well as from Federal agencies.

The full-scale array should cast light on several puzzles,such as the process that releases energy within distant galaxies on a scale that seems to defy explanation. It should be able to identify each source of the neutrinos assumed to be generated by these events.

The observations must be made under water to screen out some other forms of radiation. To date, most neutrino observations have been conducted in deep mines, using tanks of fluid whose volume was far smaller than that envisioned for the new project.

Although neutrinos are believed to be extremely common, with 100,000 billion neutrinos of solar origin traversing each person on Earth every second, they interact so rarely with matter that their detection is very difficult. They can easily pass through the entire Earth.

The muons are generated by high-energy collisions, for example, in space or where particles from the cosmos, such as neutrinos or cosmic rays, strike the atmosphere. The highest-energy muons can penetrate a half-mile of rock. Unlike neutrinos, however, they are very short-lived.

Because of neutrinos' special penetrating power, those generated by highly energetic and mysterious processes in the cores of galaxies, quasars and other distant objects can escape these sources unhindered and unchanged.

Thus, they should provide clues to those processes as well as the inner workings of catastrophic star explosions, or supernovas, and the core of the Milky Way galaxy in which the Earth resides. Some may remain from the explosion in which the universe is thought to have been born.

While neutrinos rarely interact with matter,the tons of water would cause occasional collisions.

Don't Forget "COSMOS"

--Page 1

scientific community because he has become something of a star, which some consider to be unprofessional. But his rare command of language and the weight of his reputation, which triggered funding for what are described as spectacular (though scientifically accurate) special effects make Sagan's "COSMOS" a rare treat for those who love science and particularly astronomy.

"COSMOS" airs Sunday nights on Channel 12 at 7:00 p.m.

Candidates To Be Nominated

Comes the Prairie Astronomy Club's 21st year--and time to elect new officers. Formal nominations will be accepted at September's meeting. Election will take place at the October meeting, and, as usual, the new slate of officers will take office in November.

If you wish to nominate-- or be nominated--for an office, be sure to attend the September meeting. Candidates' background biographies will be printed in the October issue of THE PRAIRIE ASTRONOMER, so, while it is possible to place names in nomination right up to the last moment, holding off risks the loss of all that valuable newspaper publicity (the sort of thing Carter and Reagan fairly drool over!)

THE PRAIRIE ASTRONOMER
c/o Prairie Astronomy Club, Inc.
P.O. Box 80553
Lincoln, Nebraska 68501

LINCOLN SEP 28 PM 1980 NEBR.

U.S. POSTAGE .15 P.B.METER 1249038

FIRST CLASS MAIL

Mr. Earl Moser
Hickman,
Nebraska 68372

9/81