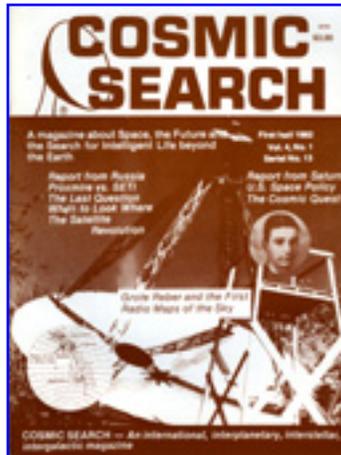




North American
AstroPhysical Observatory

North American AstroPhysical Observatory (NAAPO)



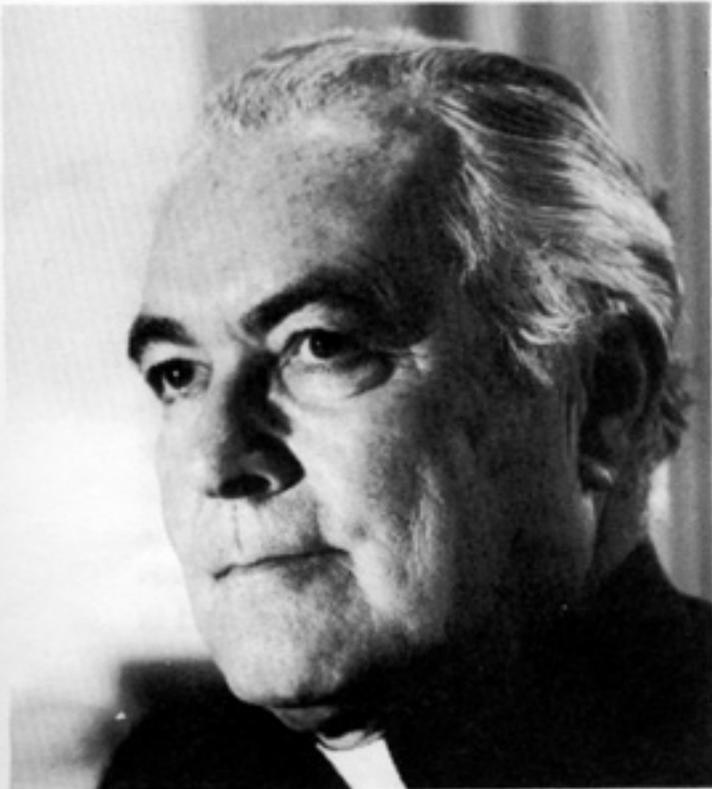
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[Article in magazine started on page 32]

People and Places

By: John Kraus

Hesburgh Receives Award



The Reverend Theodore M. Hesburgh

The American Council on Education (ACE) presented **The Reverend Theodore M. Hesburgh** its second annual award in recognition of his outstanding lifetime contribution to higher education. The award presentation was made during ACE's annual meeting in Washington, D.C. during October 1981. The award presented to Hesburgh consists of a 9 centimeter diameter crystal sphere called "Galaxy". Designed by artist Donald Pollard for Steuben Glass, "Galaxy" was created to commemorate momentous achievements in the

U.S. space program including the manned Space Shuttle and the Voyager encounters with Jupiter and Saturn.

Hesburgh, 64, is an educator, author and distinguished public servant. In 1964 he was awarded the Presidential Medal of Freedom, our nation's highest civilian honor. Author of books including "A Challenge for the year 2000" and "The Hesburgh Papers: Higher Values in Higher Education". Hesburgh has been President of Notre Dame for 30 years. Retiring as president later this year, it is reported that he will then become Chancellor of the University.

A member of the Editorial Board of **COSMIC SEARCH**, Father Hesburgh has served on a number of national science and space committees and wrote the Foreword to the recent NASA Report on "SETI: The Search for Extraterrestrial Intelligence" edited by Philip Morrison of M.I.T. and John Billingham and John Wolfe of NASA/Ames Research Center. (NASA Report SP-419).

As reported in the Spring 1981 issue of **COSMIC SEARCH**, Dr. Hesburgh has been honored by the naming of an asteroid orbiting between Mars and Jupiter as "Asteroid Hesburgh-1952".

Just before going to press, it was learned that, out of a field of 400 candidates, the Notre Dame Search Committee found no qualified successors to Dr. Hesburgh and recommended that he continue another five years as President. Father Hesburgh has agreed, albeit reluctantly.



Proxmire vs. SETI

As noted in Frank Drake's column and in SEnTinel, Senator William Proxmire of Wisconsin recently made headlines about SETI. Three years ago he grabbed headlines by awarding NASA's proposed SETI project his "Golden Fleece" award, arguing that the project was a waste of money because any intelligent life out there might be extinct by the time a message was received.

But like the Golden Fleece which the legendary Jason sought, a message from an extinct civilization might be the very one we need most. Learning why the civilization became extinct could help us from becoming extinct also. The ancient Greek, Roman and Egyptian civilizations are long gone but we have been greatly enriched by their documents and artifacts which have survived.

In response to Proxmire's most recent criticism of SETI, Charles Redmond of the NASA Office of Space Science said,

"It means we will have to stop looking at our space shore for a message-in-a-bottle cast out by another civilization. Sadly, if you don't look, you will never find anything."

Proxmire called SETI a futile project because "there is not a scintilla of evidence that intelligent life exists beyond our solar system".

To this Redmond replied, "As late as 1491 there was not a scintilla of evidence that America existed."



Dyson on SETI

Freeman Dyson, Princeton University astrophysicist, recently commented:

"One shouldn't distinguish between searching for extraterrestrial intelligence and general exploration of the universe. The two are really the same thing.

"If you want to search in an intelligent fashion for intelligent objects, the thing to do is to look in all possible ways at everything, which is the same as doing astronomy."

Dyson's comments are part of an interview published in "The Planetary Report" for August- September 1981.

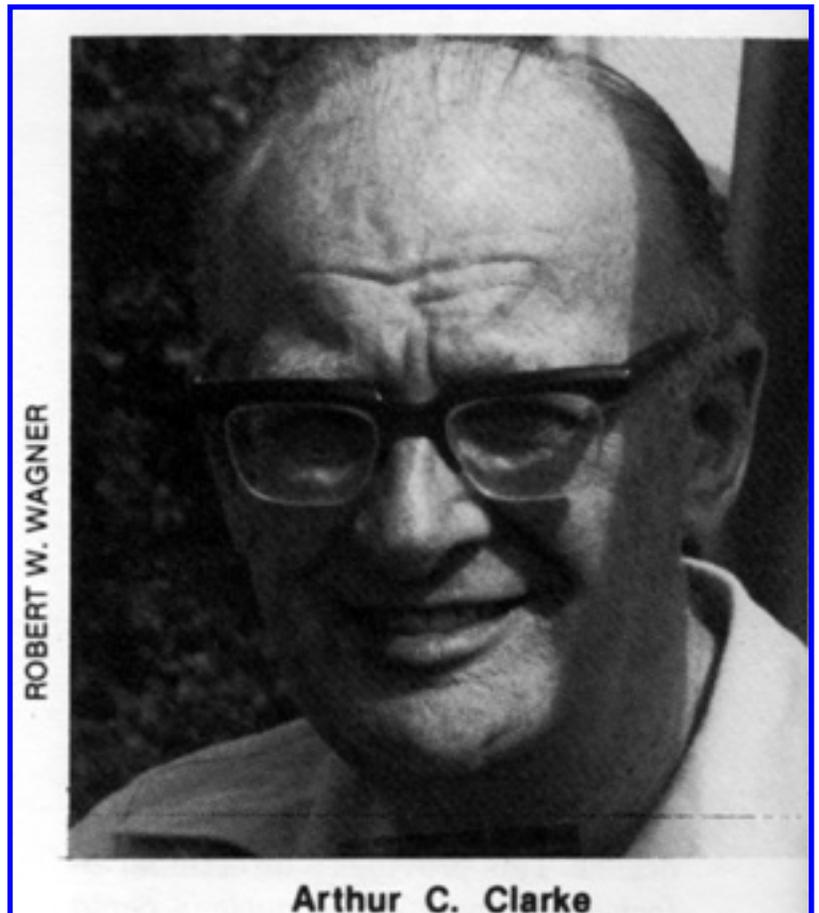


Clarke's Odyssey Two

Arthur C. Clarke, noted author and father of the communication satellite, is at work on a sequel to his famous "2001: A Space Odyssey". Some of the spectacular results of the Voyager-Saturn encounters may be woven into the new book, "2010: Odyssey Two", which he hopes to complete this year.

Clarke, who is a member of the Editorial Board of **COSMIC SEARCH**, has written over 50 books which have sold 20 million copies in 30 languages. His article "Trouble in Aquila" appeared in the premier issue of

COSMIC SEARCH (January 1979). His role in proposing the communication satellite is related in "ABCs of Space" in the Summer 1980 issue of **COSMIC**



SEARCH and also in my book "Our Cosmic Universe" (Cygnus-Quasar Books, 1980) pages 11, 12, and 13.



Will the BIG ANNOUNCEMENT Come from Moscow?

The item about a December 1981 Soviet SETI conference in the "People and Places" column of the Fall 1981 issue of **COSMIC SEARCH** resulted in some inquiries by the media. They wanted to know whether **COSMIC SEARCH** thought that the Russians might be planning to make a Big Announcement concerning their discovery of an extraterrestrial intelligent signal. We replied that we did not know but that strangely enough no American scientists might be in attendance to find out because Senator Proxmire's action, effective Oct. 1, 1981, cut off NASA's travel funds for SETI purposes.

However, pioneer SETI scientist Frank Drake of Cornell University did go and his report on the conference appears elsewhere in this issue.

There is obviously a lot of SETI interest and activity in the Soviet Union. Proxmire's action in cutting off NASA's SETI funding for 1982 will set the U.S. back in its endeavors and will increase the likelihood that if and when a Big Announcement is made it will come from Moscow rather than Washington.



Skinner Sees No Hope

B. F. Skinner, renowned Harvard University psychologist sees little hope for mankind to solve its problems of overpopulation, pollution, energy and resource depletion. People do not initiate action but proceed in ways that have worked in the past, he said. Our present dilemma is so different from anything that has occurred before, however, that Dr. Skinner feels the use of old strategies will be ineffective.

If people would act on predictions of future conditions there might be some hope, he said, but it's just not possible to get 5 billion people to change. The few who see the need to change tend not to be powerful. Those in power are concerned only

with the present and, he concluded, that if he were powerful he probably would not be interested in the future either.

Burrhus Frederic Skinner is Edgar Pierce Professor Emeritus of Psychology at Harvard University. He is author of more than a dozen books including "The Analysis of Behavior" (1961), "Beyond Freedom and Dignity" (1971) and "About Behaviorism" (1974). His comments were included in a recent interview in "Science Times" of the *New York Times*.



Giacconi to Head Space Telescope Institute

Riccardo Giacconi of the Harvard-Smithsonian Center for Astrophysics has been named as the first director of the Space Telescope Institute at Johns Hopkins University. The institute will manage the NASA 2.4 meter Space Telescope scheduled to be put into low orbit by the Space Shuttle in 1985.

The 49-year-old Giacconi was a principal force behind the first x-ray satellite UHURU launched in 1970 and he is also acting director of the Einstein Observatory, a much more advanced x-ray satellite launched in November 1978.



11th Texas Symposium Back in Texas

The "Texas Symposium on Relativistic Astrophysics" has become a mecca for the world's astrophysicists concerned with quasars, pulsars, black holes and the many new and baffling aspects of our universe. Called the "Texas Symposium" because the first ones were at the University of Texas, the Symposium has been held in a number of different places in recent years. But this year (1982) it will again be back in Texas, being held at the Hyatt Regency Hotel in Austin December 13 through 17. Symposium organizer **David Evans** told **COSMIC SEARCH** that, as of late October 1981, more than 100 acceptances had been received to invitations he had sent out. No particular topics have yet been singled out for more extensive discussions but it is expected that black holes, heavy neutrinos, x-ray bursters and

other timely topics may get a good share of attention.

There was no Texas Symposium in 1981, the last previous one (no. 10) being held in Baltimore in 1980 with the one before that in Munich. The 12th Texas Symposium is scheduled for 1984 in Tel Aviv.

Those interested in more details about the 1982 Texas Symposium should contact David S. Evans, Dept. of Astronomy, University of Texas, Austin, Texas 78712. (Tel. 512-471-4471).



Are We Alone?

Since starships of alien civilizations have not already reached the earth, **Frank Tipler** of Tulane University argues that intelligent extraterrestrial beings do not exist. In recent issues of the "Royal Astronomical Society Quarterly Journal" Tipler also invokes a variety of evolutionary and technological arguments to support his contention.

Tipler's position is interesting as it reflects an extreme opinion. The opposing extreme opinion is that the universe abounds with intelligent life. Those supporting this view argue that absence of evidence is not evidence of absence.

A more open-minded middle position is that we really don't know the answer and to find out we should conduct experimental searches. As Dr. Philip Morrison, pioneer SETI scientist and Institute Professor of Physics at M.I.T. puts it,

"Whether we are alone in the universe or not needs to rest on experimental search, not on a string of evolutionary inferences." (**COSMIC SEARCH**, Jan. 1979, Serial no. 1, page 7).



Saturn Meeting

According to **Tom Gehrels** of the Lunar and Planetary Laboratory of the University of Arizona, the Saturn meeting scheduled for May 11 to 15, 1982, is doing well with over 100 papers submitted so far. A book with the papers presented is planned for publication early in 1983.



By Sail to Centauri

Gregory Matloff and **Eugene Mallove** have recently described how very thin, space-manufactured sails could be used to launch missions beyond the solar system.

With sails 100 kilometers in diameter, "Clipper Ships of the Galaxy" could reach some of the nearer stars in a few hundred years pulling robot probes or habitats with human crews. Propulsion is by the radiation pressure of sunlight.

Writing in the September 1981 issue of the *Journal of the British Interplanetary Society*, Matloff and Mallove point out that interstellar missions using solar sails for acceleration and electric or magnetic "drag brakes" for deceleration offer a relatively inexpensive but time-consuming alternative to the nuclear propulsion schemes usually considered by interstellar spacecraft designers.

Dr. Matloff is on the faculty of Pratt Institute and Dr. Mallove is with Astronomy New England.



IAU-SETI

Michael D. Papagiannis of Boston University reports that the Executive Committee of the International Astronomical Union (IAU) is proposing a new commission of the IAU called "Search for Extraterrestrial Life" for approval at the next General Assembly, August 1982, in Patras, Greece. The IAU is an international organization of professional astronomers representing nearly 50 countries which fosters programs designed to coordinate the efforts of the world's

astronomers. The IAU currently has 40 some active commissions, each concerned with a particular branch of astronomy. For example, there are commissions on double stars, variable stars, stellar atmospheres, solar activity, galaxies, radio astronomy, cosmology, etc. The IAU holds a General Assembly once every three years.

In IAU Information Bulletin No. 45 of January 1981, members interested in the proposed new commission are requested to write Professor Michael D. Papagiannis, Dept. of Astronomy, Boston University, 725 Commonwealth Ave., Boston, Mass. 02215.

The IAU sponsored a session on "Strategies for the Search for Life in the Universe" during its General Assembly in Montreal in August 1979. The session was organized by three Commissions of the IAU: Physics of Planets, Radio Astronomy and Space Astronomy. Professor Papagiannis was Chairman of the organizing committee and he reported on the session in the Winter 1980 issue of **COSMIC SEARCH** (page 24).



Super-Narrow Bandwidths for SETI

A few years ago, **Frank Drake** and **George Helou** of Cornell University concluded that there was a minimum practical bandwidth for interstellar radio communication. This is set by instabilities of the gas and dust of the interstellar medium causing what is called "incoherence" of the radio waves. The effect might also be described as producing a smearing or fuzziness of the signal. Theoretically, bandwidths approaching zero hertz would be possible if the space between the stars and galaxies was a perfect vacuum permitting communication over almost any distance although at a very slow dash-dot rate of signalling.

Since space is not a perfect vacuum, even a little gas and dust can have an appreciable effect over long paths but Drake and Helou believed that super-narrow bandwidths of as little as one-hundredth hertz (10 millihertz) would be practical. In subsequent tests with the Arecibo telescope, **Paul Horowitz** of Harvard University demonstrated that such super-narrow bandwidths could be used successfully.

Recently, the Planetary Society made a grant of \$10,000 to **Horowitz, Ivan Linscott** of Dudley Observatory and **Allen Peterson** of Stanford to assist a \$22,000 development effort of a receiver that can listen simultaneously on more than 65,000 channels of 1/64 hertz (16 millihertz) bandwidth covering a total band of one kilohertz. Both Horowitz and Linscott are currently visiting scientists at the NASA-Ames Research Center.

Allen Peterson of Stanford has been involved for some time in a NASA-Ames project for the design and construction of a receiver with 8 million channels of one hertz bandwidth. Such a receiver, called a Multi-Channel Spectral Analyzer, would be an unprecedented achievement and of tremendous value for many types of astronomical research including SETI. But because it is being constructed as a SETI project, work has stopped as a result of the action instigated by Senator Proxmire cutting off all government support for SETI for Fiscal Year 82. This is an unfortunate setback and requires putting the incomplete 8 million channel receiver in mothballs.

Ivan Linscott told **COSMIC SEARCH** that the grant by the Planetary Society will help keep work going on the super-narrow bandwidth receiver until funding from private sources may be forthcoming for the balance of \$12,000 needed to complete the receiver.

In practice the 8-million (1-hertz) channel receiver would comb 8-million hertz segments of the spectrum for unusual signals while the 65,000 (1/64 hertz) channel receiver would do more limited searches of 1 kilohertz bands at specific frequencies corresponding to the hydrogen, deuterium and other lines.



ASP Meeting Set

The 93rd annual meeting of the Astronomical Society of the Pacific (ASP) has been set for June 26-July 2, 1982, at the University of California, San Diego (La Jolla, California).

A symposium on Active Extra-galactic Objects, a workshop for schoolteachers, a lecture series on new astronomical developments, observatory tours and an awards

banquet are planned. For more details contact: Andrew Fraknoi, A.S.P., 1290 24th Ave., San Francisco, CA 94122.



Alignment Bonanza

Occasionally the planets of the solar system achieve an approximate alignment, but they are so far away the physical effects are insignificant. There are those, however, who claim that the impending next alignment will bring fire, flood, famine and pestilence, all of which will occur to at least some extent anyway.

In a recent interview, Ohio State Professor **Robert Wing** was quoted as saying that the real danger posed by the alignment is the opportunity it provides for con artists to make a fast buck by deceiving a gullible public. If the con artists make enough claims, and anything at all happens, then they can say they were right.

Note: The magnitude of the tidal forces of this alignment, or so-called "Jupiter effect", is readily calculated from Newton's Law of Universal Gravitation. It turns out that the increase in the tidal forces on the Earth due to a perfect alignment of the planets (the one this year is far from perfect) is only of the order of one-thousandth of one percent of the tidal effect produced by the Sun and Moon. In fact, a jet transport flying over a mountain can produce a much larger differential (disruptive) gravitational effect on it than any or all of the planets.



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Designed by Jerry Ehman.

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