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AstroPhysical Observatory

North American AstroPhysical Observatory (NAAPO)

Cosmic Search: Issue 2
(Volume 1 Number 2; March 1979)
[Miscellaneous items found throughout the magazine]

Miscellaneous Items

Webpage Table of Contents (Bookmarks)
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Information About the Publication
(Editorial Board, Editors, Table of Contents)

COSMIC SEARCH
The first magazine about the Search for Extra-Terrestrial Intelligence

MARCH 1979
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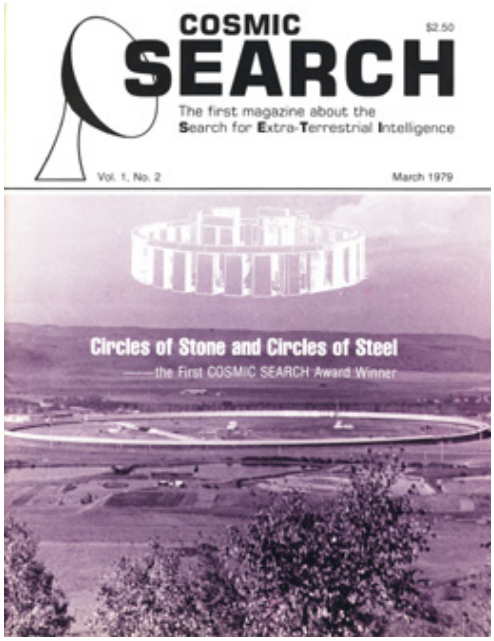
Editorial Board

Editors, and Others Involved in the Publication

The Cover



The Cover: Stonehenge and the RATAN-600. The drawing of Stonehenge (restored) was made about 1625 by Inigo Jones. The RATAN-600 is the world's largest continuous-surface radio telescope. The area of four Arecibo dishes would fit inside this Kraus-type telescope. Located near Zelenchukskaya, U.S.S.R., it will be used in searches for extraterrestrial intelligence.

About COSMIC SEARCH

Cosmic Quest, Inc., is a private non-profit organization dedicated to the promotion and support of SETI endeavors.

Subscription price: $12 a year in U.S. (and possessions), $16 elsewhere. Single copies: $2.50 in U.S. (and possessions), $3 elsewhere.

Address subscriptions and all other correspondence to: Radio Observatory, Box 293, Delaware, Ohio 43015.

Application to mail at second-class postage rates is pending at Delaware, Ohio, and at additional mailing offices.

Table of Contents (in magazine)

Purpose of COSMIC SEARCH

The purpose of **COSMIC SEARCH** is to present all aspects of the search for intelligent life in space in a popular but responsible manner.

Coming in COSMIC SEARCH

- "The Possibilities of SETI from Space" by **Roy Basler**
- "Neutrinos for Interstellar Communication" by **Jay Pasachoff** and **Marc Kutner**
- "Interstellar Communication with Gravity Waves" by **David Douglass**
- "Cosmic Languages" by **Hans Freudenthal**
- "A Hymn to Life in the Universe" by **Don Lago**
- "Strategies of Searching for Extraterrestrial Civilizations" by **Nikolai Kardashev**
- "Extraterrestrial Life: Where is Everybody?" by **Jesco von Puttkamer**
- "Minds and Millennia" by **Michael Arbib**
- "Bio-Cosmology: A New NASA Thrust" by **Bernard Oliver**
- "Extraterrestrial Politics" by **Michael Michaud**
- "We Wait and Wonder" by **John Kraus**
- **FORUM:**
  - Interview with scientist-philosopher **John Archibald Wheeler** on "Science, Art and the Universe"
  - Interview with NASA's SETI Director **John Billingham** on "SETI"
- **ABCs of SETI** will explain in simple terms:
  - Stars (They are not all alike. Spectra and the sun-like stars)
  - SETI Wavelengths (The hydrogen line, the "waterholes," the Drake-Helou line, the Kuiper-Morris line, the Kardashev lines. Which one is best?)
  - Doppler shifts (Wavelengths are relative. The red shift)
  - Three degrees (The Big Bang Background)
  - Radio Telescopes (What do they hear?)
  - Range and Size (How far can a telescope reach?)
- More **SEnTlnel** news reports, "Off the Shelf" books and other special features.

Cosmic Calendar

15 billion BC	Universe began (BIG BANG)
10 billion BC	Our galaxy formed
5 billion BC	Solar system (sun, earth and other planets) formed
2 million BC	Homo sapiens emerged
5000 BC	Writing invented
1888 AD	Hertz produced radio waves
1903 AD	Letter "S" sent by radio waves across Atlantic Ocean by Marconi
1959 AD	Cocconi and Morrison proposed SETI
1960 AD	First attempt to detect extraterrestrial civilizations by Drake
1979 AD	First issue of COSMIC SEARCH

Distance Table

Distances in light travel time (approx.)

Earth to moon	1 second
Earth to sun	500 seconds (8 min.)
Sun to Mars	12.5 minutes
Sun to Jupiter	40 minutes
Sun to Pluto	5.5 hours
Solar system diameter (at orbit of Pluto)	11 hours
Sun to nearest star	4 years
Sun to center of galaxy	30,000 years
Diameter of galaxy	100,000 years
Distance of Andromeda galaxy	2 million years
Distance to "edge" of universe	15 billion years

To convert light travel time to kilometers multiply travel time in seconds by velocity of light (300,000 kilometers per second).

Glossary

Anthropocentric:
Man-centered.

Astronomical Unit:
A unit of length equal to the distance of the earth from the sun, about 150 million kilometers.

Bandwidth:
The wavelength or frequency range to which a receiver responds. Bandwidths can be described as narrow or wide, according to their range.

Big Bang:
The beginning event in the Universe. The explosion of this primordial fireball some 15 billion years ago caused the initial outward expansion of gas and dust which formed the universe. CETI: An acronym for Communication with Extra-Terrestrial Intelligence.

Blackbody radiation:
Hypothetically radiation which is perfect; that is, all incident radiation is absorbed and re-emitted.

CETI:
An acronym for Communication with Extra-Terrestrial Intelligence.

Doppler Shift:
The resulting frequency change caused by the relative motion along a line of sight between two observers.

Dyson Sphere:
Shells built around stars by advanced civilizations. These objects are hypothesized by Princeton astronomer Freeman Dyson. These spheres might be detected by our astronomies as infrared sources.

Exobiology:
The study of extraterrestrial life forms.

Galaxy:
A large system of stars. Our galaxy, the Milky Way, is a spiral galaxy containing some 100,000 million stars, 100,000 light years in diameter and 10,000 light years thick.

Gigahertz:
A unit of frequency equal to 1,000 million hertz.

Hertz:
A unit of frequency equal to one cycle per second.

Hydrogen:
The most abundant element in the universe. It radiates naturally at a wavelength of 21 centimeters.

Infrared radiation:
Radiation whose emitted wavelengths are longer (redder) than those seen by the human eye, but shorter than radio wavelengths.

Kelvin degrees:
Absolute temperature measured in the celsius scale. Ten degrees kelvin equals ten degrees celsius above absolute zero.

Lagrangian points:
Five points (designated Ll, L2, L3, L4, and L5) in the plane of orbit of two mutually orbiting bodies where a third body, of relatively small mass, can remain in equilibrium with respect to the other two bodies.

Light Year:
The distance traveled by light in one year, about 10 trillion kilometers.

Light (speed of):
In empty space: 300,000 kilometers per second.

Maser:
A sensitive amplifying device employing energy jumps of atomic particles.

Megahertz:
A unit of frequency equal to one million hertz.

Microwave radiation:
Radiation in the short-wave radio spectrum having a wavelength range between 1 and 30 centimeters.

Nanosecond:
One billionth of a second.

Radio Astronomy:
The science of making astronomical observations using instruments sensitive to radio wavelengths.

Redshift:
A shift toward the longer wavelengths of the optical spectrum due to recessional velocity (the Doppler effect).

SETI:
An acronym for Search for Extra-Terrestrial Intelligence.

Ultra-violet radiation:
Radiation whose emitted wavelengths are shorter (more violet) than those to which the eye is sensitive, but longer than x-rays.

For best papers on SETI

Category 1. Undergraduate students
Category 2. Graduate students
Category 3. Anyone else under 30 years of age

Papers may be on any aspect of the Search for Extra-Terrestrial Intelligence (SETI). Papers must be double-spaced typewritten with one inch margins on 8 1/2 by 11 inch bond paper and less than 2000 words in length. Any illustrations must be clearly executed.

Authors of best papers will be given a **SEARCH AWARD** of $100 and the paper will be published in **COSMIC SEARCH**. Authors should include their full address and telephone number. Authors should enclose a self-addressed stamped envelope if they wish to have their manuscripts returned. Manuscripts accepted and published are copyrighted and become the property of **COSMIC SEARCH** magazine.

Manuscripts may be submitted at any time. Their review is a continuous, on-going process. Each article received is reviewed by a special committee and if judged worthy, either in its original form or after revisions, will be given a **SEARCH AWARD**. The opinion of the committee is final.

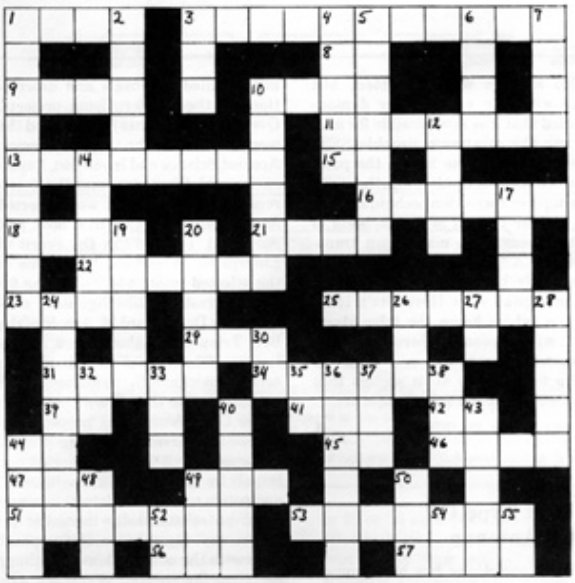
A contestant may submit and have under review only one manuscript at a time and be eligible for only one **SEARCH AWARD** in one category. However, it is possible for one person to achieve **SEARCH AWARDS** sequentially in each of the three categories.

Address **SEARCH AWARD** Committee, Radio Observatory, P.O. Box 293, Delaware, Ohio 43015.

SEARCH PUZZLE

[Click on image below to obtain a larger version. In your browser you may need to uncheck the preference that says something like "Resize large images to fit in window" to avoid seeing a scaled image that appears smaller than the image below.]

SEARCH PUZZLE



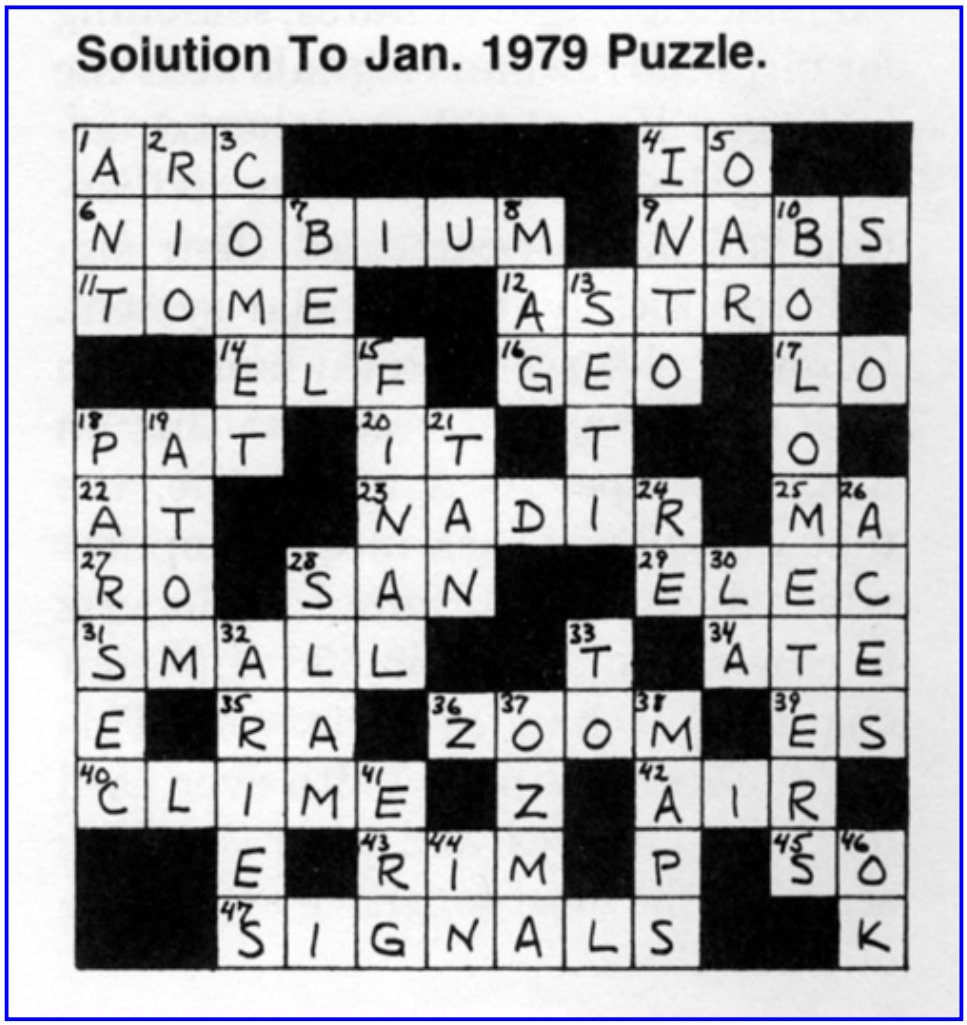
ACROSS

1. Famous acronym
2. Cataclysmic event
8. Trace (abbr.)
9. Form of energy
10. Roman Emperor
11. Farthest points
13. Optical Doppler Effect
15. 3.14159 . . . . . .
16. COSMIC _____
18. Small bay
21. To enlarge
22. Develop to a higher state
23. Opposite of win
25. Signal sources
29. Hearing organ
31. Short staff
34. Get away
39. Not out
41. Hawaiian dish
42. Unit of measure
44. Article
45. Slang (abbr.)
46. Past tense of lay
47. Ungentlemanly person
49. Arab's "gold"
51. Lift up
53. Half-wavelength antennas
56. Distress signal
57. Store of knowledge

DOWN

1. Round
2. Small quantities
3. Feline
4. Narrow strip
5. Involuntary response
6. Skin opening
7. Terminal points
10. Entire material universe
12. Diploma recipient
14. Peace symbols
17. Maize
19. Happening
20. Unfamiliar
24. Traveling in circles
26. Snake
27. Poetic either
28. State of matter
30. Regarding (abbr.)
32. Article
33. Boating accessory
35. Spelling (abbr.)
36. Pertaining to cosmos
37. Sick
38. Long fish
39. Within
40. To free from moisture
43. Amplifying device
44. Covered with ice
48. Democrat (slang)
49. Pertaining to the ear
50. Sun
52. To such a degree
54. To express wonder
55. Direction

Answer to puzzle in next issue (May 1979).



Miscellaneous Quotes

The following quotes are not directly associated with any article. They are listed here in the order in which they appear in the magazine; page numbers are given. Uncredited quotes should be credited to the Editors of **COSMIC SEARCH** magazine.

Quote on page 9

Overheard one night at a California airport:
"Say, Mac, could you tell me if that's Cygnus or Orion up there?"
"Sorry, pal, I wouldn't know. I'm not from this part of the country."

Quotes on page 34

Metric Fun

The new metric system of System International (SI for short) is beautiful in its simplicity, conciseness and ease of use. Not only that, it can be fun. For example, we have

10^{-18} boys	=	1 attoboy
10^{9} los	=	1 gigalo
10^{-12} boos	=	1 picoboo
10^{-15} bismols	=	1 femtobismol

10^{1} cards	=	1 decacards
10^{12} bulls	=	1 terabull
10^{-1} arnez	=	1 deciarnez
10^{-18} misers	=	1 attomiser
10^{-9} goats	=	1 nanogoat
10^{-6} phones	=	1 microphone

Now you try your hand at topping these.

Advice for UFO observers: "It's not an alien spaceship unless you can read the extraterrestrial license plate." Paraphrased from a statement by Arthur C. Clarke in "Things in the Sky".

Quote on page 51

"The greatest discoveries are yet to come."
John Archibald Wheeler in the *American Scientist*.

Miscellaneous Photos

The following photo is not directly associated with any article. It is shown on this webpage at a relatively small size; click on it to obtain a larger size version.

Photo on Outside Back Cover

Miscellaneous Graphics

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