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# NASA News

National Aeronautics and  
Space Administration

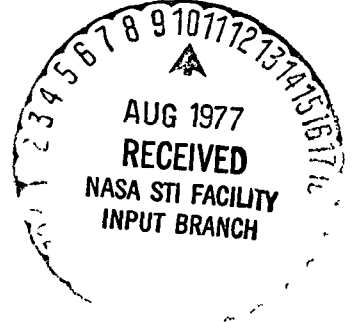
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VOYAGER WILL CARRY 'EARTH SOUNDS' RECORD

On the chance that someone is out there, NASA has approved the placement of a phonograph record on each of two planetary spacecraft being readied for launch next month to the outer reaches of the solar system and beyond.

The recording, called "Sounds of Earth", whose contents were assembled by a group of prominent scientists and educators, was placed Friday (July 29) aboard the first of two Voyager spacecraft scheduled to be launched to Jupiter and Saturn.

(NASA-News-Release-77-159) VOYAGER WILL  
CARRY EARTH SOUNDS RECORD (National  
Aeronautics and Space Administration) 16 p

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Mailed:  
August 1, 1977

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The 12-inch copper disc contains greetings from Earth people in 60 languages, samples of music from different cultures and eras, and natural sounds of surf, wind and thunder, and birds, whales and other animals.

The record also contains electronic information that an advanced technological civilization could convert into diagrams, pictures and printed words, including a message from President Carter.

The main Voyager objective is to conduct a detailed scientific investigation of giant Jupiter and ringed Saturn, 11 of their moons and possibly Uranus, before leaving the solar system to journey nearly endlessly among the stars.

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The messages on the record were designed to enable possible extraterrestrial civilizations who might intercept the spacecraft millions of years hence to put together some picture of 20th century Earth and its inhabitants.

"Because space is very empty, there is essentially no chance that Voyager will enter the planetary system of another star," said astronomer Carl Sagan of Cornell University. "The spacecraft will be encountered and the record played only if there are advanced spacefaring civilizations in interstellar space."

"But, as the beautiful messages from President Carter and Secretary-General Waldheim indicate," he added, "the launching of this bottle into the cosmic ocean says something very hopeful about life on this planet."

The idea for the record was formulated by Sagan and the repertoire was selected by an advisory committee of prominent scientists, musicians and others. Sagan also was responsible for the plaques with a message previously sent into interstellar space aboard the Pioneer 10 and 11 spacecraft.

A phonograph record was chosen because it can carry much more information in the same space than for example, the Pioneer plaques. In addition, 1977 is the 100th anniversary of the invention of the phonograph record by Thomas Alva Edison.

Each record is made of copper and is in an aluminum protective jacket. It contains, in scientific language, information on how the record is to be played, using the cartridge and needle provided. The record begins with 115 photographs and diagrams in analog form, depicting mathematics, chemistry, geology, and biology of the Earth, photographs of human beings of many countries, and some hint of the richness of our civilization. Included are schematics about the solar system, its dimensions and location in the Milky Way Galaxy, descriptions of DNA and human chromosomes, photographs of Earth, the Voyager launch vehicle, a large radio telescope and human beings in various settings and endeavors.

This is followed by spoken greetings in approximately 60 human languages, including a spoken message by Kurt Waldheim, Secretary General of the United Nations.

The Voyager record next includes a sound essay on the evolution of the planet Earth, including sounds of weather and surf, the Earth before life, life before Man, and finally the development of human civilization.

The musical selections, which run to almost 90 minutes playing time, are representative of the cultural diversity of Earth, of many times and places, and include both Eastern and Western classical music and a variety of ethnic music. Included is music from Senegal, Australia, Peru, Bulgaria, and Azerbaijan, as well as jazz and rock and roll. In the classical repertoire are compositions by Bach, Beethoven, Mozart, and Stravinsky, as well as Javanese Gamelan, Indian Raga, Japanese Shakuhachi, and Chinese Ch'in music. The entire 16 2/3-rpm record runs nearly two hours.

Because of the aluminum cover and the emptiness of interstellar space, the record is likely to survive more than a billion years. Thus it represents not only a message into space but also a message into time, a point referred to in President Carter's message, which reads in part as follows:

"This is a present from a small distant world, a token of our sounds, our science, our images, our music, our thoughts and our feelings. We are attempting to survive our time so we may live into yours. We hope someday, having solved the problems we face, to join a community of galactic civilizations. This record represents our hope and our determination, and our good will in a vast and awesome universe."

Among the members of Dr. Sagan's Committee and others who played a major role in devising the Voyager record are Dr. Frank Drake, Cornell University; Dr. A. G. W. Cameron, Harvard University; Dr. Phillip Morrison, Massachusetts Institute of Technology; Dr. Bernard Oliver, Hewlett-Packard Corporation; Dr. Leslie Orgel, Salk Institute; Mr. Alan Lomax, Choreometrics Project, Columbia University; Dr. Robert Brown, Center for World Music, Berkeley, Calif.; Murry Sidlin, National Symphony Orchestra, Washington, D.C. and artist Jon Lomberg, Toronto, Canada. The record was produced by Timothy Ferris; the creative director was Ann Druyan, both of New York City.

The record was prepared for NASA as a public service by Columbia Records. Permission to use copyrighted material on the record has been given to NASA by the owners, also as a public service.

The first Voyager will be launched aboard a Titan Centaur rocket on August 20, and the second on September 1. They will arrive at Jupiter in 1979, Saturn and its rings in 1980, and possibly examine Uranus in 1986. The two spacecraft will be considered to have left the solar system when they cross the orbit of Pluto in 1989.

The Voyager spacecraft will escape the solar system at a speed of 17.2 km/sec (38,700 miles per hour), but this is a slow speed for interstellar distances. It will take at least 40,000 years before either spacecraft approaches another star -- passing it at a distance of about one light-year (six trillion miles). Other predictable approaches to stars will occur in 147,000 and 525,000 years.

(END OF GENERAL RELEASE. BACKGROUND INFORMATION FOLLOWS.)



CONTENTS OF VOYAGER RECORD

- Pictures (In Electronic Form)
- President Carter's Message (In Electronic Form)
- Congressional List
- UN Secretary General Waldheim's Message (Spoken)
- Greetings in 60 Languages
- Sounds of Earth
- Music

LANGUAGES HEARD ON VOYAGER RECORD  
(Not In Sequential Order)

Sumerian	Spanish	Turkish	Swedish
Akkadian	Indonesian	Welsh	Ukrainian
Hittite	Kechua	Italian	Persian
Hebrew	Dutch	Nguni	Serbian
Aramaic	German	Sotho	Luganada
English	Bengali	Wu	Amoy (Min dialect)
Portuguese	Urdu	Korean	Marathi
Cantonese	Hindi	Armenian	Kannada
Russian	Vietnamese	Polish	Telugu
Thai	Sinhalese	Netali	Oriya
Arabic	Greek	Mandarin	Hungarian
Roumanian	Latin	Gujorati	Czech
French	Japanese	Ila (Zambia)	Rajasthani
Burmese	Punjabi	Nyanja	

SOUNDS OF EARTH ON VOYAGER  
(In Order of Sequence)

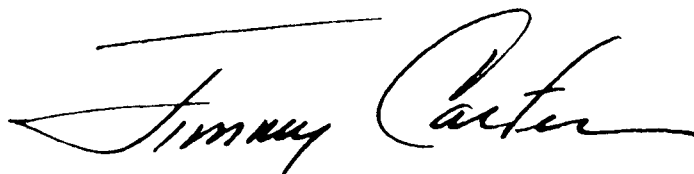
Whales	Footsteps and	Horse and Cart
Planets (Music)	Heartbeats	Horse and Carriage
Volcanoes	Laughter	Train Whistle
Mud Pots	Fire	Tractor
Rain	Tools	Truck
Surf	Dogs, domestic	Auto gears
Crickets, Frogs	Herding sheep	Jet
Birds	Blacksmith shop	Lift-off Saturn 5
Hyena	Sawing	Rocket
Elephant	Tractor	Kiss
Chimpanzee	Riveter	Baby
Wild Dog	Morse Code	Life signs--EEG, EKG
	Ships	Pulsar

COPY OF PRESIDENT'S MESSAGE PLACED ON VOYAGER RECORD

This Voyager spacecraft was constructed by the United States of America. We are a community of 240 million human beings among the more than 4 billion who inhabit the planet Earth. We human beings are still divided into nation states, but these states are rapidly becoming a single global civilization.

We cast this message into the cosmos. It is likely to survive a billion years into our future, when our civilization is profoundly altered and the surface of the Earth may be vastly changed. Of the 200 billion stars in the Milky Way galaxy, some--perhaps many--may have inhabited planets and space-faring civilizations. If one such civilization intercepts Voyager and can understand these recorded contents, here is our message:

"This is a present from a small distant world, a token of our sounds, our science, our images, our music, our thoughts and our feelings. We are attempting to survive our time so we may live into yours. We hope someday, having solved the problems we face, to join a community of galactic civilizations. This record represents our hope and our determination, and our good will in a vast and awesome universe."



President of the United States  
of America "

THE WHITE HOUSE,  
June 16, 1977

VOYAGER MESSAGE OF UN SECRETARY GENERAL

"As the Secretary General of the United Nations, an organization of 147 member states who represent almost all of the human inhabitants of the planet Earth, I send greetings on behalf of the people of our planet. We step out of our solar system into the universe seeking only peace and friendship, to teach if we are called upon, to be taught if we are fortunate. We know full well that our planet and all its inhabitants are but a small part of the immense universe that surrounds us and it is with humility and hope that we take this step."

Kurt Waldheim

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95. Artisan with drill, Frank Hewlett
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114. Spring Quartet (Quartetto Italiano), Phillips Recordings
115. Violin with music score (Cavotina)

MUSIC ON VOYAGER PHONOGRAPH RECORD  
(In Sequential Order)

1. Bach Brandenburg Concerto Number Two, First Movement, Karl Richter conducting the Munich Bach Orchestra.
2. "Kinds of Flowers" Javanese Court Gamelan, recorded in Java by Robert Brown, Nonesuch Explorer Record.
3. Senegalese Percussion, recorded by Charles Duvelle.
4. Pygmy girls initiation song, recorded by Colin Turnbull (Zaire).
5. Australian Horn and Totem song. Recorded in Australia by Sandra LeBrun Holmes. Barnumbirr-Morning Star Record.
6. "El Cascabel" Lorenzo Barcelata. The Mariachi Mexico.
7. "Johnny B. Goode", Chuck Berry.
8. New Guinea Men's House, recorded by Robert MacLennan
9. "Depicting the Cranes in Their Nest" recorded by Coro Yamaguchi (Shakubachi)
10. Bach Partita Number Three for violin. Gavotte et Rondeaus, Arthur Grumiaux, violin.
11. Mozart Magic Flute, Queen of the Night (Aria Number 14) Edda Moser, soprano.
12. Chakrulo. Georgian (USSR) folk chorus.
13. Peruvian Pan Pipes performed by Jose Maria Arguedas.
14. Melancholy Blues performed by Louis Armstrong. Columbia Records.
15. Azerbaijan Two Flutes. Recorded by Radio Moscow.
16. Stravinsky, Rite of Spring, Conclusion. Igor Stravinsky conducting the Columbia Symphony Orchestra.
17. Bach Prelude and Fugue, Number One in C Major from the Well Tempered Clavier, Book Two, Glenn Gould, piano.
18. Beethoven's Fifth Symphony, First Movement. Otto Klem Klemperer conducting. Angel Recording.
19. Bulgarian Shepherdess Song. "Izlel Delyo hajdutin," sung by Valya Balkanska.
20. Navajo Indian Night Chant. Recorded by Williard Rhodes.
21. The Fairie Round from Pavans, Galliards, Almains. Recorded by David Munrow.
22. Melanesian Pan Pipes. From the collection of the Solomon Islands Broadcasting Service.
23. Peruvian Woman's Wedding Song. Recorded in Peru by John Cohen.
24. "Flowing Streams"--Chinese Ch'in music. Performed by Kuan P'ing-Hu.
25. "Jaat Kahan Ho"--Indian Raga. Performed by Surshri Kesar Bai Kerkar.
26. "Dark Was the Night" performed by Blind Willie Johnson.
27. Beethoven String Quartet Number 13 "Cavatina", performed by Budapest String Quartet.