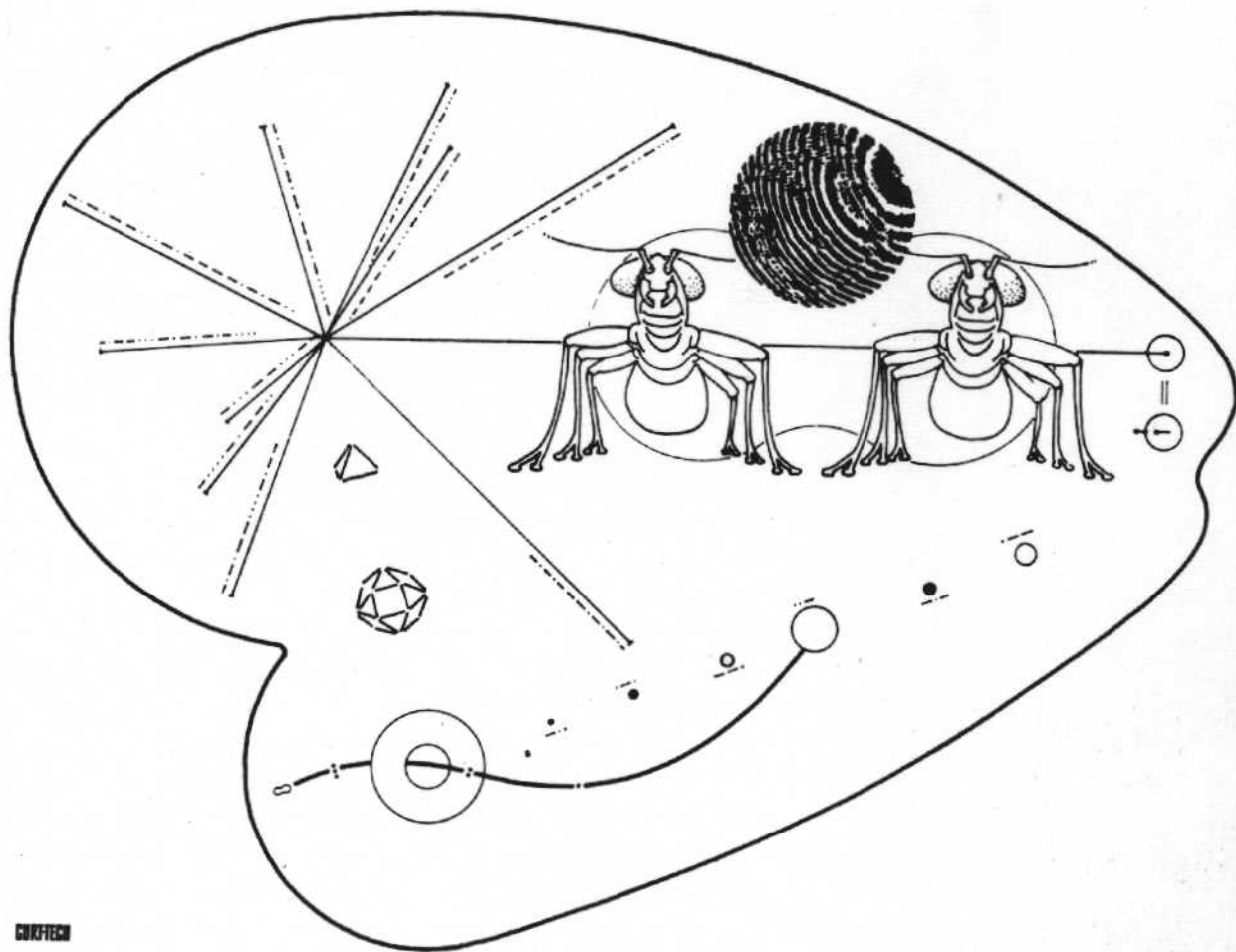


# Science



CORFIELD

## To Let Others Know We Are Here

Tonight, if all goes well, the United States will launch the longest space mission in history. Its primary goal is to send back to earth, some two years hence, close-up pictures and scientific observations of Jupiter, largest planet of the solar system. But a more exciting—albeit uncertain—mission is to announce to some distant civilization that we are here. It is the first official effort on the part of mankind to draw attention to itself. As the vehicle, Pioneer 10, passes Jupiter, the gravity of that planet will seize it and hurl it out of the solar system. It will sail indefinitely through the vast reaches of the Milky Way Galaxy, carrying a message (reproduced above) in the form of a gold-coated aluminum plate, for any members of other planetary civilizations who may happen to encounter it. Scientists agree, however, that the chances are very slim indeed.

The message is designed to be decipherable to any scientist, regardless of his physiognomy, history or location in space and time. The symbol, upper left, draws attention to the two states of the hydrogen atom as the unit of time (radio frequency) and distance (wavelength) to be

used. The star-like diagram shows the position of the earth relative to 14 pulsars. These are stars that emit radio pulses at regular (though in some cases slowly changing) rhythms. Solid lines indicate the relative distances of these pulsars. The dashed extensions of these lines are marked with tics indicating the rate at which that pulsar is pulsing. The rate could be used to identify each pulsar, much as each lighthouse has its characteristic rhythm. Since a few pulsars are slowing their rate, the message also indicates roughly the time of launch.

The long horizontal line extending to the right behind the two figures indicates the direction to the center of the Milky Way Galaxy. The figures stand in front of a schematic diagram of the spacecraft with its dish-shaped antenna to give an idea of the dimensions and appearance of earth's inhabitants. The man's hand is raised in friendly salute. Below is a representation of the solar system with the sun at the left, showing that Pioneer 10 was launched from the third planet out from the sun and then was thrown out of the system by Jupiter's gravity.

—WALTER SULLIVAN