

## Exobiology

Exobiology is the study of life beyond the Earth. We now think life must be very common in the Universe. There may be life on every planet like the Earth.

### Planets and Stars

Life cannot exist on stars because they are too hot. Stars are very large masses of burning gas. Even their coolest part, the surface, is several thousand degrees. However, life can live on a planet which orbits a star. The star the Earth orbits we call the Sun. Planets are much smaller than stars. They do not make heat but need a star to warm them up. Life anywhere in the Universe needs two things, a planet like the Earth and a star like the Sun.

### Other Life around our Sun ?

There may be many planets orbiting one star. Including the Earth our Sun has nine planets. Two of the others are Venus and Mars. It was once thought that intelligent life existed on Mars. This was because astronomers thought they saw canals there..

could live there. We believe this because the air on Mars contains very little oxygen and water. The U.S.A. will soon launch the Viking spacecraft to Mars. It will look for this very simple life.

Venus has a thick atmosphere. This makes it too hot for life. It is about 600 °F (370 °C); so hot that lead would melt just lying on the ground !

The other planets around our Sun are either too hot or too cold for life. They are either very near or very far from the Sun.

#### Life around other stars ?

At nighttime we can see many thousands of stars. With telescopes this number is much increased. Our Sun is just one of those stars. Scientists realised this many years ago. Since then many men have wondered how many of these stars have inhabited planets. If the people on them are like us they will know about radio. We could detect them by receiving the radio signals made by intelligent life all the time; signals from radio and television stations, ships and aircraft. Two American astronomers tried

to do this in 1960. First they had to consider which star to listen to.

Which star ?

If it is nearby, the signals will be stronger. So they wanted a nearby star. Big stars do not live long. All stars are born, live and die. They may live between 10 million years and 100,000 millions years. Our Sun, for example, will die in 5000 million years. The astronomers decided that stars above a certain size were too big. They did not live long enough for life to evolve.

But small stars do not heat up much space, and a planet might not be near enough. The star must not be too small either.

There are lots of other kinds of star the astronomers decided to ignore. Some stars flare up. It is quite sudden and unexpected. Thousands of millions of tons of hot flaming gases jet out from the star. Life on any planet near one of these would not last very long. Other stars blow up like balloons. Slowly they grow to be twice the size they were, engulfing anything nearby. They usually return to their old size, but life on any nearby planet would be

killed. Some stars orbit other stars. They are called Binaries. Any planet near one of these would have a really strange set of seasons. Summer might be two months long one year and two days long the next! No life would exist many years on such a planet, so the astronomers ignored these too. It may sound as if there are few stars which will allow life on their planets. In fact, besides all these strange ones, there are millions of ordinary medium sized stars like our Sun. Two of them are very near. They are called E Eridani and T Ceti.

#### Contacting life in the Universe

The project to listen for life around E Eridani and T Ceti was called Project Osma. The radio telescope used was the 85 foot dish at Greenbank, Virginia. All kinds of man-made radio signals in the area were stopped. After many hours of listening, and after one false alarm they gave up without success.

But astronomers are still trying. At the moment Pioneer 10 is on its way to the stars. It will collect information while traveling and radio it back. In case it meets intelligent life someday it contains a message. The message tells where it came

Sears D.W. (1974a) Exobiology. Contribution to a children's encyclopaedia.

from. Writing the message was difficult.  
The problem was to make it understandable  
to people from another planet. The message  
is made of symbols and pictures. We will  
not know if we have solved this problem  
until, oneday, we meet someone from another  
planet.