

## WORKBOOK 2

### EXPOSING THE UNNATURAL: LIFE ON EARTH, LIFE ON MARS.

#### PART 2 ASSIGNMENT Complete and hand in to your instructor before commencing Part 3.

Name: ..... Class ..... Date .....

Remember that our coin tossing and dice throwing experiments showed that a **Designed** or **Manipulated** reaction can be recognised by the fact that when a number of results were naturally possible, one result was obtained far more than expected. The result was **unnatural** because **Outside Information** had been added which was not due to **Natural Properties** of the system.

Let us apply and expand these principles to some work already covered: Miller's Amino Acid experiment. Remember Miller set out to demonstrate biological molecules could be manufactured by natural spontaneous processes. When his experiment produced amino acids, this was claimed as proof that processes resulting from **Natural Properties** could explain the origin of life. Our analysis of Miller's work, discovered each amino acid had two possible forms: left and right handed which Miller obtained in roughly equal quantities.

#### THINK IT THROUGH

2-1. One bacterial group is known to use right handed amino acids in the construction of its protein coat. When the proteins for the coat are in place, the bacteria then uses an enzyme to convert all the right handed amino acids to left handed. Could such a two step protein coat manufacturing system arise spontaneously? Explain.

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## BODY SUGARS

Some present day spontaneous generationists (evolutionists) now believe the first 'life' molecules were RNA and not protein (amino acid chains). **RNA** stands for RiboNucleic Acid, an important molecule in life's biochemical processes. The "R" stands for **Ribose**, which like its chemical cousins, **sucrose, glucose, and fructose**, is a member of the **sugar** family. Sugars are **carbon chain compounds**. Like amino acids, they also come in left and right handed varieties, but the ribose molecules in RNA are exclusively right handed.

**THINK IT THROUGH**

2-2. Does the observation that amino acids in your body are exclusively left handed and the sugars in your RNA exclusively right handed fit the explanation life could have originated unnaturally by manipulation through the supply of outside information? Explain your answer.

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2-3. Is RNA more or less likely to spontaneously arise than protein? Explain your answer.

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2-4. Life involves thousands of complex molecules as well as proteins and RNA. Many of these complex molecules have an L & D form. Only one form of these molecules is used in the living cell. Does life seem to be more like the result of (a) spontaneous reaction caused by the natural properties of molecules, or (b) the unnatural manipulation of these molecules due to the supply of **Outside Information**? Explain.

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## **LIFE FROM OUTER SPACE?**

On September 28, 1969 a meteorite fell near Murchison, Australia. It contained amino acid molecules like those found in proteins of creatures living on earth. Did these molecules get into the meteorite after it fell, or were they brought in from outer space? What is the evidence?

Firstly, samples were collected the same day the meteorite fell and handled very carefully to prevent contamination.

Secondly, the meteorite was found to contain some amino acids not found in living things on earth. Of ten amino acids found in the Murchison meteorite, six of them - glycine, alanine, valine, proline, aspartic acid, and glutamic acid - are found in all life on earth, but four - Isovaline, Norvaline, N-Methylalanine and N-Ethylglycine - are not.

Thirdly, the amino acid molecules were similar in identity and proportions to those formed in Miller's Amino Acid experiments.

Fourthly, each amino acid identified in the Murchison meteorite was present in roughly equal amounts of the D (right) and L (left) forms.

### **THINK IT THROUGH**

2-5 What is the probability the amino acids in the Murchison meteorite came from earthly contamination after it fell? Explain.

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2-6. What is the probability that the amino acids in the Murchison meteorite are from living things? Explain.

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2-7. Radioastronomy has revealed the existence of organic molecules outside our solar system. If some of these molecules had L and D forms and were formed spontaneously, what prediction could you make about the percentage of L and D forms present?

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2-8. A report 9th August 1995 in the Courier Mail Brisbane Australia stated:

*“Two Australian scientists have been invited to search for life on Mars. Canberra geologist Richard Henley and Macquarie University palaeontologist Malcolm Walter will meet in London in January to discuss strategies to hunt for ancient “Martians”.... The United States space agency NASA is expected to launch the first of four probes to the red planet in November 1996. The probes are expected to take six months to reach Mars.*

*They believe the key to success lies in extinct volcanic hot springs.....*

*The probes will be directed to land on fossilised hot springs to search for chemicals indicative of primitive forms of life.”*

Now that we have been to Mars (July 1997) did anything discovered on Mars support the spontaneous evolution of life?

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**HAND YOUR COMPLETED ASSIGNMENT SHEETS TO YOUR INSTRUCTOR PRIOR TO COMMENCING PART 3.**

**Instructors Comments and Rating**

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