ASTRONOMY

Life On Mars?

Quotation from THE UNIVERSE OF STARS. Chapter on "Life in Other Worlds?" by Harlow Shapley. Cambridge: Harvard Observatory. Dr. Shapley is director of the Harvard College Observatory.

There are, I believe, at least seven absolute necessities for organic origin and development on a planet of this solar system. They are conditions that must be met to insure existence of water in a liquid form, and to insure environments otherwise suitable. If a planet conspicuously fails to fulfil a single one of these conditions, it probably fails as a possible abode for life. Even if it fulfils all these requirements, other factors may enter, and hinder high development of the terrestrial sort, or possibly even prevent the most lowly of origins.

For living is precarious. Organic reactions and reactors cannot endure severe hardships. They cannot withstand, except under very favorable conditions, the cruel buffeting of a material universe. Variations of temperature must be moderate, and extremes of temperature must be of short duration and quickly alleviated. Otherwise animate things return precipitately to the inorganic clay from which they sprung. Excesses of pressure cannot be borne by fragile earthly creatures. Life, as we know it, cannot even come into being if the chemical constitutions of soil and air differ very much from terrestrial conditions.

The seven conditions necessary to the existence of life may be briefly stated as follows:

1. The radiation emitted by the source of energy (the Sun in our case) must be constant in quantity and quality over a considerable interval of time.

2. The distance of the planet from the source of energy must fall within suitable limits, in order to maintain water in the liquid form on the surface.

3. The orbit of the planet must be approximately circular, because its distance from the Sun must not deviate greatly from its average value.

4. The planet must rotate with a satisfactory period, in order that the alternating conditions of day and night may be endurable.

5. For the same reason, the axis of rotation must be suitably inclined to the plane of the planetary orbit.

6. The mass, that is the amount of matter in the planet, must not be too small nor should it be too large, if higher forms of life are to be expected.

7. The chemical constitution of the planet's covering of land, water, and air must conform to a very definite prescription for life of the terrestrial kind.

Venus, so far as we can see, more nearly fulfils the conditions than any planet other than the Earth. Its mass and orbit are certainly favorable, its distance, rotation, and chemical constitution are probably not unfavorable, but we cannot penetrate the dense covering of clouds and seek out the secrets of its surface.

Low forms of life may exist on the planet Mars, where the thin atmosphere does permit our telescopic explorations. High forms of life are generally deemed improbable at the present time, and beings comparable with man and other terrestrial mammals are considered utterly impossible. The frequent suggestion that we might exchange signals with organisms on Mars is, I think, extremely preposterous. Those absurd people who try or recommend such experiments should practice communicating with carrots and jellyfish. If they succeed in establishing relations in that field, they may have some luck with the Martians.

Science News-Letter, November 6, 1926

GENERAL SCIENCE

Pioneers of Thought

Thoughts that great hearts once broke for
We breathe cheaply in the common air.
The dust we trample heedlessly
Throbbed once in saints and heroes rare,
Who perished, opening for the race
New pathways in the common place.
Lowell: *Masaccio.*

Science News-Letter, November 6, 1926

GENERAL SCIENCE

Truth, Clothed

Quotation from Jean Henri Fabre, translated by P. F. Bicknell.

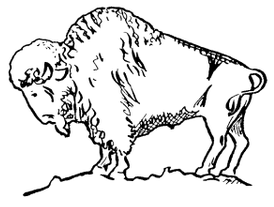
Truth, it is said, comes naked from the bottom of a well. Agreed. Nevertheless we must admit that it gains by being decently clothed. It demands, not the frills and furbelows of rhetoric, but at least a fig-leaf. Mathematicians, and they only, have a right to refuse it even this modest costume. In demonstrating a proposition of geometry, clearness is enough on the mathematician's part. But all others, and naturalists especially, ought to drape a tunic of gauze around the loins of truth, and to do it with some little regard to elegance of appearance.

Science News-Letter, November 6, 1926

BIOLOGY

NATURE RAMBLINGS

By FRANK THONE



Free Buffalo

This fall the U. S. National Park Service is again giving away bull bisons—surplus animals from the Yellowstone Park herd, which has now grown to a size that will admit of no increase, at least on its present range in the Lamar valley. Starting a little less than a generation ago, with a couple of dozen animals brought in from outside ranches, the herd has increased to approximately 850, at which level the Park Service wishes to maintain it. Hence the offer of valuable beasts to any one able to provide suitable livings for them and willing to pay for their capture and transportation.

In past years the officials of the Park Service have been much pestered by requests from people who thought that bison bulls could be kept in a suburban back yard, and would make nice pets for the children. These people also thought the animals would be sent free of charge under government frank. To clear up these illusions, the Service has made it plain that these bison are virtually wild animals, even more stupid and ferocious than the bulls of domestic cattle, and that they need to have plenty of space, inside of high and very strong wire fences. They state further that they are unable to give away anything more than just the animals themselves, and that the cost of catching them and bringing them to the railhead at the Park entrance must be borne by the persons receiving them. To this must be added the express charges from the Park entrance to destination, so that a bison is not exactly a cheap gift. Requests for these animals come mostly from city parks, zoological gardens, and similar institutions.

Science News-Letter, November 6, 1926

The regular diet of the king cobra consists of other snakes.

The first typewriting machines wrote only in capital letters.

The algaroba is the most valuable tree in the Hawaiian Islands.

Science News-Letter, November 6, 1926

News-Letter Features

Born over four years ago, on March 13, 1922, of the demand and interest of those individuals who had caught a glimpse of *Science Service's* news reports to newspapers, the SCIENCE NEWS-LETTER has since proved interesting to laymen, scientists, students, teachers and children.

Into the pages of the NEWS-LETTER are fed the cream of *Science Service's* output directed at the newspapers of the world. To this is added material especially prepared.

Turn the pages and note:

It is a *separable* magazine. You can clip or tear out any article without losing or damaging another article on the other side.

Each article is automatically *indexed* by the key word printed above its heading. (See page 82 for explanation.)

Each article is automatically *dated* by its last line.

Books are *reviewed in brief* as they are received from the publishers.

The classics of science and striking passages from current books, addresses and periodicals are carefully selected and published.

Important *anniversaries* of science are appropriately noted week by week in a special department.

Regular articles tell of the happenings in the *skies* and in the great *outdoors*.

Photographs aid in the telling of the week's science.

Science News-Letter, November 6, 1926

Past Volumes

Nine volumes of the SCIENCE NEWS-LETTER have been issued in mimeographed form. Volume I consisted of numbers 50 to 90, inclusive, including the period March 13 to December 30, 1922; thereafter volumes consisted of 26 numbers covering half-year periods, with the exception of Volume IX which consisted of numbers 273 to 285, inclusive, and included the three-month period of July, August and September of this year. Volume X began with No. 286, the first to be printed, and will cover only the three last months of this year. Thereafter volumes will cover half-year periods. The pages in each volume will be numbered consecutively.

Science News-Letter, November 6, 1926

Fifty million rabbit skins are turned into felt hats each year in this country.

Traces of microscopic living organisms have been found in American rocks over 600,000,000 years old.

At a very low temperature tin falls to a gray powder having a greater volume than the original metal.

Siena, Italy, has established a day nursery and kindergarten as a memorial to its soldiers who died in the war.

An organic glass invented in Vienna transmits ultra-violet rays of the sun which are stopped by ordinary glass.

The United States Forest Products Laboratory is cooperating with a number of paper mills in a study of fiber losses.

The puckery taste of the unripe persimmon is attributed to the particular form of tannin in the cells of the green fruit.

Science News-Letter, November 6, 1926