

ASTRONOMY—PSYCHOLOGY

Mars Gases Exclude Life

Martian life is highly unlikely due to poisonous gases. Intelligence may have 120 facets, and taste sensations have been measured.

LIFE of any kind on Mars is highly unlikely because the Martian atmosphere contains poisonous gases, three scientists reported to the National Academy of Sciences meeting in Washington, D. C.

The poisonous compounds are oxides of nitrogen, one cause of earthly—and also noxious—smog. Drs. C. C. Kiess, C. H. Corliss and Harriet K. Kiess of the National Geographic Society and the National Bureau of Standards said their theory about the reactions of nitrogen oxides could explain many observed Martian phenomena.

The polar caps, the doctors Kiess had reported to astronomers, are due to chalky white deposits of nitrogen tetroxide. Their yellowish tint is due to nitrogen dioxide in equilibrium with the solid nitrogen tetroxide. Absorption by nitrogen peroxide explains the low reflecting ability of Mars in green, blue and violet light.

The dark belt bordering the melting polar caps is believed liquid nitrogen tetroxide with other nitrogen compounds in solution or could be due to wetting of the Martian surface. The spread of heavy, gaseous nitrogen tetroxide over the dark areas, toward the equator, accounts for the seasonal change of color shown by them.

In the Martian atmosphere, nitrogen oxides may exist in both gaseous and solid phases, and, in these forms, account for observed meteorological changes, the scientists said. As tiny crystals, at the temperatures prevailing at various altitudes and latitudes, they could cause the haze and blue and white clouds known to occur.

The infrequent blue clearing is believed due to a shift in equilibrium from nitrogen dioxide to nitrogen tetroxide, owing to a cold wave. During a heat wave, the shift would be toward higher concentration of nitrogen dioxide, thus accounting for the yellow clouds that, at times, are planet-wide.

If this view of Mars is correct, the planet can be considered as a gigantic photochemical nitrogen fixation plant. The known toxic effects of nitrogen oxides "argue against existence of living organisms" on Mars, they concluded.

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Predicts Mental Abilities

MANY FACETS, or abilities, of human intelligence are still to be discovered, Dr. J. P. Guilford, University of Southern California psychologist reported at the meeting.

Scientists have known for some years that intelligence is not just a single talent, but as many as 55.

The total, Dr. Guilford forecast, may eventually be found to be 120 or more.

Knowledge of the new factors will increase the possibility of understanding and measuring such talents as creative thinking and judgment.

Education, Dr. Guilford predicted, may again emphasize "training the mind" rather than instruction in skills.

Dr. Guilford made his predictions on the basis of the basis of the construction of a mathematical "model" of mental abilities.

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Measure Taste Strength

TUNING in on the nerve in the tongues of animals and in the brain centers governing taste, scientists have obtained a measure of the strength of taste sensation.

This has been found to be in proportion to the behavior consequences of the taste, Dr. Carl Pfaffmann of Brown University, Providence, R. I., told the meeting. A rat will learn to run toward a reward of sugar, for example. The sweeter the solution he is rewarded with and the more intense his taste, the stronger will be his impulse to run toward it.

If the rat is given a substance which tastes bad to him, it will have the opposite effect on the animal—he will run away from it. But still the strength of his tendency to run is in proportion to the strength of the taste sensation as measured electrically from the nerves.

In some cases there is a duplex effect on behavior; the rat will run toward a weak solution, but will run away from a strong solution. With some substances, a little is good but too much is repellent.

Science News Letter, April 30, 1960

AGRICULTURE

Use of Lime, Fertilizer Crowds Out Red Sorrel

THE WEEDS in your lawn can be crowded out by making the grass grow thicker.

A dense, healthy turf is a good defense against sheep sorrel and other weeds, Dr. Felix V. Juska of the U.S. Department of Agriculture, Beltsville, Md., told the Weed Society of America meeting in Denver, Colo.

Sheep sorrel, a serious lawn and turf weed throughout the Northeast and Midwest during the warm months, grows six to 15 inches high. It has a slender stem with green or red flowers in clusters two to ten inches long. Often called red sorrel, it is difficult to control with herbicides alone.

Working with a thin turf of common Kentucky bluegrass and red fescue heavily infested with sheep sorrel, Dr. Juska found that applying 6,000 pounds of lime per acre, along with fertilizer in the spring and fall of each year, drastically reduced the sorrel.

This was because the resulting dense turf crowded out the weed, he said. The weed will not compete with desirable grasses in soils of high fertility and low acidity.

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TAILOR-MADE GLASS—Beakers, flasks and tubes are made to order for Parke, Davis & Company research chemists by glass blower Harry Rietman who also repairs apparatus broken during experiments.