

EVOLUTION

Man May Disappear As Step Toward Higher Things

MAN'S future fate is either extermination or the oblivion of having been a stepping-stone for a higher sort of being in the evolution of the future, Sir James Jeans, noted English scientist, recently warned in a public lecture:

"Man's success has come to him only yesterday in the history of the earth," he said. "He had to fight wild beasts, and man has not always prevailed. He must still fight for his position on earth.

"If man fails in his fight, he may be

exterminated by smaller beings, perhaps by microbes.

"If he succeeds, his capacities may gradually be extended and increased until he develops into something entirely different and possibly superior to man of the present.

"Posterity ten million years hence may well differ as much from us as we do from our lowly ancestry of ten million years ago."

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PHILOLOGY

Place of A at Beginning Of Alphabet is Explained

IN LANDS of the Near East, a man does not start on a journey or begin work without calling God's name. And that, says Dr. George Lamsa, is why the alphabet begins with A.

A is for alep, ox. And in the days when some thoughtful person devised alphabet signs to represent sounds, the ox was worshipped as a god for its strength. It was proper, in the Near East, to begin the alphabet with a sign of deity.

Dr. Lamsa, Assyrian student of languages and Biblical subjects, has aroused interest by his new explanation of the alphabet's evolution.

Oriental psychology, he declares, played an important part in the alphabet's early form. But this has heretofore been overlooked.

The second letter, B, stood for house. But Dr. Lamsa points out that this was not merely chosen as a familiar object. It was a symbol of the family, or man. It properly came second to God. The third sign, which meant camel, stood for transportation. And so on through the early alphabet, there are certain meanings deeper than those ordinarily assigned to the picture-signs.

Dr. Lamsa compares the alphabet's evolution to that of the automobile: from a two-cylinder affair, to four, six, eight cylinders.

Writing started with signs. The crude signs in Near Eastern writing changed

to a wedge-shaped system called cuneiform writing. And then somewhere in the Near East, he believes, the great invention of an alphabet was made, so that a small set of signs might serve to express a whole language.

When and where the alphabet was invented is still debated in scientific circles, because of missing links in the evidence. Dr. Lamsa points out that the Near East is likely to remain a land of missing documents on this and other important historic matters. The reason is again Near Eastern psychology. When Assyrians and other Near Eastern peoples became Christian, or otherwise changed their religion, they swept out and destroyed the literature of their pagan past.

"Not many people realize," said Dr. Lamsa, "that this was, and still is, true. If I were to become a Mohammedan, I would have to burn my religious books. And any swine I possessed must be killed."

Race and religion are responsible for the changes that have taken place in the alphabet, since its introduction, he finds. As an example, Assyrians, Greeks, and others left the Nestorian Christian church in Persia, in 431 A.D. and as Jacobites they made changes in the characters of their alphabet.

This sort of difference survives in the Near East today, Dr. Lamsa points out. A man will say that he is a Jacobite or a

Nestorian. The other man may reply, "Write." And the form of writing he uses is his passport of identity, accepted by the stranger.

Dr. Lamsa is best known for his translation of the Four Gospels of the Bible from the Aramaic version. Aramaic, which was spoken by Jesus, is still the language of the land of the New Testament.

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PUBLIC HEALTH

New Way to Measure Extent of Mottled Enamel

DISCOLORED teeth with ugly brown spots that no amount of scrubbing with any kind of tooth paste or powder will polish to shiny whiteness, are the unfortunate lot of all the children in certain towns in the United States.

Just how much there is in the whole country of this disfiguring, incurable condition, known as mottled enamel, is unknown. A method for determining the extent of the disease, however, has now been developed by Dr. H. Trendley Dean and Elias Elvove of the U. S. Public Health Service. Dr. Dean described the method at the meeting of the American Public Health Association.

Mottled enamel is caused by fluorine in the water used for drinking and cooking during the period when the child's permanent teeth are being calcified. It cannot be cured, but it can be prevented by using water that does not contain harmful amounts of fluorine. As little as one part of fluorine in a million parts of water will probably cause the condition. Practically, prevention is a difficult matter, since it may involve changing the water supply of a community. In many of the communities where the disease is prevalent, especially in the Southwest, the fluorine-containing water is the only water available.

At present there are in this country alone more than 300 areas where the condition is prevalent. The areas are distributed among 23 states. There are no figures as to how many American children are afflicted with the condition, but the total number must be quite large, since as many as 90 per cent. are affected in some communities and 100 per cent. in others.

The quantitative method of determining the extent of the condition has now been applied in ten cities, Dr. Dean reported. These are Amarillo, Plainview, Lubbock and Big Spring, Texas; Colorado Springs and Pueblo, Colo.; Mon-

mouth and Galesburg, Ill.; and Conway and Mullins, S. C.

The method reported by Dr. Dean takes into account two factors. One is a common water supply which has not been changed in either its source or physical set-up during the life of the group of children examined. The other

is examination of a group of at least 25 children all nine years old or more who have used the water supply continuously since birth for both drinking and cooking. From these two factors may be determined the "mottled enamel index" of a community.

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PHYSICS

New Theory of Cosmic Rays Advanced by Dr. Swann

A NEW theory of the nature of cosmic radiation, rays constantly bombarding the earth and its inhabitants, is suggested by Dr. W. F. G. Swann, director of the Bartol Research Foundation of the Franklin Institute.

Dr. Swann's hypothesis, explaining cosmic rays as electrically charged particles, welds together some eleven known experimental findings which have puzzled scientists for years. His report appears in the *Physical Review* (Oct. 21).

Science Service has asked Dr. Swann's colleague, Dr. W. E. Danforth, to interpret the new hypothesis in simple language.

Dr. Danforth's statement follows:

Explanation of The Swann Theory of Cosmic Rays

By DR. W. E. DANFORTH, Bartol Research Foundation

ARE cosmic rays a sort of super X-ray, i. e. very high-powered "bullets of light," or are they particles or matter bearing electrical charges?

Until recent years the former possibility was almost universally favored. The recent journeys of scientists, bearing cosmic ray detectors to various parts of the world and to mountain tops, however, have proved that these projectiles, which pelt down upon us from interstellar space, are affected by the earth's magnetic field. Therefore they must consist, at least in part, of electrically charged particles such as electrons or protons.

A complete theory of cosmic rays, however, has a host of facts to explain. A theory must, for instance, result in a mathematical formula from which the number of cosmic rays at any altitude can be calculated. The appeal to physicists of the "super X-ray" or "photon" theory lay in its success in giving the

correct altitude formula. But now that a large part of the cosmic radiation is known to be of electrically charged nature, this success of the photon theory appears illusory.

A new form of charged particle theory, which enables one to explain all of the major known facts about cosmic rays, including the precise way in which their intensity varies with altitude, is propounded in the current issue of the *Physical Review* by Dr. W. F. G. Swann of the Bartol Research Foundation at Swarthmore, Pa.

Perhaps the boldest aspect of this theory is the supposition that the original (or "primary") rays continue right through our atmosphere in undiminished numbers until they bury themselves in the earth. But what, the reader may ask, about the fact that on a mountain top there are many times as many rays as at sea level? To this question Dr. Swann replies that nearly all of the rays which affect cosmic ray detectors are not the original primary cosmic rays, but are other electrically charged particles knocked out of atoms by the primary rays as the latter traverse the atmosphere. These secondary rays fly forward with practically the same direction as the primary which produces them. Some energy is lost by the primary every time it produces a secondary.

One of the cornerstones of the theory is the supposition that the number of secondaries produced in a given distance, is in direct proportion to the energy of the primary ray. Strangely enough, the theory permits a primary charged particle to be changed into something else, e. g. a bullet of light, once it is within the atmosphere.

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Whalers in the southern seas used to get 60 to 70 barrels of oil from a whale; now the industry manages to extract almost twice that much.

ARCHAEOLOGY

Finds of Cave Man Art Made in Interior Spain

NEW finds of the art of the Crô-Magnon cave men have been made in two caverns in the province of Guad-alajara, Spain, by a father-and-daughter team of archaeologists, Juan Cabré and Maria de la Encarnacion Cabré. The style of the drawings identifies them as belonging to the Aurignacian period of Old Stone Age culture; they include as subjects plants as well as animals, and men or at least man-like figures—for the human representations are far less realistic than those of animals.

The man-like drawings are shown in both hunting and fishing scenes, and at least one of the figures is shown swimming.

Many of the animals represented are extinct, or at least are no longer found wild in Europe. These include bison, aurochs, rhinoceros, wild horse and wol-verine. Among animals still existing in the wild state are deer and goats, together with the representation of one bird.

As in many other cave-studios of Old Stone Age art, the walls were used several times over, so that now the outlines of several animals may be seen cutting through each other.

The figure of the rhinoceros is of especial interest. It is shown covered with wavy lines, which probably indicate that it was the extinct woolly species, adapted to the Ice Age climate.

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BY AN OLD SPANISH MASTER

Newly found cave drawings of the Old Stone Age. The animals represented in this sketch are deer, wild horse, wild cattle and (upper left) rhinoceros.