

## New Neanderthal Skull

By E. N. FALLAIZE

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New relics of ancient man have been uncovered in the famous English stronghold at Gibraltar, it was announced for the first time in public at a recent meeting of the Royal Anthropological Institute.

Miss Dorothy Garrod, who found parts of a Neanderthal skull at the Devil's Tower, Gibraltar, in the early summer of 1926, returned to carry out further excavation in the cave in the autumn of the same year. In clearing the deposits in the cave and outside the entrance down to bed rock, she came across further fragments of a human skull, including the lower jaw. Ever since then members of the anatomy department of the University of Oxford have been engaged in the extremely delicate task of clearing the fragments from the hard deposit in which they were found, and studying them.

Although the skull is imperfect and all the fragments do not come from the same side of the head, symmetrically corresponding casts have been modelled on the bones that have been found. It has thus been possible to show that all the bones belong to the one skull, and to reconstruct the whole skull. A cast of the inside of the skull has been made, showing the form of the brain. This has been studied by Prof. Elliot Smith of University College, London. The skull itself has been studied by L. H. Dudley Buxton of Oxford, who is responsible for the reconstruction.

The cave which Miss Garrod excavated in the spring of 1926 was first observed by the Abbe Breuil during the World War, when excavation was impossible. The portions of the skull first discovered were found embedded in hard travertine rock, from which they had to be blasted with dynamite. In the excavations in the autumn the cave was cleared down to bed rock, and the further fragments of the skull were discovered. The associated remains of animals indicated that the skull was of Pleistocene or Glacial age, while the implements were of upper Mousterian type. Certain animals, usually found in Pleistocene caves, were not present, but these were such as belonged to a climate colder than Spain, and therefore would not be expected to appear.

The cave had apparently been used as a place of habitation, but only in certain seasons, as it faces due north.

Although there are certain gaps which make reconstruction a matter of considerable difficulty, there is no reasonable doubt that the bones belong to the same individual, as many of the pieces fit together, and those which do not, can be shown to belong to the same skull by duplicating the bones.

Apart from other details, the age is best indicated by the teeth. The first permanent molars were never erupted, but were nearly ready to erupt. It is therefore reasonable, Mr. Buxton says, to put the age at between the fifth and sixth year, as the permanent molars erupt in the latter year. This is merely an indication as we have no evidence that the teeth of Neanderthal man erupted exactly at the same time as those of modern man.

It seems probable from the size and general characters that the sex was male. Mr. Buxton further points out that although the brow ridges have not yet attained that development which is so marked a feature in Neanderthal man, no doubt owing to the age of the specimen, the remains certainly belong to a member of that branch of the human family. Apart from details, the most striking characters are the low flattened form of the massive jaw.

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### Atoms Limit Accuracy

No matter how accurate and delicate human measuring devices may become, there is a definite limit beyond which measurements cannot be pushed. This is an effect of the structure of the atoms of matter themselves, Dr. Arthur E. Ruark, of the Mellon Institute at the University of Pittsburgh, said at the recent meeting of the American Physical Society. The reason for this, he said, is that the measuring devices themselves are always made up of atoms and are constantly changing.

"For example," said Dr. Ruark, "a measuring stick undergoes changes in length due to heat motions of the particles composing it and measurements of length made with its aid may not be pushed beyond a certain limiting accuracy even on the assumption that the observer is possessed of almost super-human skill."

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## Changing Our Environment

For the first time in the long history of the earth its living creatures are changing their physical environment by their reasoning powers.

Making this observation and noting the rapidity of the revolution of civilization now caused by science, a scientist-philosopher, Dr. F. R. Moulton, formerly a University of Chicago astronomer but now a power company executive in Chicago, looked at man and his world predicted the effects that science will produce in the future.

These, in essence, are the results of his analysis:

We are so immensely better off than our forefathers that no one has an adequate conception of the changes a hundred years have witnessed. For instance, for every man, woman and child in this country more than ten tons of freight are moved a mile every day, at a cost of only eleven cents, or twenty-five minutes of average labor. So vast is the amount of electrical power used that to duplicate it every inhabitant would have to work 24 hours a day and do the work of an able-bodied man. Yet this amount of labor is produced at the cost of less than ten minutes of human labor daily. And all this vast energy is equally available to all classes.

These vast changes in man's surroundings will affect his mental and physical characteristics, Dr. Moulton predicted.

Science through its taking of products from the ends of the earth and making them into automobiles and other new necessities will tend to end war. Easy and cheap communication and transportation, combined with the insistent demand for foreign products, most easily obtained through peaceful trade, will keep nations at peace and form great federations of countries. Government will become less politics and more science.

The brain of man, influenced by universal education, opportunities for leisure and study, the ceaseless and intense effects of noises, papers, books, movies, radio, travel and the thousand and one stimuli of today will, in Dr. Moulton's opinion, undergo radical changes.

"Our successors, say a million years from now, may surpass us as much in reasoning powers, in creative imagination, in esthetic appreciation and in lofty aspirations as we surpass in these respects our predecessors of a million years ago," Dr. Moulton said.

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