

"In war," he said, "the success or failure of the German submarine program depended on our ability to locate the submarine accurately. A man with a sensitive ear was needed to use the measuring device which located the submarine. By use of certain measures of musical talent we could pick with absolute certainty the man who had the good ears, and on such choice countless human lives and millions of dollars might depend."

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#### YOUNG CHILDREN HAVE LONG MEMORIES, TEST SHOWS

Children of two to six years learn better when they are taught a certain lesson on alternate days than when they are drilled on it every day. This evidence on the complex process by which human beings acquire knowledge was presented by Miss Julia A. Kirkwood, of the Iowa Child Welfare Research Station, before the American Association for the Advancement of Science recently.

It was found that if a child once learns to pair off a set of blocks and pictures without making mistakes, and then relearns the "block game" a year later the relearning will not take nearly so long.

"There have been very few investigations into the problem of how young children learn," said Miss Kirkwood. "If children are to be taught efficiently there must be thorough scientific knowledge of the process by which the child learns, and this can be acquired only from experimental results obtained by placing the child in a controlled learning situation, and by analyzing carefully the results obtained."

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#### SAYS MAN WAS ALWAYS A BIPED

Man stood on his own legs, weak-kneed though he was, from the time of his origin, for as Dr. Dudley J. Morton of the department of surgery of Yale University, told members of the American Anthropological Association at a recent meeting, fossil evidence shows that an erect posture has existed in the anthropoid ape stem as far back possibly as the Oligocene.

"Of all the great apes, the chimpanzee, the gorilla, the orang and gibbon, the slender and agile gibbon is the only one who has preserved good proportions between leg and body, although this fact is obscured by its long strong arms," Dr. Morton said. "It is an erect, running tailless biped, both in the trees and on the ground. The other apes have long powerful arms, shoulders and chests, weak pelvis and short legs, which show that they are predominantly treeclimbing.

Tree life may have enabled animals to develop the upright posture, Dr. Morton explained, for all animals which are familiar with tree life, or come from comparatively recent arboreal ancestry, assume erect squatting position easily and habitually. But all the arboreal animals but the primates, to which man belongs, are nevertheless essentially quadrupeds, for their thighs are not extended as in man.

"The ancient apes walked better than the modern ones," Dr. Morton said. "The antiquity of the erect posture in this line of creatures and the recognition of the physical changes that hand locomotion in trees will bring about, show that the quadruped posture must have resulted from the enfeeblement of the legs from under use and the bad balance of the upper part of the body from over development."

"Just as the long arms of apes were due to their tree-climbing habits, so the greater leg development in man resulted from his habit of walking on the ground. There must have been a time, Dr. Morton believes, when this development had gone about half way, when the arms and legs of both groups were of the same length. Such a condition, he thinks, would be the point where the ape and human stem separated.

"To the original human creature erect standing on the ground was a real physical effort, in spite of his precious experience of tree life," Dr. Morton said. "Without holding on to something, it would have been extremely difficult to stand for a long time."

Their feet were all toes and there was no heel to support the body weight. Their knees were still bent and their hips partly flexed, and the spine bent forward at the shoulders. The perfect body pose of modern man was of slow development in which great changes took place in the feet, leg, hips, spine and other parts of the body.

The entire human body, Dr. Morton said, has become remodelled on a central axis plan, and the weight of different parts of the body is so balanced that only slight muscular effort is needed to maintain the equilibrium of the whole. Man is the only animal today that grows straight up like a lily on a stem.

"Aboreal man, as a tree-living human being must be considered a myth," Dr. Morton said, "for the characteristics which definitely mark the human being as man are ones which are associated with terrestrial bipedism. The tree-living habits must have been given up long before the skeletal changes could have occurred."

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#### TELLS HOW AMATEURS MAY AID ASTRONOMERS

How amateurs, with no mathematical or other scientific training, can aid the professional astronomer to solve the mysteries of space was explained recently when Leon Campbell, of the Harvard College Observatory, told the listeners of radio station WEEI of the work of the American Association of Variable Star Observers and other bodies of lay astronomers. In fact, the amateur does not even need a telescope, for meteors may be observed with the unaided eye, it was said.

"When one realizes that millions of meteors enter the earth's atmosphere daily," said Mr. Campbell, "some of them no larger than grains of sand, others large enough to light up the heavens even in broad daylight, one soon perceives that there is plenty of work available in observing meteors, in counting them, gauging their positions and estimating their brightness, especially during meteor showers. If one watches any selected area of the sky on almost any clear night for, say, half an hour, he will be able to count several conspicuous meteors, and with no more than a passing knowledge of celestial topography, he can plot their paths and thus furnish material for determining the points in the sky from which they appear to come."