

until they were studying the magnetism present in the atoms themselves.

But let Dr. M. A. Tuve of Carnegie Institution of Washington tell the story as he does in *Scientific Monthly*. ". . . there is one really outstanding puzzle which all our knowledge of physics is still unable to explain, namely, the enormous permanent magnetic field of the earth . . . We now have measured the deepest forces within the atom, we have, so to speak, chased magnetism

all the way down to the smallest particles inside the atom, but we still have no clue to why the earth and the sun have such large magnetic fields, each related to their direction of rotation."

Dr. Tuve is referring to studies measuring the fundamental force which is found in the nucleus of atoms and which binds them together. The discovery of this attractive force has been one of science's outstanding finds of recent years.

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PALAEONTOLOGY

Third Java Ape-Man Skull Resembles Peking Man

A NEW-FOUND skullcap of *Pithecanthropus*, ancient ape-man of Java, is unique in showing a marked resemblance to the skulls of the Peking race found in caves in northern China. This resemblance consists in a noticeable arching or doming of the top of the skull, which is not present in the two previously known *Pithecanthropus* skulls, one discovered in 1937 and the other in 1891.

The new find is described (*Nature*, Oct. 15) by Dr. G. H. R. von Koenigswald, who works under the auspices of the Carnegie Institution of Washington, and Dr. Franz Weidenreich of Peiping Union Medical College, leader of researches at the Choukoutien caves where remains of Peking man are found.

The third *Pithecanthropus* skull, like its two predecessors, is a large fragment. It consists of the complete right parietal bone, which makes up most of the side of the skull, with part of the left parietal and a piece of the occipital bone, which forms the back of the skull.

The fragment exhibits a crest along

the top, together with a depression on the side, which the two researchers state "entirely correspond to those which are characteristic of the *Sinanthropus* skulls. The pronounced flattening of the cap, so specific for the two *Pithecanthropus* skulls known hitherto, is completely missing in the case of this new *Pithecanthropus* skull."

On the other hand, they point out, the new skull has certain features in common with both Java and Peking skulls, especially in a general lowness of the entire cap as compared with the higher doming in skulls of modern man, and in having its greatest width at the sides of the face just forward of the ears, instead of much higher up as in present-day races.

The condition of the sutures or seams between the bones indicates that the skull is that of a juvenile individual.

"All the new *Pithecanthropus* finds," the investigators remark in concluding, "demonstrate how important and promising it is to search for fossil man in Java."

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MEDICINE

One of World's Worst Pains Relieved by Vitamin B Doses

RELIEF for sufferers from tic douloureux, a facial neuralgia so painful that some victims commit suicide, has been obtained by massive doses of vitamin B administered by a clinic conducted at California Institute of Technology.

Of 12 cases just reported to the medi-

cal profession, eight are free from pain and four are so free that the pain bothers the victims very little. The research is being conducted by Dr. Henry Borsook, biochemist, Dr. C. G. Wiggins, oral surgeon, and Dr. M. Y. Kremers, physician.

Ten times the amount of vitamin B re-

quired by a normal person is administered by mouth and by injection. In a month patients begin to feel relief from pains. In another month, there is marked freedom from pain. Some who have suffered shooting pains for 20 years obtain relief for the first time.

This nerve disease, one of the most painful ills affecting mankind, previously was curable only by brain surgery, with alcohol injection of the nerve the only palliative.

One of the present patients of the clinic was on the verge of ending her life when she was picked up by the police. Detective William Cropsey of Pasadena realized that the pain shooting through her face might be relieved at Caltech. He took her to the clinic and now she is enjoying more freedom from pain than she has known in years.

The clinic started in April when a sufferer from this spasmodic trigeminal neuralgia walked into the Institute's Kerckhoff laboratory and inquired if vitamin B treatments would cure the disease. Dr. Borsook, who in previous experiments had achieved good results in relieving neuritis, started this new research, using highly concentrated vitamins.

Investigators Cautious

While astonishing results have been obtained, the medical men are not certain yet that the result will be permanent. However, they have no reason to be pessimistic. At the outset, they did not expect to secure any results for six months or a year. They were agreeably surprised in getting noticeable improvement in a month.

The patients, ranging in age from 21 to 79, with the majority over 45 years, visit Caltech each day for treatment and all come together once a week at a clinic. Treatment is free with Caltech defraying the expense.

The experiments enable observers to make an excellent study of the physiology of pain.

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