

tion. Undoubtedly, many a conscientious objector to military service would be willing to volunteer for such nutritional study.

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FALSE BLOSSOM IN PERIWINKLES AND ITS CURE BY HEAT

ONE of the chief difficulties in the study of false blossom has been the lack of a host in which the disease could be reproduced as it occurs in the cranberry which, for various reasons, is not a good experimental plant. Under the stimulus of finding a favorable host in which to observe the efficacy of heat treatments for cure of false blossom, attempts were made to transmit virus from cranberries to periwinkles (*Vinca rosea*). The parasite, *Cuscuta campestris* Yuncker, which had been shown to transmit certain other viruses,¹ was used. It proved to be an efficient vector. Through

its parasitic activities, false blossom was taken to periwinkles and also to potato, tomato, tobacco and *Nicotiana glutinosa* plants. Under favorable conditions the disease appeared in periwinkles within about one month after exposure to the parasite. The virus was readily transmitted in all the new hosts by grafting.

False blossom periwinkles were cured easily by heat treatments. Exposures at 40° C for one week cured the tops but not the roots, but exposures for two weeks cured both tops and roots. Diseased periwinkles were able to endure the treatments without serious injury. Whether false blossom can be cured in the cranberry has not yet been determined. Experiments designed to test this possibility are in progress. In its reaction to heat in periwinkles, false blossom virus behaves similarly to that of aster yellows.

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SCIENTIFIC BOOKS

SINANTHROPUS PEKINENSIS

The Extremity Bones of Sinanthropus Pekinensis.

By FRANZ WEIDENREICH. *Paleontologia Sinica* New Series D. No. 5. 82 pp. 20 tables. 34 plates. Peking, 1941.

THIS latest paper in the long series of studies of the *Sinanthropus* material by Dr. Weidenreich had received only a sparse distribution in the United States before the outbreak of war halted its importation. Because of the tremendous interest attaching to the Choukoutien remains, as well as the inaccessibility of many of the accounts dealing with the material, a summary may be useful.

Unfortunately the Peking calvariae have not been accompanied by a similar abundance of arm or leg bones. So far we possess only seven fragments of femur, two of the humerus, one of the clavicle and one carpal bone: the *os lunatum*. Nevertheless, these remains are such as to permit observations concerning their general evolutionary status.

In the case of the femur, Dr. Weidenreich believes the material justifies the conclusion that *Sinanthropus* was short in stature, approximating the average of the present-day Eskimo or Japanese. The structure of the bone betrays certain distinctive traits. The medullary canal of the shaft is, for example, very narrow and the walls correspondingly thick—much more so than in modern man. Neanderthal femora are more rugged, and the degree of forward bending of the shaft in this latter form is much more pronounced

than in the Peking type. In these two respects, *Sinanthropus* approaches *sapiens* more closely than does *neanderthalensis*. All in all, some nine minor characters are noted as more or less distinctive and apparently specific for *Sinanthropus*. Nevertheless, the femur is definitely human in character, and there is no doubt that Peking man walked erect. The proportions, the presence of a linea aspera, and the position of the gluteal tuberosity, are definitive upon this point.

The humerus, also, is of human character. As in the case of the femur, a few minor peculiarities are noticeable. They are, however, features occasionally to be observed in modern man. The humero-femoral index, which expresses the length of the humerus as a percentage of the length of the femur, is indicated at about 79. This falls in the existing human range, whereas in the anthropoids the index ranges well over 100. An index of 79 is thus amply suggestive of the essentially human and upright posture of *Sinanthropus*.

The semi-lunar wrist bone or *os lunatum* is similarly human, though its height-breadth and length-breadth indices are variant in an anthropoidal direction. The clavicle is seemingly more akin to modern man than that of *neanderthalensis*.

There seems no doubt, in view of the above evidence, that Dr. Weidenreich's contention that man had already assumed an erect posture, in other words was a bipedal ground-dwelling primate before his skull and dentition had been so extensively modified in a human direction, is fully acceptable.

¹ Folke Johnson, *Phytopath.*, 31: 649, 1941.