

the nation for the benefit of a particular industry. This, if not checked, will react to the detriment of the associations themselves.

Conclusions drawn from the whole analysis suggest a number of reforms. These are: (1) The establishment of an engineering body with statutory powers to prevent unqualified persons from jeopardizing life and to check unprofessional conduct; (2) the proper representation of science in State and municipal departments; (3) a drastic revision of patent procedure in the law courts; (4) voluntary renunciation by trade associations of any advantage unfair to the nation; (5) an inquiry by educational experts into the best means of inculcating a higher scale of integrity among members of the profession. Of these reforms, it is suggested that the British Association might lend its aid in connexion with the second, third and fifth.

### Cultures of the Upper Palæolithic

MISS D. A. E. GARROD deals in her presidential address to Section H (Anthropology) with the Upper Palæolithic in the light of recent discovery. The last twelve years have seen a new impetus given to prehistoric studies by the multiplication of researches outside Europe. This has led to a partial revision of the classification of Palæolithic cultures associated with the name of de Mortillet. In particular, it is becoming clear that the old division into Lower, Middle and Upper Palæolithic has a chronological value only, and that for purposes of typology the fundamental division is into hand-axe, flake and blade cultures.

In considering the present state of our knowledge of the blade cultures one point emerges clearly—the diversity of the strains which have hitherto been grouped together under the heading of Aurignacian. This is borne out by Peyrony's researches in the Dordogne and by recent work in the Near East, which lead to a distinction between the industries characterized by the blunted-back blade, formerly classified as Lower and Upper Aurignacian, and the Middle Aurignacian, in which the type-implements are steep and rostrate scrapers. Peyrony suggests that the first group should be labelled Perigordian, and that the old name of Aurignacian should be kept for the second.

A study of recent excavations, more especially in Russia, the Near East and North Africa, suggests that the problem is extremely complex, and a new system is tentatively put forward. The former Lower Aurignacian is named Chatelperronian, the Middle Aurignacian remains as Aurignacian proper, and the former Upper Aurignacian is divided into Lower and Upper Gravettian, cor-

responding to the La Gravette and Font-Robert levels respectively. The origins of the Chatelperronian can be traced back into the Lower Palæolithic, both in Palestine and East Africa, and it is suggested that its centre of origin lies somewhere in south-west Asia. It may have given rise to the Capsian, by way of the Kenya Aurignacian, and may also have passed northward to develop into the Gravettian, which is abundant in Russia. The Aurignacian proper, on the other hand, shows a remarkable development in the Near East, and the Iranian plateau is suggested as a possible centre of dispersion.

We thus have three major provinces for the blade-cultures: the Capsian in Kenya and Little Africa, and the Gravettian in north-west Asia and eastern Europe, both possibly derived from the earlier Chatelperronian, but cut off from each other by the great Aurignacian province of the Near East. From the Gravettian and Aurignacian centres migrations pour into central and western Europe, and cultures which in their homelands tend to remain distinct succeed and influence each other until at the extreme limit of their journey we get the classic French sequence. The industries which mark the extreme end of the Pleistocene, such as the Magdalenian, etc., appear to be local developments of one or other of these stocks, while the Solutrean is an intrusive element, of Hungarian origin.

### Circulation of the Blood

THE control of the circulation of the blood, which is such an important problem in relation to surgical shock, forms the subject of the presidential address of Prof. R. J. S. McDowall to Section I (Physiology). Only a few years ago the subject consisted of a large amount of little-related data, but gradually this is being pieced together. For example, the well-known and dramatic fact that stimulation of the vagus nerve will slow up or even stop the heart, is now recognized as indicating part of a mechanism by which the normal heart at rest is constantly subjected to restraint, the release of which results in cardiac acceleration such as occurs in exercise.

The requirements of physical exercise probably give the best indication of most of the mechanisms of the circulation. In the active muscles a number of chemical and nervous mechanisms bring about a dilatation of blood-vessels locally. That the sympathetic vasodilators are in part responsible for the dilatation is a recent development. At the same time, largely as a result of psychical activity, blood-vessels are shut down in less active parts such as the alimentary canal and the skin. This has hitherto been considered to be due to the