

and other activities, cultivation grew from the food-collecting, rather than the hunting, function, that is, from the woman's side rather than the man's.

Prof. Fleure then proceeded to trace the evolutionary sequence in the development of the races of 'modern man', as classified according to physical character, and followed the probable course of migration of each in geographical distribution, correlating them with the development of phases of cultural life—hunting, agriculture, pastoral, and so forth—from the later palaeolithic period onward. His conclusion on the question of the racial composition of the people of any one specific area is that "As something special in the way of immigration, conquest or other change has affected almost every region, each must be considered for its own sake and on the basis of its own story, if we are to understand the composition of its population". He went on to consider the complex racial composition of the European populations, pointing to the possibility, still not proved, of the association of a peculiar and characteristic mentality with racial type. It has not yet been possible satisfactorily to discriminate verifiable bundles including both physical and psychical characteristics that tend to be handed down together in the course of inheritance. Achievements of different peoples in literature, religion, government and so on may be brought into relation with what are thought to be prevalent types, but these are the achievements of exceptional people, while the opportunities and difficulties presented by different environmental or historical circumstances affect the result.

The warped interpretation of archaeological data in support of the 'autarkic' idea, with the object of glorifying the Nordic race, was shown not to be in accordance with the facts. Prejudice claims that the Nordic race developed many of the chief features of

European civilization of itself and spread them to more southern lands. So far is this from being true, that it can be shown that in the development of culture in the Baltic we are dealing, not with the advantages of racial purity and seclusion from contamination, but with repeated fertilizations of the north by ideas and techniques from the more advanced south.

In conclusion, Prof. Fleure stressed as an inference from the evidence of racial evolution and archaeology the importance of a diversity of racial and cultural elements in a given population, as having tended to promote adjustments as between social groups and the recognition of justice rather than privilege and group ritual. The extrusion or suppression of active thinkers means the loss of the means of keeping in contact with the ceaseless process of change. "Any group," he said, "that claims for itself complete truth or knowledge really forfeits its status and title as a contributor to civilization, which is, in a very deep sense, the process of growth of freedom of conscience . . . The principle of freedom of conscience is claimed to be a large element in the scientific ideal, and a necessary part of it. Without it there can be little trust, even in alleged statements of fact, much less in the good faith of arguments. . . . Formerly it was widely held that basic general truths were known, and must be accepted and applied as guides of conduct. The scientific movement, on the other hand, has pressed the view that man's codes and creeds and conclusions are all provisional, that the truth is an ideal towards which we try to approach, but which we may never completely grasp. Freedom alone can, in the long run, keep us flexible enough for continuous adjustment to the ceaseless change that is the inevitable accompaniment of life."

The New Inventions Exhibition

THE Institute of Patentees' policy of going on tour has provided some interesting exhibits at the New Inventions Exhibitions at Sheffield (October 20-30) and Leeds (November 10-20) this year.

The exhibits varied from obvious, though ingenious, gadgets to complex mechanisms of scientific and social significance which require demonstrating to be 'understood of the people'. The total number of exhibits was about 260, of which forty are by Leeds, and fifty by Sheffield inventors, and the remainder international. Doubtless these numbers would be greatly increased if, quite absurdly, inventors had not to be 'uncertainty-bearers'—a true function of Capital—as well as advance creators—an all-but-unbearable burden.

There are several new engines. One of these purports to drive a dynamo direct by a piston, itself steam-driven. The steam is produced suddenly by successive drops of water reaching a coil heated by the dynamo, 'cranked' over to provide starting heat. Another exhibit is a turbine engine claiming to yield around 40 b.h.p., and has its rotor driven by petrol-air explosion impulses, the gas mixture being induced by an automatic compression unit revolving together with a driving shaft at 2,000 r.p.m., whilst the rotor revolves at 30,000 r.p.m. *on the same shaft*, reduction

gearing of 15:1 being required. Third, a two-stroke 'six' engine, which lends itself to mass production, has correct balance due to each power piston being balanced by a full-charging pump piston moving oppositely, and achieves noiselessness because of this and the absence of valves, tappets and gearing. There are but twenty-seven moving parts, and each crankshaft revolution has six power impulses giving even torque similar to an ordinary 12-cylinder engine.

The electrotor dust and smoke meter, already referred to in NATURE (140, 331, Aug. 21; 582, Oct. 2) abstracts the particles, however small, from dust or smoke suspensions over a wide range of application. Since dispersions actually consist of separate particles invisible to the eye, these must be microscopically counted to determine the dispersion. By providing an extensive choice of record areas in this light and convenient instrument, and achieving electrification, rotation, suction and centrifuging by one simple motivation, the countability of particles is maintained over a unique range of over 1,500,000 per c.c.

Pit-cage arresters; a trolley device making only one overhead wire necessary; and a bell rung inside when it rains, are other intriguing exhibits.

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