

out that these difficulties would be greatly enhanced if any attempt were made to absorb German men of science, while they might resent being placed in a position of subordination to Indian workers. His attitude towards the employment of Europeans in research in India provides much food for thought, and suggests that the educational situation of the future will call for tactful handling unless Indian education is to suffer. In the course of his interview, however, Acharya Roy does point out a weakness in the position of the European teacher, who, as an exile, looks forward to his return home, and as a foreigner cannot enter intimately into the life of his students.

#### Classification of *Sinanthropus*

WHEN Dr. Hrdlička was passing through the press the revised edition of "The Skeletal Remains of Early Man" (Smithsonian Miscell. Collect., Vol. 83, 1930) he received a description, accompanied by photographs, of the then recently discovered skull of Peking man. Although it was too late for reference in the text, in an addendum Prof. Hrdlička gave it as his opinion that the skull was neanderthaloid, resembling the Galilee skull, and that "had it been found in Europe or in Asia Minor it would hardly be taken by any expert student . . . as anything else than neanderthaloid". Dr. Hrdlička has now made a careful examination of cranial and endocranial casts of the Peking skull recently received from London, examining them side by side with comparable material in the National Museum collections at Washington. According to a communication issued by the Smithsonian Institution of Washington, Dr. Hrdlička finds that his previous conclusions are fully substantiated. They are in complete agreement with the view recently put forward by Dr. E. Dubois before the Dutch Academy of Sciences, being in effect that Peking man is a somewhat variant member of the widespread Neanderthal race. Though the brain and skull are small, Dr. Hrdlička holds that the former is "thoroughly human", if low in type, while the latter is comparable in capacity with the skulls of prehistoric Peruvians in the Washington collections, of which some thirty in number are less than 1,050 c.c. in cubic capacity. In respect of both characters, Peking man is thus brought well within the range of the human.

#### Guiding Aeroplanes when about to Land

IN the radio range-beacon system now used on American airways, it is sometimes very difficult to determine the absolute direction of the aeroplane when it is near the radio beacon. The pilot can easily pass from one quadrant to another without knowing it. When once so lost, he may wander many miles from the beacon before he can find out which quadrant he is on. Tests show that the average pilot, when flying under the hood and purposely lost, requires about an hour to find his course. In the *Journal of Research* of the Bureau of Standards for September, Mr. F. W. Dunmore describes aural, visual and combined methods which enable the pilot to identify the quadrant with certainty. In the

aural method, directive signals are sent out; a one dot signal in a westerly direction, two dots easterly, three dots north and four dots south. Depending on which set of these signals is the loudest, a pilot can determine his general direction from the beacon. During an interval between the sending of the beacon station identification letter, the one dot and two dot signals are sent out, and during the next interval the three dot and four dot signals are transmitted; which two of the four sets of signals are heard loudest enable the pilot to determine his course. In the visual system, use is made of an indicator the reeds of which are affected by the signals, and their relative amplitudes enable the course to be determined. An advantage of the system for course and quadrant identification is that it can be readily applied to existing beacon stations as it requires no alterations to the antenna structure. Photographs of the devices and full diagrams of the necessary circuit arrangements are given.

#### Inductive Interference with Telephone Lines

THE working of telephones is often seriously impaired by the noise due to induction from neighbouring power or railway lines. This problem has been closely studied by electrical engineers for the last thirty years. In a paper communicated to the Institution of Electrical Engineers on November 23, Mr. W. G. Radley and Dr. S. Whitehead show that rapid progress has been made in the solution of the problem during the last few years. The amount of the interference in any given case can now be determined quite definitely by mathematics. It is due both to electromagnetic and electrostatic induction and also in some cases to radio effects. The loss in the 'articulation' of a telephone depends on the frequency of the disturbing voltage. For example, to produce the same loss in articulation by means of a note having a frequency of 150 as a note having a frequency of 1050, at which the maximum disturbance occurs, the induced voltage would have to be increased 158 times (22 decibels). The Post Office has now made a 'noise' meter which gives at one reading the magnitude of the interference factor produced by all the induced harmonics. It is a great step in helping the electrical industry to know that interference with existing telephone systems by any projected power or railway scheme can now be predetermined in advance. If it is too great, it can be decreased by a suitable choice of generators, the use of power cables or telephone cables instead of overhead circuits, etc. When there is a short circuit on the power line, and there are large transitory earth currents, there is risk both of electric and acoustic shocks. These may be partly mitigated by protective devices.

#### Thermodynamic Storage of Energy

THE equalising of the normal daily load of an electricity works with its sudden 'peaks' and deep drop at night is one of the fundamental problems of electrical engineering economics. The suggestions recently made that many of the European power