

disturbances rather than to the wings being held in an inherently unstable position. In any case, these rotations could certainly be described as lateral, longitudinal, and directional better than by the suggested names of lateral, transverse-axis, and dorso-ventral axis instability.

However, it must be remembered that this book only claims to be "a record of observations." Dr. Hankin has clearly established the fact, whatever be the explanation, that "sun soarability" must depend on peculiar meteorological conditions which do not exist in temperate climates. As a number of chairs of physics have recently been filled in Indian universities, we may hope that some of the recipients may investigate these conditions, and we must not forget that Dr. Hankin's observations have mainly referred to the *birds* rather than to the *medium* in which they sail.

colour-phenomena noticed in sailing flight. It is, of course, very difficult to judge of such matters by reading descriptions, but it may be safe to refer to similar colour effects which were shown some years ago in "Benham's Artificial Spectrum Top." This consisted of black and white discs with black bands on them, and was exhibited at Cambridge about the time that Dr. Hankin was a Fellow of St. John's.

In conclusion, this "record of observations" forms a worthy sequel to the works of Pettigrew, Marey, and other previous writers. G. H. B.

THE ANTIQUITY OF MAN IN EUROPE.

AMONGST the many services which Dr. Robert Munro has rendered to anthropology during a long and strenuous career, the appearance of this work by Prof. James Geikie

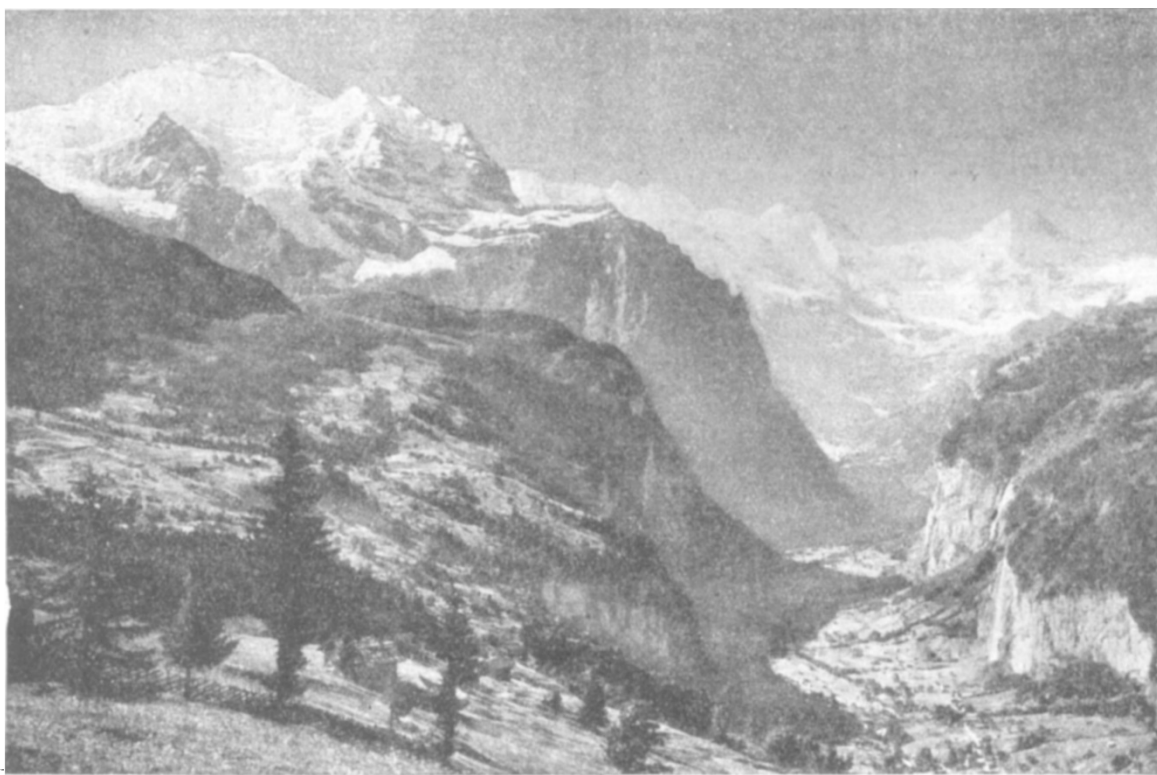


Photo.

The Lauterbrunnental, Switzerland. B, B, Bottom of Preglacial Valley; O, Trench excavated by Glacier-ice. From "The Antiquity of Man in Europe."

Photochrom. Co., Ltd.

Further, he has not by any means restricted his attention to the large Indian sailing birds of prey. Gulls, dragon-flies, flying fishes, all come within the scope of his observations, and not the least interesting feature is the difference in action between different species of dragon-fly. That aeroplanes require a greater degree of camber for low than high velocities is a well-known and obvious truth, and the observation that birds can adjust the camber to the speed is highly interesting.

In one chapter are described certain remarkable

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is not the least. Dr. Munro founded a lectureship on anthropology and prehistoric archæology in the University of Edinburgh, which Prof. James Geikie was invited to fill. In this book the Munro lectures, containing the ripe experience of the foremost student of the "Ice-age," are placed at the disposal of archæologists and anthropologists all the world over.

It is said that British men of science are inclined

¹ "The Antiquity of Man in Europe: being the Munro Lectures, 1913." By Prof. James Geikie. Pp. xx+328+xxi plates. (Edinburgh: Oliver and Boyd; London: Gurney and Jackson, 1914.) Price 10s. 6d. net.

to accept discoveries and classifications made abroad more readily than those made at home. The terms at present employed in British archaeological works relating to the phases of the Ice-age certainly might be cited in support of this contention. In 1894, when preparing the third edition of the "Great Ice Age"—of which the work under review may be regarded in some respects as a fourth edition—Prof. Geikie recognised four phases of glaciation, which he named: (1) Scanian, (2) Saxonian, (3) Polonian, (4) Mecklenburgian. British students of ancient man have never adopted these terms; they prefer those which Prof. Penck introduced nine years later—in 1903—(1) Günzien, (2) Mindelien, (3) Rissien, (4) Würmien. Geikie's terms were founded on a study of the glacial deposits of Europe generally; Penck's were the result of a study of glacial deposits in Alpine regions. If priority is to count the British terms have much to commend them. In the present work Prof. Geikie correlates the two systems of nomenclature—the "Scanian" corresponding to the "Günzien," the "Saxonian" to the "Mindelien," the "Polonian" to the "Rissien," and the "Mecklenburgian" to the "Würmien."

In charting the glacial phases of the Pleistocene period, Prof. Geikie and Prof. Penck have provided students of ancient man with an invaluable series of milestones to guide them into that period which is supposed to cover the evolution of modern man. The Heidelberg mandible is regarded by Prof. Geikie as the oldest human remains yet found on the Continent of Europe, and is assigned by him to the interval between the first and second periods of glaciation. He is not fully convinced that eoliths and sub-crag implements are really of human workmanship.

One of the most important contributions made by Prof. Geikie to our knowledge of ancient man refers to the Neolithic period. In the formations and deposits of that time Scotland is particularly rich. From a study of these he has divided the Neolithic period into four phases: (1) lower "forrestian," (2) lower "turbarian," (3) upper "forrestian," (4) upper "turbarian." Each of these phases is marked by a change of climate, a change of flora, and an alteration in the relationship of land and sea. The human remains and objects of culture found in the caves at Oban, usually ascribed to the transitional stage, between the Palæolithic and Neolithic periods, are regarded by Prof. Geikie as belonging to the late Neolithic phase, named up him upper "turbarian."

Prof. Geikie has never indulged in, or countenanced, wild speculation. It is therefore of interest to note the estimate he has formed of the duration of the Pleistocene period. After forty years of study, largely devoted to an examination of glacial deposits, he is of opinion that an allowance of at least 600,000 years must be made for the duration of the Pleistocene period. Man's presence in Europe may, in his opinion, be regarded as extending over a period of 250,000 or perhaps 500,000 years.

A. K.

THE CULTIVATION OF MEDICINAL PLANTS IN ENGLAND.

THE question has been asked whether the conditions created by the war in Europe has made it desirable to give attention to the cultivation of medicinal plants in England. The answer is a decided affirmative, but some qualification is needed. Cultivated drugs can never compete with those from wild plants if price prevails over all other considerations. It was only fine appearance and high reputation for therapeutic activity which enabled English aconite, belladonna, digitalis, and henbane to command four times the price of the imported drugs. As it was, severe competition had of late years restricted the use of home produce more and more until it attained relatively small limits.

Much care and skill are needed in preparing the finest qualities of drugs for market, and only comparatively high prices repay this initial trouble and expense. Again, there is only a limited outlet for drugs in general, so that the market is easily overloaded, and when this occurs the highest grades often suffer most as regards depreciation in value. For example, the supply of English-grown belladonna leaves began to exceed the demand in about the year 1900, and a few years ago they were selling in competition with wild Continental drugs—at less than cost. Acreage under belladonna naturally shrank, and, in fact, its cultivation became restricted to a few "materia medica," or drug farms, connected with factories for making extract. Similar experiences led to the cultivation in England of all but a few medicinal plants (e.g. valerian, poppy, and dill) being controlled by four firms growing only sufficient for their own requirements. Two successive wet winters, causing excessive loss of plants, had made this season's crops insufficient for normal demands, and the onset of hostilities quickly raised prices to famine rates. High prices restrict usage and stimulate new sources of production until prices become normal again. Both these factors are at work now war in Europe threatens to last for a considerable period, and the first in the field of drug cultivation are likely to reap a profitable harvest.

The writer gave details of cultivation of various drugs in the Journal of the Board of Agriculture for September. Within a week an advertisement in the druggist's trade paper "wanted fertile seeds of belladonna, digitalis, henbane, stramonium; also live roots chamomile, coltsfoot, valerian, spearmint." This illustrates a great initial difficulty, that of obtaining a supply of dormant plants or seeds.

British medicinal plants fall into four categories:—

(1) Drugs which have long been cultivated in this country, but were gradually being ousted by foreign wild products, viz. belladonna, henbane, aconite, digitalis, and valerian. All these, except aconite, are now in great demand. Chamomile (of recent years practically grown only for distillation of oil from flowers) are now almost unob-