

the importance of sexual as opposed to natural selection, and believes that the latter, working on the discontinuous variations which undoubtedly occur, tends to preserve those varieties which finally persist.

Nidification and incubation, eggs and young, and the care of the latter, are next considered, while Mr. Pycraft has much to tell us of what we may learn from the immature bird, whether in the embryonic stage or otherwise, of its precocity or helplessness, its downy condition, its seasonal changes, and its differences from the adult. We notice that he thinks that nest-building is "a product of selection and is instinctive," and that all eggs were perhaps originally white and assumed protective coloration only where necessary.

Artificial varieties and the question of inheritance of acquired characters are treated by the author at some length, while his natural bent towards anatomy enables him to deal fully and successfully with the interesting and important subjects of structural and functional adaptations, and to conclude a work, which we heartily commend to our readers, with a detailed account of various instances of homoplasy.

The numerous illustrations, some of which are new, add much to the value of the book.

REFORMS OF THE CALENDAR.

IN the August number of *Himmel und Erde*, Prof. Förster has a paper on calendar reform, on which, though it is rather discursive, a few words may be of interest. The main point of the paper is to suggest that the International Congress of Chambers of Commerce should take up the question of altering the rule for keeping Easter, which has, from the beginning of the Christian Church, been regulated by luni-solar chronology. That sort of chronology was observed over a large part of Asia, and is by the Jews to the present day, making the year consist of twelve and thirteen months alternately, the months following the moon. But, of course, this does not make the correspondence exact, and other intercalations were necessary. The old Roman calendar was also luni-solar, the months being made to contain twenty-nine and thirty days alternately, which would give only 354 days in a year, so that an additional or intercalary month had to be inserted in alternate years of varying length.

As Dr. Förster remarks, the old Roman calendar had degenerated into a true monster of chronological complication ("zu einem wahren Monstrum von chronologischer Verwirrung"), when it occurred to Julius Cæsar that it would be best to discard the moon altogether as a time-measurement and regulate the calendar by the sun, as had been done in the old Egyptian chronology, a country in which the annual overflow of the Nile was of surpassing importance, and, of course, depended on the solar season.

Cæsar had no occasion to trouble about the days of the week in his calendar. All European nations have followed in the main his calendar, but have had to make a special case of the great Easter festival and the ecclesiastical dates depending on it. But there is no real necessity for falling back upon a Jewish or luni-solar method of reckoning in this respect.

In the years 1872 and 1873 the Rev. J. Newland Smith, of Greenwich, published and distributed two pamphlets on "Eastertide," pointing out that the present complicated rule for keeping Easter was not fixed by any Church regulation; the Council of Nicæa having only decided that it should always be kept on a Sunday. Had Mr. Newland Smith lived (he died in 1880) he hoped that a Bill would have been intro-

duced into Parliament on the question. The proposal in his first pamphlet was that Easter should be kept either on April 9 (that being one probable date of the first Easter day), if that day were a Sunday, or, if not, on the following Sunday; in the second, that it should be always kept on the second Sunday in April, which would include the 9th.

Dr. Förster, in the article before us, makes a similar proposition, which he commends to the International Congress of Chambers of Commerce, that Easter should be kept on the Sunday following April 4, so that it would always fall between the 5th and 11th.

He hopes that other changes may be effected in the calendar, and particularly that the congress may be the means of inducing the Russians and the Greek Church generally to follow the Western usage and replace the Julian by the Gregorian calendar, or some modification of it.

Perhaps we may be allowed the suggestion that the dropping of a leap year each 128th year would be both more convenient and more accurate than the existing Gregorian rule.

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THE DYNAMICS OF FÖHN.¹

MUCH has been written about the dynamics of Föhn, and the general principles involved in it are well understood, yet the processes by which an air current descends and displaces potentially colder air are still somewhat obscure. As in his previous studies of the same subject, Dr. Ficker has followed the method of examining in detail a large number of individual cases. The process is a laborious one, but we agree with the author that it is essential to follow out individual cases if we wish to arrive at a clear understanding of the processes involved. Average results may be very misleading; very probably the condition of things represented by averages never actually occurs.

In all cases examined, Föhn was preceded by typical anticyclonic conditions, with a very stable stratification of the atmosphere. In many instances the valley temperatures were actually lower than those observed simultaneously on the summits. Special attention was given to the time of commencement of Föhn at different stations, which can be accurately determined from thermograph traces. Föhn sets in earliest at the high stations at the head of the valleys, and makes its way gradually to lower levels. Stations at the same altitude experience the onset of Föhn approximately simultaneously, even though they be in different valleys. In a few instances, Föhn made its appearance at Hachlachang, a station near Munich, on the Bavarian plateau, but on all such occasions the outbreak occurred there long after Föhn had established itself in the higher valleys. The suggestion that barometric minima skirting the north-west coast of Europe exert an aspirating action on the lower strata of the atmosphere, and so cause the Föhn, thus falls to the ground.

Local conditions determine the outbreak of Föhn. During the continuance of anticyclonic conditions the valleys become filled with a mass of more or less stagnant air, cold, at any rate in winter, by reason of its contact with the mountain sides, which are chilled by radiation. Above this we find a region of potentially warmer air, and at the junction of the two layers there is often a sudden actual increase of temperature with altitude. The cold air drains away to lower levels. This process is accompanied by a gradual rise of temperature, but the winds associated with it cannot be regarded as true Föhn, because the vertical temperature gradient in them is much less

¹ "Innsbrucker Föhnstudien IV. Weitere Beiträge zur Dynamik der Föhns." By Dr. H. v. Ficker. Pp. 6r. (Wien: Alfred Holder, 1910.)