

would have caused Mr. Whympers's readers to look carefully at the crested larks they saw instead of passing them over as "nearly the commonest birds." Which form is represented in the plate it is difficult to say, but certainly neither the almost black *Galerita cristata nigricans* of the Delta nor the pale, sandy-coloured *G. c. altirostris* found to the south of Cairo could be recognised from the drawing.

Again, on p. 76 the extraordinary statement is made that the red-spotted bluethroat has never occurred on migration in Germany, and that it flies without a halt from Africa to Scandinavia. Because many of the migrants which occur in winter in Egypt are of the same species as those which occur in north-western Europe in summer, it is unreasonable, we think, to suppose that they are the same individuals. The further statement that the bird is but an accidental visitor to Great Britain, and hardly worthy of a place on the list of our birds, should also be corrected, since it has been proved during the last ten years, at all events, to be a regular annual bird of passage in the autumn. We have no wish to criticise unduly, but we think it behoves an author to be even more careful of his facts in a popular book of this kind than in a book intended for readers who would not be so likely to accept his statements unchecked.

The ornithologist reading Mr. Whympers's pages may cull a few observations of interest, such as a note here and there on the winter habits of some of the migrants. The list of birds at the end of the volume is so far from being complete that we cannot think that it has been revised by Mr. M. J. Nicoll, who is credited with having assisted the author in making it 'as complete as possible.'

#### THE EVOLUTION OF AGRICULTURE.

*Die Entstehung der Pflugkultur.* By Dr. Ed. Hahn. Pp. viii + 192. (Heidelberg: C. Winter, 1909.) Price 3.60 marks.

IN the study of culture-origins there seem to be three working hypotheses. According to one, institutions and material inventions were, so to speak, "forced" upon man by the various exigencies of his life. "Necessity is the mother of invention." According to another, religion, or rather magic, initiated such steps in progress. A third combines these; a step when made was enabled to persist and be improved by the influence of religion.

But each of these hypotheses, as others, takes into account the psychological factors. How did the idea of an invention occur? It is the first step that counts; given the first step, for instance, in the evolution of the bow, and the rest is easy. How, then, did man hit upon the first step? Among the conditions to be posited are "play" and accident. There is a good deal to be done in the investigation of the first steps of what may be called the primary inventions.

Dr. Eduard Hahn has written many volumes and papers on economic history and culture-origins. He is a suggestive writer, and is always ready with  
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a comparison between modern and primitive "diapasons," in Lamprecht's phrase for social atmospheres. The present volume is more or less supplementary, as an answer to criticisms of his theory of the origins of agriculture.

This theory is the magical-religious. It has been severely criticised, and we must admit that in this re-statement and defence Dr. Hahn fails to convince. His method is almost as elliptic as Prof. Adolf Bastian's. A closely reasoned argument confined to one detail, for instance, the relation of the "Moon Goddess" to the evolution of husbandry, and employing careful analogies when a step is taken from one people to another, or from one culture-stage to another, would have had better results. But he seems to rely on the cumulative effect of data which are of the most diverse nature and value. Thus we have in unequal yoke a piece of folklore from Hesiod or Macrobius, with a savage practice of the Australian Arunta and a German peasant custom. But his theory is too fanciful to be able to rely on such data.

The points of the theory are mainly these: the basis of primitive subsistence was vegetable, not animal. The three-stage hypothesis of hunting, herdsman-ship, and husbandry is traversed. The primitive *Hackbau* is distinguished from agriculture proper, *Pflugbau*. Woman was the chief agent in primitive economics, as the "gardener" with her digging-stick. Thus far the theory is sound. But it proceeds to urge the "religious" origin of the domestication of animals, of the use of milk, of the wagon and its wheels, and of the plough, all in connection with the cult of the Moon. Much is made of the sporadic indications of the connection of phallicism with the "idea" of ploughing.

Dr. Hahn's sketch of the primitive symbiosis of Headman, Medicine-man, and Woman is good reading. The Medicine-man protects the primitive "crop" from ghostly enemies, and secures for it ghostly strength. The Headman organises material defence, and, when free, the ordinary male hunts. But primitive society was probably not quite like that; in particular it is easy to exaggerate the influence of "religion."  
A. E. CRAWLEY.

#### OUR BOOK SHELF.

*A Manual of Locomotive Engineering.* By W. F. Pettigrew. Third edition, revised. Pp. xv + 356. (London: C. Griffin and Co., Ltd., 1909.) Price 21s.

WE had pleasure in noticing the first edition of this book some ten years ago, when a favourable opinion was expressed as to its value as an educational means of assisting students of locomotive engineering in its many phases.

The author claims to have brought the work thoroughly up to date, and, considering the tremendous advances made in this branch of engineering during the last ten or more years, we naturally expect some evidence of really modern practice in the third edition. It is very disappointing to find this is not the case. Plate i. illustrates what the author describes as "the new outside cylinder express engines designed by Mr. W. Adams," &c. As Mr. Adams joined the majority