

just here that it may hope to find means to rise to the rank of a true science based largely on experiment. The present writer has often reflected on the fair and stately prospects of an experimental sociology. In NATURE of Sept. 10, pp. 392-3, commenting on the excellent articles by Dr. Jacks and Prof. Miles Walker, it is stated that the time is opportune for courageous and adventurous experiment, and this is only too true.

The prospects of successful experimental methods are closely bound up with environment and the extent to which it can be controlled; but here Keller is comparatively silent. He says little about environment, though it is the supreme and all-important factor in evolution, especially in 'societal' evolution. In this latter it must differ in many fundamental ways from organic or natural environment. Among other things it should be more amenable to control, for example, slum-clearing. Many of the parts or items in environment are themselves subject to evolutionary processes. Keller observes, for example, that religion is a life condition of the first magnitude, yet he considers that, too, is subject to evolution. All this and much other vitally important and interesting matter could be discussed under the heading of environment. It is indeed as much deserving of a chapter to itself as variation or selection.

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### Land and Fresh-Water Molluscs

Fédération française des Sociétés de Sciences naturelles: Office central de Faunistique. *Faune de France*. 21: *Mollusques terrestres et fluviatiles* (première partie). Pp. 477 + viii + 13 plates. 22: (deuxième partie). Pp. 479-897 + ix-xiv + plates 14-26. By Louis Germain. (Paris: Paul Lechevalier, 1930-31.) 150 francs each.

THE preparation of this work has involved a critical revision of the land and fresh-water molluscs of France, during which the author has made full use of the rich material at his disposal in the Museum d'Histoire Naturelle in Paris. One of the results of the revision is that a large number of species have been reduced to synonyms.

A short account of the anatomy of the gastropods and the lamellibranchs precedes a consideration of the characters of the shells and their anomalies and abnormalities. Passing to the faunistic section, the author distinguishes three principal associations of land molluscs—the hygrophilous, the xerophilous and the forest groups. The

aquatic molluscs also fall into three series according as they live in running water, in quiet or stagnant water, or in large lakes. The most characteristic members of each of the six groups are named. In a short note on the molluscan fauna of the mountains the author states that the maximum altitude at which a large number of species live is known with considerable precision for the alpine region but less fully for the Pyrenees. Only a few terrestrial species, for example *Vitrina nivalis*, can exist under the severe conditions found at a height of about 3000 metres. This species disappears below about 2300 metres. Of the lamellibranchs, *Pisidium casertanum* is found in lakes at an altitude of about 2200 metres in the Pyrenees and up to 2500 metres in the Alps. For most of the species the author states the maximum height at which they have been found.

The molluscan population of France, which includes representatives of the majority of the European genera, falls into three groups—the southern, which is essentially Mediterranean in origin, the Atlantic or Lusitanian, and the northern, though these have not entirely preserved their individuality as migrations have taken place; for example, some of the Mediterranean species have migrated northwards even to the shore of the Channel. Lists of the characteristic species of the three groups are given. Useful observations on polymorphism precede the dichotomous keys to the 41 families of gastropods and the three families of lamellibranchs, to the genera and to the species which comprise the terrestrial and fluviatile molluscs of France.

Carefully devised dichotomous keys form a special feature of the "Faune de France" series and the present author has devoted much care to their preparation in this work. The characters of each genus and species are concisely but adequately described and notes are added under each species on the habitat, biology and distribution. The illustrations consist of twenty-six good collotype plates reproducing photographs of the shells of large or moderate size, and 860 text-figures of the small shells, considerably magnified, of characteristic details of shells and of the reproductive organs of the genera and subgenera of the gastropods. A bibliographical list (pp. 46) and a full systematic index are added. This work is commendable for its careful attention to the biology as well as to the systematics of the terrestrial and fluviatile molluscs.