

added a useful "index glossary," and a series of "test questions," largely culled from examination papers of the past. The work is by no means destitute of small incongruities and an occasional misuse of technical terms; and the most serious errors which it contains, contrary to the general rule, involve leading rather than subsidiary topics. The description of "living matter" as existing in the "colloidal condition" and (two pages further on) as "a semi-fluid granular substance . . . unable to absorb colouring matters when living"; the alleged origin of the coelome of "all animals above the coelenterata" by "the splitting of the mesoblast"; the assumption that the contractile vacuole of the protozoa is a respiratory organ "pumping in oxygenated water," and "furnishing oxygen to the animal by means of its rhythmical dilatations"; the confusion under the term "paraplast" between modified portions of the cell-protoplasm and products of its living metabolism, with the correlated description of the protoplasm of the egg cell as a "vitellus, or yolk"; and the description of sclerenchyma as "stony tissue," are cases in point. We note with satisfaction the prominence given to the physiological and more purely chemical aspects of the subject, too often neglected in minor works on general biology. Conspicuous among leading dogmas formulated is the assertion that with the exception of ascidians and some infusorians the animal "does not contain cellulose," with the implication that certain animals form chlorophyll. We venture to think that the time has now arrived when the investigations of Beyerinck, Famintzin, Von Graff, and Haberlandt, Ambronn, and others, which have lately revolutionised our knowledge on these vitally important topics, should find expression in the elementary class-book. The author remarks in his preface that "it must be remembered that biology can be learnt in no other way than with the scalpel and the microscope," and that his volume is intended "simply and solely for the purpose of revising" a practical knowledge which the student has gained under the guidance of his teachers, "especially during the few weeks previous to the time when he intends to cross the threshold of the examination hall." If this line of conduct can be ensured, the work will fulfil a good purpose; but it may be doubted whether the over-taught medical student of to-day will regard the book as anything but a cram one. It has been compiled at considerable pains and with marked success; but as the dispensation which it seeks to further cannot possibly endure, we wish we could congratulate the author upon a devotion to some more permanent and desirable object.

Public Health Problems. By John F. J. Sykes. Illustrated. (London: Walter Scott)

THE author of this volume—which forms one of the Contemporary Science Series—has sought "to bring to a focus some of the essential points in evolution, environment, parasitism, prophylaxis, and sanitation, bearing upon the preservation of public health." It was impossible for him to deal fully in the space at his disposal with any particular part of so vast a subject, but he has contrived to give a very clear and interesting idea of the main lines of inquiry with which workers in the public health service are chiefly concerned. First he treats of internal and external influences affecting health, these influences being heredity, physical influences (light and heat), chemical media, and biological agents. Then he discusses the following aspects of communicable diseases—causation, parasitism, dissemination, and modifications. Afterwards there are series of chapters on defensive measures against communicable diseases, and on the urban dwelling. Mr. Sykes, as medical officer of health for St. Pancras and honorary secretary of the Incorporated Society of Medical Officers of Health, has had ample opportunity for the study of the questions on which he discourses, and his book ought to be of good

service in disseminating sound ideas as to the conditions on compliance with which the attainment of a higher standard of public health depends.

Galenic Pharmacy. By R. A. Cripps. (London: J. and A. Churchill, 1893.)

THE student of pharmacy will, no doubt, find plenty of instructive information in this book. It does not, however, call for an extended notice in this journal, as the author does not attempt a scientific treatment of the subject, but confines himself to dealing with it on the old lines. The various pharmaceutical operations of solution, infusion, &c., are fully described, but no attempt is made to arrange the facts on any than an empirical basis. The time has arrived, however, when pharmacy should be expounded in a more scientific manner, and many barbaric and obsolete processes excluded or re-modelled in the light of our present chemical and pharmacological knowledge.

LETTERS TO THE EDITOR.

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Mr. H. O. Forbes's Discoveries in the Chatham Islands.

IN a paper read before the Royal Geographical Society on March 12th, and again in an article on "The Chatham Islands and their Story" in the *Fortnightly Review* of this month, Mr. H. O. Forbes has described his very interesting discoveries in these islands, and has founded thereon certain conclusions as to the past history of the New Zealand group. The most startling new fact is the proof of the recent existence on the Chatham Islands of two birds whose nearest allies inhabited the distant group of the Mascarene Islands within the historical period. These are a flightless rail very closely allied to the *Aphanapteryx* of Mauritius, and a coot which is hardly different, except in its somewhat larger size, from the extinct *Fulica newtoni* of the same island.

It is on the flightless rail that Mr. Forbes mainly dwells in his deductions of past changes which it is supposed to imply, and it is on these deductions only that I wish to make a few remarks. He quotes Prof. A. Newton and his brother as stating that the solitaire of Roderiquez and the Dodo of Mauritius, being evidently of one stock, and there being analogous facts in the adjacent islands, they are compelled to believe that "there was once a time when Roderiquez, Mauritius, Bourbon, Madagascar, and the Seychelles were connected by dry land"; and he then argues that there must also have been a continuous land surface between this land and the ancient land comprising New Zealand and the surrounding islands. This connecting land he supposes to have been the Antarctic continent during a mild period and with great extensions over the southern ocean. When the Antarctic ice age came on the inhabitants of this continent had to migrate northwards, and some, "such as the genus *Aphanapteryx*, would seem to have split into parties, which, travelling by divergent roads, finally arrived in regions so far apart as Mauritius and the Chatham Islands, unaffected by the varying climates and surroundings they experienced, being of an ancient dominating type."

It is this tremendous hypothesis which appears to me to be not only quite unnecessary to explain the facts, but also to be inadequate to explain them. If one thing more than another is clear, it is that these comparatively small flightless birds were developed, as such, in or near to the islands where they are now found, since they could not possibly have arisen on any extensive land inhabited by carnivorous mammals and reptiles, and, if introduced into such a country, could not long survive. So far as I am aware, no doubt has ever been expressed on this point, the evidence for it being so clear and its explanation on the theory of evolution so complete; and I hardly think that Prof. Newton would now maintain that the affinities of the flightless birds of Mauritius, Bourbon, and Roderiquez implied the former union of these truly oceanic islands. Allied forms of ancestral flying birds may have reached the islands without such union;