the very numerous references to the labours of living physiologists and physicians. Dr. Richardson has not only very judiciously chosen his directions for investigation from a great number of authorities, but has added many suggestions derived from his own experience. After referring to the different forms of microscopes used in America, he devotes a chapter, containing twenty-four pages, to the consideration of "instruments, apparatus, and manipulations." Then follows the subject of the "urine," divided into four chapters, extending over 100 pages. The arrangement adopted is that of Beale, from whose work many drawings have been copied; but the author also acknowledges the advantages he has derived from consulting the memoirs of Dickinson, Roberts, Grainger Stewart, Hughes Bennett, and many others well known in this country. The eighth chapter treats of pus, mucus, saliva, and milk. Next follow the blood, sputum in phthisis, under which head Dr. Fenwick's investigations and conclusions are very fully considered. Vomit and discharges of various kinds are followed by a chapter on animal and vegetable parasites. Some very good observations are made upon medico-legal investigation, including the study of blood-stains and the detection of spermatozoa, and the work concludes with some hints on the examination of morbid growths.

Most of the illustrations are copied from the well-known works to which we have already referred, and, upon the whole, are fairly executed, though they are very defective in point of number. In a book of this kind illustrations are really of more use to the student than description. At the same time it is but just to the author that we should state that he has carefully recorded in his work a brief outline of some of the most recent investigations, and in such a way as to excite the interest of the student and practitioner who may not be disposed to consult larger works.

Oldham and Balestra on Malaria.1—The design of Dr. Oldham's work is to show that the main factor in the production of periodic or paroxysmal, i.e. of remittent and intermittent fevers, is the action of atmospheric vicissitudes on the system, and specially of a humid cold air at night following on exposure to high heat during the day, rather than of a specific aerial poison supposed to emanate from decaying vegetable matter in certain localities. That marshy districts are the most frequent habitats of the diseases in question is not, indeed, to be gainsaid; but then it is in such localities that the

1. What is Malaria? and why is it most intense in Hot Climates? An Inquiry into the Nature and Cause of the so-called Marsh Poison. By C. F. Oldham, M.D., Assistant-Surgeon, H.M. Indian Forces, &c. 8vo, pp. 186. London, 1871.

2. Ricerche ed Esperimenti sulla Natura e Genesi del Miasma Palustre. Dal Dr. Pietro Balestra. Roma, 1868. Pp. 35.

Researches and Experiments on the Nature and Origin of Marsh Miasm.
Bibliographical Record.

meteorological phenomena alluded to are usually most conspicuous and most sensibly felt. Moreover, the geographical distribution of periodic fever is anything but limited to paludal districts, so that this fact alone may well excite a doubt as to the propriety of the common phrase of 'marsh poison' being used to designate their presumed morbific cause. Barren sandy flats in Holland, Spain, and other lands are it is well known, infested with what have been termed malarious fevers, although no marshy ground exists near them, and there be no trace of decaying vegetation on their surface. The writings of Pringle and Ferguson furnish numerous instances in proof of this. True it is that in many, if not in most, of the examples mentioned, there is reason to believe that the subsoil of the affected districts was more or less decidedly wet, and that water might be reached within a few feet of the surface. But this is far from being always the case in many dry and parched localities, in different countries, where fever abounds. Our author cites numerous proofs from India; among others that of the large military station of Mean Meer in the Punjab, and that of Tucobabad in Scinde, where fevers are more than ordinarily prevalent, although it would be difficult to discover in either place the supposed sources of malarial poisoning from any vegetable decay. Even dry rocky regions suffer terribly from malarious disease, as the medical history of Hong-Kong and Aden, as well as of a multitude of other similar instances referred to by Dr. Oldham, abundantly testifies.

"In most hot countries arid and stony places are considered by the natives to be feverish; and, in general, the more dry and barren (and therefore the hotter) the locality, the worse is its reputation. The people of Jhansi and of other towns in Central India attribute the fevers which so often prevail there to the influence of the bare rocks by which they are surrounded. Humboldt found a similar idea prevailing in South America amongst both the Indians and the Spaniards."

That great traveller mentions some villages near the cataracts of the Orinoco as being infested above all others in the district, although the surface of the country for miles round consisted of blocks of bare granite, utterly destitute of vegetable mould. The diurnal range of temperature was found to be excessive. Here is the clue, says our author, to the mystery of the supposed poisonous exhalations from the black-crusted rock:

"The heat by day is very great, and so is the nightly fall of temperature, while the effect of the latter is intensified by the condensation of the enormous quantity of moisture in the atmosphere, which is alluded to by Humboldt as the probable cause of the fever."

In confirmation of the same general conclusion as to the unsatisfactoriness of the usually assigned originating cause of periodic
fevers, the attention of the reader is also drawn to the fact that in various regions, where marshes and marshy ground exist, these fevers are comparatively rare and unprevailing. Ireland, notwithstanding the large extent of its boggy lands, is by no means a country either of remittents or of agues. This "has long been a puzzle to writers on paludal poison." Of our settlement at Singapore, situated within a degree of the equator, and where all the conditions usually supposed to produce malaria—heat, moisture, salt marshes, rich soil and profuse vegetation—are in full force throughout the year, the official report states that "the station and district are healthy to a marked degree." And to take a similar instance in another part of the world, the valley of the great river Amazon, in about the same latitude as Singapore, is for the most part low and flat, covered with the densest tropical vegetation. Yet though the banks of neighbouring rivers under similar circumstances of moisture and vegetation abound with most deadly malaria, those of the Amazon are almost free from it. Humboldt alludes to this remarkable fact, and Bates, one of the most recent and observing travellers in those regions, confirms the statement in every respect in his interesting work entitled 'Naturalist on the Amazon.' The explanation given of the comparative immunity from malarial disease in the instances we have cited is to be found, according to our author, in the marked equality of diurnal and seasonal temperature enjoyed in the several localities mentioned.

For the detailed exposition of the peculiarities in respect of climate and meteorology in these localities, we must refer the reader to Dr. Oldham's work. He strengthens his position by referring to numerous examples of the innocuousness of works of irrigation in many districts of Hindostan, although in other districts opposite results have been experienced. Rice cultivation in Northern India, and many other countries, is well known to cause malarious disease, whereas in Southern India it is alleged to be not only harmless, "but in some instances, where the climate is equable and the heat is very great, the reduction of temperature produced by covering a large surface of country with water is considered to improve the health of the locality." The experience of General Cotton, of the Engineers, is that in Southern India no ill effects to health have been observed from irrigation. As to the supposition that malarial fevers are apt to be caused by drinking the water in marshy districts, an idea as old as the time of Hippocrates, our author maintains that no satisfactory evidence has ever been adduced in proof of it. At Amoy and Hong-Kong the same water was used by the shipping and the garrison; the latter were struck down with fever, the former escaped.

The conclusion of the whole matter he holds to be that "malaria, as a specific poison, produced by exhalations from decaying vegeta-
tion, does not exist,” and that “malaria is chill.” Although we are by no means prepared to accept this excluding and exclusive theory, we gladly admit that Dr. Oldham has worked out his views very ably and conscientiously. His work may be read with profit by all, and especially by the military and naval surgeon, who can, of course, best appreciate its numerous instructive data, and the soundness of the conclusions derived therefrom. The great practical lesson he draws from his researches, and one which is unquestionably of the highest hygienic importance, is that in malarious localities the utmost care should be taken to protect the body from cold. “The greater the degree of heat, and the longer and more continuous the exposure to it, the more vitally important does it become that even a slight degree of chill should be avoided.” This precaution is always doubly needful towards evening and during the night. In the case of troops stationed in tropical countries, frequent temporary removals also to a cooler climate are among the most efficient means to counteract the evil effects of residence in unhealthy districts.

Dr. Balestra’s experimental researches, an account of which was given at the recent international medical congress held in Florence, were conducted chiefly in the marshy districts around Ostia and in the Roman Campagna. Not only the water, but also the condensed atmospheric humidity, was examined microscopically with great care. His inquiries have led him to the conclusion that marsh miasm consists essentially of the spores of a specific alga, which he proposes to distinguish by the title of ‘febrific,’ or ‘febbrigerno.’ Dr. Salisbury of the United States had, two or three years previously, adopted a similar opinion. Dr. Balestra maintains that his alga differs altogether from that of his American confrère. His experiments have also convinced him that quinine is a powerful anti-miasmatic, by its direct action in destroying the morbific property of the microscopic spores.

In re Contagious Diseases Acts.1—Really, after all the space we have devoted to the full and, as we endeavoured to make it, impartial discussion of the principles on which the Contagious Diseases Acts were based, and their operation in practice, we cannot undertake now a full review of these and a heap of other pamphlets upon the same subject which have reached us. We have, however, selected for a few words of comment two of the three subjoined brochures as pro-

1 1. Recent Legislation on “Contagious Diseases” Considered, especially with Reference to the Army and Navy. By Francis Close, D.D., Dean of Carlisle. Carlisle, 1870. Pp. 31.
2. The Policy of the Contagious Diseases Acts, 1866 and 1869, tested by the Principles of Ethical and Political Science. By Sheldon Amos, M.A., of the Inner Temple, Barrister-at-Law, Professor of Jurisprudence, University College, London. Pp. 32.
3. A Word on the ‘Contagious Diseases Acts.’ By Surgeon-Major Atchison. London, 1871.