In studying the problem of otosclerosis, which Gray rightly describes as both mysterious and fascinating, two essentials are required—the spirit of research and intellectual patience. Those of us who are acquainted with the author’s previous and beautiful work on the histology of the ear recognise that he possesses these two in an exceptional degree. Indeed, the mere perusal of the method of preparation of the specimens of the labyrinth which he uses fills us with admiration. Truly “Ars longa sed vita brevis,” and how long the art of aural research is, is brought out strongly in the present work.

We are, of course, specially interested in the part which deals with the pathology of otosclerosis. The plates are most instructive. Perhaps it might be urged that it is unfortunate that three at any rate of the cases examined died of long-standing wasting disease. Many questions arise to our mind in examining the plates, but we are constrained to agree—as, indeed, we have always held—that whatever the cause of the condition may be it is not inflammatory. We think, indeed, that Gray is right in describing it as degenerative pure and simple, and we have no doubt that the tendency to degeneration is inherent, as he says, and is specially so in the ear, because of the recent appearance of the auditory apparatus in a developmental sense, and (this is a strong point) the vestibular apparatus is usually unaffected (except, it must be admitted, after a long period) because of its stability from its earlier origin. No other theory so well explains the conditions found in the labyrinth as this. At the same time we should be unwilling to drop the name “otosclerosis,” and adopt the ugly and, we think,
unscientific title "idiopathic degenerative deafness" which the author suggests.

While we agree that Gray's theory of the origin of otosclerosis is most probable, we do not think that all the difficulties connected with the condition are solved. Indeed, the author himself recognises this. For instance, if we take the first case, the pathological changes in the labyrinth, as far as our present means of examination go, are not sufficient to account for the clinical facts, the decrease of hearing, the tuning-fork reactions, the loss of hearing for certain notes. In fact, we should go so far as to doubt that a diagnosis of otosclerosis was justified. There was no fixation of the stapes, and yet the clinical examination suggested that it was present. We agree that in all probability there are always changes in the auditory nerve, peripherally and probably centrally too, which are at present unrecognisable, though this is disconcerting in relation to the accepted significance of the tuning-fork tests. It will thus be seen that though Gray's work clarifies our knowledge of the condition, it at the same time opens up fresh difficulties. Probably he has examined the labyrinths of cases in which a diagnosis of otosclerosis had been made during life, and in which the expected changes were not found. A description and careful study of such cases would be of interest.

The other sections of the work are also well written. The question of the influence of heredity is sanely discussed. We should like if the clinical examination had been fuller, especially in relation to the difficulties which arise in cases where the deafness is due to a mixed cause, as it very often is.

In dealing with the exciting causes we think the author hardly does justice to nasal affections, though we are at one with him in condemning meddlesome nasal surgery. At the same time it cannot be too strongly pressed that in this, as in all aural affections, the examination is not complete till the nose and nasal accessory cavities have been thoroughly examined, and in otosclerosis we would specially emphasise the examination of the accessory cavities.

In regard to treatment, Gray insists on the importance of a careful general examination, and we are glad to see that he is not unduly pessimistic.

The author's world-wide reputation as a skilled histologist
in relation to the ear ensures for this work a most cordial reception by all English-speaking (or reading) otologists, and we shall not be surprised to hear that it has been translated into other languages. It has been a pleasure to review it. It does credit not only to the author but also (and this is where the reviewer comes in) to British otology.

The Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods. By Reginald Hayes, M.R.C.S. Second Edition, Revised. London: Baillière, Tindall & Cox. 1917. (3s. 6d. net.)

This is the second edition of a work which was favourably reviewed in these pages on its first appearance, and we have little to add to the commendation then expressed. Mr. Hayes has thoroughly revised it, and added some figures illustrative of the proper methods of mercurial inunction. He does not in any way decry the use of salvarsan, and, indeed, is a strong advocate of the combined method of treatment, but he has done a real service in redirecting attention to the potent influence of inunction, properly applied, at a time when this valuable measure stands in some danger of being overshadowed by the later drug.

Sanitation in War. By Major P. S. Lelean, C.B., F.R.C.S., R.A.M.C. With Introduction by Sir Alfred Keogh, K.C.B., M.D. With 54 Illustrations. Second edition. London: J. & A. Churchill. 1917. (6s. net.)

In our notice of the first edition of this excellent little work (Glasgow Medical Journal, vol. lxxxv., p. 61) we drew attention to its eminent usefulness to the medical officer in the field. That our opinion has largely been shared by others is evident from the appearance of a second edition after so short an interval.

The present volume is by no means a mere reprint of its predecessor. The chapter on the "Rôle of insects in war" contains
a great deal of new matter in the section on antimuscid measures. This to the medical officer is an important subject, and we know from personal observation how, by strict attention to these measures, the plague of flies is being so ably combated in Palestine.

Another new feature is the detailed account of the functions and organisation of “Sanitary sections,” and yet another is the points requiring attention from regimental medical officers.

The chapter on field conservancy has been expanded to keep pace with the evolution of new methods during the war.

As in the first edition, the author is generous in his references to helpers, and modest with regard to himself.

The new edition is slightly more bulky than the original, but it remains of pocket size, and therefore a most suitable companion for a campaign. The author merits the thanks of fresh generations of medical officers, in addition to the gratitude of those who have derived help from the former edition.

As regards the popularity which this little volume is sure to enjoy, it is not only beyond question, it is deserved.

\[\text{Nerve Wounds. By J. Tinel, Ancien Chef de Clinique et de Laboratoire de la Salpêtrière. Translated by Fred Rothwell, B.A.Lond. Edited by Cecil A. Joll, M.B.Lond., F.R.C.S.Eng. London: Baillière, Tindall & Cox. 1917. (15s. net.)}\]

The author in the first part of this work gives a full and lucid description of the general changes that take place as the result of nerve injuries of various degrees of severity, and the methods of examination to be followed in order to ascertain the degree of injury the nerve has sustained. He states that the most important and difficult problem to solve in peripheral paralysis is that of the nature of the lesions, and he describes in detail four syndromes that are typical and clearly characteristic, namely, syndromes of (a) interruption, (b) compression, (c) irritation, and (d) regeneration.

The greater part of the book is devoted to the symptoms produced by these four syndromes, as they present themselves
after injury to the principal nerves of the upper and lower limbs. There is a useful chapter on treatment, though the author has evidently not had much experience of injection of alcohol into nerves, and one may question the value of denudation of the arteries, and resection of the perivascular sympathetic plexus as a method of treating neuralgias.

This book has been written as the result of the experience of nerve injuries observed in military hospitals, but it should appeal to all hospital surgeons, as it contains "fundamental principles which should be known to all." The illustrations are a feature, and add greatly to the value of the text.

The Organs of Internal Secretion: Their Diseases and Therapeutic Application. By Ivo Geikie Cobb, M.D., M.R.C.S.

London: Baillière, Tindall & Cox. 1917. (5s. net.)

In all essentials this volume consists of a series of articles which appeared in the Medical Press and Circular in the summer and autumn of 1916. They have undergone slight alterations to fit them for presentation in book form, but otherwise remain substantially the same as when their serial publication earned them widespread interest and approval. Dr. Cobb has been very successful in giving in condensed form an account of the diseases of the ductless glands and of the therapeutic application of their extracts, an account which is at once readable and accurate, and enables the practitioner to obtain for himself, with a comparatively small expenditure of time, information and therapeutic hints which he might otherwise have to search for in many different places, or which he might have to extract from the many details of exhaustive laboratory reports. After a brief introduction the first four chapters are given to the thyroid gland, and then follow chapters devoted severally to the pituitary body, the adrenals, the pancreas, the sexual glands, and the internal secretions of digestion, the volume closing with a chapter on the therapeutic application of hormones, and with a brief discussion of the present position of organo-therapy in medicine. This allocation of space may perhaps be taken as a measure of the degree of certainty with which we handle the
various extracts, our use of thyroid substance being far more definitely purposive and based on far more certain knowledge than is the case with any of the other glands. Indeed, although most of Dr. Cobb’s writing is clear and logical, and although he generally gives adequate reasons for the faith that is in him, he sometimes betrays his uncertainty in such statements as that regarding hormotone, a preparation containing the extracts of many glands:—“It is claimed that its exhibition is followed by marked benefit in many indefinite conditions.” There is still, unfortunately, a good deal of this hit-or-miss therapeutics in connection with ductless gland extracts; but the whole subject is as yet in an early stage of its development, and Dr. Cobb’s book is valuable as giving a connected, if somewhat over-enthusiastic, account of its present position.

War-Shock: The Psycho-Neuroses in War, Psychology and Treatment. By M. D. Eder, B.Sc., M.R.C.S., L.R.C.P. London: William Heinemann. 1917. (5s. net.)

Mr. Eder bases his book upon the study of the first hundred consecutive cases of psycho-neurosis which came under his care at first in general medical and surgical wards, and later in the special department of which he had charge in Malta. He opens with an introduction defining his terms, in which he states that war-shock is a psycho-neurosis “produced by stress of external conditions, acting on a mind which is but a degree or so more sensitive than the normal person’s,” and that the term has therefore a considerably wider application than shell-shock. Fifty-three of his cases, indeed, occurred without previous injury or shell-shock, only nineteen were associated with shell-shock, and the remainder followed injury. The condition of which he treats is in fact covered by the terms hysteria and psychasthenia, but in the great majority of the cases (seventy) there was no pre-war history, either family or personal, of nervous or psycho-neurotic taint; and the men were often among the very best. His two next chapters deal with the clinical manifestations and psychological mechanism of conversion-hysteria (hysteria in which somatic disturbance is the prominent feature), the next
with anxiety-hysteria (in which the psychical elements are most conspicuous), and the fifth with psychasthenia. The remainder of the book is occupied with diagnosis and treatment. A disciple of Freud and Jung, his treatment, mainly hypnotic suggestion, has been based upon psycho-analysis, which, however, was fully carried out in only a few cases, as the necessities of military service did not permit the majority of patients to remain long enough in Malta. Of the hundred cases, seventy-nine were treated by hypnosis; seventy of these were cured, seven improved, and only two showed no change. The other methods employed were non-hypnotic suggestion, suggestion under an anaesthetic, and psycho-analysis. The time spent in treatment was at the most four weeks; and but few cases required more than two weeks' treatment. Of the seventy cases without previous history 91·5 per cent were cured, and 8·5 per cent improved, while in the rest the figures were not so favourable (62 per cent cured, 27·6 improved, and 10·4 unchanged). These results indicate that psycho-therapy ought to be the chief means of treatment in cases of war-shock. The claim is of course tacitly acknowledged by everyone who makes use, however unconsciously, of suggestion in the shape of a few cheering words, but it is perhaps not generally enough realised that the force of such suggestion can be greatly increased by a knowledge of psycho-therapeutic methods. Mr. Eder's little book should contribute largely to their wider study.

Rivers as Sources of Water-Supply. By Alex. Cruikshank Houston, M.B., D.Sc., F.R.S.Ed. London: John Bale, Sons & Danielsson, Limited. 1917. (5s. net.)

This book contains the substance of the lectures delivered by the author at the Royal Institute of Public Health in 1916, with the addition of a special chapter on water sterilisation. It deals almost exclusively with the water-supply of London, a subject on which Dr. Houston is entitled to speak with the highest authority in his capacity of Director of Water Examinations to the Metropolitan Water Board. The work embraces an exhaustive account of the sources of water-supply to London
and the London area, dealing with the topography and geology of the Thames area, the flow of the river, the rainfall and barometric pressure of the area for the twenty-year period, 1891-1910, and the quality of the water of the river itself for the period 1906-1913, as affected by rainfall and drought within these years of observation. The results of observations show that—the flow of the Thames tends to be highest in February and lowest in September; the rainfall to be highest in the Thames Valley in October and lowest in April; that in the period 1906-1913 the rainfall was heaviest in October and December, and the largest flow in December and January of each of these years; that there is a "lag" of some months between the flow in the river and the fall of rain in the valley, due to the immense underground storage capacity of the strata composing the Thames basin; that wet years tend to be years of heavy flow, and the quality of the river water to suffer in consequence; that in these circumstances the deterioration in quality is due to the floods washing into the river various kinds of pollutions; that the chemical and bacteriological examinations generally correspond with the flow, but that towards the end of the year the river water deteriorates in quality more rapidly than the flow increases, and improvement in quality in the spring occurs more quickly than does the decline in the flow. The supply of water to London and surrounding area averages about 244 million gallons per day, of which about 80 per cent comes from the Thames and the Lee (60 per cent from the former and 20 per cent from the latter), the remaining 20 per cent being obtained from deep and Artesian wells.

An interesting chapter deals with the water of the Thames in relation to pathogenic bacteria. In the search for streptococci, *B. typhosus*, and Gaertner's bacillus in this water, an enormous amount of experimental work has been overtaken. Respecting the presence of streptococci which are lactose positive, he notes that out of 52 samples of water examined during 1909, in only 13 were positive results found, the total number of organisms isolated being 19, whereas when one part of excremental matter is added to one million parts of sterile water, the average yield of this organism is about 17 per c.c. On this arithmetical ratio, it may be inferred that Thames water does not contain one part of fresh excremental matter in over 22 million parts. With No. 2. H Vol. LXXXIX.
respect to the presence of *B. typhosus* and Gaertner's bacillus, an exhaustive examination of a very large number of river water samples showed that not one of them contained the first-named organism. From this examination the author says that it may fairly be claimed that by dint of great labour it is possible to isolate both of these organisms from river water if and when they are present in the proportion of one organism per 9 c.c., and one per 19 c.c. respectively.

Another interesting subject in water purification discussed is that of the *filterability* or filtration-resisting power of a water, and the composition and microscopic appearances of the matters arrested thereby. By resistance to filtration is meant the measure or degree in which suspended matters, living or dead, organic or inorganic, in a water interfere with its passage through filtering material by blocking the filter. It appears regarding Thames water, that while there is relatively greater resistance to filtration in the spring of the year due to the presence of algal and other growths, and in the winter to suspended matter in the flood water, during the summer months the resistance is very small, and, speaking generally of the river water, it cannot be said to exercise any serious blocking effect on filters.

One of the most interesting experimental researches considered is that with regard to the longevity of *B. typhosus* in Thames water. The experimental investigation consisted of the addition of approximately known numbers of (a) culturised and (b) un-culturised or natural organisms to the raw water of the river, and thereafter storing the infected samples for periods of time of varying length. The results demonstrated that notwithstanding the number added was usually enormous, there was a large reduction in number at the end of one week’s storage, a further reduction to less than 10 organisms per c.c. at the end of three weeks, but that complete disappearance was only effected after from five to nine weeks’ storage. These observations apply to the use of culturised organisms. When, on the other hand, non-cultured or natural organisms were employed, the organisms were commonly found dead within the first week of storage, or in rarer instances either in the second or third week. These facts indicate that this organism, as shed from the human body, cannot survive so long in water as the same organisms
cultured in the laboratory, a matter of considerable importance in its practical bearing.

The author corroborates by personal experiment and observation the valuable results obtainable from combined storage and filtration in the purification of a water; indeed he goes the length of declaring that these measures in combination will, when properly used, effect purification sufficient to render the water potable even in very polluted rivers. The purifying influence of storage alone is very considerable. It has to be borne in mind, however, that storage may contribute to the increase of algal and other minute forms of vegetable life, and that the causes contributive of this result are not infrequently elusive to search. He gives examples in the case of different reservoirs of the London supply, where the source of supply in each case is the same. Moreover, the presence of these algal growths generates on occasion objectionable tastes in the water. It is, therefore, well that the flora of a water should be known, so that any departure from the normal may readily be detected. The book contains a series of excellent micro-photographic reproductions of various typical algal forms. As an example of the purifying effects of combined storage and filtration on Thames water, the author states that whereas raw water of the river gives a gelatin count of 2,900 organisms per c.c., an agar count of 248 per c.c., and a bile-salt count of 28, after both storage and filtration have done their work, the gelatin figure falls to 14'8 per c.c., the agar figure to 2'8 per c.c., and the bile-salt count to 0'5 per c.c., the amount of purification amounting, therefore, to about 99 per cent reduction over all; besides, the filtered water contains more than a thousand times fewer B. coli than the raw water.

A special chapter is devoted to the subject of sterilisation of water, by which is meant, of course, the relative destruction of live organisms but not of spores. The methods of sterilisation discussed are (1) the excess lime method; (2) the use of hypochlorites; and (3) liquid chlorine. Other methods are merely named. The first method is one suggested and favoured by the author. It depends on the addition of lime, either as milk of lime or lime water, in amount more than sufficient to combine with the dissolved CO$_2$ and the bicarbonates. It is in use in the Aberdeen supply from the Dee, and the amount of lime
there required is 1 lb. per 10,000 gallons, or about one part of CaO per 100,000 parts of water, relative sterilisation being achieved within seven days. Dr. Houston is of opinion that an excess-limed but unfiltered water is safer for potable purposes than a filtered but non-limed water. The use of hypochlorites, in the form of an alkaline solution of sodium hypochlorite, was made for the Lincoln water-supply, and had been in use from 1905 to 1911. In later days calcium hypochlorite or bleaching powder has gained favour especially for army purposes in the field. The author thinks that the knowledge that chemicals are added to drinking water is repugnant to many people, and that this is a factor not to be ignored. Besides, such addition does contribute a taste normally foreign to a water when the amount of hypochlorite added is not finely adjusted. But while consideration ought always to be given to these points, it is certainly of greater importance, especially to an army in the field, and not less perhaps to the civil population of a town, that a potable water should be rendered innocuous even although a fastidious palate may detect an unusual taste.

The advantages, so far as the public health is concerned, far outweigh the disadvantages. Organisms of possible water-borne diseases are devitalised or destroyed, the treated water is therefore harmless, and it may be rendered tasteless and odourless; and absolute protection against water-borne disease is conferred. Longer experience in the use of this purifying agent will, doubtless, tend to perfect its employment relative to any given water, but in the meantime too much reliance must not be placed on the blue colour reaction after the application of the potassium iodide and starch solution as an infallible evidence of sterilisation, for the colour may be present one hour after the test has been applied, and yet the water is not sterilised, as proved by bacteriological methods.

With the same object of sterilisation in view, liquid chlorine has been employed, although as yet chiefly in the United States of America. The claim for its preferential use is that its action is very rapid, if not, indeed, instantaneous. This, however, has been doubted. However the question may develop in civil life, there cannot be any question that, of all the chemical methods which have been suggested for the rapid sterilisation of water
for the use of armies in the field, those which have a chlorine basis are the most effective when properly used.

This work deserves the close study of all who are interested in the subject of water-supply and water purification, coming as it does from the pen of a master of the subject.

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Dangers in Neck-Wear. By Walter G. Walford, M.D.
London: H. K. Lewis & Co., Limited. 1917. (4s. 6d. net.)

Dr. Walford directs attention in this little volume to the evil effects that may follow the continued use of tight neck-wear, whether in the shape of high collars, the velvet or other bands which women love, or even a too narrow aperture to the shirt or underclothing. The obvious result is cerebral congestion, and he shows that from its effects upon the nervous centres interference with the heart's action and a host of intrathoracic disorders may follow. There is no doubt that constriction about the neck must be responsible for many evils, but his enthusiasm leads him to overstate his case, and when we find that the insanity of George III. is attributed primarily to a tight stock, the author ignoring all the sane persons who wore at that time a similar impediment, we hesitate to accept from one with so little sense of evidence statements to which we might otherwise be disposed to give credence.

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Hygiene and Public Health. By Louis C. Parkes, M.D.,
D.P.H.Lond. Univ., and Henry R. Kenwood, M.B., D.P.H.
Lond. London: H. K. Lewis & Co., Limited. 1917.
(14s. net.)

The work has now attained its sixth edition. Earlier editions have been reviewed in these pages on previous occasions, and it is not necessary to do more now, perhaps, than to indicate wherein this differs from former editions. While the whole work has been revised, a new chapter has been added on
maternity and child welfare work, amplification has been made of the subjects of personal hygiene, camp sanitation, and communicable diseases, and a note on marine hygiene has been inserted. These alterations and additions have somewhat, although not greatly, enlarged the book which now consists of 774 pages plus 13 pages of index.

In going through the present edition, however, one notices here and there a point worthy of attention. On p. 39, for example, we read that "the Loch Katrine water acts most powerfully on lead, and yet no symptoms of lead-poisoning have ever been observed amongst the population of Glasgow." We demur to this statement put in these words, since it is not expressive of the whole truth; it is, in fact, the kind of statement which was made before a Parliamentary Committee when the first Bill for the introduction of Loch Katrine into Glasgow was under consideration, and which, moreover, helped to throw out the Bill. The foregoing statement is only correct in respect that Loch Katrine water will and does act powerfully on bright un tarnished lead surfaces, but it is not correct in its inference that that water acts powerfully on any kind of lead surface. It can easily be proved by experiment that it does not act upon the usual tarnished or oxidised surface of lead, otherwise it would be nothing short of a miracle that the citizens of Glasgow should escape lead-poisoning. The reason, moreover, why this water acts upon bright lead surfaces is its high oxygenated condition, and any similar water will similarly act upon lead. It does not possess any acid reaction, which is the common cause of plumbo-solvent power. Jealous as we are of the fair fame of Loch Katrine water, we think that in a future edition the foregoing statement should be rectified in the direction indicated.

In the chapter on communicable diseases we are pleased to observe that the authors do not subscribe unreservedly to the extreme views of certain writers regarding the distances to which small-pox infection from hospitals may be transmitted aerially. It is difficult—we think, impossible—to burden small-pox hospitals solely with the blame of transmission of the disease to inhabitants of their environment, in view of the several mediate modes or channels which exist in connection therewith. From a critical examination of the facts of those
small-pox epidemics which have been attributed to aerial transmission, we have personally not been able to go further than hold the case against the hospital of itself to be not proved. Whilst saying this, however, we believe that the increased zone of separation of small-pox hospital buildings from the nearest public thoroughfare required by the Local Government Board is a safe preventive precaution.

On the question of vaccination in infancy as a preventive against small-pox, the authors are of opinion "that it would be very unwise in the present state of our knowledge to discard a prophylactic measure, which may be in many respects defective, but is still better than no prophylaxis at all." This seems to be a comparatively colourless opinion. Vaccination, when properly performed, has been proved beyond dispute to be an effective preventive measure. Any fault, therefore, as to its ineffectiveness must lie largely at the door of the medical profession and to our former want of knowledge of what constitutes efficient vaccination. That, however, is of much less importance than the fact that the law of this country permits a parent who declares a conscientious objection to the vaccination of his child to prevent the vaccination to be done. Consequently the statement of the authors, which is well-founded, that "more than half the children now born in England escape vaccination altogether," coupled with our knowledge that a considerable proportion of children in Scotland also escape, should evoke considerable public concern, not merely on the ground that such proportional numbers were not anticipated when the law as to conscientious objection was passed, but with relation to the future. It may not be profitable to prophesy as to the future, but we have grave misgivings with regard to future outbreaks of small-pox and their results.

The authors also very properly draw attention on p. 657 to new methods of disinfection required in cases of carriers of diseases where the organisms are chiefly located in the upper air passages. In view of the infective condition of these tracts, it would almost seem that the time has arrived that in an infectious diseases hospital particularly, and probably also in a general hospital, a room will have to be provided and fitted as an inhalatorium, the atmosphere of which would be charged with suitable and effective disinfectant vapours. This, we
believe, might limit in some degree the numbers of "return" cases in scarlet fever and diphtheria, and would be the only suitable form of treatment of "carriers" of the cerebro-spinal meningitis organism and others.

We commend the chapter on sanitary law and administration for its orderly treatment and completeness of information. It has the appearance, however, of being crowded because of being printed in smaller type than the rest of the text of the book.

The book is illustrated by 89 figures, a few of which, however, are not so effective for their purpose as they might be.

Viewing the book in its entirety, we consider it to be a sound piece of work whose high quality is well sustained from commencement to finish, a reliable source of information to the student, and a valuable guide to the practitioner and worker in the service of the public health.

The Journal of Hygiene. Plague Supplement V. Tenth Report on Plague Investigations in India. Cambridge: University Press. May, 1917.

This part of the Report on Plague Investigations in India deals with (1) epidemiological observations in the United Provinces of Agra and Oudh in 1911-12, and (2) the influence of saturation deficiency and of temperature on the course of epidemic plague, both parts of the subject being illustrated by charts, and the first also by maps. The writers of the first paper point out that in the provinces above-named there are four natural geographical sub-divisions, viz., (1) the Himalayan Tract, which has been almost free from plague; (2) the sub-Himalayan tract, which has had very little plague; (3) the great Indo-Gangetic Plain, which has suffered very severely from plague; and (4) the hill system of Central India, which has experienced very little plague.

The climate of these Provinces generally may be thus summarised:—The mean daily temperature during the winter months varies between $72^\circ$ F. and $57^\circ$ F., the season being dry; rain falls irregularly, associated with storm movements; in spring the temperature rises gradually and by May intensely hot weather
prevails; in June monsoon currents reduce the heat. But there are marked local variations in the four tracts mentioned. In (1) the weather is cold in winter, cool in spring, with heavy rainfall in the summer months; in (2) the rainfall is heavy in the monsoon, and the subsoil level of water is high; in (3) the climate is delightful in winter, becomes hot in late spring, is warm and moist in summer, and in winter the western districts are cooler than the eastern; in (4) the humidity of the atmosphere in winter and spring is low, in the hot weather the temperature is very high, but the winter is not so cold as in other parts of the Provinces.

Among other large populous centres in these Provinces are Cawnpore and Lucknow. Cawnpore has suffered always more persistently and more severely from plague than Lucknow. The authors ascribe this to the fact that Cawnpore is a much larger and more important trade centre than Lucknow, is therefore exposed to greater risk of infection, is a more rat-infested city, contains large grain stores which harbour these animals, and consequently the number of plague-bearing fleas on rats is greater. The Ballia district has proved to be the most severely infected by plague, having an average death-rate from this disease of 12.5 per 1,000 of population per annum during a given period of time. For the past forty-two years this district has had an average rainfall of 41.82 inches. During the hot weather the temperature is relatively lower and the humidity higher than in Cawnpore, Lucknow, or other populous centres within the Provinces, these being the conditions favourable for the spread of plague. The writers are of opinion that the association of unusual humidity during the winter months in certain districts with severe epidemic outbreaks of plague is so constant a phenomenon that they feel justified in concluding that the one stands relatively to the other as cause and effect, and that atmospheric humidity exercises an effect conducive to the longevity and activity of fleas of rats when separated from their host, and thus also to their plague-conveying power. Previous observations respecting the seasonal prevalence of plague had led some observers of the Plague Commission to the conclusion that an epidemic was checked when the mean daily temperature passed above 80° F., and especially when it reached 85° F. to 95° F. Moreover, it had been found that plague
bacillus disappears from the stomach of the flea more rapidly during high than at lower temperatures. This conclusion, however, was thought to be too general, as in certain instances epidemic outbreaks tended to decline under presumably favourable conditions of temperature for their continuance. Attention was therefore attracted to the rôle of percentage humidity of the air as a more likely intimate factor. Observations indicated, indeed, that humidity had a not unimportant relationship to the seasonal prevalence of the disease, and also to the average number of fleas per rat at different seasons of the year.

Since, however, relative humidity figures of a locality do not afford precise information as to the drying capacity of the air at any temperature in question, it was thought desirable that from a consideration of percentage humidity and temperature records the figures of “saturation deficiency” should be worked out, and that these might afford more useful information. By the expression “saturation deficiency” is meant the difference between the actual tension of aqueous vapour in the atmosphere at a given temperature and the tension of vapour which would be present in a saturated atmosphere at the same temperature. Working from this point of view, the writer of the second paper, after examination of a very large number of collected data associated with plague outbreaks and declensions in India, has reached the following conclusions, viz.:- That when the mean daily temperature rises above 80° F., and when such rise is accompanied by an increase of the saturation deficiency to above 0.30 of an inch, plague cannot maintain itself in epidemic form, though the elevation of temperature of itself may not bring about the termination of an epidemic; that epidemics do not arise, as a rule, when the mean temperature is above 80° F., for the reason that at such a temperature or higher it is quite exceptional to find a sufficiently low saturation deficiency; that in exceptional circumstances, however, with a combination of high temperature and low saturation deficiency, plague epidemics do arise and continue, and it is believed that it is by reason of this unusual combination in Rangoon that plague occurs there at all seasons of the year, and that in Java and Mauritius the disease may occur at all seasons indifferently; and that epidemics are rapidly brought to a termination in the presence of a high
saturation deficiency even when the mean temperature throughout the progress and after the termination of an epidemic has been considerably below 80° F.

We reckon these contributions to the meteorological etiology of plague as being most worthy the attention of those interested in tropical diseases, in respect that they break new ground.

Clinical Methods. By Robert Hutchison, M.D., F.R.C.P., and Harry Rainy, M.D., F.R.C.P.Ed., F.R.S.E. Sixth Edition. London: Cassell & Co., Limited. 1916. (10s. 6d. net.)

The chief features in which the present differs from former editions of this well-known and admirable manual are the changes in the chapter on clinical bacteriology, revised, as hitherto, by Professor Ritchie, the inclusion of a summary of the results of modern methods of examination of the myocardium, and the alternative use of the newer anatomical terminology of the Basle Nomenclature. The book has in all respects been brought thoroughly up to date, the only omission among more recent tests which the reviewer has noted being the absence of any mention of the Wolff-Junghans and Salomon's reactions, and the present edition can only increase its popularity. It is needless to say more of a book already so widely and justly appreciated.

Histology of Medicinal Plants. By William Mansfield, A.M., Phar.D. First Edition. New York: John Wiley & Sons, Inc. 1916. (13s. 6d. net.)

This book is intended, as the author tells us in the preface, "to provide a practical scientific course in vegetable histology for the use of teachers and students in schools and colleges," and he explains that "the medicinal plants are studied in great detail because they constitute one of the most important groups of economic plants." The opening part of the work is taken up with descriptions of the various forms of magnifying apparatus,
the use of the microscopes and the mounting of specimens. The second part is devoted to tissue cells and cell contents, and this part is very richly and beautifully illustrated by plates. The third part treats of the histology of roots, rhizomes, stems, bark, woods, flowers, fruits, and seeds. Like the other parts it is well illustrated. All the illustrations are from original drawings made by the author, and they do him credit; they will be a source of much pleasure to the student of botany. The author has had a large experience as a teacher and he has also acquired a wide practical acquaintance with his subject from the commercial side as examiner of powdered drugs for a large importing and exporting firm. His descriptions are clear, and he presents his information in an interesting manner. It is out of place to attempt here a detailed review of the contents of the book, but it may be said in passing that the section on vegetable hairs will be found very interesting and worthy of study. The work should prove welcome alike to students of botany and students of pharmacology. The volume is full of interesting matter and is well got up, and does credit both to author and publisher.

A Laboratory Manual of Organic Chemistry for Medical Students. By M. Steel, Ph.D. London: Chapman & Hall. 1917. (6s. net.)

This book is essentially a laboratory guide. No explanations of any of the experiments or results are given; the student is expected to correlate the facts observed with the theoretical matter taught in the lecture room or found in books. The book, therefore, has a strictly limited use. The scope covered is very similar to that of other books of the same class; it is somewhat weaker on the biological side than some of the books commonly used in this country. The only section in which it is fuller is that on the chemistry of the alkaloids of medical importance. The methods and details given are, however, concise and clear; an excellent point is made in giving for nearly every experiment the definite quantities of chemicals to be used. The book is provided with a good index.