

families in which the disease appeared, and this was accordingly examined. Believing that the ordinary analysis, which consists in the determination of free and albuminoid ammonia, chlorine, etc., would be entirely inadequate, it was decided to inoculate sterilized meat preparations and sterilized milk with the suspected water, and to keep this material at or near the temperature of the human body for varying periods of time, and ascertain whether or not there would be any poisons developed by the bacteria, which were suspected of being in the water. This method was followed, and resulted in demonstrating that the water contained a ptomaine which produced poisonous symptoms; and a cultivation of the micro-organisms in the water upon potato, together with certain physiological experiments, showed that the water contained typhoid bacilli. It has been shown that the fever was brought to Iron Mountain by a man from a railroad construction camp. In commenting on this outbreak, the investigators state that it is well known that typhoid-fever invariably follows dry seasons, and is coincident with low water in wells. There are, on an average, about one thousand deaths and ten thousand cases of sickness from this disease annually in Michigan. These figures can be greatly reduced if people will cease polluting the soil about their houses with slops, garbage, cesspools, and privy-vaults, and will see to it that their drinking-water is pure beyond all question. When there is any doubt, the water should be boiled; but it should be remembered, that, while the typhoid germ most frequently finds its way into the body with the drinking-water, it may be taken in with any food, and even with the air. When a case of typhoid-fever occurs, all discharges should be thoroughly disinfected; and the earth, water, and air about our homes must be pure, if we escape this disease altogether.

The causation of cold-weather diseases is discussed in the report by Dr. Henry B. Baker, the efficient secretary of the board. Although it is a recognized fact that many of the communicable diseases are most prevalent at certain seasons of the year, yet the extent to which their prevalence is controlled by meteorological conditions has not been thoroughly shown by statisticians. This Dr. Baker does by means of tables and diagrams, which exhibit the close relations which diphtheria, small-pox, and scarlet-fever bear to atmospheric temperature. He finds that diphtheria is most frequent in the autumn and winter, accompanying somewhat, in its rise and fall by seasons and by months, the fall and rise of the temperature, and the rise and fall of the velocity of the wind. Small-pox bears a quantitative relation to the atmospheric temperature, rising after the temperature falls, and falling after the temperature rises. Scarlet-fever falls after the temperature rises in the spring, and rises after the temperature falls in the autumn, the sickness changes averaging about one month later than the temperature changes.

The whole report is a valuable one, and reflects great credit on the State board and its officers.

*Livy.* Book XXII. Ed. by M. T. TATHAM. Oxford, Clarendon Pr. 16°. (New York, Macmillan, 60 cents.)

*The Second Book of Xenophon's Anabasis.* Ed. by C. S. JERRAM. Oxford, Clarendon Pr. 16°. (New York, Macmillan, 40 cents.)

*Cæsar's Gallic War.* Books I. and II. Ed. by C. E. MOBERLY. Oxford, Clarendon Pr. 16°. (New York, Macmillan, 50 cents.)

THREE volumes of this useful series have reached us. The twenty-second book of 'Livy' has been edited by M. T. Tatham. The text is preceded by a brief historical introduction and by a chronological table of the events described in the book. In an excursus the peculiarities of Livy's Latin are dwelt upon; and in the second part, which contains notes to the single chapters, difficult passages are explained. A good sketch-map of the western Mediterranean, on which Hannibal's march from Carthago Nova to Italy is sketched, accompanies the volume. The arrangement of C. S. Jerram's second book of the 'Anabasis' is made on the same plan, the selected book being made complete in itself, without presupposing a knowledge of the general contents of the 'Anabasis.' A sketch of the narrative down to the second book is given in an introduction. This book is also accompanied by a sketch-map showing the march of the ten thousand. Rev. Charles E. Mober-

ly's edition of the first and second books of the 'Gallic War' is illustrated by numerous maps and diagrams. Besides the historical introduction and notes, and hints on the mode of translating Cæsar, it contains an appendix on the Roman military system. The books are printed in very clear type, — an important consideration for school-books, and will be found very useful by the teacher.

*A Latin Prose Primer.* By J. Y. SARGENT. Oxford, Clarendon Pr. 16°. (New York, Macmillan, 60 cents.)

*An Introduction to Latin Syntax.* By W. S. GIBSON. Oxford, Clarendon Pr. 16°. (New York, Macmillan, 50 cents.)

THE 'Latin Prose Primer' is intended to be used as a companion to Mr. Sargent's 'Easy Passages for Translation into Latin.' It is designed for the use of beginners. In a number of preliminary exercises, which consist of detached sentences, the pupil is made familiar with the various forms of Latin syntax. The second part consists of aids and explanations for the translation of a part of the 'Easy Passages.' Vocabularies, grammatical notes, and arrangement of the pieces so as to suit the Latin syntax, are given. In an introduction the principal difficulties to obtaining a good Latin style are treated at some length. Gibson's 'Introduction to Latin Syntax' will be found a very handy and useful book. The author does not give a mere collection of rules, but collections of sentences, from which the pupil has to find the rule by induction. Exercises are added to test the pupil's power of applying the rule which has just been arrived at. Separate vocabularies are given for the various parts of speech, the pupils being thus obliged to think before looking out a word, and one of the great disadvantages of dictionaries being thus overcome.

*Microscopical Physiography of the Rock-Making Minerals.* By H. ROSENBUSCH. Tr. by Joseph P. Iddings. New York, Wiley. 8°. \$5.

THE translator of H. Rosenbusch's well-known 'Mikroskopische Physiographie der petrographisch wichtigen Mineralien' has endeavored to present this valuable book in such shape as to be best adapted to the use of colleges and schools. Therefore much of the interesting contents of the original have been omitted, which the advanced student will miss with regret; but the translator has shown good judgment in abridging; and the English edition, as it stands, is a fair general compendium of the subject. Most of the historical portions, which form so interesting a part of the original, have been omitted, as well as the elaborate treatment of the optical anomalies of certain minerals, and many notes on European localities, while a number of notes on American occurrences have been inserted. The book is a translation of the German edition of 1885, and we miss with regret the color-plate of the original, and descriptions of the newest improvements in microscopes. The prefaces to the first and second editions have been reprinted in German. Twenty-six instructive plates of photomicrographs, which formed so prominent a feature of the second edition, have been reproduced here. The translation has been made carefully, and the book, in its English form, will be a useful introduction to the study of the subject, although the advanced student will have to fall back upon the original.

*The Ear and its Diseases.* By SAMUEL SEXTON, M.D. New York, William Wood & Co. 8°.

IN many respects this work of Dr. Sexton's is unique. It is a wide departure from the beaten path, and contains a large amount of material which has never before, so far as we know, been treated in any one book, and much of it has never before been treated in a thorough manner; the discussions having been confined to medical and other scientific journals. Without attempting to mention all these peculiarities, we would nevertheless refer to some of the most prominent: viz., the influence in producing disease of the ear, of decaying teeth and sea-bathing; wounds and injuries of the ear occurring in warfare and civil life; rupture of the drum-head from boxing the ears, and its medico-legal aspect; concussion from the blast of great guns and explosives; noises in the ears, and their connection with insane hallucinations and delusions; the effects of false hearing on singers, actors, lecturers, and musicians; the classification and education of school-children with defective hearing; the effect of

high atmospheric pressure on the ear in tunnels, caissons, and in diving; and the subject of pension claims of soldiers, sailors, and marines on account of disability from deafness. Dr. Sexton has enjoyed remarkable opportunities for observing diseases of the ear, sixty thousand cases having come under his charge during the past twenty years, and is therefore entitled to speak with authority on all subjects connected with this important organ.

The author first treats of the anatomy and physiology of the auditory apparatus. He regards the theory of audition as set forth by Helmholtz as faulty, and accepts as the true explanation of the process the views of Professor Rutherford, announced by him in a lecture delivered before the British Association, and published in the *Lancet*, Jan. 1, 1887. Rutherford's theory is called by him the 'telephone theory of the sense of hearing,' for the reason that the processes in the two instances are so much alike, and a knowledge of the manner in which the telephone acts helps to explain the function of audition.

We have already had occasion in *Science* to refer to Dr. Sexton's views of the injurious effects of sea-bathing on the ear. Bathers in the surf are liable, when off their guard, to be struck by the waves upon the ear with much violence, especially in boisterous weather at full tide. Cold salt water may thus enter the external auditory canal with sufficient momentum to rupture the drum-head in persons having a large, freely open canal. Swimming or floating upon the back exposes one to the same dangers. There have been 273 patients under Dr. Sexton's treatment for aural disease caused by salt-water bathing, of whom 243 were males, and 30 females. Injury to the ear sometimes follows fresh-water bathing; and in Russian or Turkish baths there is also danger, the bather being at this time extremely susceptible to cold, and consequent catarrh of the upper air-passages.

The author has observed 51 cases of injury to the ear by blows of the open hand or fist, and 16 in which disease was attributable to missiles of various kinds, five being snow-balls.

One of the most interesting portions of the work before us is that which treats of injuries produced by long-continued musketry-fire, by the concussion from the blast of fire-arms and explosives, and by the impact of steam-whistles, metal-hammering, and other intense sounds. A large number of cases are described in detail illustrative of these injuries, many of them having occurred during the war of the Rebellion.

Defective school hygiene Dr. Sexton regards as one of the causes of ear-disease. Much has been written of the ills that arise from breathing foul gas and dust, and very little about the dangers from draughts of air to which pupils are exposed in many schools. Catarrh with aural complications results from this cause.

A large experience has led the author to believe that great injustice is being done in permitting children to struggle for an education, under the disadvantages arising from deafness, without the aid of methods which experience has shown to be advantageous in such cases. He found 76 cases of deafness in 570 pupils examined in the public and parochial schools of New York City; while, of this large number of children, but one was known to the teachers as suffering from deafness, and only nineteen were aware that they were deaf. As a result of Dr. Sexton's labors, teachers are much interested in the subject, and find that deafness explains many cases of supposed 'inattention' and 'stupidity.' The author states that careful estimates show that only five per cent of the population of the United States have normal hearing. He finds deafness to exist to a certain extent among teachers as well.

A chapter is devoted to the effect of high atmospheric pressure on the ear in tunnels, caissons, etc., which contains illustrative cases, some of the injuries being produced in the Hudson River Tunnel, and one in the caisson of the Harlem River Bridge. The injurious effects of unskillful treatment in the removal of foreign bodies from the ear are described. There can be, he says, no more pitiable object than a child, terror-stricken and exhausted with fear, struggling in a frenzied way while the ear is painfully lacerated in unskillful attempts at the removal of a foreign body. This operation should only be done by one skilled in the proper methods.

The claims of soldiers, sailors, and marines for pensions on account of disability from deafness is the topic discussed in the final chapter. Under the present law, thirteen dollars per month (a full

pension) is the whole amount allowed for total or severe deafness of both ears, with a proportionate amount for partial loss of hearing in one or both ears. On March 1, 1886, 1,230 persons were drawing pensions for total deafness, and 4,159 for partial deafness, — a total of 5,389. A table is given showing the rates of payment, with the aggregate for each State and Territory. Fifty-nine illustrations and a copious index add much to the value of this excellent work.

*Town and Country School Buildings.* By E. C. GARDNER. New York and Chicago, E. L. Kellogg & Co. 12°.

THIS book is inexpensive and it is unpretentious, but it is full of valuable suggestions. Our schools, especially in the rural districts, are generally buildings of consummate ugliness and inconvenience. The village carpenter builds them, box-like, and is satisfied. It costs no more, however, to build an attractive and well-arranged school than the opposite, if only the builders are shown how to do it. Mr. Gardner's little book serves this purpose admirably. By cuts and diagrams, and by specific building directions, the subject is presented in an attractive and practical way. The book should be often consulted by district school trustees.

*Macmillan's Greek Reader.* By F. H. COLSON. London and New York, Macmillan. 16°. 75 cents.

*A Latin Reader.* By H. J. HARDY. London and New York, Macmillan. 16°. 60 cents.

MR. COLSON'S 'Greek Reader' is an attempt to give a collection of stories in Attic Greek taken from originals. As the Greek authors whose writings contain anecdotes, historical and mythological, which form so suitable a subject-matter for school-exercises, belong to a later period, they do not form a good introduction to the study of the great Attic prosewriters. On the other hand, such readers as contain interesting stories, that are taken from any source and turned into Greek, labor under the disadvantage that the material is not original, but a translation. The author has avoided this difficulty by selecting stories Greek in substance and form, but simplified, and adapted to the form of ordinary Attic Greek. The stories are arranged by subjects, not as to their difficulty, but the more difficult ones have been marked by asterisks. A full vocabulary and exercises are contained in the volume.

Mr. Hardy's 'Latin Reader' consists of Latin stories taken from Latin authors and other sources. An attempt has been made to gather compact and intelligible stories, the subjects of which may be expected to interest the average schoolboy. These stories are intended for the ordinary reading of boys who are not yet sufficiently far advanced to read Latin authors continuously. They conclude with some pieces taken directly from the authors which will naturally form the next stage; otherwise all the stories are intended for the lower forms of schools. A useful vocabulary is appended to the book.

#### NOTES AND NEWS.

THE American Institute Fair, which will close early in next month, attracts attention, as it well deserves, from the resident New-Yorkers and those who visit the city. The exhibition hall, at Sixty-third Street and Third Avenue, is convenient of access by the elevated railways and street-car lines. With the building filled with a variety of exhibits, covering almost every branch of industry, and the machinery hall containing about one hundred different exhibits, and a Corliss engine working without fault, and pronounced by competent judges to be as fine a piece of mechanism as has ever been seen even in New York, and with an art department complete, and household exhibits without number, — and all this at the reduced admission of twenty-five cents, — there is no reason why an investment of money and an investment of time to visit the fair should not be made, and good return received for going. The building is open from 10 A.M. to 10 P.M.

— G. Gröber's *Grundriss der romanischen Philologie* has now arrived at its third number, which completes the first volume. The work, which is published by Trübner at Strassburg, is a cyclopedic collection of grammatic, literary, and paleographic articles upon