were found sick; measles, diphtheria, scarlet-fever, scrofula, and syphilis being the prevailing diseases. In nearly every instance the sick children were not only without proper medical attendance, but were living in places rendering complete recovery to the majority almost impossible. To give the sick children the benefit of fresh air, 6,312 free tickets were distributed for the excursions of the St. John's Guild Floating Hospital, where they and their parents were given a sufficient quantity of good foods. Twenty-four very sick children were sent to a hospital on Staten Island, where they remained for a week or two. In the final report of one of these physicians, he gave it as his opinion that the great death-rate among children under five years of age was attributable to over-crowding, filth, filthy habits, and bad drainage. He says, "Upon a hot summer's day to enter a room in a rear house, whose walls were cracked and besmeared with refuse, and perhaps dead vermin, occupied by a family of six or eight, harboring three or four boarders, upon the floor of which might be seen soiled linen, particles of food, and children, with a mother standing about the red-hot stove, washing and cooking, and perhaps attending to a sick child, lying in a dark bed-room, suffering from cholera-infantum, diphtheria, or scarlet or typhoid fever, was a spectacle frequently indeed brought to my attention." Another physician observed a great number of cases of diseases of the eye and ear, especially among those subjected to bad hygienic conditions. All the houses, without exception, were overcrowded and in a filthy condition, the rear houses being dark and badly ventilated. In one apartment having three rooms, from twelve to fourteen persons were often found; in some of these, father, mother, and grown-up sons and daughters all sleeping in one room, without any regard for delicacy or decency. A third member of this visiting corps describes the small yard of a rear tenement, containing an open cesspool, around which groups of sickly children were playing; these children being stunted in growth, pale, and, as a rule, having some form of ophthalmia. Of thirty children found in one of these small yards, only one could be said to be in vigorous health.

CAUSE OF TYPHOID-FEVER. — Investigations made by Beumer, Peiper, and others seem to have demonstrated that a ptomaine produced by the typhoid-bacilli when injected into animals may cause a disease resembling typhoid-fever. This ptomaine was discovered by Brieger, and named by him 'typhotoxine.' It is this substance, and not the germ directly, which is the cause of typhoid-fever in man, according to the most recent theory. The *London Medical Record*, in commenting on these researches, draws the following conclusions from them: "1. The symptoms and alterations observed in animals in which cultures of typhoid-bacilli had been injected are due to the toxic substances secreted by these bacilli. 2. The noxious germs, which secrete the typhotoxine, are reproduced in the intestinal canal. From these the ptomaine is taken up by the circulation, and carried to all the organs liable to be affected by this poison. 3. It is most probable that the same takes place in abdominal typhoid-fever of man. 4. A first infection induces immunity against the injurious effect of a later infection, even of large quantities of the toxic substance. 5. Further experiments and careful clinical investigations are necessary in order to establish a scientific support of the theory of immunity from infections of sterilized cultures containing not more than a determined quantity of typhotoxine. 6. In case this theory be an ascertained fact, the reproduction of the same immunity in man would be justified by commencing with very minute doses of typhotoxine, which would be gradually increased according to the results obtained."

A TEST FOR THE CHOLERA-BACILLUS. — Bujwid, in the *Zeitschrift für Hygiene*, describes a chemical test for the detection of the presence of the cholera-bacillus. He adds to a bouillon-culture of the bacillus from five to ten per cent of ordinary muriatic acid. In a few minutes a rose-violet color appears, which increases in intensity for half an hour. It remains unchanged for several days. This re-action occurs in bouillon-cultures ten to twelve hours old, and in gelatine-cultures after twenty-four hours. The coloring is increased by heat. It is claimed by Bujwid that this color is characteristic of the bacillus of Asiatic cholera, and distinguishes it from all others.

BOOK-REVIEWS.

The Elements of Political Economy, with Some Applications to Questions of the Day. By J. LAURENCE LAUGHLIN. New York, Appleton. 12°.

THE author of this work is impressed, as many other people are, with the importance of a more general training in economic science. Almost all of the questions with which our national government will soon have to deal are of an economic character, or involve economic considerations; while the conflict between labor and capital shows the importance of economic science in purely industrial affairs. To supply the needed information, it will be necessary to introduce the study of economics into our high schools and academies, and for this purpose good elementary treatises are necessary. Such treatises, however, are by no means numerous; and hence a work like Professor Laughlin's is to be welcomed. It is intended as an introductory work merely, and for the use of schools: "The main topics are treated, the fundamental principles are emphasized, but no effort is made to produce a detailed and exhaustive treatise" (p. vii.). The author's object, we think, has been successfully accomplished. The adaptability of the work to school use must, of course, be tested by actual practice; but it certainly has many of the qualities that such a work ought to have. The division and arrangement of topics are excellent, and the style clear; while the choice of matter is appropriate to an elementary treatise. The work is divided into two parts, the first demonstrating the principles of the science, the second applying them to the economic problems of the day. The doctrines and method of the work are those of the standard English school. Indeed, that school seems to have been followed a little too strictly; for, though its method is the leading and most productive one, yet the comparative and historical methods have their uses.

Professor Laughlin gives the usual definitions of 'wealth' and 'value,' and the usual account of the agents of production. He lays special stress, however, on the important function in contemporary industry of the skilful industrial manager. In treating of exchange, he follows Mill in the main, while adopting something from Cairnes on the subjects of supply and demand, and foreign trade. On the subject of distribution he holds the views that have prevailed generally among English writers, with the fiction of the wages fund left out. He argues that "the proportional shares of labor and capital out of the product will depend upon the relative scarcity and abundance of labor and capital" (p. 186); while "the productiveness of a country's industries determines whether the general level of wages shall be high or low" (p. 198). Interest, or the share of the capitalist, he considers a reward for abstinence merely, while the profit of the industrial manager is treated as the wages of a superior kind of labor.

In the second or practical part of the work, Professor Laughlin seeks to apply economic principles to such questions as socialism, taxation, free trade, and others, while recognizing that such questions cannot be settled by economic considerations alone. His remarks on the subjects of money and taxation, if generally read, can hardly fail to be useful. He condemns socialism, as all economists do, and holds that the prosperity and advancement of the working-classes depend on their own mental and moral improvement. He favors individualism, and deprecates undue interference by the State, holding that "it is high time that the weak and narrow-minded recourse to the State for legislation on every conceivable subject should be abandoned for a greater growth of self-help and a more independent and self-confident manhood" (p. 349). The book may be commended not only for schools, but also for private students, and we should be glad to see it extensively read by the working-people.

Animal Life in the Sea and on the Land. By SARAH COOPER. New York, Harper. 12°.

IT is impossible to give, in large type, in the space of about three hundred double-leaded, duodecimo pages, a satisfactory account of several hundred species of animals, from the lowest to the highest. Yet this is what the author attempts in this volume; and she throws in, besides, a chapter on coral-reefs, and many pages about fossils. The result is a curious cross between a grammar-school text-book

on zoölogy and a child's picture-book of animals. The chapters are divided into short, numbered paragraphs, each headed with a full-faced subtitle, in the style of a school 'reader.' This, and the rather pedagogical style, render it nearly certain that young people will not *read* it; while the necessary sketchiness of its contents, and the innumerable omissions, render it nearly useless as a book of reference. It may have some value in the hands of a teacher as suggesting a series of topics for elaboration, but, even so, we are confident that the patient examination of half a dozen typical specimens would furnish better results than this fragmentary treatment of several hundred. It is essentially a compilation. After reading the book, one dare not swear that the author has ever seen a single one of all the animals described, unless it be some of the common sea-creatures of the Massachusetts coast. The illustrations are attractive, reasonably accurate, and many of them artistic. The mechanical part of the book is well done.

Die Psychischen Störungen des Kindesalters. Von Dr. H. EMMINGHAUS. Tübingen.

WHILE this work by an eminent German alienist is primarily designed for specialists, it contains a number of interesting observations valuable to all who are concerned in the training of children, and illustrating from an unusual point of view certain marked characteristics of child-mind. The limitation of 'childhood' strictly to the period before the establishing of the functions that connect the individual with the race is at once significant: it gives the physiological basis for much of what is distinctive in child-life, and accents the enormity of the field of thought and feeling which the approach of adolescence suddenly reveals. As mental disease is to a large extent a concomitant of civilization, and this in turn is dependent upon a general and prolonged brain-culture, it is easy to see that the child who has not yet reached the stage where character is established, where keen competition excites each brain-cell to a maximum of action, is spared a large proportion of mental disease. This fact, then, that mental diseases are far less common among children than among adults, with the further fact that the affliction of children by a large class of mental diseases not uncommon in adults is a sporadic occurrence, it is essential to bear in mind. Since the influence of a pernicious environment is responsible for only a small share of mental breakdown in childhood, it follows that heredity — 'the sins of the fathers' — is the great disposing cause. And this shows itself in the production of two classes of children: (1) those who from birth show the marks of mental deficiency or perversity, or who, without any accident or maltreatment, are sure to show such marks within a few years; (2) those who show almost no suspicious symptoms in early childhood, but in whom the strains demanded of a civilized city child cause mental breakdown. It is this last numerous class of children that is open to the wise treatment of the intelligent parent and teacher as well as of the knowing physician. Another noteworthy point is that the mental abnormality of a child can be determined only by reference to a normal child of the same age, and with an appreciation of certain traits, which, almost always pathological when occurring in adults, are within the range of normal individuality in children. The analogy between the acts of the insane and the traits of children is often drawn. This includes more than the degenerative processes of senile dementia (second childhood), and is shown, for example, in the passion for collecting all sorts of curiosities, odds and ends, and the like (common to certain forms of mania). The most striking instance of this analogy is that of the wantonness of the actions in the transition period between boyhood and youth, for which the Germans have the term *Flegeljahre*. Here there is all the recklessness of demeanor, bigness of plans, swaggering egotism, and excitable caprice characteristic of developed mania. But it is only in the presence of predisposing causes that this period leaves the region of the normal; and the frequency of runaways from home, and other cravings for a free roaming life that appear at this age, suggest that a rational outlet for this superfluous energy might be provided.

Leaving these general considerations, a few points of illustrative value should be mentioned. In an interesting chapter on suicides in children, Dr. Emminghaus accents the importance of one-sided precocity as a disposing factor. Ideas belonging to a more mature period of life are by accident, by exciting literature or other cause, planted in a yielding brain, that has not yet acquired the stability of will, or the firm distinctiveness of moral habit, that keeps such weird notions from realization in action. Nothing could better illustrate the mischievous tendency fostered by competitive examinations, to goad children on ahead of their years, with a show of great brilliancy, but a brilliancy dangerous by lack of a sound physiological basis. The triviality of the alleged cause of suicide is only a further evidence of the abnormality (usually hereditary) of such children.[1]

Idiocy and imbecility have always been the type of mental disease in children. Their ultimate relation with other forms of insanity is likewise well understood, and it has been spoken of as nature's method of cutting off the progeny of a degenerate strain. While by its nature incurable, modern study has succeeded, by an early appreciation of the condition, in rescuing all but the severest forms from the utter helplessness formerly so common.

Finally, this very imperfect sketch of Dr. Emminghaus's point of view should not be completed without mentioning that the sharply defined plan of his work prevents him from recognizing that host of mental affections whose germs are often innate, and whose prodromal symptoms often clearly manifest in childhood, but which come to distinct view only later in life, especially at the periods of intense physiological change.

The Relative Proportions of the Steam-Engine. By WILLIAM DENNIS MARKS. Philadelphia, Lippincott. 8°.

THE little book lying before us is a volume containing matter of value and interest to technical schools. It represents the first attempt which, so far as we are aware, has ever been made to determine, by correct methods and in any considerable detail, the proportions of the parts of the steam-engine. It is a singular fact, that notwithstanding the importance of the steam-engine, and its attractiveness to scientific writers on applied mechanics, no treatise of this character has ever before been produced. The general theory of the heat-engines has, especially during the present generation and since the time of Rankine and of Clausius' work, been written and re-written by many writers, great and small, and has been elaborated with all the ingenuity that such authors are capable of; but not one has hitherto had the good judgment, the patience, and the ability, to produce a good book on the proportioning of its rods and cranks, its fly-wheels and its cylinders. Some such work has been done by a few European writers; but none have devoted themselves to the production of a special treatise upon the subject.

Professor Marks has gone into the work with a zeal which could not but be fruitful of result, and has produced a book which will be of very great value to the profession and in the schools. Collating all that could be found in standard writers on the strength of materials and on machine design, he has added much useful material as the result of his own investigations, and has thus put into convenient form and into a single volume a very large amount of fact and calculation indispensable to the student in engineering and to the designer of machinery of this kind. A chapter is devoted to the study of the proportions of the steam-cylinder and the calculation of power; another to the sizes of bolts, areas of ports, and size of piston-rods. The proportions of fastenings, such as gibs and keys; the size and shape of the connecting-rod and its connections; the sizes, forms, and proportions of crank-pins, and the proportioning of the crank in wrought or cast iron and in steel, — form the subjects of succeeding chapters; and the size of the crank-shaft in the several available metals is calculated by carefully established formulas and rules. Among the best parts of the book are the studies of the effect of the fly-wheel, and its action as a regulator. This is probably the most complete and practically valuable discussion of this subject to be found. The last chapter, that on the governor, is the least satisfactory in the book; and it would seem that the writer had not yet worked up to that point in his progress toward his ideal of his book.

[1] It is interesting to note that even in children the modes of suicide in the two sexes are strikingly different. The boys in seventy-five per cent of all cases hang themselves, in fifteen per cent drown themselves, in three per cent poison themselves, and never stab themselves. Of the girls, only ten per cent meet death by hanging, but sixty-four per cent by drowning, thirteen per cent by poison, and eight per cent by stabbing.