

## BOOK-REVIEWS.

*Ptomaines and Leucomaines, or the Putrefactive and Physiological Alkaloids.* By VICTOR C. VAUGHAN and FREDERICK G. NOVY. Philadelphia, Lea Bros. 12°.

PROFESSOR VAUGHAN and Mr. Novy have done the scientific world great service in collating the facts connected with ptomaines and leucomaines. The literature of the subject is abundant, but has been so scattered and so fragmentary that it was not available for reference. In the book before us a very complete historical sketch of the subject has been given, and for those who wish to consult the original articles which have appeared, a very excellent bibliography is provided. This work is more than a mere compilation. Professor Vaughan has done a large amount of original and valuable work in this branch of scientific research, and his views and methods are here given to the public. In the chapter devoted to the consideration of the foods containing poisonous ptomaines, the authors mention mussels, sausage, ham, canned meats and fruits, cheese, milk, ice-cream, and bread as having been proved at various times to contain poisonous alkaloids. These observations are made the more interesting by being accompanied with the details of the cases, and are of special value to the physician by reason of the detailed symptoms and progress of the illness. The relation of ptomaines to disease is fully discussed. The authors express the view that an infectious disease arises when a specific, pathogenic micro-organism, having gained admittance to the body, and having found the conditions favorable, grows and multiplies, and in so doing elaborates a chemical poison which induces its characteristic effects. In the systemic infectious diseases, such as anthrax, typhoid-fever, and cholera, this poison is undoubtedly taken into the general circulation, and affects the central nervous system. Among the methods of extracting ptomaines, those of Stas-Otto, Dragendorff, Brieger, Gautier, and Etard are described, and preference given to the Stas-Otto, recognizing, however, that this method is not perfect.

Several chapters are devoted to the leucomaines, or those basic substances which are found in the living tissues, either as the products of fermentation changes or of retrograde metamorphosis, as distinguished from ptomaines, or those which are formed during the putrefaction of organic matter. The closing chapter, on the pathological importance of the leucomaines, is full of suggestion to the practising physician. The authors truly say that while the medical profession has been giving much time, attention, and energy in recent years to the study of infectious diseases, it has too much neglected a large and important class of ailments which arise within the body itself, and which may be called autogenous. They believe that the individual may be poisoned by his own excretions, and that bilious attacks, attacks due to torpid livers, etc., are due to the absorption into the general circulation of peptones which are formed faster than the liver can convert them into globulin, and that they act as poisons, or that poisonous alkaloids are formed and absorbed. The opinion is expressed that ordinary colds are due to the retention of certain effete matters which are normally excreted by the skin, and that fevers are often produced in the same manner. This chapter alone is worth the price of the book to the practising physician.

*Longmans' School Geography.* By GEORGE G. CHISHOLM. London, Longmans, Green, & Co. 12°. \$1.05.

*Elementary Physiography.* By JOHN THORNTON. London and New York, Longmans, Green, & Co. 12°. 80 cents.

THE endeavors of the Royal Geographical Society of London to improve the methods of teaching geography have resulted in the publication of a great number of text-books, among which Chisholm's work is one of the earliest. The author has adopted the methods of teaching in use in Germany, and followed to a certain extent the models of Wagner's and Supan's geographies. We recommend his book to teachers as suggestive of a good method of teaching geography. It is of particular value on account of the numerous references to an introduction treating mathematical and physical geography. The book contains very few names and figures, but describes the character and productions of the various countries that are discussed briefly. The facts are as a rule accurate, although a few errors occur. The author emphasizes in his preface

that to teach geography adequately the aid of maps is necessary, and therefore many portions of the book must be considered hints to the teacher, not full descriptions of the countries treated. Undoubtedly the present book will be a valuable help to finding a satisfactory method of teaching geography.

Another attempt to improve the methods of teaching geography is Thornton's 'Elementary Physiography.' It does not cover the field of descriptions of countries, but the author treats in a very satisfactory way the problems of physics as applied to the phenomena of our planet. The author has followed the lines of the recast Syllabus recently issued by the Science Department, South Kensington. We believe that the method advocated in this book and in the new Syllabus is capable of the most satisfactory results in the hands of a skilful teacher. If applied consistently, it will lead to the teaching of the various branches of science by observation of the phenomena of nature. It is evident that the teaching of geography on the methods advocated by Geikie and others must necessarily include the teaching of physics, chemistry, botany, zoölogy, and geology, and that it is only a change of name if we call it physiography. All attempts to improve the methods of teaching geography have followed these lines, and we do not doubt that it will finally result in a re-organization of the methods of teaching science. The great advantage of the new method is its being more concrete than the old one, educating the child to observe the phenomena among which it lives, instead of beginning with the experiment. This is, at the same time, a valuable counterbalance against the one-sided training of the faculty of reasoning to which the teaching of science easily leads; the observation of life being a powerful means of educating the love of nature and the feeling of the child. It is principally from this point of view that we welcome Thornton's book, which first discusses physical laws and then applies them to geographical phenomena. From what we have said above, it will be clear that we should prefer the reverse arrangement; but the teacher will, of course, be able to use the book as well in applying physical laws to phenomena as in finding the laws by studying the phenomena. The descriptive part of geography as treated in Chisholm's book ought to be the subject of the teaching of geography proper, which assumes the knowledge of the general laws of physiography. If we define geography in this way, it will be understood that it can best be taught in connection with history, as it treats of countries and their inhabitants. We wish that general anthropogeographical statements were excluded altogether from school-books, as they are always misleading, and promote a superficiality in the way of treating historical and political questions which ought to be avoided. The influence of a country upon the development of its inhabitants is most satisfactorily treated in teaching its history. Chisholm's and Thornton's books will help to remodel the teaching of geography and science so as to make them important branches of our systems of education.

## NOTES AND NEWS.

THE quarantine act approved by the President last week provides for the immediate establishment of eight new federal quarantine stations at the following points: one at the mouth of Delaware Bay; one near Cape Charles, at the entrance of Chesapeake Bay; one on the Georgia coast; one at or near Key West; one in San Diego harbor; one in San Francisco harbor; and one at or near Port Townsend, at the entrance to Puget Sound. The aggregate sum appropriated for the establishment and maintenance during the present fiscal year is \$511,500. This extension of the national quarantine service is certain to give the country much better protection than it has ever had against the introduction of infectious diseases.

— William A. Croffut, who has been appointed executive officer of the Geological Survey, in the place of the late James A. Stevenson, is a well-known journalist. He is a man of great energy and an unbounded capacity for work, and will undoubtedly fill with success the difficult position in which he is placed. He has a taste for scientific investigation, and has lately given much attention to the subject of hypnotism, both studying its philosophy and making practical experiments. Mr. Croffut's appointment is especially gratifying to the journalists of Washington, with whom he is very popular.

—The circular of the New York Mineralogical Club, with its programme of Saturday afternoon field-meetings during June and July, was widely distributed, and aroused much interest, not only among the membership of the club, but among many others engaged in kindred studies. The trips taken have been both pleasant and profitable, and have been attended by increasing numbers. A second circular has been issued, in the belief that it will not alone afford the club further opportunities of useful study and agreeable intercourse, but tend yet more to bring together the workers in allied fields. Several other scientific societies and circles have expressed a wish and purpose to join in some of the proposed trips, and the club has already enjoyed the company of a number of friends and co-workers.

—Cupples & Hurd will publish at once a cheap edition of 'The Story of an African Farm;' also an illustrated guide to the Island of Bermuda, by James H. Stark. — Ginn & Co. will publish early next month 'Footprints of Travel, or Journeying in many Lands,' by Maturin M. Ballou. The purpose of this work is to furnish a reader for use in public schools. — Stuart Cumberland, the 'thought-reader,' is about to publish a volume on 'Famous Men I have known.' — Mr. George Redway, London, who has made a specialty of this class of literature, announces an 'esoteric' series, to consist, for the most part, of reprints of old books dealing with alchemy, astrology, freemasonry, magic, and Rosicrucian mysticism. Among the first to appear will be the works of the anonymous cosmopolite philosopher, known as Eireneus Philalethes; and the 'Lumen de Lumine' of Thomas Vaughan, who wrote under the name of Eugenius Philalethes. — Henry Stevens & Son, London, have in press a volume entitled 'Americanisms, Old and New: a Dictionary of Words, Phrases, and Colloquialisms Peculiar to the United States, British America, the West Indies, etc.; their Derivation, Meaning, and Application, together with Numerous Anecdotal, Historical, Explanatory, and Folk-Lore Notes, and a Critical Introduction,' compiled and edited by John S. Farmer, author of 'Ex Oriente Lux,' 'Twixt Two Worlds,' etc. The book will be printed for private circulation among a limited number of subscribers only. — The Reform Club has begun, at 52 William St., New York, the publication of a semi-monthly journal of handy dimensions, called *Tariff Reform*. — The July issue of the *Westminster Review* (Leonard Scott Publishing Company) has articles of cosmopolitan interest on 'Nurses and Nursing;' 'Mental Deterioration, Some of its Avoidable Causes;' and 'Characteristics of American Cities.' — The *Cosmopolitan Magazine*, the publication of which was suspended last May, will now be issued monthly by a new company. Mr. J. N. Hallock, of *The Christian at Work*, is a member of the new company, and the editorial department will be conducted by Mr. E. D. Walker. — The *Journal of Pedagogy*, Athens, O., beginning with No. 11 of Vol. I., will contain from twenty to twenty-four pages of reading-matter, instead of sixteen as heretofore. — In the *Century* for August, Professor Holden begins his series of two articles on sidereal astronomy, old and new. The one now given briefly chronicles the data which astronomy has collected up to date: it tells of the methods of naming the stars, their number, the star charts, catalogues, etc. These articles are appropriate to the star-gazing season. — In the *Andover Review* for August the opening article is by Morrison I. Swift, Esq., who treats of the duty of society with reference to 'trusts.' He states the objections to such combinations, reviews proposed methods of treatment, and argues intelligently for their 'acceptance and thoroughgoing regulation.' Rev. Francis H. Johnson contributes a criticism of methods of harmonizing Christianity and science by sacrificing the distinctive characteristics of the former as a divine revelation. — In the midsummer issue of *The American Magazine*, Dr. W. F. Hutchinson presents the fourth of his illustrated articles in the series 'Along the Caribbean,' in this instance dealing with Trinidad; and Frederick G. Schwatka tells about 'The American Arctic Savage.' — Ticknor & Co. have ready 'A History of Presidential Elections,' by Edward Stanwood.

—According to *Agricultural Science*, Prof. W. P. Brooks, at present president of the Imperial College of Agriculture, Sapporo, Japan, is to be the next professor of agriculture at the Massachusetts Agricultural College. Professor Brooks went to Japan about

twelve years ago to teach agriculture in the newly started college. Later he became its president. He is considered one of the ablest graduates of the Massachusetts Agricultural College, and his selection for the place in question is for many reasons a wise one. Professor Brooks was born in 1851.

—In accordance with the provisions of the constitution, the committee of the Nineteenth Century Club has selected from the list of vice-presidents Mr. Daniel G. Thompson as president, to fill Mr. Palmer's unexpired term.

—The American Statistical Association recently issued the first number of its Proceedings, on 'Statistics of Water-Power,' by G. F. Swain. This association has been organized and maintained for nearly half a century; up to this time, however, it has been almost entirely a local society of Boston. It now desires to extend its scope, so as to make its interests and influence national. It is intended in an early number of the publications to begin a record of statistical publications in various departments of knowledge, — a record which it is hoped will be a serviceable guide.

—The Middlesex Institute, Malden, Mass., has issued 'Flora of Middlesex County,' by L. L. Dame and F. S. Collins. The authors acknowledge their indebtedness to Dr. Gray, Dr. Farlow, and other leading botanists.

—It is now seven years since the International Geographical Congress at Venice adjourned, and it seemed as though these important conventions which have proved so fruitful for the promotion of geographical investigations were totally abandoned. It is therefore with great pleasure that we learn of the plan of the French Geographical Society to convene an international geographical congress during the universal exhibition that is to be held next year. Each society represented at the congress will be invited to submit a report on the progress of geographical work in the country to which it belongs, during the last century, and this plan promises to yield interesting and valuable results.

—Since the report of Dr. Elkin to the Board of Managers of the Observatory of Yale University in 1887, the series of observations on the parallaxes of the ten stars of the first magnitude in the northern hemisphere has been brought to a close. The average or mean parallax of the stars is  $+0.085 \pm 0.015$ , to which should probably be added  $+0.004$  as the probable parallax of the comparison stars which are in the mean of about the eighth magnitude, giving  $+0.089 \pm 0.015$  for the result sought for. Dr. Elkin does not, however, in view of the wide range of distance implied by the values of his table, feel at all certain that this result may be taken as a measure of the average distance of the stars in question, and at all events it must be considered only as provisional and partial until it can be combined with the result for the first-magnitude stars of the southern hemisphere, now in course of determination by Dr. Gill. At the same time he draws attention to its near coincidence with the values derived by Gylden ( $0.084$ ) and Peters ( $0.102$ ), without laying too much stress on this agreement.

—Arrangements have been made for re-determining the difference in longitude between Paris and Greenwich. The geodetic station at Montsouris, which has already been connected with the principal European surveys, will be used for the French observations, and Greenwich Observatory for the English.

—The length of pipe laid in Paris for the distribution of power by compressed air already exceeds 30 miles. The compressing-engines are of 3000-horse power, and about 3,000,000 cubic feet of air are compressed daily to a pressure of 80 pounds per square inch, at an expenditure of 50 tons of coal.

—In the last number of the *Zeitschrift für Hygiene*, under the title of 'Experimente über die bacterienfeindlichen Einflüsse des thierischen Körpers,' Dr. George Nuttall of San Francisco publishes some interesting results of a large number of experiments made by him in Flügge's laboratory during the past year and a half. He finds that freshly drawn blood, humor aqueus, pericardial fluid, and in the case of man also pleuritic exudate, have the power of killing off bacteria to an astonishing degree, but only for a period of three to four hours after removal from the body. The blood of various animals acted differently; for instance, that of an immune sheep killed off four times as many anthrax bacilli as that

of a sheep not rendered immune against the disease; the blood of the rabbit killed off many bacteria, more, in fact, than the blood of sheep, sheep being, as is well known, much more susceptible to the disease than rabbits. On the other hand, the blood of a mouse had no visible effect on bacilli, in the latter case the animal being extremely sensitive to the disease. That the animal cells do not play any thing like the active rôle frequently assigned to them ('Phagocyte' theory of Metschnikoff and followers) is pretty clearly shown, it being found that the bacteria die off quite independently of the cells or leucocyte in and out of the body. Of saprophytic bacteria some forms are found more sensitive than others. Fluids taken from various individuals of the same species vary to some extent in their germicidal qualities. To give an idea of the intensity of this action, a case or two might be cited. Five drops of defibrinated rabbit's blood, placed at 37-38° C., reduces the number of anthrax bacilli inoculated into it from about 15,000 to 5 at the end of an hour; in another case, from about 90,000 to 0 at the end of four and five hours. Rabbit humor aqueus (contains little or no cellular elements) reduces the number of anthrax bacilli inoculated into it from about 10,000 to 1, and in another case to 0, at the end of two hours; in fresh human pleuritic exudate, 230 anthrax bacilli are entirely killed off after one and two hours. Human saliva was also found to kill off large numbers of bacteria in a short time. The encouraging of bleeding, and the sucking of a wound in certain cases, may not be bad treatment, after all, when we consider the result of the above experimental research.

— Prof. F. W. Clarke describes, in a contribution to the *American Journal of Science*, the results of a series of investigations into the manner of formation of nickel silicates. About the year 1881 extensive deposits of this ore were found in Douglas County, Oregon. They lie near the surface in beds from four to thirty feet thick, and no second beds have been found underlying the first. Most of the samples obtained are intermixed with oxides of iron and with quartz, and are seamed with chalcedony. All of them are undoubtedly products of alteration, which is true of similar samples procured from the deposits in New Caledonia and in North Carolina. The country rock in these three localities is almost identical, consisting of a greenish rock, composed of olivine partially altered into serpentine, and having considerable quantities of enstatite mingled with it. The only noticeable difference in occurrence was that chromic iron, an almost universal associate of the nickel silicates, is absent in Oregon. Analyses of these various ores show great dissimilarity in composition, even between specimens from the same deposit. The percentage of nickel oxide varies from 0.24 to 45.15 per cent, but magnesia is present sometimes to the extent of 22 per cent, and this would lead to suspicions that alteration in the olivine, which is a silicate of magnesia and iron, had something to do with it. Actual analyses of the olivine rock confirmed at least the existence of nickel in it, varying in quantity from 0.10 to 0.26 per cent. Mr. Clarke quotes Dr. T. Sterry Hunt as saying that nickel is almost always present in small quantities in olivine, and rarely absent from the serpentines, steatites (soap-stones), and allied minerals of the Quebec group. As a result of these investigations, Mr. Clarke concludes that the olivine, which always occurs with these ores, and which so readily alters, has supplied the nickel which is found as silicate, not only in Oregon, but at other localities so far observed.

— Those who are obliged frequently to refer to German books are especially interested in the movement to introduce the Roman in place of the Gothic alphabet. Since 1866 the society which is agitating this matter has nearly doubled in numbers. On its lists are now over 4,436 names, including members of all professions, teachers, physicians, booksellers, and merchants. In 1886, out of 6,913 books on artistic, scientific, mercantile, and industrial subjects, 5,316 were printed with the Roman letters.

— J. N. Emra, late lieutenant Royal Marines, has issued a little book (London, Kegan Paul, Trench, & Co.; New York, the author) descriptive of the cruising of H. M. S. 'Royal Oak' in the waters of the Mediterranean. The author calls his book 'The Centre of the Central Sea,' and devotes himself to Malta, Sicily, and an ascent of Mount Etna by some of the officers, describing the phenomena of the volcano as he saw them.

## LETTERS TO THE EDITOR.

## Our Native Birds.

AN editorial paragraph in your issue of Aug. 3 assumes that our native birds have this season been unusually abundant; the assumption being based, so far as appears, upon statements "in the New York papers" and upon "information from Illinois," where "the oldest inhabitant does not remember to have seen so many and such a variety of birds." This is good news, — almost too good, — and, for one, I could wish it better vouched for.

In this part of the country, according to my own observations. (and I have never been more in the field than this year), there has been no such state of things, either during the migratory movement or since. There are days in April, and again in May, as every ornithologist knows, when the woods and fields are fairly alive with migrants. That was true this year, but no truer than it is every year.

This piece of negative evidence proves nothing, of course; and I should hardly have thought it worth offering had even one ornithologist been named as authority for the fact in question. But in such matters mere newspaper reports seem to me of small account, while my acquaintance with the oldest inhabitant of Massachusetts does not incline me to put unqualified faith in the opinions of the oldest inhabitant of Illinois as to the comparative abundance either of individual birds or of species.

In short, I am suspicious of the testimony, and therefore of the facts; but if the facts can be established, then I join you in hoping that the editors of the *Auk* will favor us with an explanation. As for the one already suggested (by "the New York papers," as I infer), it is plainly insufficient, in more ways than one. If the English sparrows were largely or wholly destroyed, it would be an occasion for thankfulness (I speak for myself); but the supposition that their destruction in March would be followed by a great increase in the number of our native birds within two or three months seems to me very unreasonable. BRADFORD TORREY.

Melrose Highlands, Mass., Aug. 5.

REFERRING to the editorial note in your issue of Aug. 3, the failure of ornithological journals to comment on the apparent increase in bird-life during the present season is perhaps an evidence that such comment is uncalled for. It is true that during the vernal migration there was at one time an unusually heavy 'wave' of migrants, the north-bound stream being held in check for several successive days by unfavorable weather. This obstacle being removed, and pleasant weather succeeding, there resulted an overflow of past-due birds, which flooded the country in such accumulated numbers as to excite remark by the most unobservant, as the numerous articles in the daily press of that period will testify.

The migration over, and our avifauna being sifted down to purely summer resident species, a comparison of the number present with those of preceding years yields, so far as my own observations go, remarkably similar results. To illustrate: I find recorded in my note-book on Aug. 5, 1886, observations on thirty-one species observed during a morning's walk. Of these, eight are given as 'common,' three as 'tolerably common,' and the balance as 'two or three,' 'three or four,' etc.; and on Aug. 7, 1887, thirty-five species, of which ten are recorded as 'common,' ten as 'tolerably common,' and the balance as in the preceding; while on Aug. 5, 1888, the result of a walk over exactly the same district was thirty-three species, ten being 'common,' three 'tolerably common,' and the balance as before.

Local observations of this nature, however, can do little more than assist in making a whole, and only from a mass of comparative data can we assert that the number of individuals composing our avifauna during the present year is greater or less than in years preceding.

FRANK M. CHAPMAN.

Englewood, N. J., Aug. 5.

## The Relation between the Sourness of Certain Acid Solutions and the Amount of Acid contained.

THE experiments recorded below are a continuation of some studies on the delicacy of the special senses, by Prof. E. L. Nichols and myself and Mr. E. C. Franklin and myself, the results of which have appeared in *Science*, *Nature*, the Proceedings of the Kansas Academy of Science, and elsewhere. By these investiga-