can institutions; and he has written one which will rank for years to come as the most thoroughgoing examination of them.

Professor Bryce's book will naturally be compared with the work of De Tocqueville, and it merits such comparison; yet it is in some respects a greater book than that of the French student of our public life. If De Tocqueville made a philosophical examination of American institutions, Professor Bryce has made a scientific dissection of them. He enters into detail elaborately and accurately. He illustrates fully and freely. He rarely speculates. The book falls into three divisions, corresponding to the volumes as issued in the English edition. The first deals with our National Government; the second, with our State governments; and the third, with what, for want of a better term, we may call our politico-social institutions. Under the latter head are included the party system, public opinion, the bar and the bench, railroads, universities, and allied topics. The book is too large to be condensed, and too detailed to be described within the limits of a review: it must be read to be understood and appreciated, and it should be read by all classes of our intelligent citizens. It will serve to clarify the ideas of many people as to what our institutions really are, and how they work. It will make plain for the first time, to thousands of citizens who consider themselves intelligent, how public opinion is formed — or, rather, grows — in this country, how it finds expression, and how it rules. It will suggest to the careless democratic enthusiast certain points of weakness in our institutions, and certain dangers which we must sedulously strive to avoid.

Professor Bryce is unquestionably a democrat both by nature and by conviction, and an ardent admirer of democracy. This is perhaps the reason why some of the English critics have not been able to fully appreciate his work. It is the reason, also, which will serve to increase its popularity among our own people. It has been criticised abroad as too large, too diffuse, repetitious. It may be all of these; but these are merely defects of form, which the excellence of the matter more than counterbalances. That Professor Bryce's book will be widely read goes without saying. We can only add an expression of the hope that it may be intelligently read and pondered over; for it is a book that is meant to do good, and which will do good if it is read in the spirit in which it is written. We owe Professor Bryce a debt of gratitude for the time, the labor, and the patience that he has bestowed upon our national life. That his work will make us better known and better understood abroad, and better known and better understood by ourselves, is, we believe, a necessary result of its publication.

Aspects of Education. By OSCAR BROWNING, M.A. New York, Industr. Educ. Assoc. 16°.

The Slöjd in the Service of the School. By OTTO SALOMON. New York, Industr. Educ. Assoc. 16°.

Manual Training in Elementary Schools for Boys. Part. I. By A. SLUYS. New York, Industr. Educ. Assoc. 16°.

THESE are the three latest issues in the admirable series of educational monographs published by the Industrial Education Association of New York City, the growing circulation and general appreciation of which mark a gratifying public interest in matters pertaining to education. Mr. Browning's paper on "Aspects of Education" is known to readers of *Science*, inasmuch as its four chapters appeared in these columns some months ago. They are now rewritten and put together in a connected paper. As trenchant and accurate summaries of the movements apparent in modern educational thought, Mr. Browning's articles are not surpassed anywhere, and we are glad to find them reproduced in this permanent form.

Mr. Salomon, the author of the paper on "Slöjd," is well known as the director of the famous normal school at Nääs in Sweden. As the chief master of slöjd (sloyd), he is fully competent to treat it in its philosophic and pedagogic relations, as is done in the book before us. The translation by Dr. W. H. Carpenter of Columbia College is pleasantly done.

The third paper, by Professor Sluys of Brussels, is the most valuable and important yet issued, and we notice that Part II. of it will follow in March. Professor Sluys was the Belgian commissioner to investigate and report on manual training, and his paper is full of citations of facts actually seen and known. The book is free from speculation, and is practical, complete, and unanswerable. We trust that it may fall under the eyes of such men as Superintendents Dickinson of Massachusetts, Marble of Worcester, White of Cincinnati, Gove of Denver, and Dr. Harris of Concord; for it will show them, impartially and dispassionately, how crude and unscientific their thinking on the subject of manual training is. We shall await the appearance of Part II. with interest.

The Roman Catholic Church and the School Question. By EDWIN D. MEAD. Boston, G. H. Ellis. 12°. 15 cents.

THE substance of this pamphlet consists of a lecture delivered before the Woman Suffrage League, Boston, but it has been expanded and revised for publication. It is a discussion of the question raised in Boston by the rejection, by the school committee, of Swinton's "History" as a text-book, the ground of the rejection being the opposition of the Catholics to Swinton's treatment of the sale of indulgences in the time of Luther. Mr. Mead here discusses the points at issue in an impartial spirit, and with a clear perception of the merits of the case. His style is not always so clear as might be wished, and shows marks of German influence; but, on the whole, the form and temper of the work are excellent. The address begins with a rebuke to the Protestants for some of the foolish things they have said during the late dispute, and intimates that their religion is not so decidedly superior to the Catholic as they are apt to suppose. But on the actual question at issue he takes strong ground against the Catholics, intimating pretty plainly that they opposed the use of Swinton's work for the sole reason that it tells the truth about the abuses once prevailing in their church. He condemns the parochial schools, and indeed private schools generally, holding that all American citizens ought to send their children to the schools maintained by the State. He then goes on to quote from certain Catholic school-books, showing how false to historical truth they are, not so much from actual misstatement as because of omissions, evasions, and exaggerated representations of what Catholics have done for the good of the world. To all persons interested in the questions at issue, and who realize the importance of correct teaching, the pamphlet will be of interest.

AMONG THE PUBLISHERS.

SOME of our readers may be interested in the second and third numbers of the new series of publications by the American Statistical Association. The former, by E. R. L. Gould, is on the subject of "Park Areas and Open Spaces in American and European Cities." Tables are given showing the number of open spaces in all the leading cities, with the amount of space and other items of interest. The author points out the importance of having many small breathing-spaces scattered about the city, especially in the quarters inhabited by the working-classes, and shows that many of our principal towns are deficient in this respect. It appears that some manufacturing cities have sadly failed of their duty, Pittsburgh having only one and a third acres of open space, and Scranton and some other towns none at all. Mr. Gould's general conclusion is, that the policy of American cities in this important matter has been very defective. The other paper is by Edward Clark Lunt, and is a "Key to the Publications of the United States Census." It gives a brief history of the taking of the various censuses, and then presents an epitome, or analysis, of all the census publications from 1790 to 1887. The different subjects dealt with in the census, such as population, races, agriculture, and so on, are treated separately; and under each head reference is made to the volume and page of each census report which gives information upon it. The United States census is so complicated a thing, and yet so important, that such help as Mr. Lunt gives must be of service to students of statistics.

— Professor Cleveland Abbe's "Treatise on Meteorological Apparatus and Methods" forms the second part of the "Annual Report of the Chief Signal Officer for the Year 1887," which has just been published. This admirable work is a handbook equal in value to Ferrel's theoretical meteorology and Hann's and Woeikof's cli-

matology, and supplements these works in a field in which a comprehensive and exhaustive guide to the student was most sorely needed. The plan of the book may be learned from the following passage of the preface: "A uniform thought has guided the arrangement of the chapters on the different instruments: namely, there is first given a general description of the object to be attained; second, a development of the formulæ for correcting the errors of the apparatus; and, finally, an indication of the refined methods of making standard determinations, to which all ordinary practical methods are to be considered as approximations." The volume treats of the measurements of atmospheric temperature and pressure, of the motion of the air, the measurement of aqueous vapor and of precipitation, while the subjects of optics, electricity, and actinometry remain to be presented in a subsequent volume.

— The lively discussion of the question of the influence of forests as regulators of rainfall and river-flow cannot fail to have a beneficial effect. Since the interesting discussion between Professor Fernow and Mr. Gannett which was published in a recent number of *Science* (xii. p. 242), Professor George F. Swain has given a comprehensive review of the subject in the *American Meteorological Journal*. The principal advance made in this investigation is the clearer understanding of the complexity of the phenomenon, and of the fact that the influence of forests cannot be the same in different climates, on plains, and on mountains, and that it depends on the genera and species composing the forest and on the covering of the ground in forests. While most American scientists hold that forests do not increase evaporation, Ebermayer and Woeikof claim the reverse. The latter even believes that this increase of evaporation is sufficient to effect an increase of cloudiness, and a consequent lowering of the temperature of summer. The only result that has so far been generally accepted is, that forests are regulators of the flow of rivers, on plains as well as in mountainous regions. This effect alone, setting aside the value of the wood, makes their protection of great economic importance.

— The number of the *American Journal of Psychology* just issued begins its second volume. The original articles that the first volume has contained demonstrate the profit of working the American psychological field, while the copious abstracts of current literature show both the activity of investigation elsewhere and the need of such a review as this department of the journal furnishes. The first article in the present number is on "Personal Equation," by E. C. Sanford, Ph.D. Astronomical methods early brought to light the vagaries of the human factor in observation, and since Bessel's discovery of personal equation the subject has received, at one time and another, the attention of many of the most distinguished astronomers. Their studies gave the impulse to the time-measurements in psychology that have been carried on with so much success by Wundt and others. Activity has also continued among the astronomers, and this paper is an attempt to turn to psychological account the results of their analysis and experimentation, and to bring together the results reached by both sorts of investigators. The history of personal equation (beginning with the notice of a difference in the observations of Maskelyne and Kinnebrook), and of the methods from time to time applied for measuring or avoiding it, makes an interesting episode in the history of science. In a second article the author proposes to treat the variations of personal equation, and discuss the theories of its origin. The second paper is the first section of an historical and experimental study of memory, by W. H. Burnham, Ph.D. The growth of the psychology of memory is traced from the earliest Greeks to Kant. In Plato are found the beginnings of that transcendental view of memory that make it a function of the soul independent of the body. The Neo-Platonists St. Augustine and Leibnitz, neglecting individual variations, are of this party. Aristotle, on the other hand, who wrote a monograph on memory and developed the doctrine of association, is the father of Aquinas, Hobbes, Condillac, Bonnet, Hartley, and all those that see in memory only the traces of former sensations whose basis is in the end physiological. The special views of these and other philosophers, and their contributions to the theory of memory, are briefly stated by the author, as a basis, we suppose, for the presentation of modern views and the experimental treatment. It is true, that, while physiology and biology can now declare that memory is in their field as well as in that of psychology, the germs of modern theories are to be found among the writings considered by Dr. Burnham. The practical side of memory receives attention in a short section on mnemonic systems. Dr. Mary Putnam-Jacobi contributes a paper on "The Place for the Study of Language in a Curriculum of Education." The first section attacks this much-debated question from a new standpoint; namely, that of cerebral physiology. The relations of language and cortical excitation are expounded at length, and the conclusion reached "that speech implies a more extensive excitation of the brain than does any action performed without speech." The acquisition of language in general has a distinct educating effect: it cultivates abstraction, and generally prepares the mind for its work. The acquisition of foreign languages in addition to the mother-tongue further complicates, extends, and refines the cerebro-mental processes. A comparison of mathematics and language shows the former to be valuable for constructing the syllogism, the latter for establishing the premises; in other words, for the details of every-day life. Between the study of things (that is, physical science) and language there is no antagonism. Language, properly studied, is rather a propædeutic to science. Between the time when the child is busy in collecting the sense-images of common things, and the time when he can return to them prepared for a genuine scientific study of them, is the period in which he should devote himself to language; not in the rote fashion, of course, but by a graded study, in which the scientific faculties of observation and induction are exercised on materials more accessible and more comprehensible than those of the distinctive sciences. By the age of sixteen the most of this work should be completed and out of the way; and, though language-study is not then to be entirely given up, the field will be free for other disciplines. The last part of the paper is devoted to practical suggestions for this kind of language-teaching. The reviews of psychological literature are, as before, one of the most important features of the journal. Nowhere else in English is it possible to secure such a conspectus of what is doing in the fields from which the new psychology draws its materials.

— On and after Jan. 1, 1889, the publication office of the Leonard Scott Publication Company will be transferred from Philadelphia to New York City, and the *Nineteenth Century*, the *Contemporary Review*, the *Fortnightly Review*, the *Westminster Review*, the *Edinburgh Review*, the *Quarterly Review*, the *Scottish Review*, *Blackwood's Magazine*, *American Naturalist*, and *Shakespeariana* will hereafter be issued from New York City. This change has been made to insure an earlier issue of these periodicals by the greater facilities thus secured for the importation of original sheets.

— The opening essay in the *Quarterly Journal of Economics* is by E. B. Andrews, on the subject of "Trusts according to Official Investigation." The facts presented are taken from reports of legislative committees and other governmental authorities, the object of the writer being to show what these organizations really are. Some difficulty was found by the investigating committees in getting at the exact truth on certain points, owing to the unwillingness of the witnesses to reveal it; but in the main the organization and working of trusts have been pretty clearly made known, and the leading facts relating to them are here set forth. The principal organizations dealt with are the Standard Oil Trust, the Sugar Trust, the Cottonseed-Oil Trust, and the Whiskey Trust; and on all of these Mr. Andrews's paper conveys a large amount of interesting information. With regard to the economic influence of trusts, the writer expresses himself guardedly; but he evidently thinks that they need watching. Professor Hadley discusses the subject of "Railroad Business under the Interstate Commerce Act," and shows that since the act went into operation the value of railroad property has depreciated twenty per cent. This he attributes to the prohibition of pooling, which prevents the maintenance of paying rates by the agreement between the companies; and he believes that a change in this provision of the law will eventually have to be made. Besides these two leading papers, the journal contains one by F. Y. Edgeworth on the question of whether gold has risen in value in recent years, on which, however, he reaches no definite conclusion. Mr. Simon N. Patten also has a

paper on "The Fundamental Idea of Capital," holding that capital is "every thing on which, labor being expended before the produce is wanted, the return will be increased beyond what it would be if the same labor had been exerted contemporaneously." The paper is of a rambling character, and the author's view is not presented with clearness. The journal contains the usual variety of miscellaneous matter, and closes with the first part of a paper on "Italian Finance," by A. B. Houghton, comment on which may be deferred till the appearance of the remainder.

— *The Open Court* for last week contains two articles upon the life and work of the late Mr. Courtlandt Palmer, the founder of the Nineteenth Century Club of New York City, entitled "The Universal Faith, an Address upon Mr. Courtlandt Palmer," by T. B. Wakeman; and "The Founder of the Nineteenth Century Club," by Moncure D. Conway. Professor Georg von Gizycki of Berlin, Germany, has two articles in *The Open Court* of Dec. 27 and Jan. 3, entitled "Death and Life," and "The Conservation of Energy in the Moral World."

— Mr. Daniel Greenleaf Thompson, the new president of the Nineteenth Century Club, and author of "The Problem of Evil," is about to publish an inquiry into the fundamental principles of social ethics and a discussion of the trend of social evolution. "Social Progress" is the title of his book, which will be issued shortly by Longmans, Green, & Co., both in London and New York. Mr. Thompson concludes by declaring his belief that social progress can be attained only through the perfection of social liberty.

— The first number (January) of the *Cumberland Presbyterian Review*— a quarterly magazine, devoted to theology, and the discussion of current religious, literary, and scientific topics, and questions connected with church-work and moral reforms, with J. M. Howard, D.D., as editor, and D. M. Harris, D.D., M. B. De Witt, D.D., and W. J. Darby, D.D., as associate editors — contains "Physical Basis of Moral Life," by President A. B. Miller of Waynesburg College; "The Family of God," by the Rev. W. H. Black, St. Louis, Mo.; "The Mosaic Doctrines of Death and After-Death," by Professor R. V. Foster of Cumberland University; "Preaching without Notes," by Rev. W. S. Danley, Lincoln, Ill.; "Charles Darwin," by Professor J. I. D. Hinds of Cumberland University; "The Pastor Getting Hold and Holding On," by the Rev. W. J. Darby, Evansville, Ind.; "The Philosophy of Missions," by Rev. D. E. Bushnell, Waynesburg, Penn.; "Our Senses: How We Use Them, and What They Tell Us," by John J. Tigert of Vanderbilt University; "The Decay of Christian Citizenship," by T. M. Hurst, Nashville, Tenn.; "Spirituality in the Church," by the Rev. P. Margeson, Marshall, Mo.; and "The Bible and Utility," by the Rev. J. D. Gold, Waukon, Io.; besides editorials, notes, and reviews of books. Single copies, per year, $2.50; in clubs of five or more, $2. Subscriptions should be sent to John D. Wilson, agent, 331 Church Street, Nashville, Tenn.

— Cassell & Co. will publish at once the fourteenth and concluding volume of the "Encyclopædic Dictionary." This work has been in preparation for nearly seventeen years, and extends to no less than 5,629 pages.

— D. Appleton & Co. publish a translation of Karl Marx's important work on "Capital," edited by Frederick Engels; also, in their Town and Country Library, "A Fair Emigrant," a story by Rosa Mulholland. Hereafter the volumes in this library will be put up in a neat cloth binding at 75 cents per volume.

— D. C. Heath & Co. publish for school use "Selected Poems of Wordsworth," collected and edited by A. J. George. The volume will contain lyrics, sonnets, odes, and narrative poems such as are requisite for a thorough understanding of the genius of the great poet. With the exception of the sonnets, which are grouped according to subjects, they will be arranged in chronological order. In the matter of annotation, only such material will be furnished as the pupil would not be likely to find elsewhere.

— *The Publishers' Weekly* states that A. D. F. Randolph & Co. have issued an edition of "The Thumb Bible," by John Taylor (born in 1580, died in 1654), commonly called the "Water-Poet." Taylor, after fulfilling his apprenticeship to a waterman, seems to have served in the fleet under the Earl of Essex. Afterward he took up the trade of a waterman, and for a time was an excise collector. He was not really a poet, although he could string rhymes together with facility. At the approach of the civil war, he retired to Oxford, and was a publican. His sympathies were wholly with the Royalists; and when the town surrendered, he returned to London, and there kept a public-house. Here he died. He published "Verbum Sempereternum" (an epitome of the Old Testament in verse), dedicated to Charles I.; "Salvator Mundi" (an epitome of the New Testament in verse). These two were published in one volume in 1693, and dedicated to the Duke of Gloucester, etc., under the title of "Verbum Sempiternum," being an epitome of the Bible, termed from it size "The Thumb Bible." It was reprinted in 1849 by Longman & Co., London, and again during the present year by Hodder & Stoughton.

— D. Appleton & Co. have now ready the first volume of "An Illustrated Encyclopedic Medical Dictionary," to be completed in four volumes, compiled under the direction of Dr. Frank P. Foster, editor of the *New York Medical Journal*, with the collaboration of a dozen of the leading physicians of America. It is to be a dictionary of technical terms used by writers on medicine, physics, botany, chemistry, zoölogy, and other collateral sciences in the Latin, English, French, and German languages. Accuracy, convenience of arrangement, and comprehensiveness are guaranteed by the practical scholars in charge of this herculean undertaking.

— "The literary executor of Theodore Parker," says the Boston *Transcript*, "is preparing a new edition of his 'Historic Americans,' in which there will be added to Franklin, Washington, John Adams, and Jefferson, Parker's sketches of John Quincy Adams, Dr. Channing, and Webster. The volume will be twice as large as that edited by Octavius B. Frothingham, in 1870, and will contain a larger introduction and more frequent notes. Each biography will be short, not running beyond seventy-five pages, and these will contain the verdict of Parker on the life, character, and results of all of these great Americans, whose career covers the period from 1740 to 1850, or more than a century. The volume will be followed next summer by Parker's autobiography, — a work essentially new, though made up largely from materials published by himself and others from 1850 to 1875. Many passages from the diary and letters will be given, however, which have never been published, relating to Parker's acquaintance with Alcott, Emerson, Margaret Fuller, Bettine Brentano, Garrison, Wendell Phillips, and other contemporaries."

— Sampson Low & Co. have in preparation "A History of English Bookselling," by William Roberts.

— A work to be issued by the Cambridge University Press is "The Literary Remains of Albrecht Dürer," by W. M. Conway. The volume will contain transcripts from the British Museum manuscripts, and it will be illustrated.

— "The Villon Society," says the *Academy*, "will shortly issue an addendum to their edition of 'The Thousand Nights and One Night.' The new volume will contain the stories of Aladdin and Zeyn el Asnam, translated from the newly discovered Arabic text by Mr. John Payne."

— The Geographical Society of St. Petersburg has just issued a superb edition of the last work of Gen. Prjevalsky, entitled "From Kiakhta to the Sources of the Yellow River," an exploration of northern Thibet and the route across the basin of Tarim by Lob Nor. The book gives portraits of the author and his companions, and many maps and illustrations. Like all work done by this lamented author, it is exhaustive and scholarly, and a convincing proof that the untimely death of the writer is a great loss to Russian science.

— The readers of *The Popular Science Monthly* will be glad to learn that Dr. Andrew D. White's "New Chapters in the Warfare of Science" are to be resumed in the February number. Dr. White has devoted several years to the investigation of this subject, and is now in Europe making an examination of the libraries there for additional material, which shall enable him to continue his ac-

count of the persistent dominance of delusion in the human mind. The chapter immediately forthcoming will treat of "Demoniac Possession and Insanity."

— The way the Interstate Commerce Law looks from the side of the railroads will be shown in the February *Popular Science Monthly*, by Mr. Appleton Morgan, in a vigorous article entitled "The Political Control of Railways: is it Confiscation?" Mr. Morgan maintains that this act, by prohibiting pools, nullifies its other prohibition of discriminations; in fact, increases discrimination, when the whole people is regarded.

— "The Story of a School" is the title of an article by the late Professor James Johonnot, to appear in the February *Popular Science Monthly*. It is an account of the success achieved in conducting a normal school according to natural methods, arranging the subjects of study in their order of dependence, teaching science by observation, language by using language, mental and moral philosophy objectively without books, and with no marking system, rules of discipline, or distinctive religious exercises.

— *The American Queen*, a monthly magazine for the home, is published by the First National Publishing Company (John C. Rand, president), 131 Devonshire Street, Boston.

— We have received from F. W. Christern & Co. (New York) the first number of *L'Exposition de Paris de* 1889. It contains, among other things, a large bird's-eye view of the exposition grounds and buildings, pictures of the chief and assistant engineers and architects, including M. Eiffel, general and detail views of the 300-metre tower now being erected by the latter gentleman, and a prospectus of the exposition. Forty numbers of the publication will be issued during the progress of the exposition, at ten cents a copy.

— An extra December number of the Riverside Literature Series (Houghton, Mifflin, & Co.) is devoted to "Dialogues and Scenes from the Writings of Harriet Beecher Stowe," arranged for reading-exercises and dramatic representation, by Emily Weaver. Care has been taken to adhere to the original text as closely as possible; and, to make the dialogue clear and to explain the action, explanatory passages from the books in which the dialogue occurs are added from time to time. The dialogues are taken from "Uncle Tom's Cabin," "Old Town Folks," and "The Minister's Wooing."

— In a copiously illustrated article in *Frank Leslie's Illustrated Monthly* for January, Lieut. F. S. Bassett, U.S.N., traces the evolution of the rudder, from the primitive paddle with which the savage both propels and guides his dug-out or birch-bark canoe, to the modern steam or hydraulic steering-gear of the great ocean steamships. The illustrations, which are drawn from early monuments and coins, and mediæval frescos and paintings, show the change in method of steering, from that in which the blade of the oar or paddle is moved bodily through the water in a nearly horizontal plane, to that in which the vertically placed successor to the oar-blade, the rudder, is merely turned upon its axis. An interesting fact mentioned in the article is that one of the most recent improvements in steering apparatus is a reversion, on a higher plane, to the most primitive method, a swinging propellor both driving and guiding the vessel, as did the paddle in the hands of the savage. An article somewhat similar in nature to that of Lieut. Bassett's, though more limited in scope, is published as a supplement to *Harper's Weekly* of Jan. 5. It is entitled "The Evolution of the Ferry-Boat," and is from the pen of S. Bayard Dod. Though dealing only with the ferries and ferry-boats of New York, it contains much to interest the general reader. Beginning with the first licensed ferry on the North River, that between New York and Communipaw, in 1661, when the fare was "six stuivers a head Wampum for every passenger," and the boat was propelled by oars or sails, Mr. Dod follows the growth of the ferries down to the "horse" stage, when the boats were propelled by paddle-wheels actuated by horse-power, and then to the introduction and development of steam ferry-boats, ending with a description of the latest triumph of ferry-boat architecture, the "Bergen," — a steel boat, with fifteen water-tight compartments, and a propellor at either end, to take the place of the paddle-wheels which have prevailed heretofore in such boats. Either a slip of the pen or a printer's error makes Mr. Dod say that the walking-beam low-pressure engines in general use "have gradually increased in size, from 25-feet diameter of cylinder with 5-feet stroke, to 46 and 50 inch cylinder with 10-feet stroke."

— Professor J. H. Gore of the Columbian University has in preparation a bibliography of geodesy. During two trips to Europe he has collected about seven thousand titles, having examined nearly every large library except that at St. Petersburg. He begins with the first effort to ascertain the shape of the earth by triangulation in the seventeenth century. The work will be published soon by the Coast Survey. Professor Gore is trying to make his service complete by personal application for data, he having written to all astronomers and other mathematicians in the world whose addresses he could obtain. He asks *Science* to say that the co-operation of its readers is desired.

— Dr. C. A. White has just prepared a bulletin for the Geological Survey, on "The Permian of Texas," adducing some facts not hitherto published, in recognition of the Permian in North America, and exhibiting some fossil forms not hitherto known to exist on this continent, and a commingling of paleozoic and mesozoic types similar to those discovered by Waagen in the Salt Range of India.

— The *London Globe* of Dec. 4 describes a new plan for the lending of books. The circulating library is now an important element in English life, and, widely spread as are its ramifications, it is possible seemingly to extend them even further. The experiment, at any rate, is to be made in Austria-Hungary and on the railways there. In England Messrs. Smith & Sons have a circulating library in connection with their book-stalls, but they do not lend books for perusal on the journey only, charging a fee and taking the volumes back again at "the other end." Yet this is precisely what the Austrian firm propose to do. The traveller will be required to pay a deposit which shall cover the price of the book lent, and also a small charge, amounting to about threepence in English money. He will choose a volume on starting, and return it on arrival at his destination, where he will receive the sum deposited. No doubt the project will succeed, if the supply of books is found satisfactory by the voyager.

—From the *Pall Mall Gazette* we learn that Miss von Hoerschelmann's two-volume "Kulturgeschichtlicher Cicerone für Italien-Reisende" has had the rare distinction in Germany of being by special permission dedicated to the Empress Frederick, before whom and the Emperor the lady has repeatedly lectured. Like every thing else in Germany, the dedication of a literary work to a member of the imperial family is connected with an incredible amount of red tape. There is a codex in the laws relating to the imperial household according to which no scientific work may be dedicated to any member of the imperial family unless it comes up to a certain standard. A number of *savants* "sit upon" each work of this kind, and determine whether the dedication is to be or not to be. One of the conditions is that the work shall contain views or discoveries hitherto not dealt with. Miss von Hoerschelmann's Cicerone could naturally not lay claim to this distinction, and it was owing to a special interference of the Empress Frederick that her two volumes passed the censor and were dedicated to her Majesty.

— The Aldine Book Publishing Company state that they have sold nearly 10,000 copies of their "Europe Illustrated."

— The Library Bureau, Boston, announces to subscribers to the "Decimal Classification," that, after many unforeseen delays, the complete tables and index of 20,000 entries was printed last month, and will be in from the bindery this week. The regular edition, containing the introduction, cannot be had from the bindery till after the holidays, possibly by Jan. 30. Those in special haste may obtain now the tables and index bound, and in January the introduction in pamphlet form.

— According to *The Publishers' Weekly*, Col. Wright, the commissioner of labor, expects to send two volumes to Congress before the present session closes. The first will be the fourth annual report of the Labor Bureau, and will be devoted to the working-women in the great cities. The other volume will be the report

on divorces and divorce laws, for which a special appropriation was made by Congress. The records of 2,700 courts have been examined; and the volume will give, in classified form, the number of divorces, with causes, number of children, when divorced, and other accessible information. The agents of the Department of Labor are now at work on the fifth annual report, which will not be ready for a year yet, on the wages of railroad-men.

— "Mr. B. F. Stevens, 4 Trafalgar Square, London, has been for some years at work on indexes to the manuscripts relating to American affairs between 1763 and 1783 preserved in European archives. The United States Government urged the purchase of these indexes, and also the obtaining of transcripts of the documents themselves. Congress has, however, made no grant for the purpose, and Mr. Stevens therefore boldly proposes to publish photographic facsimiles of the documents, provided he can obtain a hundred subscribers to begin with. Each document will be accompanied by a statement of its *provenance*, and of any variations to be found in other copies, if such exist; and a translation will be added when the original is not in English. Mr. Stevens calculates that when he has once fairly started he will be able to publish monthly two volumes of some 500 pages each, and he asks $100 for every five volumes. A copious index will be published to every twenty-four volumes, and the price of it will be $20. Mr. Stevens thinks that this valuable series of facsimiles will ultimately fill 100 volumes."

—Columbian University has announced a unique course of lectures for the coming months, on "The Human Emotions from an Anthropological and Psychological Point of View."

— At the meeting of the Philosophical Society on Jan. 5., obituary notices were made of Peter Parker, E. B. Elliott, F. V. Hayden, Roland D. Irving, Thomas Hampson, and Emil Bessels; and Mr. Bailey Willis read a paper on "The Mechanism of the Overthrust Fault."

LETTERS TO THE EDITOR.

***Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

Twenty copies of the number containing his communication will be furnished free to any correspondent on request.

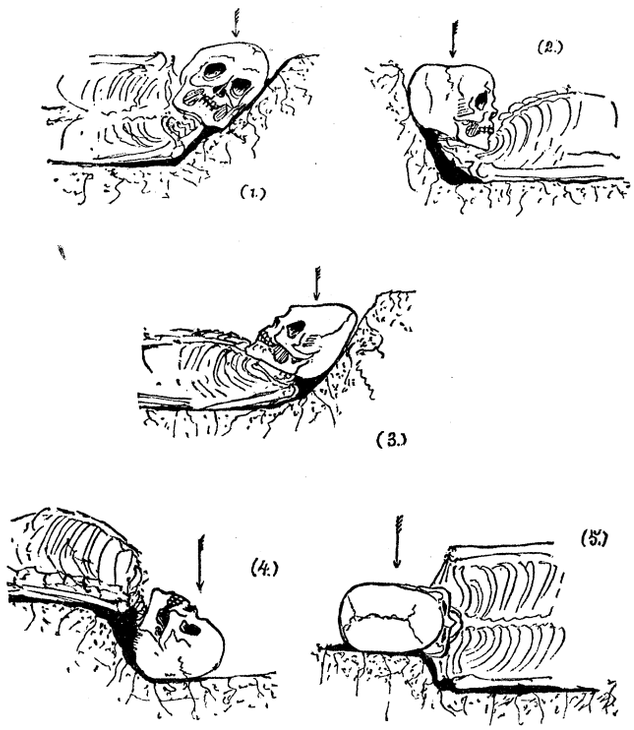
Two Discoveries in Human Osteology by the Hemenway Expedition.

I HAVE the honor of enclosing to you a letter handed me by my friend Professor Edward S. Morse, who deems the matter therein discussed by Mr. Cushing of such importance as to merit prompt announcement in your journal.

First, however, I will ask leave to mention briefly another important discovery made during the researches of the Hemenway Expedition in the Salado and Gila valleys in southern Arizona last winter and spring. In the summer of 1887 Mr. Cushing, the director of the expedition, was dangerously ill at Camp Hemenway, on the site of the prehistoric city of Los Muertos. Through the kindness of Secretary Endicott and Surgeon J. S. Billings (the director of the Army Medical Museum at Washington), Surgeon Washington Matthews (the curator of the museum and an intimate friend of Mr. Cushing) was ordered to Arizona to his relief and assistance. Dr. Matthews, whose arrival at Camp Hemenway was just in time to save Mr. Cushing's life, was so much impressed with the character of the ancient skeletons there exhumed, that, as an anthropologist, he perceived that it would be of immense scientific value to have them preserved in the most careful manner possible. On his return to Washington, he represented the matter to Dr. Billings, who at once detailed Dr. J. L. Wortman, the talented comparative anatomist of the museum, to assist the expedition in properly exhuming and preserving the skeletons. It is a notable fact, that, with few exceptions, the skeletons in the various museums of the world have been carelessly collected, and are therefore worthless in the study of certain features: therefore the importance of having this work proceed under the supervision of two such men as Drs. Wortman and ten Kate, the latter the anthropologist of the expedition, may be perceived. Fortunately the expedition had also three or four Mexican workmen of such native intelligence, that, under the training of the two doctors, they became highly expert in the recovery of the skeletons, complete in every detail; the great age of the remains rendering them very fragile, and demanding, therefore, extremely careful manipulation.

Early in the course of the work, Dr. Wortman observed indications of a remarkable anatomical peculiarity in the remains. Calling the attention of Dr. ten Kate to the fact, together the two pursued the investigation of the same, and all subsequent observations thoroughly confirmed their first inference. This fact was, that in this race the hyoid arch, or basi-hyoid, which together with the stylo-hyoid forms the bony structure at the base of the tongue, was not in the adult co-ossified, the three small bones forming the arch remaining free through life; the only exception being in the case of skeletons bearing marks of bone-disease, exhibited in the co-ossification of various articulations, in which cases the bones of the basi-hyoid were apt to be ankylosed, though occasionally on one side only. The strongest evidence was that exhibited by the skeletons of old persons, which proved no exception to the general rule of this observation.

This peculiarity was contrary to all the former experience and studies of the two observers, and it indicated the discovery of a pronounced racial character; for, according to what they had hitherto learned concerning this feature, the ankylosis of the basi-hyoid took place either at or before middle life.



Consulting the literature of the subject, it was found that both the English and French anatomical authorities concurred in this view, while the German authorities held that the several bones of the arch remained free, ankylosis taking place only exceptionally or in extreme age. It was inferred that the German view was either based upon insufficient evidence, the conclusion being drawn perhaps only from the anatomy of young persons, or that the anatomy of the German race differed in this respect from that of the English and French.

These observations were embodied in a brief preliminary paper by Drs. Wortman and ten Kate, and communicated to the International Congress of Americanists held in Berlin last October, at which Professor Morse and I had the honor of representing the Hemenway Expedition. The paper was read to the congress by Professor Morse, who illustrated it with blackboard-drawings. The subject occasioned much interest, for it was felt that it would prove to be of extreme importance should it turn out to be a peculiar feature of the aboriginal race of the American continent, as was indicated. Subsequent examinations of a large number of skeletons exhumed from ancient ruins during the excavations of the Hemenway Expedition at Zuñi, where it is now at work, have uniformly supported this view; and while we were in Berlin a Pe-