

moved with the least work, a cut has been commenced, forming a somewhat irregular groove, following to some extent the irregular surface of the boulder. It is 12 centimetres long, and 0.2 of a centimetre deep. From inspection, I should say it had been worked by means of a stone knife or the edge of some silicious rock not having a cutting edge of more than 2 or 3 centimetres at the greatest. The whole boulder is wedge-shaped, and 29 centimetres in length. Its weight is a few ounces less than 20 pounds. The four faces are of olive green, the more prominent rounded surfaces being veined with a rich dark green. In my collection in the American Museum of Natural History there is a small nugget about the size of a hen's egg, with a groove in it; a dark green jade; and I have also in my possession a piece of unworked jade of a rich sea-green, which I found an Indian wearing as a scratcher. It has well-rounded edges and well-polished surfaces, proving long wear. Among forty-three pieces I have collected among the Tlingit, these are the only ones that show that jade has been worked on the spot. Jade has been used for implements, generally for adzes, axes, or fighting-picks, the last mounted in wooden handles."

The finding of this boulder of jade showing worked surfaces is important, as it proves that the material was found and worked in southern Alaska. It will be remembered that Dr. G. M. Dawson found a boulder of the same description on the lower Fraser River, and that Jacobsen and Dawson found boulders of this material, although the rock has not been found *in situ*. Lieut. Emmons adds that he is very hopeful of finding the exact locality from which the Alaskan jade is obtained, as he received trustworthy information referring to this interesting question from the natives.

NAVAJO INDUSTRIES. — While in former years the "Proceedings of the United States National Museum" contained almost exclusively essays on zoölogical, botanical, and geological subjects, in the new volume, which is being issued in signatures, much attention is paid to ethnological points. To Professor Otis T. Mason's energetic endeavors we owe some interesting notes on the methods of manufacture among the Navajo, for Dr. Shufeldt's remarks on the method of preparing deer-skins by this people was written at his instance. The most interesting portion of this essay is the description of the process of tanning, which is done by means of a decoction of brains applied to the outer side of the skin after the hair has been removed. It is said that by this process the skin attains its softness and pliability. Mr. A. M. Stephen contributes some notes on the art of shoemaking and a myth explaining certain customs connected with this art. He tells that in olden times the Navajo used to wear grass shoes, until a deity came and taught them the art of making leather shoes. As this deity's face is gray, the Navajo must avoid looking at any thing gray, — for instance, the fresh-cut edges of a skin, — and therefore the latter must always be painted red, yellow, blue, or black.

BOOK-REVIEWS.

Elements of Machine Design. By J. F. KLEIN. Bethlehem, Penn., The Comenius Press. 8°. \$6.

Gear Tables for laying out Accurate Tooth Profiles. By J. F. KLEIN. Bethlehem, Penn., The Comenius Press.

IN this work, Professor Klein, who is professor of mechanical engineering at Lehigh University, treats of the most important of the machine parts that appear in practice, giving their proportions and the main considerations governing their use and construction. The work is not, nor does it claim to be, a complete treatise upon the subject of machine design, but it is a series of notes and plates specially arranged for students of machinery desiring practice in designing the commonly occurring machine forms, and is well adapted, in extent and character, to the requirements of technical schools. It contains much that is new, including a diagram and tables for determining the diameter of stepped-cone pulleys, extensive tables of co-ordinates for laying out toothed profiles, a determination of the cross-sections of connecting-rods, and a method of finding belt-widths from their specific duty.

Pains have evidently been taken to make the work convenient for

reference. The symbols used in the formulas are placed in alphabetical order at the beginning of each chapter, which consists of a plate with its accompanying notes; the formulas are numbered; and the index is very full, being divided into four columns, referring respectively to pages, formulas, figures, and tables. To insure durability, the plates and gear tables are printed on strong bond-paper.

The first five chapters of the book are devoted to fastenings, including bolts and nuts, rivets and riveted joints, keys, and gibs and cotters. Seven chapters treat of gearing, toothed and belt. Of the remaining chapters, one each is devoted to rotating pieces, bearings, connecting-rods, and gear tables.

That portion of the book devoted to gear tables has been issued in separate form, for the use of pattern-makers, machinists, draughtsmen, and students of engineering. The tables are printed on both sides of one large card, 17 by 20 inches, so as to get them into compact form for use in the shop, draughting-room, or college. The use of the tables is made clear by examples worked out in detail, and illustrated by suitably drawn figures.

The Secret Doctrine: The Synthesis of Science, Religion, and Philosophy. 2 vols. By H. P. BLAVATSKY. New York, William Q. Judge. 8°.

THE connection between this work and science can only be shown on the Hegelian principle of the identity of contradictories; for it has not a single characteristic of a scientific treatise. It is a pure fiction from beginning to end, — a work of imagination, pretending to give an account of the creation and evolution of the world, but without even an attempt at proof. The nucleus of the book consists of some passages alleged to be taken from the "Secret Book of Dzyan," which, the authoress tells us, "is utterly unknown to our philologists, or, at any rate, was never heard of by them under its present name." And in her preface she says, "The writer, therefore, is fully prepared to take all the responsibility for what is contained in this work, and even to face the charge of having invented the whole of it." The passages from the "Book of Dzyan" are followed by an elaborate commentary; and that they need it will be evident from the following extracts, which relate to the beginning of creation: "The eternal parent wrapped in her ever invisible robes had slumbered once again for seven eternities. . . . But where was the Dangma when the Alaya of the universe was in Paramartha, and the great wheel was Anupadaka? . . . The root remains, the light remains, the curds remain; but still Oeaoohoo is one;" and so on for many pages.

When we inquire more closely into Mrs. Blavatsky's doctrine, we find it at bottom pantheistic. She holds to the existence of "an omnipresent, eternal, boundless, and immutable Principle, on which all speculation is impossible, since it transcends the power of human conception." Sometimes, however, she speaks as if this first Principle was the same as Space, which she calls "the seven-skinned eternal Mother-Father." To trace the evolution of the universe and of man from this first Principle is the object of this work, and is pursued through over fourteen hundred octavo pages, with more to come. We cannot undertake to give even the shortest abstract of the work, which reads like the Hindu and Babylonian cosmologies; but those who wish to see what antics the human imagination is capable of may profitably consult these volumes. There is one item, however, to which we must call attention. It seems that this occult and incomprehensible doctrine is connected with the Keely motor. We are told that there is in the universe a mysterious force capable of reducing a whole army to atoms in a few seconds; and "this great *archæus* is now discovered by, and only for, one man, — Mr. J. W. Keely of Philadelphia." It appears, however, that Keely is not destined to succeed with his discovery, because it "would lead to a knowledge of one of the most occult secrets, — a secret which can never be allowed to fall into the hands of the masses." We are also informed that "the secret teachings with regard to the evolution of the universal Kosmos cannot be given, since they could not be understood by the highest minds in this age;" so that we shall have to content ourselves with what Mrs. Blavatsky may reveal to us. The extracts we have here given, which might have been multiplied indefinitely, will give our readers a general idea of her work, and will show that whatever may be the value of her "science, religion, and

philosophy," she has at least made a considerable contribution to humorous literature.

Healing Question. By SIR HENRY VANE. (Old South Leaflets, No. 6.) Boston, D. C. Heath & Co.

The Fundamental Orders of Connecticut. (Old South Leaflets, No. 8.) Boston, D. C. Heath & Co.

THESE little pamphlets relate to the beginnings of written constitutions. Vane's paper appeared at that time in the history of the English commonwealth when serious dissensions had arisen in what he calls "the honest party," and was written with the hope of settling the difficulty. It proposed the expedient, now so familiar but then first suggested, of a national convention to prepare a constitution of government by which both people and rulers should be bound. The proposal was not acted on by the people of England, but its appearance is an event of some importance in political history. The rest of the ideas in Vane's pamphlet are those commonly held by the leading patriots of his time; and the clumsy and intricate style in which they are expressed makes the work any thing but agreeable reading. The earliest written constitution, according to Mr. Mead, the editor of these "leaflets," is that adopted by the people of Connecticut in 1638; and this constitution, with the one adopted the next year by the colony of New Haven, is here reprinted. The New Haven document is largely ecclesiastical; the Church is dealt with as well as the State, all public officers are to be church members, and in the popular convention itself all questions are settled "by sundry arguments from scripture." The Connecticut constitution is more strictly political, and its historical distinction renders it well worthy of a place in this series of popular studies.

The Seventh Annual Report of the State Board of Health of New Hampshire. Manchester, State. 8°.

THIS report of the State Board of Health to the governor and council is evidence that the year ending April 30, 1888, was an unusually active one in the State of New Hampshire so far as concerns the details of sanitary administration. A greater demand was made for the services of the board by town authorities, local boards of health, and those in charge of public institutions. In addition to this, the advice of the board was sought in hundreds of individual cases and in all sections of the State. These facts are certainly very encouraging, and demonstrate that there is a growing interest, in this State at least, in the subject of sanitation. During the year the legislature enacted a number of important sanitary measures. One of the most important of these placed scarlet-fever and diphtheria among the dangerous pestilential diseases, and gave the board authority for their suppression. Greater powers were extended to health authorities throughout the State in respect to unsanitary dwellings and polluted water-supplies.

One of the most valuable results of the board's labors is that which has come from a sanitary supervision of the summer resorts of the State. The money left by summer visitors at the various resorts aggregates several hundred thousand dollars annually; it builds homes, schoolhouses, churches, and hotels; it increases the valuation of real estate, and in many ways adds to the material prosperity of the towns, villages, and cities. The board recognizes that this great interest should be carefully guarded against the only thing that can ruin it, — disease from neglected sanitation. In the furtherance of this policy, a sewer was constructed at Rye Beach. It conveys the sewage of ten or more of the largest hotels and boarding-houses to the ocean; it is two thousand feet in length, and ten inches in diameter. Its cost was three thousand dollars.

The public water-supply throughout the State has received careful attention. Several towns have constructed water-works, and in every such instance the health of the community has been notably improved. The improvement has been especially marked in the reduction of typhoid-fever.

In the report of 1887 the board gave, in a general way, a statement of the sanitary condition of nearly thirteen hundred school-houses in the State. The surveys of these schools revealed the fact that there was no system used in their construction, and that in a great majority the plans on which they were built were such as might be devised by a carpenter ignorant of architecture and

the requirements of scholars and teachers. These buildings are not ventilated, they are inadequately heated, badly lighted, furnished with a questionable water-supply, and surrounded by foul privies. The present report deals more in detail with these defects, particular attention being given to the schools of Portsmouth and Concord.

The health laws of the State being scattered through the session laws and passed by the various legislatures, great difficulty is experienced by local sanitary officials in determining just what the law is, in reference to any given subject. To obviate this, the board has made a compilation of all such laws, and has published them as an appendix to the present report. The index to the report is very complete. Taken as a whole, this report is a valuable contribution to sanitary literature, and furnishes additional argument for those who maintain that State boards of health should exist throughout the Union, so constituted as to be as permanent as possible, and independent of politics.

AMONG THE PUBLISHERS.

THE Open Court Publishing Company of Chicago announces the appearance within the present month of an important contribution to experimental psychology by the eminent French scientist, Alfred Binet. The work is entitled "The Psychic Life of Micro-Organisms," and is published with the sanction of the author, who has written a preface especially for the American edition. The essays forming the work appeared originally in the *Revue Philosophique* of Paris, and were afterwards published in part in *The Open Court*. The original cuts have been procured, and new plates and subsequent additions to the text have been incorporated in the work. The monograph of M. Binet is a presentation of the most important results of recent investigations into the world of proto-organisms. M. Binet has added much to the psychology of the microscopic world by these researches. He has opposed many theories, confirmed others, and advanced many conclusions founded upon his personal investigation. The subject is a branch of comparative psychology little known, and, as a rule, imperfectly understood. Psychologists, and all who are interested in questions of biology, will accordingly look forward to the work of M. Binet as a welcome light on the problem of life.

—Houghton, Mifflin, & Co. will publish, about March 1, an important economic work, "Profit-Sharing between Employer and Employee: A Study in the Evolution of the Wages System," by Nicholas P. Gilman (editor of the *Literary World*). It is the first comprehensive work on industrial partnerships in our language. Written in a popular style, Mr. Gilman's work is commended as "valuable from both the scientific and the practical points of view" by President F. A. Walker, Carroll D. Wright, R. T. Ely, and other high authorities. It will undoubtedly awaken wide interest as an instructive and candid discussion of one promising method for the solution of "labor difficulties."

—The February *Magazine of American History* again anticipates the popular desire, and comes, in honor of Washington's birthday, as a "Washington number." Those who are searching for data concerning Washington's presidential career in New York City will welcome Mrs. Lamb's leading article, "Washington as President, 1789-90," a companion piece to her "Inauguration of Washington in 1789," published in December. The frontispiece represents in a group, Washington, his wife and her two grandchildren, at the age and as they appeared in 1789. The copy of Huntington's great painting of "Lady Washington's Reception" fills two full pages, and the key another page. The house New York was building for President Washington also occupies a full page. The sensational feature of the issue, however, is the De Vries portrait of Washington, discovered in Holland the past summer by the Holland Society of New York, while on its pilgrimage there. Rev. Dr. J. Howard Suydam describes the find, and gives also a picture of De Vries, the owner of the portrait. The third article, by Gen. John Cochrane, presents an unpublished letter of Washington in facsimile, written to Hon. James Duane in 1780. The four articles that follow relate to other themes, — "A Canadian-American Liaison," by Watson Griffin of Montreal; "An Oriental Account of the