went up at a fair pace without resting. Arrived on the top, without a moment's pause, the men took their spades and shovels and began digging. They asserted that they did only about a third less work in the day than in the valley; and that they suffered no inconvenience from a prolonged stay in the Bosses hut; slept well, and ate largely. Their work was to excavate a tunnel in the summit ridge about thirty feet below the top. The object of this tunnel was to reach rock, in which a shelter-cave might be excavated.

Mountain-sickness is a term which has been used during the nineteenth century to designate the ailments which come to men and beasts on reaching high elevations on mountains. Some supposed that the uncomfortable symptoms were the result of local causes, and did not depend solely on reduced atmospheric pressures, as is the opinion of Mr. Whymper.

It was largely with a view to settle various questions in regard to mountain-sickness that the journey to the Andes was undertaken. Mr. Whymper wished to learn: (1) at what pressure the symptoms would first appear; (2) what form the sickness would take; (3) whether one could become habituated to low pressures.

To the first question the answer came at a pressure of 16.5 inches. Most of the party were simultaneously incapacitated for work and found themselves preoccupied by the paramount necessity of obtaining air. Precautions had been taken not to introduce complications in the way of physical exhaustion, Mr. Whymper maintaining "that our 'incapacity' was due neither to exhaustion nor to deficiency of bodily strength, nor to weakness from want of food, but was caused by the whole of our attention being taken up in efforts to get air." This gasping for air was accompanied with intense headache and an indescribable feeling of illness, pervading the whole body. The attack was sudden, but the recovery gradual; and even at the best it was only while at rest that sufficient air could be secured through the nostrils; on exerting themselves it was necessary to breathe through the mouth as well, and the capacity for work was low.

In reviewing the whole of their experiences, two different sets of effects could be distinguished: those which were transitory, and those which remained so long as the party was exposed to low pressures. The transitory effects were acceleration of the circulation, and increase in temperature. The permanent ones were more rapid respiration, indisposition to take food, and lessening of muscular power.

In the opinion of Mr. Whymper, the mountain-sickness is due to diminished atmospheric pressure, which operates in two ways: by lessening the value of the air inhaled, and by allowing the gases within the body to expand and seek partial escape.

But aside from the value of the book as a record of investigation on mountain-sickness, which is, by the way, made by no means prominent, we have in "Travels amongst the Great Andes of the Equator" a most valuable record of travel, well written.

A "Supplementary Appendix," to which some fifteen prominent naturalists contribute, is devoted to the collections made in the Andes, a very considerable part being on the coleoptera. The ample number of plates and illustrations make the whole work one of special value as a scientific record, and the account of the journey is most entertaining.

Order in the Physical World and its First Cause According to Modern Science. From the French. New York, James Pott & Co. 12°. $1.

Natural Law in the Spiritual World. By HENRY DRUMMOND. New York, James Pott & Co. 12°. 75 cts.

THESE two works are eminently characteristic of the present time. The relations between science and religion have been the constant theme of comment and controversy for the past thirty years, and still excite extraordinary interest in certain classes of minds. Persons of an atheistical turn point to certain discoveries and theories of science as negativing the very idea of religion; defenders of Christianity repel the charge; while a third class of writers endeavor to reconcile the two conflicting systems of thought by finding some rational ground of agreement. The two works now before us belong to this last category. The first, which is translated from an anonymous French writer, is an adaptation of the design argument to the present state of scientific knowledge; the discoveries of science themselves furnishing the basis on which the argument rests. It is not a profound work nor in any way original; and it will not satisfy minds thoroughly imbued with the skepticism so characteristic of the present time. But for those who think the design argument a convincing one the book will have an interest. Unfortunately the English of the translation is imperfect and sometimes ungrammatical, especially in the earlier pages, and typographical blunders, such as "sideral" for sidereal, "Emmerson" for Emerson, etc., are altogether too frequent.

The second volume before us is of a different character, and somewhat curious. The author, Mr. Drummond, as he tells us in his preface, had been employed for some years in teaching the natural sciences on week days and lecturing upon religious themes on Sundays. Naturally, and almost necessarily, he was led to a study of the relations between the two subjects and to seek some basis of agreement between them. The result appears in this book, in which he endeavors to show that the laws of biology, which are manifest in organic life, are no less manifest in religious, or, as he calls it, spiritual life. Analogies between organic life and the mental and moral life of man have often been pointed out before; but Mr. Drummond maintains there is something more than analogy in the case, that the very same laws operate in these widely different spheres. We cannot think, however, that he proves his thesis, the resemblances that he points out between the natural and the spiritual world being, in spite of his disclaimer, nothing but mere analogies, and often remote and fanciful analogies. For instance, he speaks of the law of biogenesis, that life can only come from antecedent life, and argues that this is the same as the Christian doctrine that a man must "be born of water and of the spirit" in order to enter the Kingdom of God. He even speaks of "spiritual protoplasm," and declares that the difference between a Christian and a good man who is not a Christian is the difference between the living and the dead. As poetic analogies between natural and spiritual things, some of the resemblances that Mr. Drummond dilates upon have a certain interest, and serve well to illustrate moral and religious truth; but as the basis of scientific doctrine and as proving the reign of law in the spiritual world, they are of little value.

AMONG THE PUBLISHERS.

THE exclusive authorization to issue an English translation of the "Memoirs of the Baron de Marbot," which have created unusual interest in Paris, has been acquired from the Baron's representatives by Longmans, Green, & Co. They will publish the work immediately, both in New York and London.

— P. Blakiston, Son, & Co. have brought out a second edition of Blair's "The Organic Analysis of Potable Waters." Considering that the first edition was published but little over a year ago, this shows that the book has proved a good one.

— Messrs. Eason & Son, Dublin, will issue in April the first number of the *Irish Naturalist*, a monthly journal of general Irish natural history, and the official organ of all the natural history Societies in Ireland. The editors will be Mr. George H. Carpenter and Mr. R. Lloyd Praeger.

— A new *Physical Review* has been started by the publisher, J. Engelhorn, of Stuttgart. The editor is L. Graetz. The object of this periodical will be to make German readers acquainted with the work being done by physicists in other countries. It is intended that it shall serve as a sort of supplement to the well-known *Annalen der Physik und Chemie*.

— W. B. Saunders, 913 Walnut Street, Philadelphia, has published, as No. 22 of Saunders's Question Compends, "Essentials of Physics," by Fred. J. Brockway, M.D. The book is arranged in the form of questions and answers prepared especially for students of medicine. The author is assistant demonstrator of anatomy at the College of Physicians and Surgeons, New York. The reasons assigned for the existence of the book are that Ganot is too large for the purposes of medical students and that some of the other text-books do not contain enough.

— *Natural Science* is a new monthly review of natural history progress. The object of the editors will be "to expound and deal in a critical manner with the principal results of current research in geology and biology that appear to be of more than limited application." Articles are contributed to the first number by Mr. F. E. Beddard, Mr. J. J. H. Teall, F.R.S., Mr. A. S. Woodward, Mr. R. Lydekker, Mr. J. W. Davis, Mr. G. A. Boulenger, Mr. J. W. Gregory, Mr. G. H. Carpenter, and Mr. Thomas Hick. The publishers are Messrs. Macmillan & Co.

— Every teacher of physics will be glad to know that a tenth edition of Maxwell's "Theory of Heat" has just been issued by Longmans, Green, & Co. Lord Rayleigh is the editor, which is sufficient to make all physicists confident that the necessary revision has been well done. It is probable that no more suggestive work was ever produced in the whole science of physics. It is more than its name signifies, for a number of physical problems are discussed, which are not usually treated under the head of "heat." But no one should take up the book unless he is prepared for some pretty intense study. It is not a popular work, but for those competent to understand even portions of it it stands without any equal as a guide to the study of physical science.

— "A Guide to the Scientific Examination of Soils: Comprising Select Methods of Mechanical and Chemical Analysis and Physical Investigation" is the title of a book recently published by Henry Carey Baird & Co., Philadelphia, at $1.50. It is a translation from the German of Dr. Felix Wahnschaffe, with additions, by William T. Brannt. Mr. Brannt is editor of "The Technochemical Receipt Book." The "Guide to the Scientific Examination of Soils" is a book for the agricultural chemist. There are introductory chapters on "Derivation and Formation of the Soil," and "Classification of Soils"; but these are brief, and the main purpose of the work is shown in the chapters bearing more directly on methods, mechanical and chemical, to be used in determining the soil-constituents and their plant-nourishing value. This last depends, as is well known on more than mere chemical constitution, and due attention is given to the determination of the properties of the soil depending on physical as well as chemical causes.

— The name of nearly every appliance on the English railway is different from the corresponding term applied on the American railroad, yet many of the problems involved in the working of rail transportation are the same. Only three or four years ago a lecture on "The Working of an English Railway" was delivered before the School for Military Engineering at Brompton Barracks, England, by George Findlay, who, in addition to holding certain rank in the volunteer service of England, is general manager of the London and Northwestern railway. This lecture was naturally devoted, to some extent at least, to the use of railways in military operations. It proved attractive, however, to a wider circle of readers than the army officers to whom it was first delivered, and the result was the first edition of "The Working and Management of an English Railway." Additions to the scope of the original lecture were made to adapt it to its new public, with the result that we now have before us the fourth edition, published in this country by Macmillan & Co. The subjects treated range all the way from such as are purely mechanical—the permanent way, rolling stock, signals, telegraphs, etc.—to questions concerning the relation of the state to railways and the state purchase of railways, which are to some extent social. There are some imperfections in the mechanical execution of the book, perhaps due to the large number of copies printed, but it is sure to interest all who want a popular *exposé* of the ways in which the modern railway has been brought into existence and the problems occupying the minds of those now managing them.

— Fleming H. Revell Company, New York, are the American publishers of "Heroes of the Telegraph" ($1.40), by J. Munro, which is brought out in England by The Religious Tract Society. Mr. Munro has written a number of popular books on electricity and the lives of workers in this comparatively new science. As an Englishman, he gives first place to Sir Charles Wheatstone among the heroes of the telegraph, and no one will wish to withhold any of the honors due that great pioneer in electrical science, especially as the author, in his second chapter devoted to S. B. F. Morse, does full justice to him whom we Americans are proud to consider as the inventor *par excellence* of the telegraph. But it is not with him that work on the telegraph ceased. Much work remained to be done before sub-marine cables and long and complicated land-lines were a possibility, and so there are chapters containing interesting accounts of the contributions to the telegraph made by Sir Wm. Thomson, Sir Wm. Siemens, Fleeming Jenkin, Reis, Bell, Edison, Hughes, Gauss, Weber, Sir W. F. Cooke, Bain, Dr. Werner Siemens, Latimer Clark, Count du Moncel, and Elisha Gray.

— So many ask for a really good elementary book in electricity and magnetism that we are inclined to hope much usefulness for "A First-book of Electricity and Magnetism" (60 cents), by W. Perren Maycock, recently brought out by Macmillan & Co., on this side of the water. The book is an English one, the author being a member of the English Institute of Electrical Engineers. The author does not touch upon the modern electrical theories, which are attracting so much attention, but which would be extremely unpromising subjects for popular exposition as they now stand; but he certainly seems to give a clear statement of the facts of electrical science in a way likely to be helpful to many who have not the training to use such excellent books as those by Silvanus Thompson or Fleeming Jenkin.

— Another book intended to serve the same purpose as that mentioned above has been published by Norman W Henley & Co., New York, entitled "Electricity Simplified," by T. O'Sloane. The author of this book has met with success as a writer of primers on scientific subjects, his "Home Experiments in Science" and "The Arithmetic of Electricity" being doubtless known to many of our readers. There is certainly a demand for an elementary book that will tell the uninitiated something of the wonders of electricity, and all seeking such information should examine Sloane's "Electricity Simplified." ($1.).

— A notable literary article will appear in the April *Forum* by Mr. Philip G. Hamerton, who discusses the important subject of the Learning of Languages. Mr. Hamerton is one of the few men who are absolutely as much at home in French as in English, and his experience and observation make his article full of suggestiveness. The historian, Professor Edward A. Freeman, writes an autobiographical essay showing the growth of his opinions and method of work. Mr. R. L. Garner, the student of the speech of monkeys, contributes the most interesting paper that he has yet published on the results of his investigations. Other articles in this number will be on the German Emperor's policy of removing restrictions upon trade, by Mr. Poultney Bigelow, his personal friend; on German Colonization and Emigration, by Dr. Geffcken; an explanation of the method of burial by the great funeral monopoly in Paris, by Mr. Edmund R. Spearman, who has made a special study of it for the *Forum*.

— "Age of the Domestic Animals" is a treatise on the dentition of the horse, ox, sheep, hog, and dog, and on the various other means of determining the age of these animals, by Rush Shippen Huidekoper, M.D., veterinarian (Alfort, France); professor of sanitary medicine and veterinary jurisprudence, American Veterinary College, New York. This work presents a study of all that has been written on the subject from the earliest Italian writers. The author has drawn much material from the ablest English, French, and German writers, and has given his own deductions and opinions, whether they agree or disagree with such investigators as Bracy Clark, Simonds (in English), Girard, Chauveau, Leyh, Le Coque, Goubaux, and Barrier (in German and French). The illustrations have been mainly taken from these authors, and it would be extremely difficult to improve upon them. There are, however, a large number of original illustrations on the horse, cattle, sheep, and pig. To quote from the preface, "The author has attempted to prepare such a book as he feels would have been of interest and service to himself in his association with animals as a layman, and would have aided his studies and appreciation of the anatomy of the teeth, dentition, and means of determining

the age. He hopes, also, that this work will furnish, to students and veterinarians, knowledge which will aid in surgical operations on the mouth." The publishers are, F. A. Davis & Co., 1231 Filbert Street, Philadelphia.

— Macmillan & Co. will issue early in April an important work by Professor J. Henry Middleton on the "Remains of Ancient Rome," comprising two fully illustrated volumes.

— Messrs. Gauthier-Villars have published a work entitled "Leçons de Chimie," by Henri Gautier and Georges Charpy. It is intended mainly for the use of students of special mathematics.

— Professor Geo. J. Romanes has arranged with the Open Court Publishing Co. to bring out the American edition of his latest work, "Darwin and after Darwin." It will be published simultaneously with the English edition.

— Mashonaland, in south Africa (called "the future gold-fields of the world"), will be described in the April *Scribner* by Frank Mandy, a member of the Pioneer Corps which opened up the country for settlers. He has spent many years in that region, and is an acknowledged authority upon it.

— An excellent series of "Museum Hand-Books" is being issued by the Manchester Museum, Owens College. A "General Guide to the Contents of the Museum" has been prepared by Mr. W. E. Hoyle, keeper of the Museum, and Professor Milnes Marshall has drawn up an "Outline Classification of the Animal Kingdom," and a "Descriptive Catalogue of the Embryological Models."

— We learn from *Nature* that the first part will shortly be issued by Messrs. Dulau & Co. of a new botanical publication, to be called British Museum Phycological Memoirs, edited by Mr. George Murray. It will be devoted exclusively to original algological papers, the records of research carried on in the Cryptogamic laboratory of the British Museum in Cromwell Road, and is intended to be issued at about half-yearly intervals. The first part will be illustrated by eight plates, and will contain, among other articles, the description of a new order of Marine Algæ.

— There is evidently, in the opinion of one man at least, a perfect climate in one portion of the United States. The man is P. C. Remondino, M.D., and the place is Southern California. The beauties of Southern California Dr. Remondino sets forth in "The Mediterranean Shores of America," just published by F. A. Davis & Co., Philadelphia. After speaking of the beautiful adjustment of humidity to temperature, so that hot, muggy days are unknown, our author goes on to tell of the calm character of the weather, which is such that thunder-storms are almost unknown, and the signal office at San Diego, after eight years' waiting, found the storm flags of no use and returned them to Washington. Southern California, our author maintains, has as varied a climate as that of the north of Italy, or even more extremes of condition, but, with these extremes, enjoys the anomalous condition of having these extremes alike favorable to health and long life — just the reverse of northern Italy. The book is, of course, intended to convey such information as those seeking a health resort desire.

— The American Academy of Political and Social Science, with headquarters at Philadelphia, announce for early publication the following monographs on political and economic subjects: "Ethical Training in the Public Schools," by Charles DeGarmo, president of Swarthmore College, an essay which is intended to prove the necessity of moral instruction in our public schools, but to show that it need not necessarily be religious; "The Theory of Value," by the Austrian economist, F. von Wieser, a scientific explanation of the views of the Austrian school on this subject; "Basis of Interest," by Dwight M. Lowrey, a reply to Henry George's doctrines on this question. They will also publish at an early date a monograph on "Party Government," by Charles Richardson, which is a severe attack on the theory that devotion to party is a political virtue; and a pamphlet by J. R. Commons of Oberlin College on "Proportional Representation," in which a plan is disclosed which will prevent gerrymandering and secure minority representation.

—"The Will Power: its Range in Action," by J. Milner Fothergill, is a small book published by James Pott & Co. It is not a metaphysical essay, but a practical work on the importance in human life of strength of will, which the author regards as the principal thing in man's character and the main source of one man's influence over others. The different aspects of the subject, such as the will in relation to heredity, the will and circumstances, etc., are treated of, and some interesting anecdotes related to illustrate the author's doctrine. From the doctrine itself, however, we are obliged to dissent, because it puts strength of will above rightness of will, force above virtue. The highest principle in man is not will but conscience; conscience is the lawgiver, while the will's business is to obey, but Mr. Fothergill shows no sufficient appreciation of this fact. He admits, indeed, that strength of will may be used for evil as well as for good, and in many of the examples he adduces what he calls strength of will is merely selfishness or a domineering temper. Yet he expressly says: "Mighty as the will is, the first numeral in character, the next is principle in this world; in the next world, we are told, principle will come first" (p. 181). Such a doctrine, if carried into practice, would lead directly to immoral conduct; and we cannot, therefore, recommend this book as a means of moral instruction.

— The American Academy of Political and Social Science has just published a monograph by Leo S. Rowe on "Instruction in French Universities." This is the fifth of the monographs which they have issued treating of instruction in political science, etc., in various countries. Of the other four, two treated of German universities, one of the University of Oxford, and one of Italian universities. They also published a pamphlet on Jurisprudence in American Universities. The present essay gives a careful exposition of the system of faculties in vogue in France, together with a brief history of the higher educational system from the time of Napoleon to the present. It also explains the new system of universities which is now being advocated. Mr. Rowe then discusses the courses in political science, etc., which are offered by the law faculties and the other institutions, such as the École Libre and the Collège de France. The monograph concludes with some very valuable university statistics and a complete list of the instructors in political science and public law in the various institutions of higher education in France.

— The latest issue in the "Contemporary Science Series," published in England by Walter Scott and imported here by Charles Scribner's Sons, is a work by Karl Pearson entitled "The Grammar of Science." It is a discussion of the scope and method of science and of some of its fundamental principles. The author sneers at metaphysics, declaring both metaphysics and natural theology to be pseudo-sciences; and yet his own book is metaphysical from beginning to end, only it is bad metaphysics. Mr. Pearson adopts the subjectivist, or "idealist" theory of knowledge, which denies the existence of a real material world and regards external objects as nothing but groups of sensations. He adopts Kant's theory of space and time, though he derides Kant for being a metaphysician. His view of causation is borrowed of Hume; and he maintains that the business of science is merely to describe facts, not to explain them. "Science," he says, "deals with the mental, the inside world," and a law of nature is not an order of external facts but merely a "routine of perceptions." He alludes to Newton's formula of gravitation, and then goes on to say: "The statement of this formula was not so much the discovery as the *creation* of the law of gravitation. A natural law is thus seen to be a *résumé* in mental shorthand, which replaces for us a lengthy description of the sequences among our sense-impressions. Law in the scientific sense is thus essentially a product of the human mind and has no meaning apart from man. It owes its existence to the creative power of his intellect There is more meaning in the statement that man gives laws to Nature than in its converse that Nature gives laws to man" (p. 104). Such is the burden of the whole book, and it is thrust forward on every possible occasion; and it shows, we think, with sufficient clearness the mental calibre of the author and the quality of his book.

— The first number of the new *Zeitschrift für Anorganische Chemie*, edited by Professor Krüss, of Munich, was issued on Feb. 27. As its title implies, the new journal is devoted exclusively to

the inorganic branch of chemistry, and the names of the distinguished chemists throughout Europe and America whose co-operation the editor has been fortunate in securing would appear to promise well for its value and success. The first number, says *Nature*, contains the following six original memoirs: "Phosphorus Sulphoxide," by T. E. Thorpe and A. E. Tutton; "The Double Acids of Heptatomic Iodine," by C. W. Blomstrand; "The Action of Hydrogen Peroxide upon certain Fluorides," by A. Piccini; "Ammoniacal Platinum Compounds," by O. Carlgren and P. T. Cleve; "Preparation of Tungstates free from Molybdenum," by C. Friedheim and R. Meyer; "A Lecture Experiment," by C. Winkler.

— "Humanity in its Origin and Early Growth," by E. Colbert, is a work recently issued by the Open Court Publishing Company of Chicago. It is, of course, mainly historic in character, and much that it contains is familiar. The history of religion is the leading topic in it, but considerable space is also devoted to the origin and growth of language and the rise of the industrial arts. The book, however, is full of crude and often fantastic theories, the author being one of those men, by no means rare in these days, who have thrown off all traditional religious belief and taken an attitude of religious skepticism, but are, nevertheless, extremely credulous of new-fangled theories and alleged scientific discoveries. Thus Mr. Colbert tells us with an air of assured conviction that man originated at the North Pole, and also that some thousands of years hence most of the land in the northern hemisphere will be submerged by the ocean, while a vast southern continent will arise from the waters. Religion, he thinks, originated in the worship of the heavenly bodies; and expressly says that the Greek and Roman Jupiter is nothing else than the planet of that name (p. 230). He thinks that religion was mainly the work of the priests, who used the popular belief in astrology and magic as a means of domineering over men; and he nowhere shows any conception of the grandeur of the religious sentiment nor any respect for the religious beliefs of mankind. Yet he is half inclined to believe in astrology himself, holding that "a great deal may be said in justification of the old fashioned idea of stellar and planetary rule over the affairs of men" (p. 390). Altogether the book is a curious one, especially as revealing the character of the author's own mind.

— Houghton, Mifflin & Co., have recently issued a large-paper edition (of 250 copies) of "The Discovery of America," by John Fiske, a work in four volumes, forming the beginning of Mr. Fiske's history of America, and the most important single portion yet completed, written upon original sources of information regarding ancient America, the Spanish conquest, mediæval trade, questions about Columbus, the causes of the transfer of supremacy from the Spanish race to the English, etc. The work contains abundant foot-notes, which are the results of vast research. We understand that the whole of this large-paper edition has al-

CALENDAR OF SOCIETIES.

Chemical Society, Washington.

Mar. 10. — H. W. Wiley and Wm. H. Krug, The Solubility of some Inorganic Salts in Acetone and of Acetone in Dextrose Solutions; H. W. Wiley and K. P. McElroy, The Specific Gravity of Acetone and Mixtures of Acetone and Water.

Publications received at Editor's Office.

DRUMMOND, HENRY. Natural Law in the Spiritual World. New York, James Pott & Co. 12°. 438 p. 75 cts.

FOTHERGILL, J. MILNER. The Will Power; its Range in Action. 3d. ed. New York, James Pott & Co. 12°. 184 p. 60 cts.

MAXWELL, J. CLERK. Theory of Heat. 10th ed. New York, Longmans, Green & Co. 16°. 357 p. $1.50

MEYER, LOTHAR. Outlines of Theoretical Chemistry. Trans. by D. Phillips Bedson and W. Carleton Williams. New York, Longmans, Green & Co. 8°. 232 p. $2.50.

ORDER in the Physical World, and its First Cause according to Modern Science. From the French. New York, James Pott & Co. 12°. 247 p. $1.

PEARSON, KARL. The Grammar of Science. London, Walter Scott. New York, imported by Charles Scribner's Sons. 12°. 510 p. $1.25.

TILLMAN, S. E. Elementary Lessons in Heat. 2d ed., revised and enlarged. New York, John Wiley & Sons. 8°. 172 p.

WHITELEY, J. LLOYD. Chemical Calculations. New York, Longmans, Green & Co. 12°. 114 p. 60 cts.

WORTHINGTON, A. M. Dynamics of Rotation. New York, Longmans, Green & Co. 12°. 167 p. $1.

Exchanges.

[Free of charge to all, if of satisfactory character. Address N. D. C. Hodges, 874 Broadway, New York.]

For sale or exchange, Das Ausland, 10 vols., 1882 to 1891, including 6 vols. bound, 4 in numbers. Wheeler Survey, vol. 1, Geog. Report; also vol. 6, Botany; Production of gold and silver in the United States, 1880, '1, '2, '3, '5; Selfridge Isthmus of Darien. Will sell at very low prices. J. F. James, 1443 Corcoran St., Washington, D. C.

For exchange.—A fine thirteen-keyed flute in leather covered case, for a photograph camera suitable for making lantern slides. Flute cost $27, and is nearly new. U. O. COX, Mankato, Minn.

Wants.

Any person seeking a position for which he is qualified by his scientific attainments, or any person seeking some one to fill a position of this character, be it that of a teacher of science, chemist, draughtsman, or what not, can have the 'Want' inserted under this head at 10 cents a count line. Nothing inserted at less than 50 cents a time prepaid by stamps, if most convenient.

TRANSLATOR wanted to read German architectural works at sight (no writing). One familiar with technical terms desired. Address "A.," Box 149, New York Post Office.

WANTED.—A position in a manufacturing establishment by a manufacturing Chemist of inventive ability. Address M. W. B, care of *Science*, 874 Broadway, N. Y.

WANTED.—Books on Anatomy and Hypnotism. Will pay cash or give similar books in exchange. Also want medical battery and photo outfit. DR. ANDERSON, 182 State street, Chicago, Ill.

WANTED.—A college graduate with some normal training, to teach the sciences, at $1.800 per year, in a Southern college. A Baptist or a Methodist preferred. Must also be a first-class Latin scholar. A. H. Beals, Box K, Milledgeville, Ga.

A PROFESSORSHIP in Chemistry is wanted by one who has had five years' experience in that capacity. Would prefer to give instruction by lectures and experiments rather than by text-book methods. Would like a position in a college or university where there is a good student's laboratory. Special points of strength claimed are: (1) Thorough control of a class and good order during lectures and recitations. (2) Accuracy in experimenting with chemicals and skill in the manipulation of chemical apparatus. The permission of several distinguished educators has been given to refer to them if required. Would not care to accept a position paying less than $1,500. Address B. E., care of *Science*, Advertising Dept., 47 Lafayette Place, New York.

ADDRESS WANTED.—Will some one please send the address of the Secretary of the American Philological Society. Also that of Herbert Spencer. "ADDISON," Room 84, 164 Madison St., Chicago, Ill.

ADDRESSES of Old Book Dealers wanted.—Wishing to obtain a number of old books out of print, I very much desire the addresses or catalogues of rare second-hand book dealers. If there is a directory or list of such dealers I should like to obtain possession of one. W. A. BLAKELY, Chicago, Ill.

WANTED.—(1) A white man versed in wood and iron working, able to work from specifications and plans, suited for an instructor of boys; his business to have charge of shops of school, outline and direct the work for foremen and students; salary to be $1,000 per annum (nine months). (2) A man (black preferred) to teach the colored, iron working and forging, subordinate to the preceding; salary, $720. (3) A man (white) competent to take classes in engineering (assistant's position), but with the ability to perform any of the work required in any of the ordinary engineering courses of our universities; salary from $1,000 to $1,500. A. H. BEALS, Milledgeville, Ga.

ready been sold. The regular edition, in two volumes, will be ready on the 26th.

—J. B. Lippincott Co., Philadelphia, recently issued "The Tannins," by Henry Trimble. The author is professor of analytical chemistry in the Philadelphia College of Pharmacy. It is now about one hundred years since tannin first became recognized as a distinct substance. About twelve years ago the author commenced to collect the literature of the subject, especially that referring to the astringent value of certain tannin-bearing materials, with the methods involved in their estimation. As is always the case with one thoroughly interested in his subject, the work grew on Professor Trimble's hands till he thought best to give to the public a work on the general subject, with gallotannic acid, and an index to the literature, leaving for a subsequent volume the remaining individual tannins. It has been the author's constant endeavor to make the book more than a mere compilation, and the results of much of his own experience have, therefore, been incorporated. It is the author's hope that the present publication may lead others to aid in bringing together information on his subject.

—The American Book Company, New York, Cincinnati, and Chicago, has recently issued a "Laboratory Manual of Chemistry," by James E. Armstrong and James H. Norton. Mr. Armstrong is principal of Lake High School, Chicago; and Mr. Norton is principal of Lake View High School of the same city. The purpose of the manual is to aid the student in his laboratory work in such experiments as he can conduct himself, the experimental work to be supplemented by a course in some good text-book. We do not recall any other manual for use in chemical work in school laboratories which at all compares with the one now before us, and it seems to show that the interest in the best methods of scientific training in schools is making great progress.