or mechanical skill. Besides, it will generally be admitted that the construction of the simpler apparatus by the student himself is a most valuable and useful exercise, giving him a firm and lasting hold upon fundamental principles which he can attain in no other way. But this attention to detail does not stop with the instrument itself. All of various steps to be gone over in its use, its proper adjustments, the errors to be looked out for, etc., are carefully considered; and in nearly every instance a numerical example is provided, generally taken from real laboratory note-books, and the solution and reduction are gone through with.

In short, in this respect, as many others, the book comes as near taking the place of the living instructor as can well be imagined. It must not be understood that the book is for the beginner in the study of electricity. It must at least be taken in connection with, and better after, a course in some elementary text-book on the subject, and, in addition, may go along with a course of lectures upon fundamental theories. The recognition of this fact is shown in the plan of the book itself, in which, in the first three chapters, the student is introduced to the leading principles of the science, its nomenclature, units of measure, etc., that the less elementary chapters which follow may offer less difficulty.

The chapter on resistance measurement is naturally full and complete, nearly all important and useful methods being given. A full discussion of the tangent galvanometer is given, together with the methods of determining its constants. Related to this is the determination of the magnetic elements, and a good deal of space is devoted to a very complete description of the Kew magnetometer: its use is described, and a series of observations is completely worked out. Other parts of the work are equally worthy of commendation, especially the series of appendices at the end, containing among other things a number of valuable hints as to the manipulation of material used in the construction of apparatus.

Nearly all of the formulas used in the reduction of observations are derived from elementary propositions, but the mathematical treatment of the subject is elementary, and well suited to the character of the work. In addition to its adaptability to class-room work, the book can be highly recommended to private students of electricity and magnetism.

Introduction to a Historical Geography of the British Colonies By C. P. LUCAS. Oxford, Clarendon Pr. 12°.

THIS little book is the first instalment of a larger work, to be published in parts, and dealing separately with the various dependencies of the British Empire. It gives not only a brief history of the founding of the British colonies, but treats of colonization generally, ancient and modern, and gives some chapters to what may be called the philosophy of colonization. Mr. Lucas defines a colony as a body of persons who have left their native country and permanently settled in another, and who in their new home form the bulk of the inhabitants. He then proceeds to consider the motives of colonization, the chief of which he finds to be these four: "love of enterprise, desire of wealth, social or political discontent, and religion." He does not attribute so exclusive an influence to over-population in the mother-country as some writers do, but thinks that the other motives have in many cases been more important than this. He gives a brief but interesting account of the influence of religion in the founding of colonies and the conquest of dependencies, and also of the effects of climate and race. A colonizing race should be not only enterprising and inclined to emigrate, but also endowed with an aptitude for commerce, and especially for law and government. Of these characteristics the last named is the most important: "Colonizing on any large scale must imply dealing with subject races, and the past has shown, that, in spite of other defects, the people which can govern will in the end prevail" (p. 27).

The brief history of colonization, ancient and modern, which the book contains, and the special account of the English colonies with which it closes, contain a large amount of information in a small compass, and, though treating of matters that are familiar to most readers of history, will be useful for reference. If the projected historical geography of England's colonies is carried out as well as it is begun, it will prove a valuable addition to historical literature.

Electricity for Public Schools and Colleges. By W. LARDEN. London, Longmans, Green, & Co. 12°.

THE ceaseless activity in all matters pertaining to electricity is shown in the continued appearance of books relating to the subject, in all parts of the world and in all languages.

This book is intended, as its title implies, to serve as a text-book for high-class public schools, and for colleges in which a thorough training in the fundamental principles of electricity and magnetism is furnished, in the development of which the instructor is restricted to elementary mathematics.

Few institutions of learning in this country can offer to their students more than this, and, in fact, not very many have found it possible to make use of a separate treatise upon the subject, except, of course, in the way of special elective courses.

Of the several books containing an elementary treatment of electricity and magnetism which have appeared within the last ten or fifteen years, this by Larden has the advantage of being one of the most recent, and in breadth of treatment, and thoroughness of execution, one of the best.

Only elementary mathematics is made use of, and it is therefore necessary occasionally to state a proposition on authority. Frequent references are given, however, to treatises in which such propositions will be found fully discussed. In some instances where elementary demonstrations are presented, the author has not selected the easiest and most simple. An illustration of this statement is to be found in his proof of the condition under which a battery gives a maximum current. Some of his discussions are also open to the objection of an excessive conciseness and brevity of statement, thus presenting difficulties which the average student of the class for which the book is intended will have difficulty in overcoming. The diagrammatic illustrations have been drawn especially for the work, and are generally very clear. A number of cuts of complete and well-known forms of apparatus are also furnished.

Among the commendable features of the book may be mentioned a very full discussion of induction machines (electro-static), including the Voss machine, the Holtz machine, and others, the operation of which is often very perplexing to students.

The author is not fortunate in his chapter on atmospheric electricity, and especially where he attempts to account for the varying potential of the atmosphere.

The treatment of electric measurements is tolerably full, sufficiently so for a book of this kind, in which one ought not to expect to find all of the now nearly innumerable methods and devices. The chapter on Joule's law and the conservation of energy is especially complete, although not long; and other chapters, on electro-dynamic induction, the dynamo, induction coils, etc., will be found quite satisfactory. Many teachers and students of the science will welcome the book, and find it useful in their work.

The Science of Politics. By WALTER THOMAS MILLS. New York, Funk & Wagnalls. 12°.

IN taking up a book with the above title, we naturally expect to find it treating of the duties and functions of the State, or of its organization or its history; but these topics are scarcely touched upon in the work before us. The author himself states his subject to be the duties of citizenship and the means of performing them; but he confines himself mostly to the treatment of political parties. Mr. Mills, as he tells us on his titlepage, is a journalist; and the influence of his profession is a little too plainly visible in this work, the style showing some of that offhand infallibility which many journalists affect. As regards matter, the book is not specially profound or original, yet it nevertheless contains much that is good. The author has in the main very correct ideas as to the nature and functions of parties and the rights and duties of the citizen with regard to them. He sees clearly that a party without principles is worthless, and that the fact that a party has done well in the past is no guaranty that it will always do well in the future. He vigorously maintains the right to bolt a bad nomination, and the right and duty of leaving an old party and joining a new one in case the old one proves recreant to its trust. Such views as these are not yet so widely accepted in this country as they ought to be; and, if this book should be read by the right persons, it can hardly fail to

have a beneficial influence. Mr. Mills sees, as most of us do, the evils attendant on caucuses and on party management generally, but he does not suggest any thing new in the way of remedy. He has also some good remarks on the folly of mere office-seeking and the nobleness of disinterested statesmanship. We are sorry to have to add that the typography of the book is very bad indeed. Such misspellings as 'monopilies,' 'forsee,' 'weich' for 'which,' and 'ptofit' for 'profit,' are frequent. On p. 159 there are three words misspelled; and on p. 73 is the following sentence: "A party as a party cannot refuse to meet an issue *squarly* at the ballot box, and then as a party *squarly* meet it anywhere else." Surely American typography can do better than that.

Grundriss der Psychologie. Von Dr. F. WOLLNY. Leipzig, Thomas. 8°.

IT is difficult to classify this pamphlet. It is not an elementary text-book, because it lacks all system, and treats special topics. It is not a technical contribution, for it is full of commonplaces, and has no definite end in view. Perhaps it is best to regard it as an expression of the author's interests, and as such it has little interest. The author declares his atheistic tendencies, and introduces much not very relevant ethical matter. After discussing in a very unsystematic and eclectic manner the elementary mental powers, — sensation, will, perception, memory, — both separately and in combined action, he adds a few short chapters on sleep and dreams, on insanity, on animal mind, and on alleged higher psychic powers. About the only noteworthy passages are to be found in the preface and in the appendix. The former announces that the author intends to keep psychology and physiology distinct, and has no sympathy with tedious and meaningless psychophysical experiments. As a matter of fact, the topics treated often demand a physiological treatment, and many of the chapters begin with the statement of such a fact. Instead of taking it from a physiological text-book, the author records it as his own experience. It is difficult to take his objections seriously. The appendix contains a great 'discovery.' The human body is susceptible to magnetic influence. Furthermore, if one person in the neighborhood of a magnet concentrates his attention upon another, a subtle connection between the two is made, and one can read the thoughts of the other without sensory transfer. To this so-called 'fact' are added a host of fanciful notions with much mysticism. It is queer in what various forms these unscientific notions arise. Finally, the book is written in orthodox German style, — ponderous, 'baggaged' sentences and involved constructions.

Italian Grammar. By C. H. GRANDGENT. Boston, Heath. 12°.

IN this volume the author, who is tutor in modern languages in Harvard University, has attempted, and very successfully we think, to put into convenient form and small compass sufficient of the grammar of the Italian language to meet the requirements of the ordinary student. The book, though representing Italian as at present spoken and written, gives as many obsolete forms as may be necessary for a student of the Italian classics. It is prepared specially for use in colleges, but it will prove serviceable to any student familiar with English grammar.

NOTES AND NEWS.

A PARTY of forty engineers and their assistants, about a hundred and fifty in all, will leave this city about the end of this month for Nicaragua, to locate the exact route of the inter-oceanic canal, and to obtain data from which to make accurate estimates as to the cost of the work. The expedition will be in charge of Engineer Perry, and will be joined a few weeks later by Chief-Engineer Menocal.

— A recent public test of the consolidated railway telegraph system of train-telegraphy, made on the Lehigh Valley Railroad, gave very satisfactory results. On a train moving sixty miles an hour, messages were sent and received to and from other trains on the road, and communication was had with this city and with different stations on the line.

— We have received from the Clarendon Press the first number of *Annals of Botany*, edited by Isaac Bayley Balfour, Sydney Howard Vines, and William Gilson Farlow, assisted by other botanists. The contents are, 'On Some Points in the Histology and Physiology of the Fruits and Seeds of *Rhamnus*,' by H. Marshall Ward; 'On the Structure of the Mucilage-secreting Cells of *Blechnum occidentale*, L., and *Osmunda regalis*, L.,' by W. Gardiner and Tokutaro Ito; 'On Laticiferous Tissue in the Pith of *Manihot Glaziovii*, and on the Presence of Nuclei in this Tissue,' by Agnes Calvert and L. A. Boodle; 'Anomalous Thickening in the Roots of *Cycas Seemanni*, Al. Braun,' by W. H. Gregg; notes; review of Sachs's 'Physiology of Plants;' and record of current literature.

— The fifth biennial report of the Kansas State Historical Society shows the work of the society for the two years ending Jan. 18, 1887. The society was then eleven years old. The primary object of the society is that of collecting, arranging, and cataloguing a library of the materials of Kansas history, including books, pamphlets, newspapers, maps, pictures, and, in short, every thing which contains information concerning and going to illustrate the history of Kansas. Incidentally, so interwoven has been the history of Kansas with that of the whole country, and so much has it enlisted a general interest, its library has come to be the recipient, largely by gift, of not only the materials of the history, but of every thing of a literary and scientific character relating to all parts of the country. The total of the library in January last was, of bound volumes, 8,352; unbound volumes, 21,103; bound newspaper files and volumes of periodicals, 5,986; making the total of the library, 35,441. Its yearly accession of the files of local newspapers is no doubt greater than that of any other library in the country. The regular issues of all the local newspapers, daily and weekly, published in every county in Kansas, are freely given the society by the publishers, and are bound, and placed on the shelves of the library. Thus is being preserved the best of all materials of the history of every town and neighborhood in the State. The report, among other lists and tables, contains a list of the newspapers at the present time published in Kansas; viz., 72 dailies, 12 semi-weeklies, 722 weeklies, 38 monthlies, 1 semi-monthly, 1 bi-monthly, 4 quarterlies, and 2 occasionals, numbering 852 in all. The library is the property of the State, and is kept in rooms in the State Capitol.

— Among the latest issues of the Clarendon Press (Macmillan & Co.) is a batch of classical books that are worthy of careful examination. The list includes the 'Phormio' of Terence, Cicero's Catilinarian orations, 'The Knights' of Aristophanes, the 'Eclogues' of Vergil, the first book of Tacitus' 'Annals,' and, in the Elementary Classics Series, the seventh book of Cæsar's 'Commentaries.' They are all gotten up in that attractive and elegant way that characterizes the Macmillans' work. Particular attention is due, perhaps, to Dr. Merry's careful and accurate edition of the 'Knights' of Aristophanes. Both introduction and notes are extremely well done.

— A series of lectures (twenty to twenty-four in number) will be given at the Museum of Comparative Zoölogy, Cambridge, by Professor Whitney, on geographical methods and results. The course will begin on Wednesday, Nov. 9, at 3 P.M. Admission free; but tickets must be obtained of the lecturer, by application through the mail or in person; and in their distribution, since the accommodation is limited, preference will be given to teachers, for whom the course is specially intended.

— The frequently observed longevity of eminent English scientists is again shown in the high ages at which recently deceased fellows of the Royal Society have died. Of fourteen fellows, six lived to more than eighty years, and only one was under sixty at the time of his death. The average age at death of the fourteen is no less than seventy-five years.

— Oscar Harger, for eighteen years the chief assistant of Prof. O. C. Marsh, died in New Haven, Nov. 6. Mr. Harger was born at Oxford, Conn., and was graduated from Yale College in the class of '68. He was one of the high-stand members of his class, and was looked upon at graduation as a young man of exceeding great promise. When he graduated, his health had been considerably impaired in consequence of hard study and application to literary and other work, which he did in order to secure money to pay his expenses through college. In 1870 Mr. Harger became assistant