tion. Tolerably complete discussions of some of the principal trials of long-distance transmission are also included, together with some of the numerical results of these trials. The volume contains much that is interesting and useful to students of electricity, and will be of undoubted value to those who are engaged in its practical application. The American reader will look in vain for any account of the more recent and highly important improvements in motors and systems of transmission which have originated in this country. This will not be a matter of regret to any one who has secured a copy of the next book under review.

The Electric Motor and its Applications. By MARTIN and WETZLER. New York, W. J. Johnston. 4°.

MADE up largely of articles contributed by its authors from time to time to the *Electrical World*, by far the greater portion of this volume is devoted to an exposition of the results of American activity in this field. Again is found on the first page the usual cut showing Oersted's experiment, and the usual brief and unsatisfactory presentation of elementary principles, without which it seems impossible for a book on electro-technics to make its appearance. Not much can be said in favor of this well-nigh universal introduction. The reader has but to turn over a single leaf to find himself involved in the use of such terms as 'counter-electromotive force,' 'Lenz's law,' 'the law of Jacobi,' and many others, for the proper understanding of which little assistance has been rendered in the short study of 'theoretical principles.' Books of this class are written for and read by those who already know more than the elements of the subject, and their presentation might safely be omitted.

Two chapters are devoted to an account of the earlier experiments with motors in Europe and America, and in the division of space Europe gets five pages to America's sixteen. A chapter is given to the theoretical consideration of the problem of the electrical transmission of power, followed by a very short one on the electric railway and tramway in Europe, and a very long one on the electric railway and street-car lines in America. The use of storage-batteries with electric motors on street-railway lines concludes the first half of the book, the remainder of which is devoted to a consideration of the industrial applications of electric motors in Europe and America. Much the largest share of space is given to American systems and inventions, and many of the most important 'plants' now in operation are described. The work is largely historical and descriptive in its character, a scientific treatment of the subject being only attempted in a single chapter.

As a *résumé* of what has been thus far accomplished, especially in this country, in the development of one of the most promising fields of applied electricity, it will be found to be very interesting and useful. Illustrations form a prominent feature of the work, there being as many as two hundred, many of which occupy an entire page. Several of the largest and most elaborate illustrations are intrinsically of very little value, being merely 'pictures' which are in no way especially related to the real object of the work, and convey no useful information. Of such may be mentioned a full-page 'winter view' of an electric street-railway, in which the only thing suggestive of electricity is a possible lightning-rod upon a building in the background.

Electric Light Primer. By CHARLES L. LEVÉY. New York, The Author. 8°.

THIS little primer consists of thirty-five octavo pages of good, bad, and indifferent matter relating to the management of dynamos and electric lights. The 'practical man' here has full sway, and he wisely declares in his preface that "it is not supposed that these pages will be of any value to the electrician."

They would have been of much greater value to the workmen and engineer in charge of electric machinery if they had been prepared by one who really understood what he was writing about. As it is, a good deal of knowledge of the subject is required to separate the good from the bad.

The Storage of Electrical Energy. By GASTON PLANTÉ. New York, Van Nostrand. 8°.

THE work before us includes the principal researches of Planté, contributed to the French Academy, and various scientific periodicals, from 1859 to 1879. The full history of the secondary battery, as it grew in his hands, will be found in the first two or three chapters, and the construction of various forms is given with great exactness of detail. His use of the transforming rheostat for the purpose of obtaining electricity of 'high tension' is described at length, together with many practical applications of this device. The volume includes an account of Planté's experiments on the nature of the electric discharge under high tension, and also his application of these researches in the explanation of many natural phenomena.

While many electricians will be unable to agree with him in his conclusions, all will be glad to find the results of his labor in so compact and usable a form as that in which they are presented in this volume.

Electricity treated Experimentally. By LINNÆUS CUMMING, M.A. London, Rivingtons. 12°.

ALTHOUGH an excellent little book, it will be something of a disappointment to the many teachers and students who have for several years made good use of the 'Theory of Electricity,' by the same author. The disappointment will grow out of the fact that it is a less complete and comprehensive treatment of the subject than will be generally looked for. It contains the substance of a series of experimental lectures given to senior boys in Rugby School, and not much preliminary mathematical training is assumed. In a few of the discussions a knowledge of mathematical principles as developed in the author's 'Theory' is desirable, but in such cases the fundamental formulæ may be taken for granted or the articles may be omitted. Magnetism is first studied, and then a relatively large space is devoted to frictional electricity.

Book III. is devoted to voltaic electricity, and fills rather more than one-half of the entire volume. At the end of each general subject will be found an excellent list of problems and exercises; and, as the author says, the book is educational, and not technical, in its plan and character. There are doubtless many courses of study into which it will fit with extremely satisfactory results.

Facts and Fictions of Mental Healing. By C. M. BARROWS. Boston, Carter & Karrick.

THE writer of this book states that he has not himself been engaged in mental healing, but has enjoyed exceptional facilities for studying its operations, and investigating a great number and variety of alleged cures. He is convinced by the results of many careful tests, that, if the mental treatment of disease be not all that its most sanguine advocates picture it, it is a powerful therapeutic agent when skilfully used, and based on a philosophy which has done the world incalculable good. In presenting the claims of this method of treatment, he has tried to make it apparent that there is a sound physical reason why well-directed thought should help the sick as much as medicine does; that a mental cure is nothing mysterious, but a natural event, which could not but take place under favorable circumstances. He disclaims any desire to compel the reader's assent, but his aim has been to awaken thought and deepen the reader's interest by fairly stating the evidence both for and against mental healing, and let him decide for himself. There are facts that prove the possibility of such cures beyond a peradventure. There are fictions, also, which must be abandoned if mental healing is to get and retain a hold upon the popular attention. It has a philosophy that will bear the intensest light that can be thrown upon it; and the subject needs only to be presented to educated, thoughtful persons in the right way, to appeal to their intelligence and convince their reason. Under the title 'Mental Healing' the author of this book includes 'spiritual healing,' 'prayer and faith-cure,' 'metaphysical healing,' 'Christian science,' and 'mind-cure.' In an introductory survey, the wonderful reputed cures are referred to of Dr. Newton, who, in Boston, in 1859, restored the sick to health by the laying-on of hands; of Elizabeth Mix, an ignorant colored woman of Connecticut, who performed many faith-cures; of Dorothea Trudel, who, in 1861, in Switzerland, worked remarkable cures of cases given over by physicians as utterly hopeless; and of others which want of space will not permit us to quote. The objection is often made to the various forms of mental healing, that there is no positive evidence that the cures are what they are claimed to be. Most of them, it is said, are performed by persons unskilled in the science of pathology, and not qualified to judge whether the subjects of their treatment really suffer from the

alleged disease, or, if actually sick, are fully cured. The best answer that mental healers can make to this charge is, that, whether right or wrong in their judgments of what ails their patients, they act precisely as any sensible physician would under like circumstances, and try to relieve the disease. In a chapter on the creeds of mental healers, we find that these differ to a considerable degree among the different schools or sects: for these points of difference we shall have to refer our readers to the book itself. Mr. Barrows states that it would not be putting the case too strongly to say that the theory of the mental healers, carried to the highest point, traces every form of disease, as well as sin, to mental causes, which may be removed and the effects destroyed. Even death itself they hold to be an illusion, that may be dispelled by a full reception of the truth and consequent right thinking. Thought creates a world for each one of us; thought makes the body; and all physical phenomena, whether of disease or health, are due to thought. In commenting on this view of the subject, the author says, that, if utterances like these seem extravagant, it should not be forgotten that a new truth — and every truth we grasp is new to *us*, though old to all the world beside — is apt to intoxicate its possessor, and become to his infatuated sense the universal solvent of the enigmas of life. Time and experience may safely be left to adjust the value of these claims; but meanwhile it is not the mark of wisdom to fear or ridicule them. We must confess, that, after a very careful reading of Mr. Barrows's book, we are as much in ignorance of just what is the basis of the mental healer's claim as we were before. They seem, indeed, to be divided into more sects or schools than those usually called physicians. Some of their claims, as quoted by Mr. Barrows, are simply absurd. Take this one, for example. It is an extract from one of the text-books of mental healing prepared for the guidance of students who intend to practise that method. If the case to be treated is a consumptive, begin your argument by taking up the leading points that this disease includes, according to belief, showing it is not inherited, that inflammation, tubercles, hemorrhage, and decomposition are but thoughts, beliefs, mental images before mortal mind, not the immortal Mind: hence they are not the truth of man, and should be treated as error, put out of mind, and then they will disappear from the body. That Mr. Barrows is a firm believer in mental healing is apparent from his writings; and that he himself believes that some of its teachers and practitioners make ridiculous claims for it, also seems to be clear. We are inclined to agree with some of the writers to whom he refers, — with Dr. Buckley, for instance, who acknowledges that most extraordinary recoveries have been produced, some of them instantaneously, from disease in some cases generally considered to be incurable by ordinary treatment, in others known to be curable in the ordinary process of medicine and in surgery only by slow degrees, — but can hardly be convinced that the case quoted from 'Nature and the Supernatural,' by Rev. Horace Bushnell, ever occurred, certainly not under just the circumstances as given, where a child ill with scarlet-fever was, immediately after a prayer made by his father, completely cured, so as to pronounce himself quite well and ask for his dinner. Mr. Barrows refers to the late Dr. Austin Flint with great respect for his opinions; and if mental healing, as he states, simply emphasizes the highest doctrines of the medical schools as announced by Dr. Flint, then we willingly acknowledge that there is much in it to demand consideration and recognition. Dr. Flint, in one of his addresses, said, "Let it be popularly known that most medicinal agents are curative, not directly but indirectly, by the removal of obstacles in the way of recovery; that Nature is always the efficient curative agent, and therefore that the physician is Nature's servant, not her master." We confess to a feeling of disappointment when we finished reading this book of Mr. Barrows. His preface seemed so fair and unprejudiced, that we expected to get a plain statement of the facts, particularly as he had stated that he had enjoyed exceptional facilities for study and investigation. If mental healing "is to get and retain a hold upon the popular attention," and if "the subject needs only to be presented to educated, thoughtful persons in the right way, to appeal to their intelligence and convince their reason," we fear it must be done in a much simpler, more matter-of-fact, and less metaphysical manner than has been done by the author of 'Facts and Fictions of Mental Healing.'

NOTES AND NEWS.

THE officers for the next meeting of the American Association were nominated as follows: president, J. W. Powell of Washington; vice-presidents, Ormond Stone of the University of Virginia (Mathematics and Astronomy), A. A. Michelson of Cleveland (Physics), C. E. Munroe of Newport (Chemistry), Calvin M. Woodward of St. Louis (Mechanical Science), George H. Cook of New Brunswick (Geology and Geography), C. V. Riley of Washington (Biology), C. C. Abbott of Trenton (Anthropology), C. W. Smiley of Washington (Economic Science and Statistics); permanent secretary, F. W. Putnam of Cambridge (office Salem, Mass.); general secretary, J. C. Arthur of La Fayette; secretary of the council, C. Leo Mees of Athens; secretaries of the sections, C. L. Doolittle of Bethlehem (Mathematics and Astronomy), A. L. Kimball of Baltimore (Physics), William L. Dudley of Nashville (Chemistry), Arthur Beardsley of Swarthmore (Mechanical Science), George H. Williams of Baltimore (Geology and Geography), N. L. Britton of New York (Biology), Frank Baker of Washington (Anthropology), Charles S. Hill of Washington (Economic Science and Statistics).

— The arrangements for the tenth annual meeting of the American Society of Microscopists are now definitely made. The society convenes in Pittburgh, Penn., Aug. 30, 1887, and will probably continue its sessions four or five days. There will be a field-excursion to Chartiers, and the society will be invited to visit the extensive steel-works of Carnegie, Phipps, & Co., at Braddock. The party will go by steamer up the historic Monongahela: a field-excursion has been planned in connection with this pleasure-trip. There will be collected a temporary library of rare books and manuals. A considerable number of volumes have been promised. These will be under the constant care of a librarian.

LETTERS TO THE EDITOR.

*** The attention of scientific men is called to the advantages of the correspondence columns of* SCIENCE *for placing promptly on record brief preliminary notices of their investigations. Twenty copies of the number containing his communication will be furnished free to any correspondent on request.*

The editor will be glad to publish any queries consonant with the character of the journal.

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

An Insect-Fight.

AN observation quoted by Professor Morse in his address before the American Association last night is so exactly confirmed by a recent observation of my own, that it seems worth while to put it on record.

While sitting in a hammock slung between two large maple-trees on the lawn, I heard a loud buzzing and fall of something behind me, and, looking around, I saw on the grass a locust (cicada) in the grasp of a large insect, evidently of the wasp family, but which I am not sufficiently well posted in entomology to name. It had brown wings, and large abdomen colored black or dark brown with white spots. The whole length of the insect was about thirty-five or forty millimetres. When first seen, the struggling locust was on its back; the wasp extended above it head to head, and industriously plying its sting between the abdominal wings of the locust. The locust quickly became quiet, and then the wasp, maintaining its former position, which it did not at any time abandon, grasped the head of the locust by the middle pair of legs, and, using the other four legs for locomotion, started to drag it through the short grass toward one of the trees. There was no hesitation or uncertainty, but the wasp started at once in a straight line for the foot of the tree. On reaching the tree, the wasp began without pause to carry its burden up the trunk, using its four legs for walking, as before, and assisting itself to sustain the weight of the locust by putting its wings in operation. In this way, with a few brief pauses as if to rest and get better hold, in one of which it hung for a moment apparently by one leg, the locust was carried up among the branches of the maple, some twenty feet or so, where it became difficult for me to follow its motions. After reaching such a height, the wasp flew off in a straight line through the branches, and went out of sight. I think it carried the locust with it, but the height was so great that I could not be positive. At any rate, the locust did not fall to the ground, although, as the