

grations"; here we should suppose that the Vandals ought to have been placed further west, on the other side of the Danube. The second is "Lines of March of the German Tribes." It seems to us misleading to commence the Ostrogoth line of march in Pannonia, as if this were their original seat. The successive points of the several migrations are indicated by dates; we would suggest that the date of the Burgundian settlement at Worms should be added. The map of "The Germans in the Empire" (for A. D. 500—by the way, dates ought to be affixed to the maps) contains useful dates on the face of the map for the settlement and occupation of the several countries. The maps of the "Frankish Kingdom under the Merovingians" and "under the Carolingians" will be very acceptable to students, as containing really accurate and intelligible boundary lines, as well as all the detail which they need. The last map, "Church Centres in Europe in the time of Charlemagne," contains material which we believe is not elsewhere accessible in English.

Life on the Congo. By the Rev. W. Holman Bentley. London: Religious Tract Society. Illustrated. Pp. 126, Svo.

MR. BENTLEY is of the Baptist Mission. His book is not descriptive, but relates mainly to the habits, customs, and beliefs of the natives. He appears to be a careful observer and has collected many interesting facts. Incidentally he writes more favorably of the climate than most travellers to this region, having been on the Congo two years and a half before he was attacked by fever. He also relates an interesting conversation with one of the negroes from the upper river in regard to the repeated attacks upon Stanley during his first expedition on its waters. These were due, according to this man, not to hostility, but simply to emulation. Each tribe heard that the tribes above had fought with the strangers, and accordingly they did the same. Of the native language, one of the many forms of the Bantu, he says, "The most marked feature is the euphonic concord, a principle by which the characteristic prefix of the noun is attached to the pronouns and adjectives qualifying it, and to the verb of which it is the subject. Thus, *matadi mama mampwena manipembe mejitanga beni*; these great white stones are very heavy." He quotes with approval the statement made in Mr. R. N. Cust's work on the African languages, that "its grammatical principles are founded on the most systematic and philosophical basis, and the number of words may be multiplied to an almost indefinite extent." His experience also confirms the truth of Mr. Stanley's assertion that the Congo native is a born trader. He says, "A five-year-old boy will somehow get three or four strings of beads, and with them will buy a small chicken. After a few months of patient care, it is worth eight or ten strings, and his capital is doubled." He is soon able to buy a small pig, and with the proceeds of this, of rat hunting and barter with other boys, he at last gets capital enough to make a trading trip to the coast. All this time he lives, apart from his parents, in a house with the other boys of the village. "The right of inheritance is from uncle to nephew; thus a man's slaves and real property go to the eldest son of his eldest sister, or the next of kin on such lines." A man's children, on the other hand, are the property of his wife's relatives, and he has "little or no control over them."

The Congo week consists of four days, the markets, which are apparently their measure

of time, being held every fourth or eighth day. The laws of the market are stringent. "No one is allowed to come armed, no one may catch a debtor on market day, no one may use a knife against another in a passion. The penalty for all these offences is death, and many muzzles of buried guns stick up in the market places to warn other rowdies against a like fate." The natives have no religion, unless the simple belief in a Supreme Being, whom they neither fear nor worship, can be so regarded. They have great faith in the power of charms (to which, however, they do not attribute any personality, and so do not worship them, as some travellers have asserted) as well as in witchcraft, which enters into every relation of life, and is the fruitful source of numerous murders. The author describes two curious customs prevailing among them, Ndembo and Nkimba. In the former, young people, chiefly, are attacked by hysteria, and are carried away to an enclosed place outside of the village. Though supposed to be dead, they are supplied with food by their parents or friends, and after a time, varying from three months to three years, on the payment of certain doctor's fees, they are brought to life again. Returning to their homes, they pretend entire ignorance of everything which they have previously known, even to the mastication of food, which is done for them. The other is a species of freemason society established for mutual help and protection, having an initiation ceremonial and a mysterious language. This the novice learns during a seclusion of from six months to two years, required for this purpose. Mr. Bentley says that this language has evidently been made, but upon what principles he is still unable to discover, although he has collected two hundred words and forty sentences. "The vocabulary is limited, and is characterized by the system of alliterational concord." This society is spreading among the natives on the south bank of the Congo, and has been in some ways useful to the missionaries.

Elementary Treatise on Analytical Mechanics.

By William G. Peck, Ph.D., LL.D., Professor of Mathematics, Mechanics, and Astronomy in Columbia College. A. S. Barnes & Co.

ABOUT thirty years ago Prof. Peck published a treatise on the 'Elements of Mechanics for the use of Colleges, Academies, and High Schools.' The elementary text-books then in use were too simple for advanced students, and, from their non-mathematical character, furnished a very inadequate basis for future study and investigation on the part of the student himself. The more thorough and complete treatises were too difficult for beginners, and too extensive for use as text-books. There was too wide a gap between the elementary and the complete treatises, which Prof. Peck's book was intended to fill. It was in many respects an admirable work, but it was not quite adapted to the educational conditions then existing in this country. It was in advance of the times. The processes of the differential and integral calculus were frequently introduced, and at that time the number of students who had studied the calculus was very small, and of these a still smaller proportion were able to make any intelligent use of its methods. In nearly if not quite all our colleges the calculus was an "optional" study, and the choice almost invariably fell on anything rather than the calculus. The result was that in our academies and high schools, although the teachers were to a large extent college graduates, the calculus was a branch of mathematics unknown and untaught. Accordingly, a year

after its publication, Prof. Peck added to his book an appendix, in which the more important principles of mechanics were demonstrated by the processes employed in those branches of mathematics usually studied, and those portions of the work which might be omitted "without impairing the unity of the subject" were pointed out. This, however, did not prove entirely satisfactory. Teachers did not like to use, and pupils did not care to buy, a text-book a considerable portion of which was unintelligible and useless. It was evident that not only students in high schools and academies, but also those in technical schools and undergraduates in colleges, required a text-book constructed on a lower mathematical level. To meet this demand, Prof. Peck published in 1870 a substantially new work. The general plan of the book was the same as that of the former, but it was entirely rewritten, and analytical geometry was the upper limit of the mathematical knowledge assumed to be possessed by those making use of the work. Less than this it was impossible to assume without abandoning the attempt to treat mathematically any but the simplest problems of the science. But even for this the times were not yet ripe.

Over seventeen years have elapsed between the date of the preface of the work last mentioned and that of the one which now claims our attention. During that period the progress of the United States has been in no direction more marked than in the great increase in the number of students of the higher branches of science, including mathematics. Though analytical geometry and the calculus are still optional studies in most institutions, yet there are probably ten persons now who make them serious objects of study where there was one when Prof. Peck's treatise was first published. He has again entirely rewritten it. It is no larger than at first. It is still an elementary treatise in so far as it deals with the elementary conceptions which lie at the foundation of the science, but it is not a "popular" exposition of those conceptions. It is a thoroughly scientific work, and intended for those who wish to study, not merely to read about, mechanics. As the word "Analytical" introduced in the title indicates, the book is written from a mathematical standpoint. The methods of the differential and integral calculus are freely applied. The only concession to any want of knowledge or of memory on the part of the pupil is an occasional reference to a paragraph of the author's treatise on that subject. The work contains no historical information, discusses no philosophical questions, indulges in no metaphysical speculation. A large part of it might with very little change be moulded exactly into the form of Euclid's elements.

A thoroughly competent teacher, with a class of pupils who have sufficient knowledge of analytical geometry and the calculus to understand the meaning of the formulas and their transformations, has here an admirable text-book. The publishers have done their duty in the mechanical execution of the volume, and it is in that respect a great improvement on the two previous works.

Social Life and Literature Fifty Years Ago.
Boston: Cupples & Hurd. 1888.

THIS little volume is an old man's word for his own times; and it must be acknowledged, even by the flippant criticism of the new age, that the retort is not without a certain grave force. It is not the change of literary fashion which has annoyed this gentleman of the old school, but the attack upon his own tastes and the vio-

lence done to great reputations. The process of pushing the fathers from their stools seems to him to be going on with indecent haste, with superciliousness in some quarters, and with a temper, in others, as unjust as it is patronizing. Doubtless when Mr. Lathrop spoke of Irving's style as "patent-leather Addisonian," and of his humor as smacking of college-boy's wit, he did not realize that Irving has not been dead so long to others as he seems to him; and this very just reproof from a contemporary who remembers Irving's fame at its height, and can quote Scott and Dickens against the young critic's opinion, may be as surprising to him as a voice from the tombs. Mr. James, too, may be startled; for it is a voice from old Salem, in true earnest, and the speaker has much cause for complaint against the international novelist who has used Salem as the very type and symbol of the narrowness and lack of resource which belonged to New England fifty years ago as Mr. James sees it. But not only has Mr. Lathrop written flippantly of Irving, and Mr. James satirically of old Salem; others have spoken of Hillard and of Ticknor in a way that shows only too plainly how far the world has left those honorable men behind, and every literary circle knows what scant courtesy and how short a shrift the immortal shades of Thackeray, Dickens, and Scott have lately received.

It is this general spirit of depreciation, together with a certain forgetfulness, that has called out this protest in behalf of antiquity—that is, of Irving, Scott, Dickens, and Thackeray, Ticknor, and that society which produced the coterie of the "Five of Clubs," to wit, Longfellow, Sumner, Felton, Hillard, and Cleveland. We are reminded that these scholars and gentlemen lived a long time ago—before "Pinafore" and Sullivan, the prince of pugilists, before athletics in colleges, newspaper interviewing, salvation armies, spiritualism, faith cures, Christian science, Canadian refugees, and stock gambling; but they made friends with the good opinion of their day, were respected by the best minds, and made their age remembered in literature, if it shall be remembered at all. They stood, in a word, for the culture of their times, and our friendly cotegenarian who reminds us of all this, will have it that their culture was really respectable, and their achievement quite the equal of anything his latter days have seen. He seems disposed to class the literary spirit of to-day

with that melancholy list of innovations beginning with "Pinafore" and ending with stock gambling. We indulge the hope that matters have not gone to such an extreme, though times have changed as times will. Meanwhile, in the crush of popular reputations made and lost as rapidly as fortunes in Wall Street, this sharp and well-deserved reminder of what stature men had in Nestor's day will be appreciated by a long-suffering but silent public, who, library statistics tell us, persist in reading the old books; and possibly the critics might do well to give it a bit of attention themselves.

The Structure and Classification of the Mesozoic Mammalia. By Henry Fairfield Osborn. Philadelphia: Academy of Natural Sciences. 1888. 4to. Illustrated.

THE Mesozoic are the earliest known mammals; ordinarily the class is said to have begun with them. Their sizes ranged from that of a small mouse to that of a large house rat. The determinations have been based on teeth and jaws; little else of the skeletons has been unearthed. Five of the genera are Triassic; about thirty are Jurassic. The variety of types among them, and their degrees of comparative advancement, prove them to be descendants of lines of mammalian ancestors reaching still further back. In other words, there were mammals much earlier than any of the primitive insectivores and marsupials yet brought to light. Dr. Buckland, in his paper on Megalosaurus (1823), mentions the jaw of a small mammal from the Stonesfield slates of the Oolite, which, on the authority of Cuvier, he refers to Didelphys, the Opossum; this was their first notice. Afterwards they were reported from different parts of the Old World. In 1871, Prof. Owen brought together what was known at the time in his 'Monograph of the Fossil Mammalia of the Mesozoic Formations.' An American genus, Dromotherium, from the Triassic of North Carolina, had been made known by Prof. Emmons in 1857. Prof. Marsh obtained others from the Jurassic of Wyoming in 1878, and since then has considerably increased the list, adding six new genera and nine new species in his most important contribution, 'American Jurassic Mammals' (1887). Besides those mentioned, others have made discoveries in widely separated localities.

Like that of Owen, the work of Prof. Osborn

is an attempt at an exhaustive study of all relating to Mesozoic mammals that has been brought forward up to the date of publication. In it he aims, so far as may be done from teeth and jaws, (1) to present the features of the genera, (2) to present the principles of classification, and (3) to discuss the affinities, origin, and succession. What relates to the features is mainly compilation, the author having no material not previously worked over. All of the genera are described and figured. The principles of classification do not differ materially from those adopted by predecessors. It is in the discussion that we find most of what the author can claim as original. In this, and in that it greatly facilitates the study of these fossils, lies the importance of the work. The few localities that have been touched upon have yielded just enough to prove that we have hardly more than begun upon an extensive group of well-differentiated genera, concerning which present conclusions as to possible lines of succession or origin are certain to be modified if not disestablished by more knowledge.

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- Sketches of War History, 1861-1865. 2 vols. Cincinnati: Robert Clarke & Co.
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- The Centennial of a Revolution. G. P. Putnam's Sons. \$1.25.
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