

be a matter of question. The whole subject of equalizing the values of colors as rendered by photography is still a very obscure one, and there is grave doubt if there is any chemical effect in the action of the dyes used; that the color of the dye has any connection with increased sensitiveness to the relative color, is clearly not the case. This will be made evident by exposing a picture in which the colors require compensation to the yellow sunset light to be photographed, when the same effect will be found as is caused by the tint on the film, which again must be aided by a yellow screen in front of the lens—an additional indication that the effect produced is optical and not chemical. We remember twenty-five years ago that a photographer in Rome introduced the practice of photographing the old masters with the colored glass in front of his lens. When the subject comes to be thoroughly investigated by scientific method, it will probably be found that the orthochromatic effect is due to certain relations between exposure and development, as is said to be the opinion of Angerer of Vienna, one of the most successful of the picture photographers, the dye added to the film having simply the effect of unequally prolonging the exposure necessary. The orthochromatic plate fails on the spectrum.

But one subject on which the author might have given a much-needed light is that of the character of the negative required for special process-work, the manner of getting the best results for the one or the other of the numerous processes now in use—on all which he says nothing. Yet this is one of the most important elements in the business and one of the least understood, and on which, therefore, new and luminous instructions are needed.

*Martin Van Buren.* By Edward M. Shepard. [American Statesmen.] Boston: Houghton, Mifflin & Co. 1888.

WHATEVER judgment may be passed upon Van Buren by the readers of this book, they can certainly have but one opinion concerning the author: he has produced a masterpiece. We are at a loss whether to admire more the form or the substance of his work. Not many of our professed men of letters surpass him in mere literary skill—in facility of expression and in the art of setting forth facts in an interesting way. Very few of our historians equal him in the power of characterizing a political era, or in the breadth of the view which he takes of our political development. The problem of explaining the relations of the cliques that struggled for the control of the government of the State of New York is especially difficult, nor is it, in our judgment, an attractive one, but Mr. Shepard's familiarity with these details enables the reader to follow him with intelligence and with pleasure.

It must be said that the personality which furnishes the title to this book is not a striking one. Martin Van Buren was unquestionably a man of polished manners ("a perfect imitation of a gentleman," Bacourt called him) and decorous life. His legal attainments were considerable, and his statesmanship was dignified. But he had none of the strongly marked features that withstand the effacing influences of time. Perhaps it would be impossible to paint his portrait otherwise than in faint colors, and, in fact, Mr. Shepard scarcely attempts to inform us as to his private life or as to his personal relations. He presents him almost exclusively as a "statesman," and we think that his judgment is sound in this, not only because of the title of the series, but also because of the limi-

tations of the individual. With this end in view he begins naturally with an account of the political theories and tendencies prevalent at the opening of Van Buren's career, and then passes to the great questions with which he was called to deal—the relations of the Government to the banks and to slavery.

To a considerable extent Mr. Shepard finds himself committed to a vindication. Van Buren had been trained among the fierce factional contests of New York politics, and had been taught neither to give nor to ask quarter. It would have been strange had he repudiated the maxim, *Vae victis*; and yet, as Mr. Shepard shows, he was more merciful than most of his contemporaries. Mr. Shepard is so ardent a civil-service reformer that he seems to us to be needlessly concerned about Van Buren's reputation on this point. The spirit of the Federalists was so contrary to that of democracy, and the bitterness of party feeling at that day was so intense, that it is at least doubtful if it was not necessary that all Federalists should be hunted out of office. In such a seething political caldron, most office-holders were, it is safe to say, "offensive partisans," and, as was the case in 1861, the people would not tolerate the retention in office of men who held views that were looked upon as little less than treasonable. Under Lincoln, it must be remembered, the changes were far more sweeping than ever before.

As to the charges of insincerity and double-dealing commonly made against Van Buren, Mr. Shepard wholly rejects them, and rejects them after having examined the evidence. He entered upon the investigation supposing the charges to be true, and found that they could not be supported. We may say that he has at least shifted the burden of proof. His plea is an extremely able one, and we will only urge against it the rather remarkable unanimity of contemporary opinion. It must be said, too, that the reader is not altogether free from the feeling that Mr. Shepard holds a brief, and that his attitude is not absolutely judicial. We do not object to this, for Van Buren is certainly entitled to the benefit of counsel, but we think that the judgment of his contemporaries is a circumstance that requires a little more consideration than Mr. Shepard gives it.

Upon some points, however, Mr. Shepard's argument is certainly triumphant. This man accused of insincerity and duplicity actually distinguished himself upon two occasions by devotion to principle. On both occasions his course was unpopular, and he knew that it would be probably fatal to his political future, but he did not flinch from the sacrifice. The first of those occasions was when, after the panic of 1837, he insisted upon financial conservatism and sobriety on the part of the Government, against a howling mob of ruined jobbers and speculators. It cost him his reelection in 1840. The second was when he declared that slave territory should not be enlarged by the annexation of Texas. This cost him his re-nomination in 1844.

As to Van Buren's rank among our Presidents, Mr. Shepard justly declares that he does not belong among the mediocrities or accidents of the White House—among Monroe, Harrison, Tyler, Polk, Taylor, Fillmore, and Pierce. Nor is he upon the same plane as Jackson and the elder Adams. We are inclined to add that he is likely to stand much higher in the judgment of posterity than he would have, had it not been for Mr. Shepard's book. Viewed as a rhetorical achievement alone, this essay is admirable; and it certainly casts a strong and not unpleasing light upon a rather dark period in our political history.

*An Introduction to the Study of the Middle Ages (375-814).* By Ephraim Emerton, Ph.D., Professor of History in Harvard University. Boston: Ginn & Co. 1888. 8vo, pp. 268.

THE four hundred and fifty years or so between Constantine and Charlemagne form one of the most interesting and important as well as one of the most perplexing periods of history. It was the period of the transition from the ancient to the modern world, marked by three independent phases of transformation, any one of them vital enough to make an epoch in the history of humanity—the Christianization of Europe, the breaking up of the Roman Empire into new monarchies of German nationality, and a complete revolution in government and institutions. With the last of these, with the final establishment of feudalism, we have the Middle Ages proper. The merging of nationalities and the substitution of the Christian for the pagan ideal of life were slow and obscure processes; but the aspect of the period, at once the most difficult and the least understood, is in regard to the growth of feudal institutions. We have not until now possessed any book which would serve as a guide to this period from this three-fold point of view. These are historical treatises in abundance, ranging in fulness from Gibbon's great work to Mr. Curteis's excellent compendium; but no book specifically designed to meet the wants of the student. It is Mr. Emerton's great merit that he has carefully defined his field of labor, limiting himself to just these centuries, and for the most part to just the three points of view which we have indicated—the way in which the German nationality took possession of the Empire, the way in which the Christian Church took possession of society, and the way in which a new type of government was evolved, to meet the needs of a new type of society. This last subject necessarily carries him a little beyond the limits which he had set for himself. Feudalism came after Charlemagne, but could not be neglected; we have therefore a chapter following those upon Charlemagne, upon "The Beginnings of the Feudal System."

The book is distinctively a guide to students, not a final and complete account of its subject, although as a *history* it has high merit and a certain completeness within its limits. The Introduction is entitled "Suggestions to Teachers," and is followed by a list of books of a general character. Each chapter, moreover, begins with a well-selected list of books, containing, wherever necessary, a judicious appreciation of the works cited, whether as authorities or as modern works. For the modern literature we will say that it might have been well to make these discriminating remarks more general and detailed. A chronological table and an index complete the volume.

The part of the work which is most new, or which at all events contains most matter that is not generally accessible, is those chapters which treat of the period of the Frank Empire, chapters vii to xiv; especially, we think, that upon Germanic Ideas of Law, and the two historical chapters which treat of Charles Martel and Pepin. The two chapters upon Charlemagne contain an admirable and lucid account of the work of this great man, while that upon Feudalism is, we have no doubt, the best and clearest analysis of that institution to be found in the English language. The maps deserve special mention, as being about the first historical maps of Europe produced in this country of genuine and original merit. They are not copied from other works, but are specially designed to illustrate this book. The first is the Rhine-Danube Frontier before "The Great Mi-

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, 8vo.

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 alliterial 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-