

discourse on the prospect of emancipation with the sharp recall to a higher power—"Frederick, is God dead?" There was another colored American at Florence, David Ruggles, who, though blind, carried on a successful water-cure on the fatal Mill River, to which Southerners came later when it had been acquired by the German Dr. Charles Munde—though some quit it as soon as he cast his vote for Abraham Lincoln. Dr. Munde, by the way, is said by Mr. Sheffield to have wished to call the river the Arno, and the place Florence, and to have really been the author of the latter appellation. We, for our part, had supposed the story true which made the selection a shrewd device of the silk-manufacturers, who could thus use "truthfully" an Italian label for their sewing-silk, and so compete with the imported article.

*A Student's Manual of English Constitutional History.* By D. J. Medley. Oxford: Blackwell. 1894.

This book has two striking features: it entirely ignores political history, and its arrangement is purely topical. In his preface Mr. Medley states that the few existing text books on constitutional history are unsatisfactory, because they subordinate the development of an institution to the details of general or political history—to details concerning changes of dynasty and deeds of particular men. We do not believe that this statement is correct; it does not apply, for example, to the well-known text-book of Bishop Stubbs. Moreover, it is impossible completely to separate the growth of English institutions from the political details. The constitutional history of England was profoundly influenced by the nature of such events as the Anglo-Saxon invasions and the Norman conquest, and by the personality of certain kings, and it is impossible to comprehend the constitutional changes of some reigns without a careful study of the political movements of the time.

The other characteristic feature of the book is its topical arrangement. Its eleven chapters deal with distinct subjects; there is a consecutive history of each institution from the earliest to the present time. Most text-books err in having too many divisions into periods; the student's attention is distracted from the growth of a particular institution when he is hurried from one topic to another in a narrowly limited period. The remedy for this evil is to make each period cover several centuries. But Mr. Medley goes too far in this direction; his work is not divided into periods. Chronological subdivisions of some sort are necessary because the institutions of an age (for example, the Anglo-Saxon period) are correlated; an understanding of one institution postulates some knowledge of certain others, and their interrelation differs in different periods. Moreover, in some chapters of this book it is assumed that the student knows something concerning institutions which are examined in detail in a later chapter. For example, on page 15 the Witan is referred to, but it is defined and explained on page 102, in chapter iii. Thus the work will be more useful to persons who have already studied the whole subject than to beginners.

The chief excellence of this text-book is that it brings together many of the results of recent research—the conclusions of such writers as Seeborn, Vinogradoff, Maitland, and Round. It contains much fresh material in a compact form. But we fear that the desire to compress many facts into a small space

often leads to obscurity. Mr. Medley's brief exposition of some subjects (for example, uses and strict settlements, in chapter i.) is unintelligible to the average educated reader and quite incomprehensible to the average college youth; and his references to collateral reading are too meagre to enable students to supplement his statements.

*Nicolai Ivanovich Lobachevsky.* By A. Vasiliev. Translated from the Russian by George Bruce Halsted. Austin, Tex.: The Neomon, 2407 Guadalupe Street. 1894.

A GOOD many interesting particulars about the non-Euclidean geometry and its author can be searching be picked out of this ill-arranged pamphlet. Lobachevsky was born in 1793 in the town of Makarieff, some forty miles above Nizhni-Novgorod, on the Volga. His father was a peasant (Ch. Rumelin says an architect, forgetting, apparently, that a *Bauer* is not usually a *Baumeister*). He was entered at the newly founded University of Kazan in 1807. He must have impressed his parents with his genius. Prof. Vasiliev tells us he was a passionate boy. His behavior was always reputed bad. Later there was some terrible storm of passion which left him for the rest of his life taciturn and stern. He took the degree of master in 1811. After graduation he entered the Observatory and studied practical astronomy under J. J. Littrow (whose name Dr. Halsted spells Lettrow). In 1814 he was made adjunct professor of mathematics, and in 1816 full professor. But the University of Kazan was hardly a regular university, and he had to teach astronomy also; and for some time physics and chemistry besides. "One of these lectures," the only one on chemistry, Prof. Vasiliev tells us, "was accompanied by experiments." In 1825 Lobachevsky added to his duties those of librarian to the University, and so continued for ten years. It was about this time that one Magnetsky was rector of the University, and the dire administration of this religious fanatic and barbarous foe of science is evidently a familiar tradition of horror in Kazan to this day. In 1827 Lobachevsky himself was elected to the rectorship, which he held for nineteen years. In 1846 he retired from the University, and went to live in a village which belonged to him, Belovoliskaya Slobodka, on the Volga, near the mouth of the Kama River. He was now appointed curator, or assistant curator, of the district of Kazan. He interested himself vastly in agriculture, becoming the president of his branch of the Imperial Economical Society, and taking the medal of the Imperial Agricultural Society for his improvements in the treatment of wools. Finally, he became blind, and in 1856 died.

Kazan was not the *milieu* for a man of genius, especially not for so profound a genius as that of Lobachevsky, and he did little mathematical work beyond writing text-books. What little he did publish was received with derision and contempt. Who in Russia in 1834 could possibly see any sense in the contention of Lobachevsky that it was one thing for a curved line to be continuous, and quite another for it to have definite tangents? The mathematicians of Western Europe did not become aware of the distinction until nearly 1880, when Weierstrass suggested that a line might be wavy, and these waves carry smaller waves, and those still smaller waves, and so on *ad infinitum*. Down to this day there is but one text-book on the differential calculus (that of Camille Jordan, in its second edition) which introduces the distinction. All of Lo-

bathevsky's writings are marked by the same high strung logic, and there is nothing a semi-civilized people respects less than extremely accurate thought.

Lobachevsky made some experimental researches in terrestrial physics. He was also one of the first carefully to observe and call attention to the solar corona. It is a marvelous instance of man's stupendous power of shutting his eyes to plain facts that this phenomenon, one of the most startling, not to say thrilling, in nature, was not enough noticed to receive a name until 1851. But it was observed by Lobachevsky at the eclipse of 1842, July 8,\* and described with care. He also gave a theory of it which, as reported by Vasiliev and translated by Dr. Halsted, seems pretty puerile.

According to the evidence adduced by Prof. Vasiliev, it appears that both the reputed authors of the non-Euclidean geometry, Lobachevsky and Bolyai, probably derived their first knowledge of it indirectly from Gauss. A letter is extant, written in 1799 by Gauss to Bolyai's father, which contains a very plain hint of the thing. And Vasiliev now informs us that Lobachevsky's teacher of mathematics was J. M. C. Bartels, who had been the teacher and devoted friend of Gauss, from 1785 to 1807, when Bartels went to Kazan. It is next to impossible that, coming then into very intimate relations with Lobachevsky, he should not have mentioned Gauss's studies in the non-Euclidean geometry. However, Gauss was not the first discoverer. Lambert in 1785, in a printed book, spoke plainly of a space where the angles of a triangle should sum up to less than 180 degrees, and mentions one of its most remarkable properties. Gauss most likely knew of this. Nor was Lambert first in the field, for the Jesuit Saccheri had discovered the thing before 1734.

*Letters and Sketches from the New Hebrides.*

By Maggio W. Paton (Mrs. Dr. John G. Paton of Aniwa). Edited by Rev. Jds. Paton. A. C. Armstrong & Son. 1895. Illustrated. Pp. xiii, 382, 8vo.

It would be hard to find a more truthful or graphic picture of missionary life than is contained in these letters. Writing only for her family circle, Mrs. Paton was not hampered, as the missionary generally is, by the necessity of interesting and stimulating the contributors to her support. Nothing is out of proportion, therefore, in her picture. She describes the failures as carefully as the successes, the comforts no less than the hardships of her life. And, what is perhaps rare in missionary literature, the somewhat sombre narrative is not infrequently enlivened by humorous touches. In an account of the manner in which the natives dressed for church, for instance, she says: "One man, I remember, came prancing in, looking so delighted with himself in a snow-white vest—absolutely nothing else! Another came stalking majestically, with a woman's skirt pinned round his throat and the tips of his fingers appearing at the bottom of it." All this she bore with praiseworthy self-control until her husband's whispered words, "Shouldn't we be grateful to God to see them all coming out to church so nicely dressed," sent her into

\*This is the local civil date, N. S. The O. S. date was June 26. Prof. Halsted gives it as July 26, bringing the month to N. S., but not the day. Pogendorff (*Wörterbuch*) makes it June 8, bringing the day to N. S., but not the month. A "Boston Almanac" for that year, referred to for the date, gives it as July 7, which can be defended as being the *Eastern time* of the beginning of the eclipse. Herschell's "Outlines" also gives it as July 7, being the *Greenwich astronomical date* of the greater part of the eclipse. Such is the treatment minor dates receive. No other books were referred to. Not one was right.