'Outlines of Proximate Organic Analysis,' and deals mainly with certain common organic compounds of importance in commerce or pharmacy. Many topics which are touched upon in the smaller book — such, for example, as the properties of the alcohols and alcoholic derivatives, and of the carbohydrates — are here passed by, excepting, perhaps, mere incidental mention; but such substances as are discussed at all, are in general treated fully and exactly, with liberal citation and reference to authorities. The alkaloids naturally hold an important place; and schemes for plant-analysis, the examination of coloring-materials, and the separation and identification of fats and oils, are prominent. The title of the book is suggestive of a view broader than that actually presented, but it should be said in this connection that information upon the more important topics omitted is easily accessible elsewhere. This book is a decidedly valuable contribution to the literature of analysis.

Elementary Chemistry. By M. M. Pattison Muir and Charles Slater. Cambridge, Eng., University Pr. 12°. $1.25.

Practical Chemistry. By M. M. Pattison Muir and Douglas Carnegie. Cambridge, Eng., University Pr. 12°. 80 cents.

These two books are complementary, and together outline a progressive course in elementary chemistry.

The 'Practical Chemistry' leads experimentally from the demonstration of the distinction between simple physical and chemical changes up to such topics as the investigation of atomic weights, the phenomena of dissociation, the relative affinities of acids, the constitution of compounds, rates of etherification, and specific volumes; the acquisition of the elements of qualitative and quantitative analysis being assumed as an intermediate and outside incident of the course of work. The 'Elementary Chemistry' presents the essential facts and theories of chemistry, carefully distinguished and correlated in a clear and logical manner, the properties of bodies being discussed in the light of the 'periodic law.' The plan of instruction is in many respects unique and admirable, and reflects very strongly the growing tendency toward the early introduction of methods approximately quantitative.

Down the Islands. By William Agnew Paton. New York, Scribner. 8°. $4.

The author, who made a brief voyage to the Caribbees and British Guiana, tells the experiences and observations of his voyage. In an introductory note he confesses that on starting he had no knowledge whatever of the country he was going to visit. If this be true, he has made good use of his brief trip, for the book contains much valuable information; not the less valuable, as told in a very attractive form. In reading the description, it would seem as though the writer gives nothing but the impressions of an observant traveller who is unexpectedly taken to a world entirely new to him; and this makes his tale very charming. His remarks show that he is quick to catch the characteristic features of the country he visits; and his descriptions of the character of the several islands, of the English and French Creole, of the negroes, the 'black and yellow Caribs,' and of the Hindu coolie, are worth reading, Besides, a considerable amount of reliable statistical and historical information is embodied in this book, which gave us greater pleasure and satisfaction than many a pretentious book of travel.

Under the Southern Cross. By M. M. Ballou. Boston, Ticknor. 12°. $1.50.

The author, who has spent much of his time in travelling all over the world, tells in the present volume the story of a journey to the Pacific Ocean. Starting from Boston, he crossed the continent, and began his sea-voyage in San Francisco. A few days were spent on the Hawaiian Islands, a few hours' stay was made at Samoa, and then he proceeded to New Zealand and Australia. The time has passed when scientific results of great import may be gleaned from such a journey; but the author tells in an attractive form his observations and experiences, and gives us a glance of the life of the colonists and natives of the Pacific Ocean so far as he has seen it.

Special attention is devoted to the political relations of the South Sea colonies to America and Europe. The author dwells upon the question of the proposed federation of the Australian colonies and the probability of their becoming an independent republic, upon American influence in Hawaii and the development of American trade on the islands in consequence of the reciprocity treaty, and upon the late events in the Samoan Islands. Australian stock-raising and mining, and British immigration to these countries, are discussed, as well as the influence of the Chinese and of coolie labor, but the main and best part of the book are the interesting sketches of cities. Several descriptions of scenery are vivid and attractive, but those passages in which the author attempts to touch upon questions of geography or ethnology show that he has only paid a flying visit to the Pacific Ocean, and that he has not lived long enough in those regions to gain a thorough insight of their nature and of their natives.

NOTES AND NEWS.

The *Railway Review* says that the Russians are pushing forward the Transcaspian Railroad as rapidly as possible. Seven thousand men are now grading the road through Bokhara. It is now ready for the rails for four-fifths of the way between the Oxus and Samarcand, nearly three hundred miles; but the track cannot be laid until the bridge over the Oxus is completed. This bridge, now more than half finished, will be three miles long. It will connect the road now completed to the Oxus with the extension to Samarcand, and next spring the line will probably be in operation.

— It is but a short time since we called attention to Edwards's 'Butterflies of North America,' and now a new part lies before us. Indeed, within a twelvemonth four parts of the new series have appeared, the intervals between them being briefer than has been the case with any preceding numbers in the twenty years it has been running. More species of the prolific genera *Colias* and *Argynnis* are figured, but the specially attractive plate of the number — and there is always one — is that devoted to *Cœnonympha california*, or *galactinus* as Mr. Edwards would prefer to have us call it. The transformations of this genus are now for the first time illustrated by the early stages of one of our American forms; and the number of exquisite figures given to these early stages would be deemed almost luxurious if we were not accustomed to this kind of generosity on Mr. Edwards's part. The species is abundant on the Pacific coast, but was first raised in West Virginia from eggs sent the author from California, and we now know its history better than any species of the genus is known in Europe. Two forms, distinguishable by slight differences in the intensity of the markings, have long been regarded as one and the same species; but it was reserved to Mr. Edwards to prove by his precise experiments that the two were seasonally dimorphic forms of one and the same species, the darker giving birth the same summer to the lighter. We wish that this work, so great a credit to American science and American art, were better supported, and not published at so heavy an expense to its indefatigable author. It is in fact superior, both in matter and in execution, to any thing which is done abroad, and ought to receive ample support at home. Yet we chance to know that nearly forty per cent of the regular subscribers to the work come from outside of the United States. This shows, indeed, its appreciation in other countries; but it is a kind of work which should be found in every considerable library of the country, as a stimulus and an aid to workers young and old, and to show what one man, remote from associates, libraries, and even from much of his own field of work, may accomplish therein.

— Gardiner G. Hubbard, C. E. Dutton, O. H. Tittman, J. H. Gore, C. H. Merriam, J. R. Bartlett, R. Birnie, jun., J. W. Powell, Henry Gannett, A. H. Thompson, A. W. Greely, Henry Mitchell, George Kennan, Marcus Baker, and Gilbert Thompson, all of Washington, have incorporated the National Geographical Society for a term of one hundred years. Its principal objects are to increase and diffuse geographical knowledge, to publish the transactions of the society, to publish a periodical magazine and other works relating to the science of geography, to dispose of such publications by sale or otherwise, and to acquire a library under the restrictions and regulations to be established by its by-laws. The officers elected for the current year are as follows: president, Gardiner G. Hubbard; vice-presidents, H. G. Ogden (United States Coast and Geodetic Survey), Com. J. R. Bartlett (Hydrographic

Office), Gen. A. W. Greely (chief signal-officer), Dr. C. Hart Merriam (Department of Agriculture), A. H. Thompson (United States Geological Survey); treasurer, C. J. Bell; secretaries, Henry Gannett (United States Geological Survey), George Kennan; managers, Dr. J. C. Welling (president of the Columbian University), W. B. Powell (superintendent of schools, Washington), Capt. Rogers Birnie, jun., U. S. A., W. D. Johnson (United States Geological Survey), Henry Mitchell (United States Coast and Geodetic Survey), Marcus Baker (United States Geological Survey), G. Brown Goode (National Museum), Cleveland Abbe (United States Signal Office).

— 'Little Poems for Little Children' and 'Stories for Little Readers' (Chicago, Interstate Publishing Company) are books of elementary reading for students in primary grades. They are considerably above the average of such books.

LETTERS TO THE EDITOR.

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

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.

A New Meteorite from Texas.

WE have this day received a new entire meteorite from Texas, weighing about two hundred and eighty pounds. It belongs to the class siderolites, although the nickeliferous iron apparent to the naked eye is scarcely more than in some of the aerolites. Olivine is present in great abundance, giving a yellowish-green appearance to the whole mass. A hasty examination also reveals anorthite and a few specks of a bronzy looking metal, which is doubtless noilite. The meteorite was brought to us by one of our assistants, who found it near the south-west bank of the Colorado River, about three miles south-west of La Grange, Fayette County, Tex.: we would therefore suggest the name of 'The La Grange Meteorite' for it. A fuller description, with complete analyses, will be published later. WARD & HOWELL.

Rochester, N.Y., Jan. 31.

Jacobson's 'Higher Ground.'

YOUR notice of 'Higher Ground' in *Science* (x. No. 254) was so kindly, that I hesitate to impose upon your good nature by asking you to devote additional space to the subject. And whatever I may say will not be said in a spirit of controversy.

You approve of manual training in public schools, and you approve of the succession-tax as a means of enabling all children to get the benefit of the schools. Your only question is, Would the proposed succession-tax pay the bill? and your answer is, that it would not.

If a change so great as the one proposed could be made all at once, the proceeds of the succession-tax would not be sufficient to pay the bill. But it would take years and years to bring about so vast a change; and I believe that the proceeds of the succession-tax would be sufficient to pay the bill as fast as the change could be brought about, because wealth is increasing much faster than population. As an illustration of a change to which there is comparatively little opposition, see the length of time it takes for the high-license movement to make its way, — a movement full of good sense, to which, from pecuniary interest only, the liquor-dealers are opposed. What would not the opposition be to the succession-tax movement, and the apparent absurdity of paying people for keeping their children at school?

To say that there were in this country, in 1880, 8,347,731 children of the age in question; and that to pay, at the rates proposed, three-fourths of their number for going to school, would require $919,502,737.50; and that this sum could not be raised by the proposed tax, — is not that very much as if some one had said in 1830, "To do the transportation business of this country, we shall need 140,000 miles of railroad, costing eight thousand millions of dollars, and such a sum could not be raised for such a purpose"?

The money for the railroads has been found, because it has been found that railroads develop and enrich the country; that the money spent for railroads comes back, and comes back a hundred-fold.

The money for the education which I propose will be found when the people shall become convinced, that, invested in improving the brains of the people, — the motive power of all motive powers, — it will be more profitable than money invested in railroads or in any other enterprise whatever; that the money spent will come back, and come back a hundred-fold.

If in 1830 any one had predicted that in 1888 we should have our present mileage of railroads at its present cost to the country, he would have been laughed to scorn, because such an expenditure for highways must then have appeared absurd to the average man. But we spend all this money for highways, and thrive by it.

The figures in 'Higher Ground' are only tentative, re-adjustable at every point. Any public body into whose hands the practical working should fall would of course cut its garment according to the cloth on hand. My proposition is, that children shall be paid for going to school from twelve to twenty years of age, and that the amount to be paid for the eight years shall be $1,200. But if only money enough could be raised to keep them at school till eighteen, then the pay must cease at eighteen. That would require, in all, only $575 for each child. If at first only enough could be raised to keep the children at school till sixteen, then sixteen must be the limit. That would require, for the four years of each child, only $250. Even then the gain of the people in intelligence and efficiency would be immense, and the expense for the four years would be $250 only, instead of $1,200 for the eight years.

My proposition is, that all children from twelve to twenty years of age shall be paid for going to school substantially what they could earn out of school: at the age of twelve to thirteen, $50; thirteen to fourteen, $75; fourteen to fifteen, $100; fifteen to sixteen, $125; sixteen to seventeen, $150; seventeen to eighteen, $175; eighteen to nineteen, $225; nineteen to twenty, $300.

This, I think, would keep the children at school, and we should have an intelligent and efficient population, such as the world has never yet seen. Perhaps a trifle less annually would keep the children at school. I should be in favor of the smallest amount possible that would accomplish the object. But of course this could not begin all at once all over the country. If the proposition shall ever be carried out anywhere, it would take years and years after the beginning before all parts of the country would adopt it. All the children would not go. Wealthy people would still prefer to send their children to private schools; perhaps some Catholics, not many, would persuade themselves that the supposed interests of their children in the next world demand their absence from the American public school; and there are perhaps people among us so shiftless or degraded that they would not send their children to school, no matter what the inducement.

It is not necessary that I should be able to show that we could to-day provide for a state of things which can only be brought about after years of agitation. The state of things which I advocate can only come about gradually. The people will have to be convinced. Schoolhouses will have to be multiplied, and these things can only be done slowly and gradually, That the tax would be sufficient to begin with in large cities, there can be no doubt; and, as wealth increases more rapidly than population, the proceeds of the tax would tend constantly to come nearer being sufficient than it would be to begin with. In discussing matters of taxation, the *Chicago Tribune* said a few days ago that there are five hundred millionnaires in New York City: there were probably not fifty millionnaires in New York twenty years ago. There are probably one hundred millionnaires in Chicago to-day: twenty years ago there were not five. Smaller fortunes are increasing in proportion. Wealth is increasing much more rapidly than population.

No man can tell what the succession-tax would yield: it can only be found out by experiment. Did we not lower the tariff in 1883 to decrease the surplus, and then find that we had a steadily increasing surplus? I do not pretend to be able to calculate what the succession-tax would yield in the whole country, nor in any one state or city. On p. 44 of 'Higher Ground' I gave it as an estimate that the tax would yield annually from three to six millions in Chicago, and from twenty to fifty millions in New York. To this estimate I still adhere. The many large estates falling in from