cates have been found. The ore bodies have been developed by numerous cuts, drifts, shafts, and quarries, all of which are in ore that in bulk contains five per cent of nickel. Some two thousand tons of this class of ore are now on the various dumps. No works have yet been erected for treating the ore, but it is confidently expected that the year 1888 will see this inaugurated.

"A specimen of the unaltered country rock from Nickel Mountain was determined by Mr. George P. Merrill, of the National Museum at Washington, as chiefly olivine, with a mineral of the pyroxene group, probably bronzite. The nickel silicates found near Webster, Jackson County, N.C., are the result of the decomposition of an olivine rock, and the occurrence in southern Oregon can be similarly explained. The association with chrome ores adds to the analogy between the two occurrences.

"Lately Professor F. W. Clarke has further substantiated the view advanced by Mr. Biddle as to the genesis of these silicates of nickel, and has extended the comparison to the silicates from New Caledonia."

Fossil Wood.

In a paper read before the Biological Society, Washington, F. H. Knowlton comes to the conclusion that the fossil wood of the Potomac formation is all coniferous. It exists under two different conditions; viz., as a silicified wood, and as lignite, which, owing to the great pressure to which it has been subjected, is much metamorphosed and distorted, and is incapable of specific determination. The former, very perfectly preserved, belongs to two genera, — *Cupressinoxylon*, with four species; and *Araucarioxlon*, with a single species.

National Geographic Society.

The National Geographic Society held its annual meeting for election of officers, presentation of reports, etc., on Friday evening, Dec. 28. The secretaries and treasurer presented their annual reports, and officers were elected for the year 1889 as follows: president, Gardiner G. Hubbard; vice-presidents, H. G. Ogden, G. L. Dyer, A. W. Greely, C. Hart Merriam, A. H. Thompson; treasurer, C. J. Bell; secretaries, Henry Gannett, George Kennan; board of managers, Cleveland Abbe, Marcus Baker, Rogers Birnie, jun., G. Brown Goode, C. A. Kenaston, W. B. Powell, O. H. Tittmann, J. C. Welling.

Philosophical Society.

The Philosophical Society, Washington, elected its annual officers as follows: president, J. R. Eastman; vice-presidents, C. E. Dutton, G. K. Gilbert, G. Brown Goode, H. H. Bates; treasurer, Robert Fletcher; secretaries, W. C. Winlock, J. S. Diller; members at large of the general committee, W. H. Dall, J. H. Kidder, H. M. Paul, F. W. Clarke, C. V. Riley, R. S. Woodward, L. F. Ward, G. W. Hill, Marcus Baker.

COMMERCIAL GEOGRAPHY.

The Iron Industry in the Southern States.

IN the "Report on the Mineral Resources of the United States for 1887," recently issued by the United States Geological Survey, James M. Swank gives an interesting report of the recent rapid growth of the Southern iron industry. The activity which was so conspicuous in the latter half of 1885 and in 1886 was continued in 1887 and during the first half of 1888. This activity has been chiefly displayed in the erection of blast-furnaces for the manufacture of pig-iron.

Since the beginning of 1886 there have been built in the States south of the Potomac and the Ohio Rivers twenty-one large and well-equipped furnaces, and fourteen furnaces were in course of erection in those States on July 1, 1888. The total number of furnaces which were in blast on that date, not including those of Missouri, was 109.

There was much comment in Southern newspapers concerning the probable scarcity of a supply of good coke for the new southern furnaces, and the prediction was freely made that some of the new furnaces would be compelled to remain idle until new coal-fields could be found, or fields already discovered could be developed. With the lapse of time it has been found that the supply of good coke from Southern coal-fields has fairly, if not entirely, kept pace with the increasing demand for this fuel for furnace use. New coke-ovens have been built in connection with newly opened coal-mines, and the quality of coke obtained from the coal of some of the older mines has been improved by more careful methods of selecting the coal and making the coke. There is particularly no longer any apprehension of a scarcity of coke for the supply of the furnaces at Birmingham and in its vicinity. A great portion of the supply is furnished from the New River coal-field in West Virginia, and the Pocahontas coal-field in Virginia. The coke from these fields has been shipped to Carondelet, Mo., and Chicago, at which places it has been used in blast-furnaces in competition with Connellsville coke.

The future of the iron industry of the South appears very promising, as there are certain advantages which other parts of the United States do not enjoy. In Alabama and Tennessee, ores and fuel are found in close proximity, and unskilled labor is cheaper than in the North; but, on the other hand, much of the pig-iron made in these States must be hauled to distant markets at great expense. In fact, no section of our country possesses a monopoly of all the advantages for producing iron and steel. Pittsburgh has natural gas for its rolling-mills and steel-works, and is close to the Connellsville coke-field, but it brings its ores long distances. Chicago is nearer than Pittsburgh to Lake Superior ores; but it is hundreds of miles away from Connellsville coke, and it lacks natural gas as a substitute for raw bituminous coal. In New England but little iron and steel in their crude forms are now made, but the skill in their manipulation which has been accumulated in two hundred years yet remains. The iron industry of the Rocky Mountain region will always have the stimulus of a home market remote from destructive competition. There is room in almost every section of this great country for the iron and steel industries, which have in later years been so wonderfully developed, and which are destined to expand still further.

FRENCH KONGO. — In order to develop the resources of the French Kongo, it has been proposed to establish a line of steamers running between some French port, Senegambia, and Gabun-Kongo. It is estimated that the line will require an annual subsidy of $140,000. While the Marseilles Geographical Society indorses this scheme, Lieut. Mizon, who spent many years in the interior of the colony, and to whom we owe our present knowledge of its topography, opposes it, on the ground that the trade of the colony is unable to sustain an additional line of steamers. His remarks show that the French Kongo has developed very slowly since 1870. In that year the colony embraced the Bay of Gabun and the delta of the Ogowe. Its trade amounted to $500,000 annually. In the following years it did not increase; but, after De Brazza's exploration of the upper Ogowe, more caoutchouc and ivory were shipped. At the same time, however, the trade in dye-woods, ebony, and wax, declined on account of the devastation of the forests. The total amount of import and export in 1882 was estimated at about $2,000,000. Since that time it has not increased. This trade is principally in the hands of an English and a German house, who have regular lines calling in all ports of any importance between Madeira and the mouth of the Kongo; and even to them the produce of the Gabun is of little importance as compared to that of other parts of the coast. The slowness of progress in the French Kongo is principally attributed to the lack of communication with the interior and the absence of factories on the head waters of the rivers. The resources of the interior must be developed, and the natives induced to sell their goods to trading-posts in the interior, which will thus be able to collect enough valuable cargo to make the trade between Europe and Gabun more remunerative. Lieut. Mizon's considerations are of special interest when compared to the actions of the Belgian Company trading with the upper Kongo. The latter concentrates all its energies upon the establishment of good communication with the upper Kongo, and to a systematic exploration of the commercial products of that region. Undoubtedly its endeavors will finally result in producing a remunerative traffic between the remote regions of Central Africa and Europe.

BOOK-REVIEWS.

Favorite Authors for Children. By Mrs. FRANCES A. HUMPHREY. Chicago and Boston, Interstate Publ. Co. 16°.

THIS little book contains brief sketches of certain authors who have written more or less for young people, though only a few of

them have made a specialty of such writing. They are twelve in number, some of them still living, while others are dead, and all are Americans. Mrs. Humphrey's object in writing the book has been to give children some idea of the authors themselves as men and women rather than to criticise or describe their writings. Only a few of their more popular works are noticed at much length, the rest being merely mentioned; but many interesting anecdotes of the authors themselves are related, and all in a style that young readers will not only understand, but enjoy. Some of the authors, such as Longfellow, Bryant, Holmes, and Mrs. Stowe, are quite widely known, while others have a narrower reputation; but an author's capacity as a writer for children is not to be measured by his success in other directions. It is evident, too, that the fashion in children's books varies from age to age; for those here noticed are quite different from the Rollo books and the writings of "Peter Parley," which were in vogue forty years ago. Mrs. Humphrey's book gives portraits of all the authors mentioned, which will add greatly to its attractiveness for children; and they will perhaps wish that she had added her own to the list.

Eating for Strength; or, Food and Diet in their Relation to Health and Work. By M. L. HOLBROOK, M.D. New York, M. L. Holbrook & Co. 12°.

IN this volume of only 236 pages, the author has discussed a great variety of subjects. He has attempted to combine so much of physiology as concerns digestion with a practical cook-book, and has added a chapter on the alimentary products of the vegetable kingdom. This is one of the books which, so far as we can judge, supplies no want, and its *raison d'être* is inexplicable. The physiology of digestion is much better described in all the school physiologies, and the recipes for the kitchen contain nothing that is especially new or valuable. The composition of the volume is careless, singular verbs frequently being called upon to do duty for a plural subject. There are portions of the book from which teachers could select admirable examples of how sentences should *not* be constructed. We select one of these as an illustration: "After the stomach has done all it can in the way of digesting the albuminous matter in our food, it is passed through the pyloric orifice at its end into the duodenum, in an acid condition." We do not blame the stomach for being in an acid condition, if, after having done its full digestive duty, it is passed through the pyloric orifice into the duodenum. Such treatment would be apt to "sour" the most patient organ in the body; and even the stomach, which has the reputation of being "long-suffering," might justly display its displeasure if called upon to suffer this distortion but once, and much more if asked to do it three times a day throughout a natural lifetime. Other examples of careless composition might be mentioned, but they would add nothing to the one we have selected.

The author's chemistry is equally faulty with his composition. In speaking of the carbo-hydrates, he says that they are called "carbo-hydrates" because chemically composed of carbon and water, and then follows with the remarkable statement that the chemical formula of cane-sugar is, carbon, 12; hydrogen, 11; oxygen, 11; and that of grape-sugar, carbon, 12; hydrogen, 12; and oxygen, 12.

Taken as a whole, this book is one we not only cannot recommend, but which we deem it our duty to condemn.

A Grammar of the Latin Language for the Use of Schools and Colleges. By E. A. ANDREWS and S. STODDARD. Revised by Henry Preble. Boston, Houghton, Mifflin, & Co. 12°. $1.12.

IN the thirty years since this grammar was last revised, opinions have changed somewhat as to what the contents of such a book should be, and how they should be presented. The reviser has consequently found himself driven further and further from the earlier form of the grammar, and has moulded his materials into a form corresponding better with the present state of Latin philology. Most of the old paradigms have been retained, and others have been added. In the case of the regular verb, the four conjugations are printed side by side, so that they are more easily seen to be really varieties of one conjugation, and their forms are more easily implanted in the memory than when learned in four isolated groups. Many of the old examples also remain, and some new ones have been introduced.

The general sequence of topics has not been greatly altered, the most important changes being the following: The sections treating of word-formation have been gathered into one place, instead of being distributed among the different parts of speech in connection with their inflection; and the treatment of word-formation is made more effective by giving the pupil some insight into the processes of the growth of words instead of merely classifying derivatives according to their apparent endings. The treatment of adverbs (except their comparison), prepositions, and other particles, has been transferred partly to "Word-Formation," and partly to "Syntax." The rules of quantity have been brought into the early part of the book instead of being relegated to "Versification;" and, while the rules of agreement for adjectives and pronouns remain in their old place at the beginning of "Syntax," the rest of the syntax of such words has been postponed till after the treatment of the cases, in order to secure a more natural progression in the study of syntactic details. On account of the necessary introduction of new matter, no attempt has been made to retain the old numbering of the sections; and the book is divided only into sections and sub-sections, with occasional notes; the three kinds of divisions being distinguished by type of different sizes, the main sections sometimes consisting of two or three numbered paragraphs. This arrangement allows a most detailed reference without the use of long or complicated indications. In the matter of pronunciation the reviser makes no reference to what is known as the English method, for the reason, he says, that "the time seems ripe for sparing the teacher the necessity of choosing between a system accepted by the scholarly world as substantially correct, and one which, though still somewhat sheltered by a conservative tradition, makes the mastery of quantity and even of word-formation unnecessarily difficult.

The third declension is made less of a stumbling-block to young learners by grouping the consonant-stems simply according to their behavior toward the letter *s*, and by presenting the *i*-stems in a progressive series, showing different stages in the absorption of consonant-stem forms. Examples in the use of the subjunctive mood have been supplied with unusual copiousness, in the belief that the contemplation of examples is the surest way to acquire a feeling for the subtle differences between the subjunctive and the indicative. The reviser has evidently tried to keep in mind the needs of the beginner, and, when it has been necessary to introduce the results of modern philological research, they are stated as simply and definitively as possible. At the same time the more advanced pupil is furnished with all that is essential to his work, both at school and in college, until the time when an exhaustive grammar becomes a necessity to him. The more difficult topics are treated in such a way as to be clear, while leaving as little as possible to be unlearned when the pupil's study becomes more mature and scientific. Thus, among many things, the growing custom of German scholars in abandoning the character *j* is followed, while the distinction between *u* and *v* is retained.

The exclusion from the present edition of a mass of details, such as rare exceptions to rules and small irregularities in the linguistic usage of the less-known Latin writers, has failed to reduce the size of the book, because of the improvement in the size of the type which the publishers have been good enough to make. The large type, clear print, good paper, and neat binding make as good a setting as the learned reviser could desire for the result of his labors.

Modern Heliographic Processes. By ERNST LIETZE. New York, Van Nostrand. 8°.

THE present book had its origin in a lecture delivered by the author in 1885. On being requested to publish this lecture in the form of a pamphlet, the author extended his studies and researches, compiling the numerous recipes and suggestions scattered in journals and books, and ascertaining their value. The book is intended for the use of engineers and draughtsmen, who are so frequently in need of a good process for reproducing their drawings. After a brief theoretical introduction on the chemical and physical action of light, the author classifies the processes as processes with salts