

less area, it is shown more clearly that the marginal phenomena confirm Professor Chamberlin's previously published classification of the quaternary epochs. He recognizes (1) an earlier glacial epoch, in which two successive ice-sheets were separated by an interglacial period sufficiently marked to permit the growth of vegetation over the surface; (2) a prolonged interglacial epoch, during which the land was elevated to the extent of eight hundred to one thousand feet, and again forest-clad; (3) a later glacial epoch, during which the great terminal moraine was formed, while subordinate moraines and vegetal deposits testify to repeated recessions and advances of the ice; (4) the Champlain epoch, during which marine and lacustrine deposits were formed; (5) the terrace epoch, when the streams carved the flood-plains of the Champlain epoch into terraces.

The origin of the driftless area is found in the fact that the elevated land lying north-east of it must have acted as a wedge to divide the ice, while the diverging troughs of Lake Superior and Lake Michigan tended to prevent the streams from re-uniting immediately south of the obstruction. Climatic influences also probably played an important part in staying the progress of the ice which was advancing directly toward the driftless area. In the language of the authors, diverted by highlands, led away by valleys, consumed by wastage where weak, self-perpetuated where strong, the fingers of the *mer de glace* closed around the ancient Jardin of the Upper Mississippi valley, but failed to close upon it.

A History of Elizabethan Literature. By GEORGE SAINTSBURY. New York, Macmillan. 12°. \$1.75.

THIS book forms the second part of a general history of English literature from the earliest period to the present day. The whole work will be completed in four volumes, by four different writers, each specially qualified for his individual task. Mr. Saintsbury has been for many years an enthusiastic student of the period of which he treats, and he here gives the main results of his studies in a clear and well-ordered form. He wisely confines himself in the main to the purely literary aspects of his subject, with much less attention to biography and bibliography than some writers would give. He allows considerable space to the minor writers, a knowledge of whom he thinks essential to a correct understanding of the period. His enthusiasm for his subject is almost unbounded, and some readers will think it excessive. He styles the Elizabethan era "the greatest period in the greatest literature of the world," and seems too little aware of its defects. His admiration for Shakspeare is carried to the verge of idolatry, and he does not appear to see any faults at all in him.

Spenser he esteems almost as highly, and thinks the 'Faërie Queen' the greatest poem in the English language. With regard to the forms of poetry, he maintains that "every English metre since Chaucer at least can be scanned, within the proper limits, according to the strictest rules of classical prosody,"—an opinion with which very few persons will agree. The greater part of the book is of course devoted to the writers of verse, yet the prose writers are treated with sufficient fulness. Bacon, in Mr. Saintsbury's opinion, was more of a rhetorician than a philosopher, and might better have gone into the Church than into politics. Hobbes is spoken of as the first prose writer whose style is clear and uninvolved; while the general style of the period is well characterized in the remark, that at that time "the sense of proportion and order in prose composition was not born." Mr. Saintsbury's work, notwithstanding some defects, will be valuable both to the student and to the general reader; and, if the other volumes of the series are equally well done, the whole work will be the standard history of English literature.

Hegel's Philosophy of the State and of History. By GEORGE S. MORRIS. Chicago, Griggs & Co. 16°.

THIS book is the sixth in the series of philosophical classics now in course of publication under the editorial supervision of Professor Morris. It gives in a brief, by no means superficial form the theories of Hegel on the constitution of the state and of civil society, and also on the philosophy of history. Hegel's terminology is so strange to the English reader, and his processes of thought often so obscure, that it is not an easy task to make his meaning plain and comprehensible, but Professor Morris has succeeded in doing this as well

as could be expected. The theory of the state which the German philosopher has given is not in all respects such as the people of a free country are likely to accept. He repudiates the intention of describing an ideal state, such as Plato and others have dreamed of, and he has little respect, apparently, for such attempts on the part of others; yet it is not difficult to see that a constitutional monarchy is in his eyes, if not an ideal state, at least the most perfect type that has yet been devised. He divides the powers of government into three classes,—the legislative power, the executive power, and the power of ultimate decision, which properly resides in the monarch alone. He is strongly in favor of a representative assembly to take part in legislation, but he regards with great distrust the influence of public opinion, which is the inevitable consequence of representation. On the subject of war, Hegel is not in accord with the peacemakers, his view being that "war is to nations what wind is to the sea,—it preserves them from stagnation and putrescence."

On the subject of history the views of Hegel are in some respects a little behind the age, owing partly to the new theories of development which now prevail, and partly to the discovery and interpretation since his time of the ancient records of Egypt and Assyria. Still his theories are well worth pondering. He holds that history as a whole is "the development of the conception of freedom,"—a remark that seems to apply rather too exclusively to mere political history. He passes in review the history of the leading nations, briefly characterizing the civilization of each, and showing the connection of them all with the life of modern Europe. In the course of this exposition he has many interesting observations on special points which we should be glad to quote if space permitted, but we must content ourselves with recommending our readers to look them out for themselves.

NOTES AND NEWS.

IN compliance with what seems to be a wide-spread desire on the part of the geologists of America, a few have united in an effort to establish an American journal devoted to geology and its allied sciences. The subscription price is three dollars per year, and the place of issue for the present is Minneapolis, Minn., where correspondence should be addressed to *The American Geologist*. From all geologists the editors solicit original contributions and items of scientific news. The editors and publishers, for the year beginning Jan. 1, 1888, are as follows: Prof. S. Calvin, Iowa City, Io.; Prof. E. W. Claypole, Akron, O.; Dr. Persifor Frazer, Philadelphia, Penn.; Prof. L. E. Hicks, Lincoln, Neb.; Mr. E. O. Ulrich, Newport, Ky.; Dr. A. Winchell, Ann Arbor, Mich.; Prof. N. H. Winchell, Minneapolis, Minn.

—A company has been incorporated for building a railroad from Winnipeg to Fort Simpson, British Columbia, crossing the Rocky Mountains by way of the Peace River Pass. This is one of the routes surveyed by the Canadian Pacific Railroad. It was recommended, as the distance from Fort Simpson to eastern Asia is still shorter than that from Vancouver. Part of the country through which this road would pass is suitable for agricultural purposes. The charter compels the incorporation to build at least fifty miles each year, the whole distance being a little more than sixteen hundred miles.

—The second number of the bibliographies of Indian languages by James C. Pilling has just been issued by the Bureau of Ethnology. It treats of the Siouan stock. The plan of this bibliography is the same as the one followed in the 'Bibliography of the Eskimo Language,' which was referred to in No. 235 of *Science*. The dictionary plan has been followed to its extreme limit, the subject and tribal indexes, references to libraries, etc., being included in one alphabetic series. The arrangement is excellent, and makes the bibliography very handy for use.

—The Pennsylvania State College Agricultural Experiment Station was established by vote of the trustees June 30, 1887, in accordance with the provisions of the Hatch act, and will continue and greatly enlarge the experimental work of past years. It investigates such subjects as are of immediate importance to the farmer of the State, and publishes the results in reports and bulletins, which are distrib-