While in 1883 and 1884 a great number of flat icebergs, most of which were the scattered remains of one enormous berg, filled the Sound and the neighboring parts of Davis Strait, this form was not observed during the last years; all bergs, with one single exception, being very high and pointed.

The ice-chart of Cumberland Sound, which accompanies these notes, has been compiled from observations made by F. Boas in the winter of 1883–84, and from reports of American and Scottish whalers. The edge of the floe as indicated on the map shows the greatest extent of the ice in each year, which is attained about the end of February. Besides this, the water-holes, which are kept open throughout the winter by swift-running tides, are indicated on the map, and so are the places where the ice is worn through by the currents in March and April.

BRITISH COLUMBIA. — Dr. G. M. Dawson has kindly sent us a more detailed account of his work in British Columbia. Leaving Victoria early in May, the expedition reached Fort Wrangel, from which point they proceeded up the Stikine River to Cassian. The expedition consisted of two branches, Dr. Dawson leading the geological department, while Mr. W. Ogilvie made an instrumental survey of the country, on behalf of the Dominion Land Office. His surveys extend from the seacoast by way of the Lewis River, up the Yukon to the 141st meridian, which constitutes the eastern boundary of Alaska, and his measurements will serve as a basis for further work in the district. The object of Dr. Dawson's researches was a thorough exploration of the tributaries of the upper Yukon. Messrs. R. G. McConnell and James McEvoy were his special assistants. His party proceeded up the Stikine River as far as Dease Lake, where they built three boats. As soon as the ice broke up and left the lake, which was on the 18th of June, later than it ever has been known, they went down the Dease River and into the forks of the Dease and Liard Rivers. Here Mr. McConnell separated from the rest of the party for the purpose of descending and surveying the Liard and the Mackenzie Rivers. Dawson went up the Liard and Frances Rivers to Francis Lake, which drains into the Liard, and not into the Pelly River, as shown in most maps of that country. From Francis Lake, the party crossed a difficult portage of about fifty miles to the Pelly River. From here Dawson sent back the five Indians who had accompanied him from the coast, and then proceeded down the Pelly River, accompanied by Mr. McEvoy and Messrs. Lewis and Johnston of Victoria, in a small canvas boat which they had built on reaching Pelly River. At the confluence of the Pelly and Lewis Rivers, Mr. Ogilvie and his party were met. After whipsawing the lumber and building another boat for the purpose, the Dawson party ascended the Lewis River, which Mr. Ogilvie had already surveyed instrumentally. A geological survey of the country along the Lewis River was made. Then the party crossed the Chilcat portage to the head of Lynn Canal, and came by canoe to Juneau, where, after waiting for a few days, the steamer 'Ancon' was taken for Victoria. Mr. Ogilvie, in separating from the rest of the party, continued down the Yukon River, prosecuting his survey. He intends wintering on that river, and resuming his work in the spring, continuing it over to the Mackenzie River. He will return next fall to Winnipeg by way of that stream and the Hudson Bay Company's route to Carlton on the Saskatchewan. Mr. McConnell will probably winter at Fort Simpson, on the Mackenzie River, and continue his explorations from that point next summer.

BOOK-REVIEWS.

Our Heredity from God, consisting of Lectures on Evolution. By E. P. POWELL. New York, Appleton. 12°.

WE have not yet recovered from the re-adjustment of the views of life brought about by the new knowledge which the movement of which Darwin is the centre has accumulated. From the very first, the notion of evolution was most strongly opposed, because it was antagonistic to certain widely spread but in no way verified beliefs. As the facts in favor of a derivative theory became more complete and the theory more invincible, a shifting of the 'theologist's' position took place. Some held that evolution simply described a method, but in no way removed the necessity of an anterior cause; others attempted a twisted and allegorical interpretation of the authoritative beliefs so as to minimize the antagonism between them and the doctrines of evolution; but in every direction, and without regard to the final outcome, evolution has introduced into ethical discussion a healthy ferment, the fruits of which the next generation will appreciate even more than the 'liberals' of this. The variability of moral codes and their close interdependence with the environment and thought-habits of different peoples have been emphasized; and the too dogmatically asserted connection between moral actions and religious rites and beliefs has been broken through. That among the products of this violent fermentation should be found much that is analogous to waste-matter is not striking. Truth-loving disciples of science do not hesitate to admit that some of their over-ardent brethren have overstepped the lines of strict validity in claiming for evolution the solution of many of the vexed world-problems of mankind. The very fact that this aggressive kind of writing has been taken up by the lower ranks of evolutionists, while its leaders have rather acted upon a policy of reserve and awaited developments, makes it easy to admit that one does not always open a book treating the moral aspects of evolution with an anticipation of pleasure or instruction. Mr. Powell's book is both deeply interesting and scientifically valuable.

'Our Heredity from God' is a poor title; not only because the author uses the term 'God' in an unusual sense, but because the book is really a study of evolution with special reference to its moral and religious bearings. Mr. Powell avows himself a disbeliever in any personal deity, and is among that ever-increasing body of thinkers who draw their enthusiasm and inspiration from a contemplation of the vastly suggestive generalizations of science, and the deep significance of a natural morality. The author has not inherited this position, but has worked his way to it through a period of traditional sectarianism; and this leaves its mark in the many references to the biblical cosmogony. It may well be questioned whether it is still worth while antagonizing this biblical account of genesis as though it posed as a scientific explanation (which its truest admirers never claimed). With this exception, Mr. Powell is content to let the facts speak for themselves, simply placing them in such a light that their ethical import may be reflected, and adding to the exposition a depth of natural feeling that leads to an admiration of the man. Science is certainly not as cold as she is often pictured to be. It is impossible to give even in outline a sketch of the long and accumulative argument by which the moral beauty and religious satisfaction of the evolutionary aspect of nature is unfolded in Mr. Powell's mind. All that can be done is to cite a few sentences which shall at the same time illustrate the attractive style and happy suggestiveness that make the pages readable. What Mr. Powell means by the title of his book may perhaps be gathered from these words: "The hypothesis of evolution opens our eyes to the magnificent panorama of an eternal unfolding of relations of life, full of purposive love, which rising from the vast unfathomableness of the sentient universe, at last lifts us as conscious beings near to the heart of the Supreme All in All; and with Him, and in Him, and by Him, bid us consciously to live, and move, and have our being. This I call our heredity from God. To trace our descent from animal progenitors is but a fraction of the problem: the longer sweep of vision beholds an ancestry that embraces all life and all purposive being."

The author holds that the widest gap is not between man and the animals, but between savage and civilized man: he adores civilization as man's handiwork, and regards as most immoral all that hinders its progress. Many of the notions associated with religious doctrines are thus condemned and fearlessly denounced. The view, however, is broad enough to see in many such beliefs stages of ethical development. They are denounced, not because they never formed an advance step in moral evolution, but because they cease to do so any longer. Contrasting, thus, man's present with his past history, — still epitomized in the early stages of each one of us, — Mr. Powell sees a glorious future, when the development of ethical notions, now barely dreamt of, will be wide-spread, in accordance with the sound ethical nature of the universe.

Among the sentences worth repeating for their own sake are the following: "Suspension of judgment is another faculty that is steadily becoming the common property of mankind. It is a growing power, under civilization, to hold the mind in hand, to restrain it by

ascertained laws." "All religions, all philosophies, all parties, have sought to establish an eternal camp at some mile-stone of progress, but all have failed. It is difficult to grasp the full force of this idea — the individual. . . . Men of lower races are much of one pattern. Civilization is an individualizing process; so in turn men of intense character have done most of the propelling that has constituted civilization." "The first need of a plant is precisely the first need of an animal; and that of man is the same. This common need of all life is to find out facts, — facts about what is not itself, — and then to adapt itself to what it finds out." "Nowhere in nature has there been as much parasitic life as among human beings. It takes a large degree of wit to live idly, and off your neighbor's industry. But some vegetables learned to do this before man did it; and many animals have done the same. The result has been degeneration, loss of structure, loss of faculty, and, as a rule, final helplessness and degeneration of the whole being." "But it is not simply at the height of national existence that this impulse for self-preservation responds to the mimicry of lower life. You will observe its operation in our social customs and common propensities; for it is a fact that not any thing is more dreaded or shunned by average human beings than originality, — that is, unlikeness to others. It has always been dangerous. It is even yet likely to secure for its possessor a great deal of annoyance." "Strange views break out all over the globe by apparent spontaneity. . . . Darwin, and Wallace, and Haeckel, without intercommunication, propounded simultaneously the hypothesis of evolution. It is as when three mountain-tops of equal height catch the morning sunbeam at the same moment."

Sixth Annual Report of the United States Geological Survey (1884–85). J. W. POWELL, director. Washington, Government. 4°.

ALTHOUGH on account of the tardy appearance of this volume, for which the management of the survey does not appear to be responsible, the administrative portions have lost some of their freshness and interest, the work as a whole fully sustains the splendid reputation of its predecessors. These annual reports are admirably designed, when promptly issued, to place the Geological Survey *en rapport* with the general public: for they consist of, first, the report of the director, which is devoted to the organization, new features, and general operations of the survey; second, the short administrative reports of the chiefs of divisions, showing in greater detail the progress made in every department of the survey during the year; and third, and most important of all, the scientific papers or monographs completed during the year. The monographs are also published separately, and appear in the annual report *in extenso* or in abstract form, as convenience or their general interest may demand. The bulletins of the survey are shorter but more technical papers, which are not represented in the annual report; the object being to include in this volume only the results of most general interest, with the view of making it a somewhat popular account of the doings of the survey, that it may be widely read by the intelligent people of the country.

The report is accompanied by the following monographs: 'Mount Taylor and the Zuni Plateau,' by Capt. C. E. Dutton; 'Driftless Area of the Upper Mississippi Valley,' by T. C. Chamberlin and R. D. Salisbury; 'The Quantitative Determination of Silver by Means of the Microscope,' by J. S. Curtis; 'Seacoast Swamps of the Eastern United States,' by Prof. N. S. Shaler; 'Synopsis of the Flora of the Laramie Group,' by Prof L. F. Ward.

The last-named paper has already been noticed in the pages of *Science*, and several of the others are of such great importance and general interest as to demand fuller comment than it is possible to accord them in this preliminary notice.

The force of the survey is now, and must be for several years to come, largely devoted to the construction of a topographic map of the United States; and the director's report begins with the plan and progress of this work, and illustrations of the lettering and conventional signs to be used on the map. The scale of the map is approximately one mile, two, or four miles to the inch, according to the character and prospective needs of the country; the map is constructed in contours, with vertical intervals of 10, 20, 50, 100, and 200 feet, varying with the scale of the map and the magnitude of relief features; and, finally, the map is to be engraved in sheets, of which the unit is to be the square degree, i.e., one degree of latitude and one of longitude. An area of 57,508 square miles was surveyed in the year 1884–85, at an average cost of about three dollars per square mile.

The organization of the survey is more fully explained here than in any of the previous reports. Besides the large topographic corps under Mr. Henry Gannett, it includes the following divisions, each chief or head of division being provided with a strong corps of assistants: 1. Glacial geology, in charge of Prof. T. C. Chamberlin; 2. Volcanic geology, in charge of Capt. Clarence E. Dutton; 3. Archæan geology of the Appalachian region, including all the metamorphic or crystalline strata, of whatever age, extending from northern New England to Georgia, in charge of Prof. Raphael Pumpelly; 4. Archæan geology of the Lake Superior region, in charge of Prof. Roland D. Irving (it is not proposed at present to undertake the study of the crystalline schists of the Rocky Mountain region); 5. Areal, structural, and historical geology of the Appalachian region, in charge of Mr. G. K. Gilbert; 6. A thorough topographic and geologic survey of the Yellowstone National Park is in the charge of Mr. Arnold Hague. When the survey is completed, Mr. Hague's field will be extended so as to include a large part of the Rocky Mountain region. The general geologic work relating to the great areas of fossiliferous formations is very imperfectly and incompletely organized, and this must continue to be the case until the topographic survey approaches completion.

The paleontological work of the survey is carried on in five laboratories, as follows: vertebrate fossils, in charge of Prof. O. C. Marsh; invertebrate fossils of quaternary age, in charge of Mr. William H. Dall; invertebrate fossils of cenozoic and mesozoic age, in charge of Dr. C. A. White; invertebrate fossils of paleozoic age, in charge of Mr. C. D. Walcott; and vegetable fossils, in charge of Mr. Lester F. Ward.

The chemical laboratory, with a large corps of chemists, is in charge of Prof. F. W. Clarke. There is a physical laboratory in the survey, with a small corps of men engaged in physical researches of prime importance in geology. A large corps of lithologists is engaged in the microscopic study of rocks. Besides the division of mining statistics, economic geology is represented by two parties, in charge of Mr. George F. Becker and Mr. S. F. Emmons, engaged in studying various mining districts in the West.

The survey also comprises a division, in charge of Mr. W. H. Holmes, organized for the purpose of preparing illustrations for paleontologic and geologic reports. Illustrations will not hereafter be used for embellishment, and, so far as possible, will be prepared by relief methods, and held permanently for the use of the public at large in scientific periodicals, text-books, etc. The large geologic library and the bibliographic work of the survey are in charge of Mr. C. C. Darwin.

The remaining topics discussed by the director are the publications, appointments, and finances of the survey, and the relations of the Government and State surveys.

Elementary Text-Book of Physics. By Profs. W. A. ANTHONY and C. F. BRACKETT. 3d ed. New York, Wiley. 8°.

THIS is the first appearance, in a complete form, of a long-expected text-book from two well-known American physicists. It is designed to furnish what is necessary and sufficient for that part of a well-adjusted college course which is devoted to the study of physics, and it is the only college text-book of that science which has appeared in this country for several years, aside from revisions and new editions of old works.

Many institutions have hitherto made use of English books, or of translations from the French which have come to us through English hands. This volume is offered as a substitute for such works, and it is little enough to say that it will be found in general to be a very acceptable one. In some respects the book is almost unique. When compared with those largely in use at the present time, it illustrates in a very striking manner the great progress in college instruction in physics during the past decade.

In its plan there is a distinct recognition of the competent instructor with a well-stocked cabinet at his command. Pictorial representations of apparatus are entirely wanting, and the illustra-