

initiation, and a communion with consecrated cakes of sugar, flour, and butter; while caste distinctions were positively condemned.

It is only an exaggeration to say, that 'the language changes every ten miles;' but two-thirds of the people speak some form of Punjābi; one-fifth, some form of Hindi; one eleventh, Sindhi.

Abstract 63 shows that from 1875 to 1880, inclusive, fifty-six hundred and ten books were published in the Punjāb, only two hundred and twenty-seven of which were in English. This suggests what an extensive literature is yet to be brought to the knowledge of western scholars. An incidental reference indicates that Punjāb pupils learn the multiplication table to one hundred times one hundred.

The migrations and changes by which present conditions have been reached are treated in considerable detail.

This volume is a part of the record of the second effort to gain a complete census of the British dependencies throughout the world, — the first, indeed, which approximated full success. Its treatment of ethnic religions and social facts adds greatly to the available material for western sociologists. Mr. Ibbetson thinks the whole of the types of primitive superstitions in Tylor's 'Primitive culture,' so laboriously gathered from forgotten records, could be illustrated in current customs of Punjāb villages. In the omitted chapters there seems to have been an abstract of the population of all India, not easily restored by one on this side of the globe from diverse provincial reports. Abstract 45 gives the number of those in each ten thousand of the people professing each leading religion for each province of India, and other abstracts give kindred ratios to which one is desirous to add particulars. No summary shows the number of castes, nor are marriage statistics given. While superstitions are detailed for days under English names, we look in vain for a hint of the origin of the Indian Sunday. The complete report would make good some lack in this volume. The text, however, was prepared under great pressure for time, and there is a mass of material in official hands not utilized. There is such an amount of new information furnished, that defects of indexing or of arrangement are secondary, even when the printer sets a couple of pages wrong side up, and arranges tables so that one must often turn the book up side down to read sub-titles. There is, unfortunately, no uniformity in the spelling of oriental words by English officials. Among peculiar spellings here are Quran (the

sacred book of Islām), Musalmán, Mughal or Mongol, Shekh, and Faqir.

GEOLOGICAL AND NATURAL-HISTORY SURVEY OF CANADA.

Reports of progress for 1880-82. ALFRED R. C. SELWYN, director. Montreal, Dawson, 1883. About 200 p., 12 pl., 9 maps. 8°.

This volume is one of the reports of progress of the Canada survey. Like all such preliminary reports of survey work, it is of a varied and somewhat scrappy nature. A report of progress must, in order to justify its name, have some of the valuable, if not diverting, qualities of a log-book.

There is no record of any final or definitely finished work in this account of varied and important labors. This absence of completed work in any part of the vast field of study before the survey will be apt to increase the friction which it now encounters. There is much to say in favor of the reconnaissance system, when a survey is charged with the exploration of such an imperial wilderness as the Dominion of Canada. Special considerations may, and often will, determine the elaborate study of particular districts; but the principal work should be, at least for years, the rapid study of the *areal* geology of the country, including the outlines of its commercial problems. This reconnaissance work seems fairly well carried on by the Canada survey. The reports lack the beauty of finish of the United-States publications; still, they represent the labor of devoted men, who are wrestling with bad food, swamps, and black flies for the most of their days in the field.

The first forty-five pages of this volume are occupied by the general report of the director. We note in it, that the notorious weather-prophet, Mr. Venner, who for many years was employed by the geological survey, had severed his connection with it. There is a good deal of tedious, and little valuable, detail in this synopsis of the survey work. Next we have a brief account of the system of geological nomenclature and map-coloring used by the survey. The system of coloring is convenient and sufficiently graphic; in the nomenclature, the author feels the need of the division Cambro-Silurian, a term that is now pretty well fixed in the science. The third paper, also by the director of the survey, is entitled 'Notes on the geology of the south-eastern portion of the Province of Quebec.' This interesting region contains the gold-bearing

gravels of the Chaudiere valley, which are among the few profitable placer grounds of eastern America. Although but a cursory examination, this study suggests many interesting points for future inquiry. Appended to this report are some notes on the microscopic structure of certain rocks of the Quebec group, by Mr. F. D. Adams. They seem to be careful studies; but, there being no figures of the sections from which the microscopic researches were made, they suggest little comment.

The first of the assistants' reports is that of Dr. G. M. Dawson, on the geology of the Bow and Belly river region, north-west territory. It contains a very interesting account of the coals of the Laramie epoch, which are of exceeding value to the north-western region. Although in its nature a preliminary report, it contains a large amount of valuable detailed information concerning these coals. Although essentially lignites, they are superior to the most of such deposits now in use in Europe. This report is illustrated by several rather coarse lithographs, showing interesting aspects of this district.

The next report is one by Dr. Robert Dell, on the geology of the basin of Moose River and Lake of the Woods, with two heliotypes of scenery, and two maps. This report is of a very preliminary nature. In its nine pages of text, only enough is given to show that the region is full of interesting problems. The accompanying maps show the general distribution of the Laurentian and Huronian rocks, but the information is only a matter of outlines. It has, however, a special economic interest, as it indicates a possibly new gold-field, and, what is perhaps of more importance, a prospect of extensive apatite deposits in this district. Appended to the report is a catalogue of plants and of coleopterous insects, the latter by the late Dr. LeConte. Next there are two considerable reports by Mr. R. W. Ellis, on the geology of northern and eastern New Brunswick, and the north side of the Bay of Chaleurs, and on the geology of the Gaspé peninsula. Both these reports concern very interesting regions, which have previously been described in a general way. In them a great many contributions are given to the general structural, as well as the economical geology, of these districts. There are interesting lists of fossils from the several members of the paleozoic series. We miss the detailed sections which are obtainable in this country, which would have greatly added to the value of the report.

Next there is a report on some of the mines of the Province of Quebec, by Charles W. Willemott. Except the apatite mines of the Gatineau district, these deposits do not seem to have much value. For the apatite deposit, there seems to be a large future. Accounts of the several mines are extremely brief, and have not much economic or scientific value. The volume ends with a report of Mr. G. Christian Hoffman, entitled "Chemical contributions to the geological survey of Canada, from the laboratory of the survey." It consists of about fifty determinations of various substances of presumed economic or scientific interest, with various remarks as to their value in the arts, only one of them of general interest; viz., a careful analysis of the mineral smarskite, newly found in Canada. This branch of the work of the survey has been put out of gear by the removal of the laboratory from Montreal to Ottawa. As a whole, these reports, covering as they do the work of three years, are rather disappointing. The survey has an annual grant of sixty thousand dollars. Much is to be allowed for the difficulties arising from the size and complications of the field with which it deals; still, it seems as if more in the way of definite economic and scientific results should be attained with this liberal expenditure.

NOTES AND NEWS.

WE take the following 'editorial note' from the September number of the *American meteorological journal* as suggesting a simple plan of work in which many non-professional observers might contribute a willing share toward the solution of important problems: "Is it not worth while to consider whether the deficiency of observations on local storms, which makes the determination of their action doubtful, could not be remedied by appointing special days on which hourly or bi-hourly observations should be taken, with additional records at still more frequent intervals when any change in the condition of the air required it? These special days might be on certain pre-arranged dates, 'term days,' so called, when the records would gather up any thing that happened to come along in the passage of the weather; but they would better serve the purpose here in view if they were really specially appointed by the signal-service officers only a day or two before their date. It is evident enough from an inspection of Finley's maps, and from a brief study of summer thunder-storms, that the southern side or south-eastern quadrant of our passing cyclones contains the greatest share of local disturbances. Let the plan be published in advance by circulars and newspaper paragraphs; and then, if, while a cyclone was still beyond the Rocky Moun-