hand are very complete. Full credit will be given for every report received, and quotations will be published from reports containing information of special value.

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.*

The editor will be glad to publish any queries consonant with the character of the journal.

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

On the Geology of Quebec City.

THE researches of Sir William Logan, Mr. Billings, Dr. Sterry Hunt, Dr. Selwyn, Sir William Dawson, Professor James Hall, Professor Emmons, Professor Walcott, Professor Marcou, Dr. Ells, Professor Lapworth, and many others, on the geology of Quebec and its environs, have made that region classic ground to the student of North American geology. The famous Quebec group controversy, as well as its closely related friend the Taconic question in geology and the Lorraine-Hudson River problem, are all involved in the geologic history of Quebec. Much diversity of opinion has existed as to the exact geological position of some of the terranes at and about Quebec City, as also along the whole line of the great Appalachian or St. Lawrence-Champlain fault; and this is not at all astonishing, seeing that profound dislocations exist, intricate foldings of strata occur, and several terranes are met within an exceedingly small area, faulted and folded together in any thing but a simple manner, which require exceedingly detailed and careful examination before satisfactory conclusions are arrived at.

The rocks forming the citadel hill or promontory of Quebec (Cape Diamond) have been assigned to different positions in the geological scale by different writers and at different times. An elaborate review of their views is given in Dr. Ells' last report to Dr. Selwyn (1888), and published by the Geological Survey of Canada, which includes Dr. Bigsby's paper (1827), down to Professor Lapworth's report, etc., published in the "Transactions of the Royal Society of Canada" (1887). These Quebec rocks have been referred by some of the geologists above named to the age of the Quebec group (Levis division), while others, and the majority at present, regard them as newer than the Trenton limestone, viz., being of "Trenton-Utica," "Utica-Hudson," or "Lorraine" age. But before assigning a definite position to the rocks of Quebec City in the scale of terranes in America, it is necessary for the writer to state that so far he has been unable to find any evidence in the field, either stratigraphical or paleontological, whereby the Hudson River rocks and Lorraine shales as originally understood by Emmons could be correlated, and referred to the same or immediately following geologic terrane.

The fauna of the Norman's Kiln shales, that of the Marsouin, of the Tartigo River, Griffin Cove, and Gagnon's Beach rocks, as well as those from Crane Island, south-western point of the Island of Orleans, Quebec City, Etchemin Riviere (between St. Henry and St. Anselme), Drummondville, and other localities in Maine, Vermont, and New York States, form one large assemblage of forms peculiar to one terrane.

The fauna of the Lorraine shales (Cincinnati era) as characterized at Montmorency Falls, Cote Sauvageau, St. Charles Valley, Charlesbourg (near Church, two miles above St. Nicholas), Yamaska River, Riviere des Hurons, and in the undisturbed regions of Ontario (intermediate between the Utica terrane and the base of the Silurian (Upper) epoch), marks another terrane.

These two faunas, I hold, are very distinct, both in their paleontological and stratigraphical relations. The Lorraine terrane (see Dr. Selwyn's classification of formations in Canada, "Index to the Colours and Signs used by the Geological Survey of Canada") has a definite position; viz., at the summit of the Cambro-Silurian or Ordovician system. The strata at Quebec cannot be referred to the Lorraine terrane, nor to the Utica, nor yet to the Trenton or the Black River formation. Sir William Logan referred the Quebec City rocks to the Levis division of Quebec group; and yet the fauna which Mr. Weston and the writer have, along with Mr. Giroux and L'Abbe Laflamme, been able to obtain from the rocks of that locality, contains some forty or fifty species of fossils, including graptolites, brachiopods, ostracods, and trilobites, different from Levis forms, and yet capable of being correlated with forms from a portion of the Quebec group of Logan as described in his Newfoundland section, as also with Cambro-Silurian strata in the Beccaginmic valley of New Brunswick.

To give the precise geological horizon of the strata at Quebec City, I hold, is perhaps premature. They appear, however, to occupy a position in the Ordovician system higher than the Levis formation, being probably an upward extension of that peculiar series of sedimentary strata occurring along the present St. Lawrence valley, and which, owing to the peculiar conditions of deposition and specialized fauna entombed, Sir William Logan advisedly classed together under the term "Quebec group." This would make the rocks at Quebec about equivalent to the Chazy formation of the New York and Ontario divisions.

As to the propriety of retaining the term "Hudson River" group or terrane in geologic nomenclature at present, there may be some doubt. Much confusion exists as to its use. It would very naturally follow, however, that some such designation as the "Quebec terrane" or "Quebec formation" would be most acceptable at this particular juncture, and would include those rocks which constitute the citadel and main portion of Quebec City and other synchronous strata.

In a paper which the writer is now completing for the approaching meeting of the Geological Society of America next month, on the same subject, a more detailed and exhaustive demonstration will be made of the facts now in our possession, whereby to correlate many series of strata hitherto separated, and differentiate others which are by nature unlike. HENRY M. AMI.

Geological Survey of Canada, Ottawa, Nov. 28.

The Education of the Deaf.

POSITIVE evidence is all the world over regarded as of more value than negative testimony; and any one desirous may convince himself that congenital deaf-mutes can be taught to use spoken language correctly by articulation and by writing, without the intervention of any artificial signs, by a pilgrimage to the Institution for the Improved Instruction of Deaf-Mutes, corner of 67th Street and Lexington Avenue, this city; the Clark Institution for the Deaf at Northampton, Mass.; or the Day School for the Deaf, Boston, Mass. Any unbiased individual will come away from such a visit with the firm conviction that some teachers for the deaf have been for the last seventy years working great detriment to the elevation of an unfortunate class of our fellow-beings by preaching the fallacious and utterly untenable doctrine that such an education is an impossibility, and impracticable if possible. B. ENGELSMAN.

New York, Dec. 2.

BOOK-REVIEWS.

Are the Effects of Use and Disuse Inherited? An Examination of the View held by Spencer and Darwin. By WILLIAM PLATT BALL. London and New York, Macmillan. 8°.

THIS book is ultra neo-Darwinistic. Natural selection has achieved every thing, according to the author: the effects of use and disuse are not inherited. "Innumerable modifications in accordance with altered use or disuse, such as the enlarged udders of cows and goats, and the diminished lungs and livers in highly bred animals that take little exercise, can be readily and fully explained as depending on selection. As the fittest for the natural or artificial requirements will be favored, natural or artificial selection may easily enlarge organs that are increasingly used, and economize in those that are less needed. I therefore see no necessity whatever for calling in the aid of use-inheritance, as Darwin does, to account for enlarged udders, or diminished lungs, or the thick arms and thin legs of canoe Indians, or the enlarged chests of mountaineers, or the diminished eyes of moles, or the lost feet of certain beetles, or the reduced wings of logger-headed ducks, or

the prehensile tails of monkeys, or the displaced eyes of soles, or the altered number of teeth in plaice, or the increased fertility of domesticated animals, or the shortened legs and snouts of pigs, or the shortened intestines of tame rabbits, or the lengthened intestines of domestic cats" (pp. 82, 83).

Again: "The inferiority of Europeans, in comparison with savages, in eyesight and in the other senses, is attributed to 'the accumulated and transmitted effect of lessened use during many generations.' But why may we not attribute it to the slackened and diverted action of the natural selection which keeps the senses so keen in some savage races?" (p. 85).

These examples are sufficient to show what standpoint the author takes.

Higher Education of Women in Europe. By HELENE LANGE, Berlin. Tr. by L. R. Klemm. New York, Appleton 12°. $1.25.

WOMEN in Germany, as our readers probably know, are practically excluded from the higher education, and are sparingly employed as teachers even in girls' schools, Germany being in this respect far behind England and America. It is not surprising, therefore, that a book like this should appear from a German woman, pleading the cause of her countrywomen with earnestness and love. It is, moreover, a work of real ability, showing not only a clear conception of what is wanted, but also an equally clear comprehension of the difficulties in the way. The book opens with an account of the provisions recently made for woman's higher education in England, of which the authoress speaks with much enthusiasm. She then touches lightly on women's schools in other European countries, and shows, that, of all nations claiming to be civilized, Germany has done the least for the higher education of its women. In short, no provision whatever is made for it, so that "the German women have to go to foreign countries if they will not forego a higher education."

The argument for giving women access to a university training is based in the main on these two considerations,—that many women need it in order to gain a living by professional work, and that women whose circumstances raise them above want need the means of developing their higher natures, thus enabling them to be more useful in the position they hold. These arguments and others that the authoress uses are familiar to Americans, and it is surprising and almost disgusting to read of the bitter, and we must say unmanly, opposition to women's education that is shown by the men of Germany. It is based on the same considerations that were formerly adduced in England and America, with the addition of the sordid plea, that, if women are admitted to the higher education, men will suffer from their competition in the professions. These arguments are all set aside by the able and temperate discussion in this book, which all persons interested in the subject will like to read. Nothing is said in the original work about women's education in America; but the translator's introduction contains some statistics and other matter relating to the subject, showing how rapid has been its progress in recent years.

Longmans' School Geography for North America. By G. G. CHISHOLM and C. H. LEETE. New York, Longmans, Green, & Co. 12°. $1.25.

Handbook of Commercial Geography. By G. G. CHISHOLM. New York, Longmans, Green, & Co. 8°.

A Smaller Commercial Geography. By G. G. CHISHOLM. New York, Longmans, Green, & Co. 12°. 90 cents.

THE well-known London publishing-house of Longmans Green, & Co. have recently brought out several books on geography to which our particular attention is called. Thornton's "Physiographies" have already been mentioned in our columns. Chisholm's "Geographies" are now before us First comes a general work, entitled "Longmans' School Geography for North America," made over for use in this country from an English edition by Leete. Its peculiar features are, first, the octavo form, from which all maps are omitted, these to be supplied later in "Longmans' new Atlas," an American edition being now in preparation; second, the omission of special accounts of our various States, the whole country being first described in general as to its physical features, and then reviewed by districts with much critical perception of significant geographical details. A good deal of repetition from State to State is thus saved, and the use of such a book might have a real political significance in impressing the essential unity of the country on the minds of the scholars. It may also be said that the explanation of the causes that have led to the locations of cities constitutes a feature of the book, and in many cases an interesting one. The physical introduction in the first sixty pages is not so satisfactory as the rest of the book, being too crowded, and lacking home illustration, this part having no appearance of special adaptation to our schools. The illustrations are generally taken from photographs, and are well selected; but some are not as fresh and sharp-cut as we could wish. The author rightly lays emphasis on the omission of all questions at the end of chapters, and on the avoidance of the paragraph style, which so often results in memorizing instead of in learning. Considering the excellence of our own school geographies, it is a somewhat hazardous experiment for a foreign house to compete with our publishers, and we shall watch with interest to see how far this one of its products finds favor here.

Chisholm has also prepared a "Handbook of Commercial Geography" and a "Smaller Commercial Geography." These are written for English readers without re-editing for this country; but they deserve a welcome from those of our teachers who have the skill to lead their scholars to read outside of their regular text-books. In the present crowded condition of the studies of all our common schools, it is difficult to imagine where time could be found for commercial geography, unless as side-reading; and for this purpose either of the above books may be highly recommended for school libraries. Commercial and business colleges might use them to great advantage as regular text-books. The introductory chapter on commodities and the circumstances which affect their production and carriage will certainly hold the attention of young people, to whom geography has been presented as a live study. The rest of the books is more statistical than is compatible with attractive interest, but it would be a valuable aid in answering the questions that properly taught scholars must often ask.

Warren's New Physical Geography. By W. H. BREWER. Philadelphia, Cowperthwait. f°.

A NEW edition of "Warren's Physical Geography" has been prepared by Professor W. H. Brewer of Yale University. It retains the atlas form so generally used for books of this class, and divides its chapters into short paragraphs directly prepared for the scholars' use, and followed by questions for the teacher. The chief divisions of the book are, the earth as a planet, chemical and geological history of the earth, the land, the water, the atmosphere, organic life, and the United States. The illustrations are generally good, although a greater number of designs appear than is desirable in these days of photographs. The double-page Mercator charts are distinctly printed and colored, showing the conventional series of facts, volcanoes and earthquakes, heights of land and depths of sea, drainage and winds, ocean currents, rainfall, and annual isotherms. The imitation bas-reliefs of the continents are clearly printed, and give only too emphatic an idea of the mountain ranges. The statements of the text are evidently carefully considered, and brought down to date; and we believe that the book as a whole must give satisfaction to those who are satisfied to use any book on physical geography now in existence.

The questions that a review of this work raises do not refer particularly to the book itself, but to its class. If we bear in mind the general quality of the scholars who are to use it, and their easy contentment with facts presented in a direct manner, and also consider the busy life of the teachers, who have no time, or at best very little, to give to the personal teaching that idealists in education desire, then the book must be regarded as satisfactory; but if we consider the intellectual growth of the scholar, and his individual development and training, it may be doubted if any book of this kind can be regarded with approval, because of the necessarily great condensation in the treatment of its varied subjects. Professor Brewer has skilfully avoided as much of this difficulty as any one could; his paragraphs are unusually clear, although