I pass now to the neighbourhood of the St. Gothard. The coarse gneiss, which is pierced by the northern entrance of the great tunnel, ends abruptly at the Urnerloch. The basin of the Urserenthal is excavated from satiny slates, with dark limestones, very possibly of Jurassic age, and from some underlying rather variable schists. The first rock visible on the eastern side as we approach Andermatt is a schistose crystalline limestone, associated with mica schists; and a series of rather variable schists, evidently very different from the coarse gneisses of the gorge below, appears to cross the valley, and form the slopes leading to the Oberalp Pass. These may be traced for some distance up the Furka road above Realp, when they are abruptly succeeded by the slaty group mentioned above. I am convinced that they are much more ancient than the latter, being probably members of the Lustrous Schist group, if not older. It is obvious that the newer rocks are only a fragment of a loop of a huge fold, over which on either hand the fragments of the enveloping older metamorphic rocks tower up in mountain peaks. On the ascent of the St. Gothard Pass from Hospenthal a series of somewhat variable micaceous schists continues till the top of the first step in the ascent is reached, about 800 feet above the valley, when gneiss sets in, generally rather coarse and sometimes very porphyritic, occasionally interbanded with dark, rather friable mica schists. The upper plateau of the pass consists of a porphyritic rock, often called granite, but with a gneissose aspect and rather more friable in character than the rock of the Wasen district. On the first steep descent on the south side this rock appears to pass into a normal coarse gneiss, occasionally banded with mica schist, resembling that in a similar position on the northern flank, which is succeeded for a short space by a remarkably well-banded gneiss. To this succeeds—it must be remembered that the series is inverted in order—the great group of hornblendic and garnetiferous mica schists, which continue along the Val Tremola and the lower slopes of the mountain to the neighbourhood of Airolo, where some calcareous rock occurs, being probably an infold of much later date.

Through the kindness of Mr. Fletcher and Mr. Davis, of the British Museum, I have been allowed to examine the series of specimens from the St. Gothard Tunnel in that collection. They correspond in general with the succession above indicated, except that I have failed to identify the granitoid rock of the summit plateau. Leaving, however, for a moment the question of correlation, we see that the St. Gothard section presents us with an instance of folding on a gigantic scale, and of the fan structure, doubtless with many minor flexures and faults.

In the neighbourhood of the Val Piora we get an important succession. The ascent to the hotel from the Val Bedretto passes in the main over a series of micaceous schists and rather friable gneisses, which are a prolongation of an axis exposed in the mountains south of Airolo and fairly correspond with much of the rock (excepting the granitoid) forming the upper part of the St. Gothard Pass. To this succeeds a series which, though more calcareous, clearly represents the garnetiferous actinolitic series of the southern slopes, and to this a group closely resembling the Lustrous Schists.

(*To be continued.*)

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—The Electors to the Professorship of Pathology will meet for the purpose of electing a Professor on May 24. The stipend of the Professor is 800*l.* a year, exclusive of fees, but he must not engage in the private practice of Medicine or Surgery.

Prof. Macalister lectures to-day on the Race Types of the Human Skull; on Saturday, on the Race Variations of the Skin, Hair, and Soft Parts; and on Tuesday, the 13th, on the Anatomical Characters of the Prehistoric and Early Historic Races of Britain: on each day at 1 p.m.

In the Long Vacation Prof. Macalister will take a Class in Osteology, and the Demonstrator will have a class for Practical Histology.

The new buildings for Prof. Stuart's Museum of Mechanism will be ready to receive their contents this term, and it is recommended that the buildings to provide for the Department of Botany be at once proceeded with, to be ready for use at the beginning of October.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, May 1.—"On the Connection of the Himalaya Snowfall with Dry Winds and Seasons of Drought in India." By Henry F. Blanford, F.R.S.

In this paper the author points out that for some years past it has been suspected that the snowfall of the Himalaya has a direct influence on the dry land winds of North-Western India. The connection of the two was first noticed in 1876 and 1877, the first-named a year of drought and famine in Southern India, the second the same in the North-Western Provinces, Rajputana, and Central India. Messrs. Hill and Archibald, about the same time, called attention to the circumstance that excessive winter rainfall in Northern India is usually followed by defective rains in the summer or monsoon season. This inference is strengthened if the rainfall of May be included in that of the winter and spring instead of in that of the summer, as is shown by a table for the eighteen years from 1864 to 1881 inclusive. Fourteen of these years give results agreeing with Messrs. Hill and Archibald's views, and only four differ from their conclusions: two out of these four, viz. 1876 and 1880, being found on further investigation distinctly to confirm the theory, whilst data are wanting with regard to the other two years.

After some details concerning the meteorology of the area in the years 1881–82, the writer gives a description of the unusual snowfall on the outer ranges of the Himalaya in the spring of 1883, and of the extensive drought in Northern, North-Western, and part of Central India that followed. In this instance a warning forecast of dry weather and retarded rainfall was published in the *Gazette of India* on June 2, and this forecast is shown to have been justified by the event, the rainfall in July and August over large portions of India having been much below the average.

In an account of the meteorology of the land winds it is shown that from November to February they tend to circulate anticyclonically round the axis of maximum pressure, extending from the Punjab and Sind across Rajputana and Central India towards Orissa. In March a barometric minimum is established over the Hyderabad plateau, and this extends to the north and north-east, the wind currents becoming cyclonic around the depression. To the eastward of this area some rain falls in the spring, but Western India from Belgaum to the Punjab is practically rainless from November till May, and is the dry wind area. It is then shown that the supply of air for the dry wind is derived from an upper stratum by convective interchange. After rain and snow on the Himalayas the dry winds are supplemented by an outflow of cold air from the hills accompanied by a wave of high pressure advancing eastward from the valley of the Indus.

The following summary and conclusions are given:—

(1.) The experience of recent years affords many instances of an unusually heavy and especially a late fall of snow on the North-Western Himalaya being followed by a prolonged period of drought on the plains of North-Western and Western India.

(2.) On tabulating the average rainfall of the winter and spring months at the stations of the North-Western Himalaya, year by year, for the last eighteen years, and comparing it with the average rainfall of the North-Western Provinces in the ensuing summer monsoon, it is found that with four exceptions an excessive winter precipitation on the hills is followed by a deficient summer rainfall on the plains, and *vice versâ*. Of the four apparent exceptions, two are found to afford a striking support to the first proposition.

(3.) The west winds which, in Western and Northern India, are characteristic of seasons of drought as abnormal winds, are identical in character with the normal winds of the dry season, and appear to be fed by descending currents from the North-Western Himalaya, and possibly the western mountains generally.

(4.) It is a common and well-known phenomenon of the winter months that a fall of rain and snow on the North-Western Himalaya is immediately followed by a wave of high pressure advancing eastwards from the western mountains, accompanied with dry cool north-west winds.

(5.) The conclusion is that an unusual expanse of snow on the North-Western Himalaya, whether due to the unmelted residue of an unusually copious winter snowfall, or to an unusually late fall in the spring months, acts, at high levels, in the summer months, in somewhat the same way as the ordinary falls of snow and rain on the Lower Himalaya do at low levels in the winter