

Shales, apparently passing upward into the Middle Devonian Slates by the irregular intercalation of grits with slates.

During the progress of the field-work in South Devonshire a large series of specimens, sent up by Mr. Ussher, has been sliced and subjected to microscopic investigation by the petrographer to the Survey, Mr. J. J. H. Teall, F.R.S., who reports that the detailed examination of the rocks from the metamorphic area of South Devon has brought to light the fact that the previously published descriptions of the green varieties of rock were very imperfect. The specimens which have been least altered by surface-agencies consist essentially of hornblende, albite and epidote. In altered specimens hornblende is more or less replaced by chlorite; and when this is the case calcite is usually present. The hornblende is either uralitic or actinolitic in character, never compact. The feldspar is water-clear, and usually without any trace of cleavage or twinning. It has been definitely determined to be albite in one case, and from its uniform character in all the slides examined there can be no doubt that this is the dominant if not the only species present. The association of albite with hornblende, epidote, chlorite and calcite has been described by Lossen in his various papers relating to the modification of the diabases associated with Devonian rocks in the Hartz. Quartz, which had previously been supposed to form an important constituent of these rocks, appears to be comparatively scarce.

*Petrographical Department.*—The important assistance of the petrographical department has again during the past year been largely extended to the field officers, and has greatly aided their work. Mr. Teall, besides the microscopic and chemical work carried on by him in this office, and the determinations and reports made by him for the guidance of the officers in the field, has during the past year undertaken some field-work himself. As he is specially charged with the investigation of the petrography of the Lewisian gneiss—the most ancient rock in the British Isles—it was considered desirable that he should make himself practically familiar with the minutest details of the complex structure of this venerable formation, and for that end should himself map a portion of its area on the six-inch scale. The Island of Rona, lying between Skye and Ross-shire, was selected for him, and he spent nearly two months in mapping it.

With regard to the ordinary work of the department in the office and to the more important scientific results obtained by Mr. Teall during the last few years, he has at my request drawn up a memorandum, from which the following passages are taken:—The principal work of the petrographical department during the year has been the examination and description of specimens sent up by the officers in the field. Of these 492 have been prepared for microscopic examination and have been described in detail. The total number of Scottish rocks from which sections have been cut is now more than 5000. The system of cataloguing has been improved during the year. Each field officer now numbers his specimens consecutively. These specimens are entered in a book under the name of the officer who sends them up, and a record is kept of the destination of each. Those specimens of which sections are prepared are numbered consecutively in the order in which they are cut, and are entered in books kept for the purpose. When they have been described and named they are again entered in two distinct catalogues, one of which is arranged according to the sheets of the one-inch map, and the other according to petrographical types. It will thus be seen that every sliced specimen is entered four times, and that every specimen sent up for examination, whether sliced or not, can at once be found.

On the general question of metamorphism much important detail has been accumulated. The fact that the central and southern Highlands of Scotland are largely composed of highly crystalline rocks of sedimentary origin has long been known. Petrographical work has tended to render the correctness of this view more and more certain. Thus fine-grained quartz-feldspathic rocks, which show no decided indications of elastic origin, have been found to be traversed by narrow dark bands in which minute crystals of zircon, rutile, and ilmenite abound. Similar bands occur in loose sandy deposits of much later geological age, so that the doubtful rock may be recognised as really a sandstone consolidated by the secondary enlargement of the quartz, and possibly also of the feldspar grains. The detailed microscopic work of the department has also thrown much light on the nature of the processes by which the present mineralogical and structural characters of the Highland rocks have been produced.

(To be continued.)

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## UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE results of an inquiry into the position taken by Universities in different parts of the world as regards the admission of women, are given in the *Revue Scientifique*. It appears that the French Faculties opened their doors to women for the first time in 1863. None of the German Universities yet admit women either to lectures or examinations. There will be a difficulty, however, in resisting for long the force of opinion in favour of the admission of women to courses of study, and especially to medical classes. A petition for the removal of the present restrictions was presented to the Reichstag not long ago, containing more than 50,000 signatures of women. In Austria-Hungary and Spain the laws are against the access of women to higher education. Women possess a special school of medicine in Russia, in spite of their exclusion from the Universities. In Belgium, women are admitted to the courses in all the Faculties, and are eligible for all diplomas. They may also follow the medical profession, or become dispensing chemists. Holland has a large number of women students in its Universities, but Switzerland heads the list in this respect. During the summer semester of 1892, no less than 541 women students were studying in Swiss Universities. In Italy women are admitted to all the Faculties, and are at liberty to exercise all professions except the legal. Among the professors in Bologna University, a lady occupies the chair of histology in the Faculty of Medicine. The Universities of Jasi and Bucharest, in Roumania, are open to women, as are also those of Denmark, Sweden, Norway, and Iceland. Higher education is available for women in most parts of the United States. The result of this is that America has about 3500 women following various branches of the medical profession, 70 have been appointed physicians in hospitals, and nearly 100 are professors in schools of medicine.

THE Council of the Association of Technical Institutions have sent a letter to Mr. Gladstone with reference to the Royal Commission on Secondary Education, the appointment of which was recently announced. The signatories point out that, as the education given in the institutions represented by them is a necessary and important part of the general secondary education of the country, it is of great importance that the Royal Commission should be fully informed as to the nature of the work that is being done, as to the best means of improving and extending this work, and so enabling the institutions most efficiently to take their share in the work of national education. They therefore urge that the Royal Commission should be expressly empowered to deal with technical education, and in order that it might be able to do so effectually, that there should be among the Royal Commissioners an adequate number of gentlemen of experience as administrators and teachers of technical institutions.

THE Italian Government has decided to suppress six small universities—those of Messina, Catania, Modena, Parma, Sassari, and Siena—the academic population of which is from 100 to 400.

## SCIENTIFIC SERIALS.

*Bulletin of the New York Mathematical Society*, vol. iii. No. 5.—Prof. Klein's recent visit to Chicago was taken advantage of by American mathematicians. One of the most interesting results was the publication of twelve lectures on mathematics, with the title of "The Evanston Colloquium." An abstract of the contents of this work, by H. S. White, occupies pp. 119–122 of the present number. L. E. Dickson contributes a note on the number of inscriptible regular polygons (pp. 123–125). E. M. Blake (pp. 125–127) writes upon the "Bibliography of Mathematical Dissertations." His remarks are based upon two recently issued works, viz. "Catalogues des Thèses de Sciences soutenues en France de 1810 à 1890 inclusivement, par A. Marie (1892)," and "Verzeichniss der Seit 1850 an den Deutschen Universitäten erschienenen Doctor-Dissertationen und Habilitationsschriften aus der reinen und Angewandten Mathematik" (München, 1892). The Paris dissertations are 701 in number, and the departments furnish 172 more. The German work gives references to 939 dissertations. Both books supply a want which has long been felt, for most of these dissertations appear unannounced at irregular intervals, and are with difficulty