were aragonite they have sometimes been completely removed by solution, and in other cases are usually changed into a mass of crystals of calcite, and have lost their original microscopical and optical characters. The general structure of various recent and fossil organisms was then considered, and it was shown how and to what extent they could be distinguished, when occurring as minute fragments in thin sections of limestones.

The various facts connected with the disintegration of shells, corals, and other organisms, are of great importance in studying limestones, since without an adequate knowledge of the manner in which they decay and fall to pieces, very inaccurate conclusions might be formed respecting the origin of calcareous deposits. The results mainly depend on original structure, and on whether they are composed of calcite or aragonite. The next questions considered were the manner in which the external form of minute fragments is preserved in limestone, and the various chemical changes occurring after deposition or consolidation; and, having thus established the general principles necessary for their accurate study, the President entered on a description of our various English limestones, in descending order.

The main object was to ascertain, as far as possible, the exact nature of the material from which each particular rock was derived. Some beds are mainly composed of definite fragments, so as to be analogous to sands, and then the true nature of the various organisms from which the fragments are derived can be ascertained, provided they were originally calcite, whereas, if they were originally aragonite, and their structure lost, very often all that can be said is that they were portions of aragonite shells or corals. Many associated beds are or were composed of fine granules, and analogous to clays. In many cases these have in all probability been derived to a great extent from aragonite organisms decayed down into small granules of calcite, and it is quite impossible to further identify the material.

The structure and origin of oolitic grains was dwelt upon at some length. Usually they are evidence of true chemical deposition. They occur in three distinct types, viz., those composed of aragonite, having a concentric structure without any radii, giving rise with polarised light to a black cross optically positive; those which are composed of calcite, having a radiate structure and giving rise to a negative black cross; and those which have recrystallised since their original formation. After describing the chief points of interest connected with the leading limestone rocks of our country, the president collected together the results into two tables, the more condensed of which may here be given.

Name of rocks.	Chief constituent fragments, &c., in descending order.
Cretaceous	Shell prisms, Foraminifera, Coccoliths.
Wealden	Freshwater aragonite mollusca, Entomostraca.
Jurassic	Chemical deposits, Aragonite mollusca and corals, Brachiopoda, Echinoderms, Shell prisms.
Permian	Original structure lost by dolomitisation.
Carboniferous ...	Encrinites, Brachiopoda, Foraminifera, Corals, and Polyzoa.
Devonian	Encrinites, Corals, and allied organisms.
Silurian	Encrinites, Corals and Polyzoa, Brachiopoda, Trilobites.
Metamorphic ...	Original structure lost, Quartz and Silicates formed *in situ*.

He concluded as follows:—

"On examining these tables, especially the more detailed ones, it will be seen how remarkably and characteristically our limestones differ from one another. There would usually be little difficulty in deciding the general age of any characteristic, somewhat coarse-grained, specimen. Though this difference must to a great extent have depended on the nature of the organisms living at each period, yet it must also have depended on the accompanying mechanical and chemical conditions of the water in which the deposits were formed. The structure of each rock was therefore dependent on two most important circumstances, and we need not be surprised to find the results so varied and characteristic. Passing upwards from the earlier rocks, we may often trace a gradual change, broken here and there by a complete contrast, which is in perfect agreement with results arrived at from a totally different class of facts. On the whole, this is perhaps the most important conclusion that we can at present draw from the subject before us. Possibly further research may teach us much more, since I am quite sure that much remains to be learned. In fact, long as I have studied these questions, and long as this address has been, I know quite enough of the facts to be convinced that it is only a sort of first attempt and rough sketch of a very wide and complex subject."

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

MR. MILMAN, who for some years has acted as Assistant-Registrar, has been appointed to succeed Dr. Carpenter as Registrar of London University. It is stated that Mr. H. N. Moseley is a candidate for the Assistant-Registrarship.

MR. A. CRAIG-CHRISTIE, F.L.S., lecturer on botany, Edinburgh, is a candidate for the Chair of Botany in the University of Edinburgh.

IN a recent report by the British Consul at Hakodate, some account is given of the public buildings and other institutions of Sappora and Ishcari. Referring to the Agricultural College buildings, we are told that they consist of four distinct houses, as follows:—A two-storeyed house, comprising lecture and recitation-rooms, cabinets, and offices. A one-storeyed house, used for dormitories to accommodate from fifty to sixty students, attached to which is a similar building providing a large dining-hall, kitchen, bath-rooms, offices, and servants' quarters. In connection with this, again, is a two-storeyed building, which serves as a lecture-room and a general sitting-room and study. A two-storeyed house, which is the chemical laboratory; the ground-floor of this house is used as a general laboratory for the students, and on the second floor are the lecture and apparatus-rooms, and the rooms for collections in mineralogy, geology, and chemistry. Besides these there are several other buildings in European style, used for various scientific and industrial purposes. It is further intended to erect, at an early date, an Agricultural College, likewise two-storeyed, which will be another imposing building. Here will be zoological, mineralogical, geological, botanical, and agricultural museums, with separate halls for lectures and experiments in the above-mentioned branches. The Sapporo Agricultural College was founded by the Kaitakushi for the education and practical training of young men from all parts of the Empire, who are expected to remain in the Government service in Yesso, after graduation for a term of five years. The number of students is limited to sixty, and all their expenses while in college are defrayed by the government. Candidates for admission must be at least sixteen years of age, of sound constitution and good character. They will be examined orally and in writing in the Japanese and English languages (which they are expected to read, write, and speak correctly and fluently), arithmetic, geography, and universal history. If they succeed in this preliminary examination they will have to sign a prescribed contract with the government and furnish a satisfactory surety or guarantee. The course of instruction will occupy four years and embrace all the branches of a general education, with the study of the Japanese and English languages. Moreover, they will be thoroughly instructed in agriculture and horticulture, civil engineering, and chemistry, astronomy, botany, geology, zoology, military science and tactics, and before they leave college, in the fourth year, they will have to devote some time to political economy. As the students are destined to become practical agriculturists, including the use of hand implements and machinery, and the care and management of domestic animals, they have to work in the fields with their foreign instructor two afternoons of each week. There are at present three foreign professors or instructors, viz., one for mathematics and engineering, one for botany and chemistry, and one for agriculture, besides the native teachers, and it is expected that later will be added an instructor for military drill, and one specially for the English language, and a foreign doctor. The number of students at the time the report was written amounted to thirty, fifteen being added annually up to sixty in the fourth year of the foundation of the college, when the first batch of fifteen (the original number started with) will retire and graduate if they have completed their course of studies in a satisfactory manner, whereupon they will enter government employ. In another part of the report, speaking of the progress made by the students, the reporter says, "they are most assiduous at their studies, and it is indeed astonishing the progress they have already made. All their studies are conducted in English, and they speak and discuss in English without the slightest hesitation, making use of very good language. They also appear to enter fully into the different branches of study."