adapted to the use of the person studying by himself.' Another method is that of the University of Chicago, where students may take part of their regular college course at home. He can not, however, get his degree without taking the balance in residence. This plan offers few advantages over the regular college course. The only requirement necessary to become a student of the International Corespondence School is the ability to read the English language and to write it sufficiently well to be understood, or to possess the services of some one capable and willing to translate from the text-books and write out the dictation in English of the foreign-speaking student who is unable to use the English language.

The text-books differ, even on the same subject for the courses for which they are to be used; not only on the method of treatment, but principally in the examples given and the illustrations cited.

The author gives a number of reasons why students do not complete their courses, and also mentions cases of students who admit deriving much benefit from the course but who have never submitted an examination paper for correction. Their instruction has been obtained solely from the bound volumes which were furnished them when they enrolled. About 60 per cent. of the students send in one or more pieces of work. About two thirds of the students pay in full for their courses. While the present enrollment is a little over 900,000, the actual number of students is probably 60 per cent of this, or 540,000. During the year ending May 31, 1906, the total number of pieces of work received from students was 716,952. About one sixth of the number of active students have completed about one third or more of their course as shown by the records. The number of students who have entirely completed their courses, passed their final examinations and been awarded a certificate or diploma was 12,143 on June 27, or about 2.6 per cent. of the total number of active students. Between February 7 and April 21 the number of diplomas issued averaged 240 per month. The average for next year is estimated as high as 300 per month, or 2,700 diplomas for the year from this one correspondence school. As this number is about the same as the number of engineering degrees conferred per annum by all the technical colleges of the country, the amount of work that this represents, and the amount of education which is being obtained can be somewhat appreciated.

The social sides of the meeting were very well cared for by the committees of Cornell University, and have been described in the report of the general secretary. A special excursion was tendered to the section by the committee on Saturday afternoon in the form of a steamboat ride on the steamer *Iroquois,* down the lake, and which included a visit to the Remington Salt Works near Ithaca. Here steam is generated and used in steam engines for the generation of electric power, and the exhaust steam is used in the vacuum pans of the salt works. A feature of the meeting which appealed to every one was the delightful entertainment accorded to the members in the houses of the fraternities. Altogether the meeting was most enjoyable and profitable, and both the section and the Society for the Promotion of Engineering Education desire to extend their special thanks to the trustees, the faculty and to the fraternities who opened their houses at Cornell University.

Wm. T. Magruder,
Secretary.
Ohio State University.

SECTION G—BOTANY.

In accordance with arrangements previously made the section met on June 29 for the transaction of business and the dis-

cussion of the future relations of the section to the Botanical Society of America. Professor George F. Atkinson was elected secretary *pro tempore* in the absence of Professor F. E. Lloyd.

The principal feature of the meetings on the following days were the splendid excursions which had been arranged by the local committee. Adequate transportation, well-appointed lunches, and the presence of the botanists of the botanical department of Cornell University, who were familiar with the flora, made these outings a very profitable feature, and called out an attendance as large as that customarily seen at technical sessions.

On Saturday, June 30, a party of twenty-three visited the atoll moor near Chicago, eighteen miles from Ithaca. For a distance of twelve or fifteen miles on the route the glacial 'dumps' or terminal moraines were visible to the party, showing in many cases the 'kettles' or 'pot holes' or 'cat holes,' as they are variously termed, many of which support characteristic moor vegetation. The atoll moor which was first visited was the site of a former large glacial pond which is now nearly filled by the growth of vegetation, there being a deep central small pond and an outer moat containing water at the shore of the original pond.

After lunch on the west bank of the moor Professor Atkinson gave a brief talk describing the topography of the moor and outlining the different theories which have been suggested in explanation of the peculiar topography which has been formed by the vegetation filling in. Dr. Wiegand called attention to the principal species of plants and plant formations, pointing out the work of each in moor formation.

The party then explored the vegetation of the border along one side, which is made up of grasses, sedges and herbs. Here a large number of Uredineæ were found among which were five or six heterœcious species with the æcidial stage and the uredo stage growing on adjacent hosts, as pointed out by Dr. Arthur. The *Cassandra* formation, which covers the larger part of the moor inside of the moat, was then explored. In reaching this it was necessary to cross the water in the outer moat and also a narrow elevated ridge just inside of this, which for a great distance is covered by *Spiræa salicæfolia.* Among the *Cassandra* were quantities of *Sphagnum,* and many other plants lesser in number, as *Andromeda polifolia, Vaccinium macrocarpon* (cranberry), etc.

From this moor the party was led to one of the smaller and deep kettles, which contains at this season but little water. The zonal formation of the vegetation is also characteristic here: the center is a sedge and grass formation, the border an *Isoetes* formation, which at this time was partly submerged and partly on dry land. Between this and the central grass formation were partially submerged aquatic plants.

The party next drove to Malloryville moor. On one of the banks of this moor is a bed of *Pteris aquilina* (brake) which every year presents numerous cases of apospory, though the season was a little early for good examples. This moor is a high moor. The center is occupied with *Andromeda polifolia* and scattering *Cassandra,* with a deep bed of sphagnum. Pitcher plants, orchids, etc., were observed. Upon one side (south) the *Andromeda* is each year attacked by a parasitic fungus, *Exobasidium,* which causes a regular hypertrophy of the leaves. The affected shoots are colored a bright red, and the leaves instead of being thick, narrow and with inrolled edges, are thinner, broadly elliptical and flat, taking on exactly the shape of the *Cassandra* leaves, so that but for the

color it would suggest a 'bud shoot' of a *Cassandra* from an *Andromeda*. The appearance of two generic types in the branches of one shoot is very striking.

On Monday, July 2, a party of thirty-four drove to Enfield Gorge, alighting at the foot of the gorge, while the carriages were taken to the head of the gorge, a little more than two miles distant. The numerous successive falls and cascades were observed, also the geological formations, but especially the vegetation. There were numerous liverworts in the wet rock walls. In one place *Preissia* and *Conocephalus* are abundant and are usually brought into zonal formation by the different moisture conditions which vary according to the surface contour of the perpendicular rock wall. At a short distance *Pellia* usually grows where there is a greater quantity of water dripping down the rock. This year there is more moisture than usual. The dripping water is so abundant that it is killing out the *Preissia* and *Conocephalus* in certain spots and the *Pellia* is coming in and overgrowing them. These features were very easily demonstrated. Higher up on the clay bank at this place *Blasia* is abundant, and on the flat rocks below *Marchantia* was found.

Near the upper end of the gorge was an abundance of the fern, *Pellæa gracilis*, on the moist rocks. The vegetation of the small alluvial plains here and there was rich in forest and shade plants which afforded an excellent opportunity for observation of 'mosaics' and various ecological features.

The interest shown in a meeting in which the out-of-door features occupied so prominent a place suggests the desirability of their annual repetition, although it is by no means to be taken for granted that field excursions might always be organized under such favorable circumstances as those offered by Ithaca and the Cornell botanists.

D. T. MacDougal,
Chairman Section G.

SCIENTIFIC BOOKS.

Der Bau des Fixsternsystems mit besonderer Berueecksichtigung der photometrischen Resultate. Von Dr. Hermann Kobold. Friedrich Vieweg und Sohn. 1906. M. 6.50.

This volume is No. 11 of a series, 'Die Wissenschaft,' whose declared purpose is to place before the public, from time to time, a digest of the progress that has been made in definite departments of scientific research. Designed alike for the instruction of the general reader and for the orientation of the professional student in his own field, Dr. Kobold's work must be regarded as upon the whole an eminently satisfactory achievement. It is, indeed, probable that competent critics will dissent vigorously from some of his conclusions and will regard as far from final his judgment upon much of the conflicting evidence marshaled in the text. But with all due reserve in these respects the book possesses great merit both as a compilation of data relative to the structure of the stellar system and as a summary of current theorizing upon that data.

In some twoscore pages there is passed in brief review the methods of determining such fundamental data as the position, brightness and color of individual stars, stellar spectra, parallaxes, proper motions and the apparent distribution of stars upon the sky. Then follows the backbone of the work, a hundred pages devoted to a critical consideration of the present state of knowledge along these several lines, with particular stress upon problems of stellar motion. The author here defends the thesis, supposed to be original with him, although recently brought into prominence by Kapteyn, that the stellar motions can no longer be regarded as lawless in their arrangement, directed in equal measure toward all parts of the celestial compass. Rather must we consider them as having a definite relation to the Milky Way, the exact nature