

ments. A brief reference was made to the progress of University College, as shown by the following table of attendances in the day classes since its foundation in 1882.

TABLE III.—*Entries in Day Classes, University College.*

1882.	1883.	1884.	1885.	1886.	1887.
189	625	883	944	1642	2063

These results are better shown graphically in Fig. 3.

During the last few months no less than £30,000 has been contributed to the Engineering Department alone, but the other professorships are all provided for upon an equally sound basis, and Prof. Hele Shaw thus concludes:—

“Hence, side by side with teaching, directed—sometimes perhaps only directed—to the practical purposes of life, we shall, thanks to the liberal endowment of chairs of language, of literature, and of art, always have the more liberal studies, and, as their exponents, scholars of the highest culture. Thus every individual professor thinking, as he ought to think, his subject to be the most important of all (a feeling I must, in common with the rest, confess to having myself), and so led to work for its due recognition, the happy mean will doubtless be maintained between mere idealism on the one hand, and mere routine on the other. Yet one word more. There is another motto prominent upon the College crest (*‘Fiat lux’*), in the spirit of which work will always be true to the highest ideal. Our national life depends upon our national progress, and when we cease to advance, decay will speedily follow. Just as surely our College life, vigorous because growing, depends for its vitality upon the reality of the effort we make to carry forward the light of truth, and should never suffer because we strive to keep in touch with the requirements of practical life. Scientific investigation and philosophic research must have their proper place and support, and if allowed fair scope for development, will exercise the needful influence, and one that will be of untold value upon such narrowing tendencies as there may be in our various schemes of technical education.”

SCIENTIFIC SERIALS.

American Journal of Science, October.—The relations between wind velocity and pressure, by H. Allen Hazen. A comparative study is made of the experiments carried out by Borda, Hagen, Pöbort, Didion, Morin, and more recently at Washington, showing the great necessity there is for further research before absolutely trustworthy results can be obtained. Experiments are much needed, especially with larger plates than 2 feet square, with bodies of other forms than those hitherto employed and with high velocities by a straight-line motion.—Is there a Huronian Group? (continued), by R. D. Irving. After establishing the existence of a true Huronian Group, the author proceeds to define its character, showing that many formations even in the Lakes Superior and Huron regions, have been wrongly referred to this type. The presence is clearly demonstrated of two entirely distinct and mutually discordant series in the Marquette, Penokee, and Menominee districts. In all these regions there are great discordances between a lower set of gneisses and other crystalline schists, intruded by granite, and an upper set of detrital rocks carrying iron. The so-called Animiké series is then considered, and referred with the older Penokee formations to the Huronian system.—Oxygen in the sun; contributions from the Physical Laboratory of Harvard University, by John Trowbridge and C. C. Hutchins. The experiments here described have been carried out in order to test the soundness of the conclusion generally drawn from Dr. Henry Draper's discovery of bright spaces in the solar spectrum apparently coincident with the bright lines of the spectrum of oxygen. This conclusion is shown to be at least premature, and in the numerous photographs taken of the solar spectrum by them the authors have failed to discover any line that could with certainty be pronounced brighter than its neighbours. The bright bands of Dr. H. Draper's spectrum are found to be occupied by numerous dark lines of various degrees of intensity; but the hypothesis of Prof. J. C. Draper that these are the true representatives of the oxygen lines is rendered untenable by the lack of any systematic connection between the two.—Bismutospherite from Willimantic and Portland, Connecticut, by H. L.

Wells. An analysis of two specimens of basic bismuth carbonate shows them to be apparently identical with Weisbach's bismutospherite, the composition of which had been considered somewhat doubtful.—Note on some remarkable crystals of pyroxene from Orange County, New York, by George H. Williams. The lower back part of some of these specimens is exactly like the lower front quarter, but in a reversed position, so that the lower half is a twin as represented by Von Rath, while the upper half is apparently simple and of the usual habit.—The flow of solids, or liquefaction by pressure, by William Hallock. The experiments here described point at the conclusion that pressure alone cannot truly liquefy a solid—that is, diminish its rigidity; consequently neither can chemical or mineralogical changes be produced by pressure alone without a rise of temperature.—Analysis of some natural borates and borosilicates, by J. Edward Whitfield. The series of analyses here described have been undertaken to verify, if possible, the given formulæ, and correct errors caused by defective analytical methods of estimating the boric acid of natural borates. The percentages of boric acid as here determined by direct analysis do not differ greatly from the results of Stromeyer's and Mari-gnac's methods.—The Texas section of the American Cretaceous, by Robert T. Hill. In this paper the author studies the true character of the deep marine Cretaceous strata already determined by him in Texas, at the same time explaining some new features of it, which throw much light on the various American chalk systems.—Notice of new fossil mammals, by O. C. Marsh. Descriptions are given of some new species of *Bison alticornis*, *Aceratherium acutum*, *Brontops robustus*, *Menops varians*, *Titanops elatus*, and *Allops serotinus*, recently received at the Yale Museum from the West.

Rivista Scientifico-Industriale, September 15.—On the pressure of mixtures of gases and vapours, and on Dalton's law, by Prof. G. Guglielmo and V. Musina. Regnault, while admitting that Dalton's law on the tensions of vapours in gases is not strictly verified, and that the maximum tensions are less in gases than in vacuum, concluded that the law was theoretically exact, and would even be verified in practice in a receptacle whose walls were formed of the liquid generating the vapour. The experiments here described have been carried out for the purpose of testing the accuracy of this view, with the result that the attraction of the walls for the vapour is far from sufficing to explain the discrepancies in the Daltonian law. Consequently this law is not even theoretically correct, at least so far as can be concluded from these researches, which, however, will require to be repeated with apparatus insuring greater precision than those here employed.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, October 31.—M. Janssen in the chair.—Observations of the minor planets made with the great meridian of the Paris Observatory during the second quarter of the year 1887, by M. Mouchez. The right ascension and polar distance, with correction of the ephemerides, are given for Belisane, Athor, Asterope, Nausicaa, Vesta, Antiope, Amphitrite, Polana, Bellona, Hecuba, and Arethusa.—On the Observatory of Nice, by M. Faye. In connection with the Geodetic Conference just concluded at Nice, the author announced that the magnificent Observatory of that place, due to the munificence of M. Bischoffsheim, is now completely finished. This institution, he added, is entirely at the service of the astronomers of all nations who may wish to avail themselves of its exceptional advantages in the prosecution of their researches.—New fluorescences with well-defined spectral rays, by M. Lecoq de Boisbaudran. The results are described of spectral researches made with gallina and samarine ($\text{Ga}_2\text{O}_3 + \frac{1}{3}\text{Sm}_2\text{O}_3$) moderately calcined; the same very highly calcined; gallina and the earth Zn_2O_3 ; gallina and the earth Zr_2O_3 ; and alumina with a small portion of the oxide of praseodyme (Pr_2O_3) highly calcined.—Observations of the new planet, Peters (270), made at the Observatory of Algiers with the 0.50m. telescope, by MM. Rambaud and Sy. The observations cover the period from October 14 to October 17.—Observations of the new planet, Knorre (271), made at the same Observatory by the same astronomers during the period from October 20 to October 24.—Magnetic declinations and inclinations observed in Tunis by the Hydrographic Mission of 1884–86, communicated by M. Bouquet de la Grye. The results of these observations are tabulated for twenty-one places, whose latitudes and longitudes are also accurately determined.—On the