NOTES AND NEWS.

THE local committee of the American association has issued its second circular containing the general programme of the meeting at Ann Arbor. The meeting will be called to order on Wednesday, Aug. 26, at 10 A.M., when Professor Lesley will resign the chair to President-elect Professor Newton of New Haven, and the usual addresses of welcome will be delivered. In the evening Professor Lesley will give his presidential address. On Thursday evening the citizens of Ann Arbor will tender a reception at the court house, and on Friday it is probable that a lawn party will be given on the university grounds. On Saturday a long excursion, as previously announced, will take place; on Monday a short excursion for the members of the botanical club has been planned, probably to the Tamarack swamp, one of the detached spots common in Southern Michigan, where a northern flora has lingered under favorable conditions through the various climatic changes of later geologic times. It is probable that similar trips to points of local interest may be arranged for some of the sections. It may be well to call the attention of botanists to the fact, that, while at Ann Arbor, they are within a few hours' ride of one of the remaining tracks of pine which represents all that is left of one of the formerly most magnificent pine-forests of the continent. The chairman of section C announces that the following subjects have been chosen for discussion: first, what is the best initiatory course of work for students entering upon laboratory practice? second, to what extent is a knowledge of molecular physics necessary for one who would teach theoretical chemistry? In the discussion in section D, mechanical science, of the best method of teaching mechanical engineering, in order that what is read and said may be to the point, the following classification should be observed: (*a*) schools of mechanical engineering; (*b*) mechanic arts schools for the education of superintendents, foremen, etc; (*c*) manual training-schools. The distinction between 'mechanical laboratory practice' and 'shop practice' should also be made and appreciated. The officers of the Michigan central, and of the Toledo, Ann Arbor, and Northern Michigan railroads, have agreed that all persons attending the Ann Arbor meeting may receive return tickets to their homes over the roads by which they may have come on presenting a receipt for their fare, from the ticket-agent at their home, and a certificate from the local secretary that they have been in attendance upon the meeting. Those who expect to avail themselves of the special train from Buffalo should immediately notify the secretary, as not enough have as yet signified their intention of going in the train to justify its running.

— We have all heard much of the famous Solenhofen Archaeopteryx, and of the toothed birds of America, and have doubtless understood in a general way that they cleared up much of the obscure geological pedigree of birds. We are indebted to Professor Wiedersheim for two excellent articles, summaries of the history and significance of these discoveries. These essays are to be found, one in vol. iii. of the *Biologisches centralblatt*, and the other in *Humboldt* for June, 1885. The latter is the less technical, and has the advantage of being illustrated, and is indeed a very admirable popular article. As the new Darwin memorial has recalled attention to the early struggle of evolution against prejudice, it is interesting to think how opportunely the first discovery (1860) of the fossil link, Archaeopteryx, between birds and reptiles, came to support the Darwinians. It awoke a storm of discussion, and there was no little indignation in Germany when the specimen was allowed to leave Solenhofen for the British museum. It was sold for thirty-five hundred dollars to the English. Altogether Archaeopteryx has probably occasioned more human emotions than any other known fossil. The second specimen of Archaeopteryx was more perfect, and was finally sold to the Berlin museum for twenty thousand marks. This specimen has been recently described by Professor Dames, the first having been monographed by the venerable Richard Owen. Wiedersheim does not accept all of Dames's conclusions, but gives at the end of his second article his own views as to the evolution of birds. He thinks the class had a double origin, there being two divergent lines from some as yet undetermined reptilian ancestor. One line led through the dinosaurians to the ancestor of Marsh's Hesperornis and the running-birds (Ratitae): the other line began with long-tailed saurians, from which sprung, on the one hand, the flying saurians; on the other, the line of development leading to Archaeopteryx, then, further, to Marsh's Ichthyornis, the ancestor of the flying birds (Carinatae). Whether this theory of the double origin of birds will hold, may be fairly questioned; but, at the same time, the theory cannot be summarily dismissed. It does not yet appear that the theory will satisfactorily account for the *common avian* characteristics of the two great sub-classes of birds, since the divergence, it supposes, began between reptilian ancestors.

— In consequence of prolonged researches on the absorption and assimilation of peptone, Dr. F. Hofmeister has arrived at some very interesting results. If peptone and other nutrients are introduced directly into the blood, even in small quantities, they are expelled through the secreting organs, whilst on the reception of much larger quantities of the same substances by way of the intestine, under physiological conditions, nothing similar is observed. From these phenomena, Hofmeister concludes that the absorption of peptone in the intestine is no simple mechanical process of filtration or diffusion, but a function of definite living cells, — the colorless blood-corpuscles. Certain substances are no doubt carried about in the extra-cellular fluid; and whether they are absorbed by the tissues, or lost, depends upon chance alone. It is not so in the case of 'cellular transportation;' for, if the substances are enclosed in the cell-walls, they are not subject to the laws of diffusion, and are not used up until they reach the tissues which have an affinity for them. If the cells are moved about by the currents in the blood, they reach the tissues by

chance; but, if they have an automatic motion, they are in a degree independent of the air-current, and can direct their own course. The amoeboid movements of the cells may have some connection with the presence of an excess of nutrient matters for distribution.

— Herr Hilt of the Prussian fire-damp commission says, as the outcome of a long series of practical experiments on the very fine coal-dust of Pluto mine in Westphalia, that "there can be no doubt, that, with this kind of dust, the flame could be lengthened out to any desired length, provided the gallery and layer of dust on its floor were made equally long." Differences in chemical composition do not appear to have so much effect in controlling the length of flame produced by a given dust as the comparative fineness of the particles. The French commission finally pronounced that coal-dust is an element of very secondary importance; but the Prussian commission, partly from the large scale upon which it worked, and partly from the natural fineness of the dust upon which it experimented, has arrived at the opposite conclusion. One of the most violent explosions on record recently occurred in the Camphausen colliery; and it is generally admitted that coal-dust, not fire-damp, was the principal cause of destruction.

— It is generally admitted that the most effective arrangement of a course of instruction in qualitative analysis includes a brief study of the more important compounds of the elements composing the group, as regards their solubility, followed by a method of analysis, this plan being applicable both to basic and acid analysis. The acids may be classified with nearly the same precision as the bases, so that the presence or absence of a group containing half a dozen acids can be shown by means of a single reagent. The 'Treatise on practical chemistry and qualitative inorganic analysis,' by Frank Clowes (Philadelphia, *Lea brothers & Co.*, 1885), follows the above plan in general, except in the arrangement of the acids. It adheres to the use of tables, which may be regarded of questionable utility unless the student is required to prepare them for himself. The selection of reliable tests and methods is, for the most part, all that could be desired. Much useful information is given concerning laboratory arrangements, apparatus, preparation-work, and chemical operations in general, which will doubtless be serviceable to many teachers, especially the hints on laboratory construction, and the directions for preparing reagents and substances for analysis. In fact, from its scope and general arrangement, the work seems better adapted for the use of teachers and advanced students than for an introductory text-book on qualitative analysis.

— In *Symon's meteorological magazine* (April, 1885) the old idea of having a floating mid-Atlantic meteorological observatory is once more urged. As most of the changes in British weather are due to the passage of storms from the west to the east, the only practicable way of forecasting these storms is by some such station, in about latitude 50° north, and longitude 20° west. The depth of the water at this point is about two thousand fathoms (two miles and a quarter); and a mooring-chain of that length would be a decided novelty, but not an impossibility, for the cable-laying steamship Faraday once found herself in the course of a cyclone which passed by without causing her to loose her hold of the cable. To lessen the expense, which might otherwise interfere with the project, the vessel could also be used as a call-station for passing vessels and for those in distress.

— We reproduce from *Science et nature* a picture of the statue of Claude Bernard, the eminent French physiologist, which has just been erected before the Collége de France. It was executed by Guillaume of

the French institute, and, on the occasion of its unveiling, was accompanied by a eulogy by Béclard, the dean of the faculty of medicine of Paris, a portion of which is reproduced in *Science et nature* of June 6.

— N. de Miklouho-Maclay tells us (*Proc. Linn. soc. N. S. Wales*, ix. 963), that during the years 1871 and 1872 no less than thirteen earthquake shocks were felt on the Maclay coast of New Guinea. Upon his return to that region in 1876, the mountain peaks which in 1872 were covered with vegetation were in places quite denuded, and portions of the coast devastated by tidal waves. There were crevices from one to three feet wide, and three or four feet deep; and the depth of the sea was in some places appreciably altered. Since 1876 there have been only slight shocks, which have occurred at the same time as

eruptions in the various volcanoes on the island. In addition to the slight changes accompanying the frequent earthquakes, there are evidences of a recent extensive rising of the whole coast. In hills of a greenish sandy clay, there are layers of the remains of marine animals now inhabiting the shallow waters. These layers are at various heights, from one hundred to four hundred feet above sea-level. Another proof that the coast is still rising is the existence of numerous reefs of dead corals, which are left quite dry at each low tide.

— Dr. J. J. Weyrauch of Stuttgart has published (Leipzig, *Teubner*) a lecture on the history of the conservation of energy, which he delivered at Stuttgart in March of this year. In a series of appendices he has brought together a large number of references to the literature of the subject.

— The British steamship Venetian, Capt. Traut, reports that on July 16, in 43° 08′ north, 51° 25′ west, they sighted a very large iceberg two hundred feet out of water, five hundred feet long, and four hundred feet wide. As it was very clear at the time, and the vessel to windward of the berg (wind moderate from the southward), Capt. Traut experimented with the thermometer, to see if the ice had any influence on the temperature of the water. To his surprise, he found that there was no appreciable difference, the thermometer standing at about 57° for several miles on either side of the berg and close to it. He steamed alongside the berg, about eight hundred feet from it, and still the temperature remained the same.

— Miss Alice Lamb, a student of Professor Holden's at the Washburn observatory, publishes in the July number of the *Sidereal messenger* a critical discussion of the Willets Point latitude observations, which appear to show a decrease in the latitude of that place during the last five years. By selecting the best-determined stars, and by rejecting the observations with one of the instruments, and the work of some observers whose probable errors are about twice as large as the probable errors of those whose work is retained, she concludes that "there is perhaps strong reason to attribute the systematic change of latitude" to errors of observation, as Gen. Abbot has suggested.

— According to a paper read by Herr Mohr before the Magdeburg district association of the society of German engineers, the deepest bore-hole in existence is that bored for coal, near the village of Schladebach, on the railway between Corbetha and Leipzig. The total depth of this bore-hole, which has been driven with a hollow diamond-pointed rock-drill and water flushing, is 4,559 feet. Its diameter at the bottom is 1.872 inches, and at the surface 11 inches. Boring operations have been carried on for three years and a half, and a sum of $25,000 has been spent in reaching the depth attained. The temperature in the lower portion of the bore-hole was found to be 48° C., equal to 118.4° F.

— In Lord Aberdare's address at the annual meeting of the Royal geographical society of London already referred to, he stated that the continuous prosecution of marine surveys in different quarters of the globe had been well maintained during the past year. The two home surveying vessels have been employed, one on the west, and the other on the east, coast of Great Britain. On foreign surveys, sixty officers and five hundred men have been employed in four steamships of war and five other smaller vessels. These ships have been at work in Newfoundland, the Bahama Islands, Magellan Straits, South Africa, Red Sea, Malay Peninsula, coasts of China and Corea, northwest coast of Australia, and amongst the Pacific Islands. The most important additions to our hydrographical knowledge are as follows: The survey of the Little Bahama Bank will be shortly finished, and the same may be said of the southern shore of Newfoundland. The survey of the main strait of Magellan, to which reference was made in the last address, was completed early in the year. Many useful additions have been made to ports and salient parts of the coast of south-east Africa. In the Red Sea the intricate approaches to Suakin have been well laid down. On the west coast of the Malay Peninsula, Penang harbor has been resurveyed, and the positions of the islands lying to the north-west, and forming the eastern boundary of the ordinary route of vessels to Malacca Strait, have been accurately determined. The unknown western shores of Korea, south of the approach to Söul, for two degrees of latitude, have been explored, and the main features of this island-studded shore laid down. New rivers and harbors have been entered, notably the large river Yun-san-gang, at the entrance to which stands the considerable town of Mokfo. There appears, however, to be little chance of immediate trade with Korea, in consequence of the absence of any valuable products, and the scanty needs of the population. The southern approach to Haitan Strait on the Chinese coast, much used by British trade, has been recharted. On the difficult shores of western Australia such progress has been made as the small means at the disposal of the surveyors has permitted. In the Solomon Islands the Bougainville Strait has been charted. This channel will in future be most probably a highway for traffic between eastern Australia and Japan. Many additions have also been made to the charts of various groups of other Pacific islands. The survey of the coasts of India, carried on by officers of the Royal navy and India marine, has been actively progressing. Surveys of Rangoon, Cheduba, and other ports in the Bay of Bengal, as well as harbors on the west coast of Hindustan, have been made. A resurvey of the great Canadian lakes has been commenced in Georgian Bay.

— In Beloochistan, there are days when the air is so filled with sandy dust that the sun is obscured, and the particles of sand penetrate every thing. This is especially the case when there is no wind. The whirlwinds of sand are also common in this region. During a calm day, when not a breath of wind is felt, one can notice these columns rise and grow, and, beginning to rotate, travel forward across the country. They often attain considerable velocity, then decrease

and disappear. Sometimes several may be seen at the same time, each having a separate origin. The natives call them shaitans, or devils. Another very peculiar phenomenon in the same region is the sand-storm, which often occurs after several calm days, when the air is very warm and oppressive. The wind blows violently, sweeping the sand across the desert. Lightning and thunder and rain form a part of the storm, which often lasts several hours, then stops, leaving the air pure and clear. During the warm months the very hot and destructive wind called the simoom sweeps across the desert, destroying all vegetable life, and often killing men by its scorching breath. This wind is comparable with the sirocco of the Mediterranean, though much more destructive.

— An interesting account of Erythroxylon coca, and its history in Peru and in Europe, will be found in a small pamphlet by Dr. Sigm. Freud ('Ueber coca,' Wien, 1885, 26 p., 8°), together with an account of its action on animals and on a healthy man, and its therapeutic uses. He makes the noteworthy remark, that, while in North America preparations of coca are already much used, in Europe they are scarcely known to the majority of physicians, even by name. The greatest use of coca will probably always be that which the Peruvians have made of it for hundreds of years; viz., to enable them to bear arduous physical exertion for a short time without food or rest, as in war, in travelling, in the ascent of mountains, etc. For these purposes it seems to be preferable to alcohol. It has also been tried in digestive troubles, as an antidote for morphine habit, and as a substitute for alcohol, as well as for other purposes.

— The *Botanical gazette* for July devotes a large part of its space to the subject of bacteriology, including notes, comments, and book-reviews. It is a step in the right direction; for only by the publication of matter of this kind, and the increase of interest that will follow, can the study of bacteria be brought to its proper level in this country. This branch of investigation is constantly and rapidly growing in importance, and any attempt to diffuse a knowledge of what is going on among its students deserves the heartiest commendation.

— In a lecture delivered in the Khedival institute at Cairo, Dr. G. Schweinfurth has given some account of the seats of manufacture of prehistoric stone implements in the desert of eastern Egypt, discovered by him in 1876, 1877, and again visited and examined by him in his last journey. The two spots referred to are in the Wadi Sanur and Wadi Warag. The former lies due east of Beni Suef, at a distance of thirty miles from that town. The latter is in the upper portion of the Wadi, at the place where the water-course begins to be discernible as a longitudinal depression on the heights of the western part of northern Galala. Dr. Schweinfurth's belief that the two sites in question are really those of ancient manufactories of stone implements is grounded partly on the presence of accumulations of cores in the beds of the streams, partly on the fact that the raw material is found abundantly in the neighborhood. The source of the raw material is a bed of flints belonging to the upper nummulitic limestone corresponding to that which exists behind Cairo. Implements and utensils indicating a stone period have now, Dr. Schweinfurth remarks, been found, even in the very heart of Africa; and these show a surprising resemblance in form to those discovered in Europe. Those recently obtained by himself from Sanur and Warag, however, are of a special type; and Dr. Schweinfurth regards them as clearly distinguished from the forms already familiar, by the fact that the facets are usually only upon one side, and are very seldom seen surrounding the entire core.

— From a report of Mr. H. Walker, commissioner of lands of British North Borneo, it appears that gold exists in considerable quantities in that territory. Some natives had brought a little to Sandakan, and Mr. Walker set out to verify its existence in the Sagama district. He searched thirty or forty different places, and found gold at almost every place, generally in small specks, large enough to be gathered with the fingers, sometimes larger, and always in conjunction with a black metallic dust and iron or copper pyrites. The rocks met with were granite, gneiss, quartz, limestone, jasper, porphyries, and red sandstone. Steps will probably be taken to have the whole region thoroughly examined by a competent geologist. The minerals already ascertained to exist in North Borneo are gold, silver, copper, chromium, tin, plumbago, lead, and coal. Antimony and cinnabar are reported. On the west coast, chromium, copper, and arsenic have been found; in the neighborhood of Kinabala, silver ore and pyrites. A sample of native copper has been sent to London. A rich sample of galena and silver, yielding on assay a hundred and fifteen ounces of silver to the ton, has been found. A good deal of information still rests on the rough statements of natives, but British North Borneo is undoubtedly rich in mineral as well as agricultural wealth.

— Professor Karl Gottsche of the University of Kiel, has just returned from his travels in eastern Asia. After having lectured on mineralogy and geology for several years at Tokio, he undertook a scientific exploring expedition in Korea, at the request of the Korean government, which lasted until December, 1884. His route extended over three thousand kilometres. Dr. Gottsche intends shortly to publish his geological, mineralogical, and ethnographical investigations of Korea.

— Professor Huxley is, it is understood, going to retire from the various posts he holds under the English government, on a pension of twelve hundred pounds a year.

— The Berlin society for the advancement of manufacture has offered a prize of fifteen hundred marks for the best essay on the progress, present position, and capability of application, of the photo-mechanic process for the reproduction of drawings, woodcuts, copperplates, oil-paintings, and photographic representations of nature, with a comparative review of its results.

— The commission appointed by the Belgian government to experiment on Pasteur's method of protecting cattle and sheep from anthrax by inoculation with the attenuated virus have published their report. They find, from very numerous vaccinations which have been performed at Hervé since the spring of 1883, on farms where anthrax breaks out every year, that Pasteur's method preserves both sheep and cattle from the disease. No case of anthrax has been observed among a thousand fully-grown cattle which have been vaccinated, while the non-vaccinated have died, as usual. As regards the duration of the protective influence, it has been found to be one year for young animals in the proportion of ninety per cent, and at least two years for all mature animals. They confirm Mr. Pasteur's statement that places where animals which have died of anthrax have been buried are dangerous, the soil retaining the germs.

— The Austrian central tourist club has addressed a petition to the assemblies of all Austrian alpine provinces to pass a law prohibiting the wholesale uprooting of edelweiss now carried on. The petitioners point out that hundreds of thousands of the plants are dug up, and sent abroad, even to America; so that there is a fear that the favorite plant of all lovers of the Alps will be exterminated, except in a few remote places. Several Swiss cantons have passed such a law.

— Professor Milne has been engaged in researches on the oscillations of sea-level in the Kurile Islands. He finds that the two islands Iturup and Kunashiri form the first two of the series of stepping-stones which connect Japan by means of Kamtchatka with Asia. They contain a greater proportion of rounded hills and of deeply cut valleys than any of the islands farther north, and may therefore be regarded as older than those which are built up almost entirely of finely formed volcanic cones. The neighboring island of Urup presents appearances similar to these two. The formation of an island like Iturup probably commenced as a number of volcanic peaks forming islands, which were subsequently elevated, of which there are indications in the stratified rocks and terrace formations. All the appearances, however, which Professor Milne has ascribed to a raising of the land, might, he observes, be also explained by raising and lowering of the sea, such as that which Mr. Croll argues might be produced by the accumulation of ice at the pole; and the fact that the height of the terraces increases northwards appears to confirm this view.

— Mr. J. Macdonald Cameron has printed a report on the bituminous deposits of the Camamie basin of the province of Bahia in Brazil. In addition to the purely commercial portion of the report, there is much interesting information with regard to the various descriptions of these oleaginous deposits. Mr. Cameron has some interesting remarks on the influence of the mangrove on the muddy swamps on the coast. The dirty grayish black mud in which the mangrove vegetation is very luxuriant, resembles that noticeable in England in rivers and streams on the banks of which oil or soap works are situated. He inclines to the opinion that this mud is principally formed by the continuous decomposition of the roots and branches of the mangrove trees. The tidal currents ebb and flow slowly, and hence do not sweep away the mud. Thus abundant food for the tree is insured "as well as a store of oleaginous material for the use of distant generations of human beings."

— The articles of scientific interest in the English general magazine for July are as follows: Grant Allen has an article 'Concerning clover' in the *Gentleman's magazine*, — a very interesting account of the various kinds of clover, the object of the different modes of flowering, and the general points of interest concerning the plant. The science notes in the same magazine, conducted by W. Mattieu Williams, contain a few remarks upon the recent scientific events of popular interest. In *Longman's magazine*, Grant Allen is also the scientific writer of the month. His article entitled 'The first potter,' is a *résumé* of our knowledge of prehistoric pottery. Under the title of 'Recent progress in biology,' in the *Nineteenth century*, Ray Lankester takes up, in an accurate manner, all the recent steps of progress in this science, laying most stress upon Koch's and Caldwell's investigations. The article in the same magazine, entitled 'Transylvanian superstition,' by Mme. Gerard, is a very complete enumeration of the vast number of superstitions of this very superstitious country, which cannot fail to be of great interest to anthropologists. An article in Blackwood's *Edinburgh magazine* on 'Footprints,' proves that the human footprints often found on the rocks in many countries are artificial, and the remnants of the sign-system of the aborigines. The *National review* has an article upon 'Some higher aspects of mesmerism,' by E. Gurney and F. W. H. Myers. The title explains itself, and it is interesting to find the subject so well treated in a general magazine. In the *Contemporary review*, G. J. Romanes publishes his Rede lecture for 1885, — a long dissertation on the relation between 'Mind and motion.' Under the title of 'Dangers of medical specialism,' H. B. Donkin takes an opposite view from that entertained by Dr. M. Mackenzie in a recent article, and urges that specialism in medicine should not be made a trade.

Among the American magazines, there are few really good popular scientific articles. In the *Catholic world*, there is a very popular article of some scientific interest, entitled 'Among insects in a southern city,' by T. F. Gabney. The *Andover review* contains an article by Rev. E. M. Bliss, upon 'Kurdistan and the Kurds,' which is a very good description of the people and the country. The article in the *North-American review* upon the 'Subterranean history of man,' by S. C. Bartlett, is a rehash of the results obtained by the recent investigators of this subject. 'Mohammedans in India,' by F. Marion Crawford, in Harper's, possesses some scientific interest. The *Century* has an article on the 'Gate of India,' with a map, and one upon 'Frank Hatton in North Borneo,' by his father, with notes from the explorer's diary.