albuminuria altogether, or with only a very transient appearance of it; three who had had no symptoms within twenty-five days contracted well-marked yellow-fever within three years; one patient who had a mild attack in consequence of inoculation contracted a severe attack later on, which proved fatal: that is to say, of those who had been inoculated, only about eight per cent contracted the disease in a well-marked form, with a mortality of under two per cent. In order to enable one to appreciate the significance of these figures, the authors mention that they observed sixty-five monks who from time to time arrived in Havana, where they all lived under similar conditions. Thirty-three of these were inoculated, and thirty-two were not. Only two of the inoculated contracted well-marked attacks, which, however, did not prove fatal; whereas eleven of those that had not been inoculated were severely attacked, no less than five dying. It is remarked that inoculations performed in the cold weather are not entirely trustworthy, and that they should be followed up by a repetition in the spring.

A New Bleeding Era.

The discussion which took place at the last meeting of the Royal Medical and Chirurgical Society of London was in many respects interesting and noteworthy, says the *British Medical Journal* of Jan. 31, 1891, editorially. Dr. Pye-Smith is to be congratulated on having so effectually succeeded in directing attention to a subject which must always have a real, if even only an historical, interest.

The reflections and conclusions contained in the paper were based upon the record of some fifty cases coming under the notice of the writer, in which venesection had been resorted to. The range of diseases in which it was employed included such acute affections as bronchitis, acute broncho-pneumonia, lobar pneumonia, miliary tuberculosis of the lungs, with others of more chronic nature, such as valvular disease of the heart with pericarditis, Bright's disease, aneurism, and epilepsy. Its value in other conditions, such as hemoptysis, apoplexy, uremic coma, was also considered.

The discussion which ensued was remarkable, on account of the almost complete unanimity which the speakers expressed in favor of the adoption of this method of treatment in suitable and urgent cases. All testified to the great and immediate relief which venesection gave under such circumstances, — a relief unattended by any ill consequences on the subsequent progress of the disease.

Considerable differences of opinion, it is true, existed as to the cases most likely to be benefited by the treatment, or, rather, as to the cases which, in the experience of the various speakers, had most benefited by the treatment; for it was one of the noteworthy features of the discussion that there was a commendable absence of recourse to theoretical considerations as a basis for the practice.

In this respect the subject of venesection occupies a different position from that held by it in the former "bleeding era," to which reference was made in such humorous and instructive fashion by Sir George Humphry and Mr. George Pollock. The practice was then based on the humoral pathology which so long dominated the practice of medicine, — that pathology which ascribes disease to the presence of deleterious agents in the blood, and which seemed, therefore, to justify the withdrawal of a certain quantity of the noxious blood as one of the best ways of curing it. As Dr. Broadbent pointed out, it was because the practice had been based so entirely on theory that it was carried to excess, and fell into such disrepute.

One of the chief merits of Dr. Pye-Smith's paper and of his subsequent remarks was to lay stress on the importance of resorting to venesection; not for the cure of pathological conditions as such, but for the relief of distressing symptoms depending on temporary alterations in the physiological balance of the circulation. As to the first indication laid down for the performance of the operation, — cyanosis with distention of the right side of the heart depending on pulmonary or other obstruction to the circulation, — there was a consensus of opinion favorable to the operation; but Dr. Broadbent did well to point out, that, before resorting to venesection under such circumstances, there should be evidence, as shown by the disparity between the strength of the heart's beat and the weakness of the pulse, that the right ventricle was still acting powerfully, and able to take advantage of the relief afforded it by the withdrawal of blood.

As to the second indication, — the pain of aortic aneurism, — the cases mentioned by Dr. Pye-Smith and Mr. Hulke, in which instantaneous relief was thus given, were very striking; and evidence of its curative effect on the aneurism was also incidentally adduced by Mr. Jonathan Hutchinson. Nevertheless, as Dr. Stephen Mackenzie pointed out, it may be doubted whether, in iodide of potassium, nitrite of amyl, and nitro-glycerine, we do not possess remedial agents equally powerful and equally efficacious in relieving the high arterial tension on which such attacks of pain depend. The discussion, indeed, brought out the fact that it is in relieving pain that venesection finds one of its best applications, and more especially in relieving the intense inflammatory pain of pleurisy, pleuro-pneumonia, or the severe pain, with threatening onset of cerebral symptoms, following injury to the skull.

To those accustomed, as most now are, to regard loss of blood, from whatever source, as an unmitigated evil, the suggestion to follow up an extensive bleeding from the lungs by a further bleeding from the arm is startling. Nevertheless, something can be said, and was adduced by one of the speakers, in favor of its adoption in cases in which the patient is in urgent danger of suffocation from the reflux of blood into the bronchi. It is, however, peculiarly open to the objection brought against the operation of venesection generally, — that, in the present state of public opinion as to blood-letting, the discredit of a fatal result is too likely to be hastily assigned to the venesection. Apart from such considerations, however, the general result of an unusually animated discussion will be to direct attention once more to the possible advantages attending the judicious employment of a mode of treatment long condemned as not only useless but dangerous.

NOTES AND NEWS.

AN instrument called the "hæmatokrit" has been invented by Herr von Hedin. It is for determining the volume of corpuscles present in blood, and is based on centrifugal action. As described in *Nature*, a volume of blood and one of Möller's liquid (which prevents coagulation) are mixed together, and the mixture is poured into small, thick walled glass tubes, graduated in fifty parts. The tubes rest on a brass holder which is fixed on the axis of a rotation-apparatus. After some eight thousand rotations, in five to seven minutes, the process is complete. The separation between the corpuscles and the salt-plasma is more distinct, in that a narrow band of leucocytes appears between them. The instrument is useful in comparing the blood of different individuals. With a little practice, the total error is not more than one volume per cent.

— Archæologists have, of course, been profoundly interested by the recent discovery of a vault filled with mummies and funereal coffers at Deir Elbahiri, near the plain of Thebes. The Cairo correspondent of the London *Times*, telegraphing on Feb. 24, gives the following as the latest details, according to *Nature* of Feb. 26: "The site of the discovery is east of the Temple of Queen Fatasou, in a small spot previously undisturbed, amidst the excavations made by the late Mariette Bey and Brugsch Pacha. A well-shaft of 15 metres leads to a doorway blocked with large stones, opening on a gallery 73 metres long, whence a staircase descending 5¼ metres conducts one to a lower gallery 12 metres in length, both lying north and south. The lower gallery gives access to two mortuary chambers 4 and 2 metres square respectively. At the top of the staircase is a transverse gallery 54 metres long, lying east and west, the object of which is unknown. The total underground area is about 153 metres, excavated in the limestone rock to over 65 feet below the surface. The same disorder reigned amongst the contents of the tombs as was found when the famous royal mummies were discovered nine years ago. Sarcophagi were piled upon sarcophagi, and alongside were boxes, baskets of flowers, statuettes, funereal offerings, and boxes crammed with papyri. There is every indication that the place, though originally constructed as a vast tomb, was chosen for hurried conceal-

ment in time of tumult. Some of the exteriors of the mummy-cases are unusually richly decorated with religious subjects, carefully depicted; others of large size enclose mummies in a broken condition, and were apparently procured hastily, as the spaces for the occupants' names are left unwritten upon. The contents of the papyri are as yet unknown, but hopes are entertained that the writings are of permanent historical interest, and have been thus hidden to avoid destruction. The mummies are priests and priestesses of Ammon, Anubis, Seti, Mentou, and Queen Aahotep, numbering 163, the latest belonging to the twenty-first dynasty. Seventy-five papyri were found in boxes in the form of statuettes of Osiris. Each mummy is also expected to contain more or less valuable manuscripts. The collection is *en route* in barges by the Nile, and will probably reach Cairo in a few days."

— Mr. G. J. Symons, F.R.S., in a letter to the London *Times*, refers to the remarkable dryness in Great Britain during the month of February as follows: "My observations here have been absolutely continuous for more than thirty years, and hitherto the dryest February was that of 1863, when .31 of an inch fell. In 1891 we have less than one-thirtieth of that: we have only .01 of an inch. And if we examine all the other months of the whole thirty-three years, we find that the dryest was May, 1885, with .26 of an inch. These two facts sufficiently indicate the exceptional character of the past month at this station. We had one slight sprinkle in the forenoon of Feb. 7, immediately after one of those intense darknesses (arising from high fog) which are becoming so sadly more frequent in this wilderness of chimneys. It had been dark, — actually darker than on a clear moonless night. Fine mist began to fall. I put some sheets of note-paper in the garden for the rain to fall upon. The shower, if such it could be called, was over in an hour, and every drop had left its inky mark upon the paper. I enclose a portion, that you may have one more proof of the need for drastic measures if London is to be clean enough to live in." Mr. Symons has received only one return from England exceeding .10 of an inch, and this was from the hills above Ullswater.

— Professor Seubert contributes an important paper to *Liebig's Annalen*, in which are presented the final results of his redetermination of the atomic weight of osmium. A preliminary account of the earlier portion of this work was published in the *Berichte* in June, 1888, and a short notice concerning it was given in the columns of *Nature* (vol. xxxviii. p. 183). It was then shown that the atomic weight of osmium was certainly not higher than 191, and was probably a few decimals less. Owing, however, to lack of material, Professor Seubert was not able to complete the work in the unimpeachable manner characteristic of his other atomic-weight determinations. Since that time, however, thanks to the kindness of Professor Lothar Meyer, a sufficient quantity of pure osmium has been placed at his disposal, and the work has been completed in a manner which leaves nothing to be desired. The salts analyzed (*Nature*, March 5, 1891) were potassium and ammonium osmium chloride, K_2OsCl_6 and $(NH_4)_2OsCl_6$. The final mean value derived from all the experiments is 190.3, a number which fully justifies the expectations of Professor Seubert that it would fall slightly below 191. The importance of the settlement of this question cannot be overrated, for it removes the last outstanding exception to the periodic generalization. The metals of the platinum group, — osmium, iridium, platinum, and gold, — when arranged in the order of their chemical and physical properties, unmistakably take the relative precedence just quoted. If these properties are, as every one now agrees, periodic functions of atomic weight, the atomic weights of these metals should increase from that of osmium upwards to that of gold. Previous to the year 1878, however, the accepted atomic weights were: gold, 196.2; iridium, 196.7; platinum, 196.7; and osmium, 198.6, — a relation which, if correct, was diametrically opposed to the principle of periodicity. In that year Seubert attacked the subject, and the first outcome of his labors was to correct the atomic weight of iridium, which he found to be 192 5, instead of 196.7. It was a most remarkable tribute to the accuracy of Seubert's work, and likewise of his own, that Joly a short time ago obtained for the same constant the identical number 192.5. In 1881, Seubert took up the case of platinum, and finally adjusted its atomic weight to 194.3, — a number which was confirmed by a subsequent determination of Halberstadt. In 1887 the position of gold was finally decided by the remarkably agreeing and almost simultaneous determinations of Thorpe and Laurie on the one hand, and Krüss on the other, the value arrived at in both cases being practically 196.7. Finally we have the just completed work of Seubert upon osmium; and the four metals, when arranged in order of atomic weight, now take the order, osmium, 190.3; iridium, 192.5; platinum, 194.3; gold, 196.7, — an order of precedence in full accord with the order of their chemical and physical properties.

— The district in northern Persia where olives flourish, as we learn from the *Journal of the Society of Arts*, London, naturally consists of forty-three villages, which are situated on the confines of the province of Gilân, between Rustemabâd on the north, Manfeel on the south, Tarum on the west, and Rahmetabâd on the east. The British secretary of legation at Teheran says that this group of villages possesses from 80,000 to 100,000 trees, which yield on an average from six to nine pounds of olives per tree per annum, thus giving an annual produce of 560,000 pounds of olives, if the former average be taken. The quantity of good olive-oil derived from the Persian presses may be estimated at 17 per cent of the olives, which would give 127,000 pounds of good oil. The good oil having been extracted, the residue is again pressed, and an oil of inferior quality is produced, which is used in the manufacture of soap. The value of the oil after a good harvest is two *krans* (about 1s. 2d.) per bottle of two pounds weight, at Resht or Teheran, whereas the maximum price paid per bottle after a bad harvest is five *krans*. In obtaining the oil the following process is employed. The olives are gathered late in the autumn, and at once stored in a kind of large bin, where they are left to ferment till the first spring suns; that is to say, till about the festival of the Persian new year, March 21. The olives are then spread out to dry on the flat house-tops. When perfectly dried, they are again packed till they ferment. After this second fermentation, they are trodden by men, somewhat after the fashion in which grapes are trodden in the wine-press. After having been thus trodden, they are boiled, and after boiling crushed in a sort of press between flat stones, a receptacle for the oil being placed beneath the stones. A monopoly for the working and purchase of all the olives in northern Persia was granted to a firm of Russian merchants in a concession given to them by the Shah in 1890; and, in order that no time may be lost in turning a profitable speculation to good account, a member of this firm has, it is said, been already carefully studying the various methods employed in Europe in the pressing and refining of the oil, the method in practice in the olive-oil presses of Marseilles having finally been selected by him. Every olive tree in Persia is subject to a government tax of four *shahis*, or about 1½d. English money.

— Mr. Werner Langguth, writing to *The Engineering and Mining Journal*, states that it may be of interest to some to learn of a comparatively cheap and practical method which will furnish an ample supply of pure oxygen-gas from a solution of chloride of lime (bleaching-powder). The production of this gas and its method were observed and investigated by Mr. Langguth some years ago, and it has since been practically used by him in the laboratory for various purposes. If this method becomes generally known, it may find manifold application owing to its cheapness and simplicity. If a few drops of a solution of a cobalt salt (nitrate of cobalt, $Co(NO_3)_2$, for instance) be added to a strong solution of bleaching-powder in water, $H_2O + CaCl_2 + Ca(ClO)_2$, and shaken well, an evolution of gas will be immediately observed, the production of which will be increased by a slight rise of temperature. The gas thus produced is pure oxygen, free from chlorine, and may be dried, if required, in the usual manner. The evolution is not violent, and the re-action gives an even and continuous flow of oxygen-gas for a long time; that is, until all the bleaching-powder in solution is converted into calcium chloride:

$$CaCl_2 + Ca(ClO)_2 + H_2O = 2O + 2CaCl_2 + H_2O.$$

The few drops of nitrate of cobalt added are precipitated by the bleaching-powder to cobalt hydroxide, which suffers no further

change, only producing by its presence the liberation of the oxygen. It is a beautiful illustration of its catalytic action. It is needless to say that the precipitated oxides can be used over again, *ad infinitum*, with the same effect. The calcium-chloride solution is decanted from the settled cobalt hydroxide in the generator, charged with a fresh solution of bleaching-powder, shaken, and the evolution of oxygen commences again. Nickel salts will act on bleaching-powder in the same manner, but the evolution of oxygen is much slower.

— The twelfth annual exhibition of instruments by the Royal Meteorological Society, London, was opened on Tuesday evening, March 3. The exhibition this year was devoted to rain and evaporation gauges, and such new instruments as have been constructed since the last exhibition. Almost every known pattern of rain-gauge that has been used in this country was shown, and it was interesting to compare the old patterns with the new patterns. Most of the gauges had funnels five or eight inches in diameter. The Meteorological Office 8-inch gauge is generally regarded as the best gauge for ordinary observers, to whom cost is not a primary object, as it has all the good features of the Glaisher and of the Snowdon patterns, and, being of copper, is very durable. In mountainous districts, where the rainfall is heavy, and the gauges can only be periodically examined, gauges capable of holding forty or fifty inches of rain must be used. Specimens of these gauges, as well as of the rain and snow gauges used in France, Germany, Russia, Switzerland, and the United States, were shown in the exhibition. Some interesting storm-gauges and self-recording gauges were also exhibited. The evaporation-gauges included several instruments employed for measuring the evaporation from a free surface of water, and others for use with growing plants. A number of new instruments were also exhibited, among which were various anemometers, recording barometers, and cameras for meteorological photography. An interesting collection of maps of rainfall over the British Isles and various parts of the world, as well as numerous photographs of floods, meteorological phenomena, etc., were also on view. The exhibition remained open till Thursday, March 19.

— Bulletin No. 26 (January, 1891) of the Agricultural Experiment Station of the University of Wisconsin, Madison, is on "Sugar-Beet Culture in Wisconsin." This bulletin presents the results of investigations made during the season of 1890 with sugar-beets for the production of sugar. The work has been under the general direction of the Department of Agriculture, Washington, D.C., which also rendered financial aid. In addition to the experiments carried on at the station, experiments were conducted at five sub-stations,— one in each of the following counties; viz., Walworth, Rock, Waukesha, Marquette, St. Croix, — and by seventy farmers in different parts of the State. A summary of the results is as follows: 1. The six varieties of sugar-beets grown contained from 14.81 to 16.76 per cent of sugar in the juice. The co-efficient of purity ranged from 82.2 to 86.3 per cent. About half an acre of each variety was grown, and the yield of washed beets varied with the different varieties from 16 to 26 tons per acre. The estimated yield of sugar varied from 2 to 3½ tons per acre. In a well-managed factory about 80 per cent of this quantity would be recovered as pure granulated sugar. 2. A careful account of the work done in planting and cultivating the plats of sugar-beets grown, showed that it cost from 84 cents to $1.38 to grow a ton of beets. This does not include the cost of harvesting and delivery, which may be considered as about equal to that of growing the crop. 3. The beet-culture at five sub-stations gave beets whose sugar contents ranged from 12.81 to 17.14 per cent of sugar in the juice, while the beets would have yielded from 4 tons (at the St. Croix County station, where wet cold weather in June caused the beets to rot, and greatly reduced the yield) to nearly 39 tons per acre. The latter heavy yield was estimated from the plats grown at the Waukesha County station. 4. Seventy farmers in 29 counties of the State sent samples of sugar-beets grown by them for analysis. The results of the analyses showed a very wide range, according to the kind of seed used, the manner of growing, skill of the grower, etc. The lowest of all analyses showed 6.48 per cent, and the highest 18.79 per cent, of sugar in the juice. The latter result was obtained from beets grown near New Holstein, Calumet County, from which locality also other samples were obtained containing a very high percentage of sugar, indicating that this section may prove particularly well adapted to sugar-beet culture. Of other sections that seem well suited to this crop may be mentioned the counties of Kewaunee, Washington, Rock, Jefferson, Waukesha, Milwaukee; in short, the whole eastern and south-eastern portion of Wisconsin. Upon further trial, it is hoped that the western portion of the State may also be found adapted to this plant. There seems no cause in soil or climate to prevent good beets being produced there. 5. Beet associations should be formed, and each member should pledge himself to grow from two to three acres of beets, in order to test the capacity and adaptability of the soil in different localities. Common sugar-beet seed may be used for most of the planting, parts of a few rows being from genuine imported sugar-beet seed. 6. The results of the sugar-beet investigations for the year past are very satisfactory, and encourage the belief that Wisconsin is well adapted to sugar beet culture. The people are urged to continue their interest in the matter, to move forward with caution, and in no case to enter upon the construction of beet-sugar factories until there is positive assurance that the farmers will grow sufficient beets to keep the factory running for the whole working season, and that the soil of the particular locality is adapted to the crop.

— United States Consul Bradley of Nice reports that much of the olive-oil exported from France is adulterated with different seed and nut oils. At least seven or eight of the seed products are so employed. When our fellow-citizens imagine that they are eating their salads with olive-oil, it is possible that at least a portion of the oil eaten is either cotton-seed, ground-nut (*Arachis hypogœa*) sesamum, poppy, camelina, rape, or flaxseed oil. The French farmer and the agricultural stations are doing what they can to remedy this, as growers of the olive are being seriously injured by these cheap mixtures, just as our dairy farmers were hurt by manufactured imitations of butter; but they can do little without the assistance of the buyers. It is quite possible to obtain the pure article now by co operating with agricultural stations at shipping points, say, Nice, Marseilles, and Bordeaux. At Nice, M. R. Brullé, director of the agricultural station, says, that, if buyers will make it a condition of their orders that samples of the oil to be shipped be placed at the disposal of the consul or director of the station by the oil-merchant for analysis, he will analyze it and pronounce upon its purity, giving a certificate of the same to the merchant shipper. On receipt of the consignment, the buyer, if he wishes, can repeat the examination by a comparatively simple process recently discovered by M. Brullé. If oil has not been sent according to sample furnished, the shipper will be liable to a criminal action. The fear of this would be a strong reason for honesty.

— At a recent meeting of the Ohio State Horticultural Society, and also of the Columbus (Ohio) Horticultural Society, resolutions were passed asking the State Legislature to pass a law compelling owners of plum and cherry trees affected by black knot to destroy the infested branches. In a bulletin just issued by the New Jersey Experiment Station, Professor B. D. Halsted, one of our most eminent economic botanists, urges the passage of such a law in that State, giving the following reasons therefor: "There are some good reasons for legislating against the black knot (*Plowrightia morbosa*) of the plum and cherry trees. In the first place, the fungus is beyond question extremely destructive: whole orchards of large size in many parts of the country have been abandoned because of this parasitic plague. Second, it is a conspicuous disease, and during a half of the year when the trees are defoliated the knots can be found without the least difficulty. Any attempts to shield the trouble, on the part of the owner, would be fruitless, even if he should care to preserve the curse. In the third place, the remedy is the very heroic one of the knife, and easily, safely, and with certainty applied. There may be some compounds put upon the diseased parts that will kill the fungus; but it is so deeply seated, that, when a twig is thoroughly infested, there is little left for the fruit-grower to do but to cut

away and burn the black excrescences. If a tree is badly attacked, the wise method is to cut down bodily, and destroy it by fire. Finally, when once the old knots are cleared out, it will be an easy matter to keep the fungus from gaining a fresh foothold. There are many trees which are literally covered with knots, and have been for years, — trees which bear no fruit, and never will, — and they are worse than mere monuments of carelessness, for they propagate and perpetuate a disease that renders plum-raising almost an impossibility in their neighborhood. Sometimes these old, distorted trees are on the roadside, where any passing lad can pull off and carry to his own home one of these malformations, to become a new centre of infection. But these knots do not need to be transported to produce infection, for the millions of spores developed in the spring, while too small to be seen, pass long distances with the winds, and thus spread the disease. There are several fungous diseases against which the State Legislatures or the National Congress might pass enactments fully as wholesome and beneficial as those for the control of the diseases of animals; but few of them offer so many favorable points for successful legislation as the black knot, — the scourge of plum and cherry growers in many localities. The law should include, to be effective, all wild plum and cherry trees that are breeding-places of the pest."

— Mr. E. H. Hankin of St. John's College, Cambridge, Eng., is said to have discovered a cure for anthrax, to the study of which disease he has devoted himself many years. He based his investigations, according to *Hardwicke's Science-Gossip*, upon the principle of lymph inoculation, which Dr. Koch has so successfully applied in the case of tuberculosis. The glycerine extract in Mr. Hankin's process is precipitated with alcohol, and re-dissolved in water. The experiment has been repeated on a number of subjects with gratifying success. This discovery derives additional interest from the fact that anthrax is not the only disease from which rats (the spleen of which animal produces the protective proteid) enjoy immunity.

— An insect which is not uncommon in India is a medium-sized mantis, between three and four inches in total length. It is one of those mantises, says Mr. J. R. Holt in *Science-Gossip* for March, which have a long slender thorax, and which, owing to the second and third pairs of legs being very long, carry their thorax and head very high. In this insect the thorax is about half its entire length, and is of a bright grass-green color, without any markings, and it obviously mimics a grass-stem. The abdomen is also somewhat slender; the wing-covers are of a grass green color, without markings; and it obviously mimics a grass-blade. But in both these cases the mimicry is obvious, as also the reason for it, and it is not what Mr. Holt would call attention to. The first joint of the fore-legs is widened and flattened; it is also green, and the posterior surface is marked with a large ocellus. When the insect is undisturbed, it remains generally in one place, but is not perfectly motionless: it sways perpetually and uniformly from side to side. In this position it looks very harmless, but if it is startled or alarmed its aspect instantly changes: it partly opens the wings, turns its head and thorax so as to face the terrifying object, makes a noise like a sudden, sharp puff of wind, very like the noise made by a startled snake, and raises its fore-legs so that the first joint lies along the thorax; and, the inside margin of the expansion being nearly straight, it looks as if the fore-legs and thorax were connected. In this position the ocelli are very conspicuous, and, with the small, triangular head and the slender thorax, the effect is to produce a ludicrous resemblance to a diminutive cobra. Now, what puzzles one, is this exact resemblance. The insect could not possibly be taken for a cobra on account of its small size and green color; while, if the object is only to appear formidable, it could have been obtained without imitating a cobra so exactly. It may be suggested that there is no direct imitation, but that the same causes which have led to the development of the eye spots in the cobra have also led to the development of ocelli in this insect, viz., that the apparent possession of a large head gives the animal a more formidable appearance; but this explanation is apparently negatived by the peculiar noise made by the insect, which certainly seems to indicate that a snake is imitated. Possibly the object of the noise is to suggest that it is some kind of snake, and then the ocelli may suggest that it is one of the cobra kind. Maybe some of our readers may be able to suggest a better explanation. Anyhow, the thing is curious, and worthy of note.

— There is now direct telephone communication between London and Paris. The first conversation between the two cities was exchanged on March 17, and, according to press despatches, the results were highly satisfactory.

— The Illinois Experiment Station is located on a black loam about twenty inches deep, underlaid with clay, — the soil common to the prairies of Illinois. Thus located, that station is wisely devoting much of its resources to the study of the great cereal crop, corn. In Bulletin No. 13, for February, 1891, is given a detailed report of the experiments of corn made at that station for 1890, with a summary of the results for 1888 and 1889. The results may be summarized as follows: Of the varieties of corn treated, the medium maturing sorts (such as Leaming, and white varieties of similar season) are recommended for central Illinois. These have given a higher yield, without exception, than those maturing earlier or later. Good crops of corn were raised from a medium maturing variety when planted any time in May. Planting at about one inch in depth has been followed by larger crops on the average than deeper planting. Corn planted at the rate of one kernel every twelve inches, in rows three feet eight inches apart, gave a larger average yield of grain than when planted either thicker or thinner. Better results were obtained from planting in hills than in drills, apparently because in hill-culture the corn could be kept cleaner. No appreciable benefit has been derived from frequent cultivation, nor from cultivation after the ordinary time. For the three years the yield has been increased to the extent of one-fourth by shallow cultivation. The plat which had no cultivation after planting, except to remove the weeds by scraping with a sharp hoe, yielded more each season than the average of the deep cultivated plats, and in but two instances did any one of the deep cultivated plats yield more than the plat not cultivated. These experiments indicate that any cultivation of the soil which effectually removes the weeds, and at the same time disturbs the roots as little as possible, is the best; and that on this soil the stirring of the ground beyond what is necessary to kill the weeds is of little if any benefit. No practical benefit was received from the use of commercial fertilizers. The increased yields from the use of stable manure probably repaid the cost of the application, and left some profit.

— In a recent bulletin of the Geological Society of America, Robert Bell, M.D., assistant director of the Geological Survey of Canada, describes the nickel and copper deposits of Sudbury district, Canada. There is also an appendix on the silicified glass-breccia of Vermilion River, Sudbury district, by Goorge H. Williams. The town of Sudbury, a creation of the Canadian Pacific Railway, is situated in the backwoods of Ontario, thirty-six miles north of the mouth of French River, on Lake Huron. Other metals, including gold, platinum, tin, lead, silver, zinc, and iron, have been found in the Sudbury district, and probably some of them may prove to exist there in paying quantities. The presence of a considerable proportion of nickel in the ore of the Wallace mine, on the shore of Lake Huron, and in the strike of the Sudbury deposits, was ascertained by Dr. Hunt more than forty years ago; yet the presence of this metal in the latter does not seem to have been suspected for a considerable time after they had been worked for copper alone. The Huronian is notably a copper-bearing system. West of Sudbury, this metal occurs around Batchawana Bay, north of Sault Ste. Marie, at Little Lake George and Echo Lake, at Huron Copper Bay, in Wellington and Bruce mines, on Thessalon and Mississagui Rivers, and elsewhere. To the northeastward it has been found on both sides of Lake Wahnapitæ, on Temagami and Lady Evelyn Lakes, along Montreal and Blanche Rivers, on the watershed east of the canoe route between Lakes Temiscaming and Abbittibi, and finally near the southern extremity of Lake Mistassini. The search for this metal along the Huronian belt is only in its infancy, and the copper-mining industry may some day be very extensively carried on in various parts of this as yet almost unknown section of Canada.