SOME ANATOMICAL PECULIARITIES IN THE MALE CHIMPANZEE.

The body of the male chimpanzee, which recently died at the Philadelphia Zoölogical Gardens, was immediately removed to the Medical Department of the University of Pennsylvania, where Dr. Joseph Leidy, Professor of Anatomy, has been gradually dissecting it. Dr. Leidy has already dissected the bowels, lungs, and brain of the animal, which has enabled him to develop certain facts in the anatomy of the chimpanzee not hitherto known. There were in some respects several marked differences between the brain of the female champanzee, which was dissected in Philadelphia some weeks since by Dr. H. C. Chapman, and that of the male now dissecting by Dr. Leidy.

Dr. Chapman reported, in his paper on the subject read at a late meeting of the Philadelphia Academy of the Natural Sciences, that the brain of the animal under his examination closely resembled that of a human being, with the exception of the fact that the cerebrum did not cover the cerebellum. This statement coincides with that of a distinguished anatomist whose dissection of the body of a champanzee, many years ago, is one of the few cases on record. Dr. Leidy, on the other hand, found that, in the case of the male champanzee, the cerebellum is covered by the cerebrum, so rendering the resemblance anatomically exact between its brain and that of man, and at the same time showing that the intellect of the male champanzee is greater than that of the female. From this fact the inference may readily be drawn that the present is the only case on record in which an anatomical examination of a male chimpanzee has been made.

Another striking difference in the anatomy of the male and female chimpanzee is a most remarkable peculiarity in the formation of the vocal organs. This peculiarity consists in the possession on the part of the male chimpanzee of a natural bagpipe, which communicates with the larynx and extends into the chest and armpit. This bag is covered by powerful muscles. To produce a loud sound by means of this bag but a slight motion of the arms is necessary. When Dr. Leidy discovered this bagpipe he at once wrote to the superintendent of the Zoölogical Gardens to inquire if the male chimpanzee had any distinctive call or cry. In reply he received answer that the "voice of the male, for so young an animal, was simply enormous; and that its cry, when enraged, was loud, piercing, and shrill." It is a well known fact that this physical arrangement is found in the male gorilla, in the orang-outang, and in the howling monkeys of Southern Africa, whose cry can be heard for miles.

The body of the animal will be preserved and placed in the Medical Museum of the University. Dr. Leidy will shortly incorporate the result of his examinations in a paper to be presented to the Philadelphia Academy of Natural Sciences.

Professor Tyndall on the Electric Light.

At a recent meeting of the Royal Institution, Professor Tyndall delivered a discourse on "The Electric Light." He commenced by expressing his thanks to all who had afforded him information about the various arrangements for electric lighting now before the public, and those which have for a while held their ground, but have been superseded. The electric light has been known for 70 years, as in 1808, and again in an improved form in 1810, it was shown to audiences at the Royal Institution. Sir H. Davy's carbon points "threw sunshine into the shade," and in 1808, 2,000 pairs of plates, obtained for the Institution by subscription among the members, produced such heat from the current they gave that quartz and calcium were melted as wax. It was early known that to produce heat and light in a circuit there must be resistance. This was illustrated by a wire composed alternately of platinum, which resists, and of non-resisting silver, when on the passage of a current the platinum became dazzlingly white hot. A non-resisting copper wire will carry enough electricity to split a resisting oak tree. In the case of two carbon points, this resistance causes the one point to waste with double the rapidity of the other. This, which was formerly regarded as one of the two great obstacles to the general introduction of the electric light, had been overcome by various appliances of clockwork, which kept the two points at the proper distance apart. The second great obstacle was a more serious one, depending on the inexorable law of nature which demands an expenditure of force of one kind for the production of another. Zinc may be burnt in air, that is, oxidized; it may be also "burnt" or oxidized in acidulated water, but it has to displace the oxygen from the hydrogen for this to occur, and four fifths of the heat produced are used up in this process. So that when zinc is thus "burnt" only the remaining one fifth is available. The rate of "burning" makes no difference; one ounce of zinc, for example, always gives out the same amount of heat.

This "burning" of zinc which had been used in the production of electricity was an expensive fuel, and this seemed to be a very great drawback to the general use of the electric light. In the year 1831 a discovery was made at the Royal Institution by Faraday—that of magneto-electricity. He showed that when the earth's lines of magnetic force are cut, an electric current is produced. Prof. Tyndall quoted Faraday's saying, that he would rather occupy himself with finding fresh effects than spend his time in exalting those effects. But it was the exaltation of those effects which he first studied in a simple way which has led to the present possibilities of our electric lighting. In 1854, Werner Siemens, of Berlin, invented what is now known as a Siemens armature, with 16 permanent magnets, in the working of which there is only the ordinary mechanical friction to be overcome. Working the machine by hand, the expenditure of muscular force becomes apparent as heat through the machine. But this and the Wilde and Gramme machines in the same way show that the external work falls short of the originating work.

Now, whatever electricity is, it is a swift carrier of heat. We have motive power converted into current, and then we can have current converted into motive power. For example, Sir William Armstrong has his electric light worked by a water wheel. The great advance on Faraday's spark of 1831 as to practical use is the use of a cheap fuel—coal—for obtaining through the steam engine the motive force required. All the various modifications of the light as now used depend on this.

Prof. Tyndall gave a historical sketch of the various arrangements, beginning with that of Mr. Holmes, in 1862. He did not believe any fresh scientific discovery was needed to make the electric light of general application to large places. The scientific man knew what different natures of machines were required to do the different kinds of work to be done. It remained now for mechanical skill to carry out the work.

Preservation of Iron.

Capt. Bourdon has devised simple forms of apparatus for coating iron with Barff's magnetic lacquer. In the course of his experiments he found that the coat of oxide could be formed by the air in the following manner: The serpentine part of a sheet iron reservoir communicates with air which is heated to 248° Fah. The current of hot air, after circulating through the serpentine, reaches the cylinder which contains the articles to be lacquered. The escape spout communicates with a water aspirator regulating the flow of air, which should be very gentle. The internal pressure is little more than one atmosphere, the apparatus being in communication with the open air. The temperature of the air in the cylinders is 536° Fah.; the operation lasts five hours, giving a coat 0·05 of a millimeter thick (0·002 inch), of a beautiful greenish black, resisting the action of fine emery paper and of dilute sulphuric acid. After the articles are taken from the cylinder, they are rubbed with a greasy rag, and spots are removed by fine emery paper or scouring grass. Spots may generally be avoided by suspending the pieces, so that they will not touch each other or the walls. If the temperature is raised to about 572° Fah., a thick coat is secured, but it is apt to scale. Articles thus lacquered have been exposed to snow and rain for a month without getting any spots of rust. If the black coating is removed by emery paper, there is a grayish layer on which rust does not take much hold; the spots can easily be removed by a bit of hard wood. Barff has observed the same peculiarity in articles which have been steam lacquered.—*Ann. des P. et Chauss.*

The Study of Hair in its Medico-Legal Aspect.

In a recent monograph on human hair by M. Jeannot, the author proceeds first to point out the difference which exists between hair in a healthy or diseased state of the body, and on the corpse; and then gives certain peculiarities by which we may be enabled to distinguish between human and animal hair; and, finally, shows what varieties are found in hair itself, in reference to its place of growth, and the age and sex of the individual. He then goes on to prove how very important a knowledge of all these facts may be in any case of supposed murder; for in this way hair found either on the instrument with which the crime has been committed, or on the clothes of the victim, may help to identify the murderer. The author afterward shows by what means it is possible to prove whether hair has been pulled out by violence, cut off, or whether it fell out spontaneously. One very interesting point advanced is the assertion maintained by Hoppe-Seyler and Sonnerschein, that arsenic may exist and be traced in the hair of persons who have died from the effects of this poison. The truth of this theory, however, remains to be proved; all the experiments made by Stadel on patients under treatment with arsenic have always given negative results.

Yellow Fever in Winter.

In spite of midwinter cold cases of yellow fever are reported at New Orleans and Vicksburg. In some cases returned refugees entering houses that have been closed since summer are said to have taken the disease; in other instances the disease is attributed to the active disinterment of victims hastily buried when the plague was at its height. In Mississippi and Tennessee physicians insist that if this dangerous work is not stopped a return of the epidemic may be expected in the spring; and in some cases the health commissioners have been compelled to forbid the removal of last summer's victims. Wealthy families, no doubt, find it painful to leave their dead in potters' fields, but personal feeling should not be suffered to endanger the entire community.

BLACK LACQUER FOR METAL AND WOOD.—Nine parts of shellac are dissolved in fifty parts of methylic alcohol and set aside for a few days. Then ten parts of pulverized asphaltum are dissolved in fifty parts of coal tar benzine. Both liquids being mixed, a sufficient quantity of lampblack is added to give it the required density. When necessary, it may be diluted with a mixture of alcohol and benzine.—*Chemiker Zeitung.*

Self-Illuminating Watch Faces and Clock Dials.

M. Olivier Mathey, a Neufchâtel chemist, and the manufacturer of the well-known "diamantine," communicates the following information in regard to the composition of these dials, to one of our foreign exchanges:

Phosphorescent dials are usually made of paper, or thin card-board, enameled like visiting cards. They are covered with the adhesive varnish, or with white wax, mixed with a little turpentine, upon which is dusted, with a fine sieve, powdered sulphide of barium—a salt which retains its phosphorescence for some little time. The sulphides of strontium and calcium possess the same property, but lose it more quickly than the former. After the dial has remained in darkness some days it loses its phosphorescence; but this may be readily restored by exposure for an hour to sunlight; or, better still, by burning near the dial of a few inches of magnesium wire, which gives forth numerous chemical rays.

M. Recordon, of Paris, states that two years ago he took out a patent for, and has since been manufacturing, illuminated dials on an entirely different principle from those produced by the use of chemicals. His device is this: A Geissler tube, containing a gas which gives a brilliant light, is placed on the dial; a battery about the size of a thimble is attached as an ornament to the watch chain, and a miniature induction coil is also hidden in the latter. When it becomes desirable to consult the watch in the dark, a spring is pressed, the current passes into the coil, then into the Geissler tube, and illuminates the dial. The portable battery used for this purpose is that of Trouvé, which, in a small compass, has considerable strength. Reduced to the size of a thimble, it is still sufficiently strong in its action to last a year. Mons. Recordon also applies the same principle to the illumination of clock faces.—*The Watchmaker.*

The Fermentative Power of the Papaw.

The question of the fermentative action of the juice of the papaw (*Carica papaya*) upon animal tissues has received some confirmation from the experiments of Herr Wittmack, which he recently embodied in a paper communicated to the Natural History Society of Berlin. The juice, as obtained from the fruit, is of a white milky character, and is present in the fruit apparently only in small quantities, for Dr. Wittmack obtained, after repeated incisions made in a half-ripe fruit, only 1·195 grain of the milky juice of the thickness of cream. When dried it has a strong odor and flavor of petroleum or vulcanized India rubber. In the experiments some juice was dissolved in three times its weight of water, and some fresh lean beef boiled in it for five minutes. Below the boiling point the meat fell into pieces, and at the close of the experiment it had separated into coarse shreds. Fifty grains of beef in one piece, enveloped in a leaf of the papaw and left in this position for a period of twenty-four hours, at a temperature of 15° C., became perfectly tender after a slight boiling, while on the other hand a piece of meat of similar size and weight, simply wrapped in paper and heated in the same manner, remained quite hard. The experiments prove that in the milk juice of the papaw a ferment resides which has a powerfully energetic action upon nitrogenous substances, and it is to this action that the peculiar and well known property of the papaw is attributable.

New Mode of Manufacturing White Lead.

The molten lead is poured through an iron sieve into a tank filled with water. Hereby it is converted into threads of one sixth of an inch in thickness, which are now placed in vats, each of which holds about 1,000 threads. Vinegar is now poured over the lead, and immediately drawn off again. Under the influence of the air and the vinegar adhering to the metal, the latter is oxidized. The vinegar is now poured into the vat and again drawn off, when it carries away the acetate formed on the surface of the metal in solution. After this process has been repeated a number of times, the vinegar has been transformed into a concentrated solution of basic acetate of lead, from which the carbonate may be prepared by the introduction of a current of heated carbonic acid gas. The supernatant liquid is, mixed with another quantity of vinegar, used again for the same process.—*Chemiker Zeitung.*

Hop Fiber.

A German agricultural journal reports that Mr. Nordlinger, of Stuttgart, has invented and patented a process by which hop stems can be made the source of fiber almost equal to flax. The stems and other parts of the plant are boiled in water, to which soap or soda has been added, for three quarters of an hour, thoroughly washed, and then again boiled in very dilute acetic acid. The fibers are now washed free and dried, and when properly combed can be worked like other textile materials. They are said to resemble flax fibers very closely, and to be superior to all others in elasticity, softness, and durability. It is much to be hoped that this process of employing the stems may prove a practical success, for at present, if the hop itself fail, the crop so tenderly nurtured is little less than a dead loss to the unfortunate grower.

PYROPHOROUS IRON.—Iron sponge, which ignites on contact with the air, may be obtained by heating tartrate or oxalate of iron in a narrow-necked vial to complete decomposition, and closing the vial immediately. The residue, which is magnetic and of a velvet-black color, ignites and burns with a beautiful red flame when exposed to the air.—*Chem. Notizbl.*

The Shipping of New York.

The collection district of New York includes the waters of New York Bay and Harbor, East River and Long Island Sound bordering on Westchester county, to the Connecticut line, the north and south shores of Long Island, Staten Island, and that part of Hudson and Bergen counties lying on New York Bay and Hudson River, and the navigable waters of the Hudson River. The district possesses a water front of about 700 miles, and the wharf fronts of New York port cover 25 miles. Marine sailing papers are issued at New York city, Albany and Troy, on the Hudson, and Cold Spring, Port Jefferson and Patchogue, on Long Island.

The registered shipping of the port of New York on the first day of January, 1879, was as follows:

Sail vessels under register foreign trade, number 814; tonnage 481,545·28.

Sail vessels under enrollment or license for the coasting trade or fisheries, 1,384; tonnage, 100,922·81.

Steamers under register foreign trade (wood hulls), 43; tonnage, 56,146·43.

Steamers under register foreign trade (iron hulls), 19; tonnage, 43,266·25.

Enrollment or license coasting trade (wood hulls), 546; tonnage, 138,241·49.

Enrollment or license coasting trade (iron hulls), 34; tonnage, 35,812·93.

Total of steam vessels, 642, with 273,467·10 tons.

Barges and rigged vessels enrolled or licensed, 379; tonnage, 94,234·24 tons, to which may be added the total sailing vessels as above, namely, 2,198, of 582,468·09 tonnage, and 642 steam vessels, of 273,467·10, making the grand total number of vessels of the port of New York 3,219, with a capacity of 950,169·93 tons.

The shipping of the other ports of the district (mostly sail vessels and barges) was, on the same day:

Albany, 304 vessels, 46,306·39 tons; Troy, 465 vessels, 45,656·06 tons; Patchogue, 193 vessels, 2,811·77 tons; Port Jefferson, 119 vessels, 10,723·23 tons. Making a total, for the entire district, of 4,398 vessels, with a capacity of 1,052,-731·42 tons.

The steam fleet of the district numbers 811 vessels, embracing a tonnage of 302,820·42. It is estimated that if all the above vessels were placed in a line they would reach from Albany to New York, a distance of 144 miles.

Anatomy of Walking.

Dr. J. W. Ranney gave a lecture the other evening at Chickering Hall on anatomy and physiology, with special reference to athletic exercises. After giving a description of the human skeleton, of the skin and its various glands and vessels, the doctor addressed himself to the muscular system, which was illustrated, first with histological micrographs, and finally with a general plan of the muscular arrangement projected upon a screen. The most novel part of the lecture was the exhibition upon the screen of tabular statements of the amount of force required to carry on the various physical operations. Premising that a foot ton is merely a symbol for the power required to raise one ton a foot high, the relative amounts of power expended in vital action, concerned in vital movements, and required for the production of animal heat for one day are, respectively, 260, 300, and 2,840 foot tons. To row one mile at racing speed requires an expense of 18·56 foot tons of muscular energy; to walk one mile, 17·75 foot tons; to walk one mile, carrying a knapsack weighing 60 pounds, 24·48 foot tons. The force expended in a day's work is calculated at from 250 to 350 foot tons.

Dr. Ranney took occasion in the course of his lecture to inveigh very severely against the mania for walking which is now prevalent, in which young women, without training and without proper preparation, attempt such impossible tasks as walking 3,000 quarter miles in 3,000 consecutive quarters of an hour. Such practices, he said, were not athletic exercises in any proper sense of the term, but downright cruelty, and he hoped the time was not far off when spectacles of this class would cease. Dr. Ranney regards rowing, when properly pursued, as a finer and more healthful exercise than walking.

The St. Gothard Railway Tunnels.

'In addition to the great tunnel, thirteen miles long, there are on the St. Gothard Railway twelve other tunnels, the shortest of which, Waren, is 1,106 yards long, while the longest, the Olberg, reaches 2,027 yards. The total length of these twelve tunnels is very nearly ten miles—15,578 meters. Then there are five tunnels between 220 and 550, and twenty-five between 110 and 220 yards, making in all fifty-two subsidiary tunnels, of an aggregate length of 16 miles. Between Immensee and Goschenen there will be thirty-three tunnels; between Airolo and Giubiasco, seventeen. The highest part of the line above sea level is the big tunnel, 3,307 feet; the lowest a point between Cadenazzo and Magadino, 675 feet. The line will be carried over sixty-four bridges and viaducts, the longest of which, that of Cadenazzo, in Tessin, will consist of five arches, each having a span of 55 yards. The total length of the Gothard line will be 151 miles, 17 per cent of it being tunnels and 1 per cent bridges and viaducts. In the first instance the line for the greater part of its length will be single, but the tunnels and permanent way are to be so arranged that additional rails can be laid down so soon as the financial success of the enterprise seems to be assured. If all goes well, the entire length of road will be in running order in from four to five years.

THE PRAXINOSCOPE.

We are all familiar with the zoetrope, which consists of a short cylinder, on the walls of which are represented different positions taken successively by a body in motion. These representations are viewed through longitudinal slits in the cylinder while it revolves at great speed. The pictures viewed in this way appear as if possessed of life. This is certainly one of the most curious of optical phenomena. The accompanying engravings represent an apparatus based on an entirely different principle.

In the praxinoscope, as the apparatus is called by the inventor, Mr. Reynaud, the different pictures representing the consecutive positions of a moving body substitute each other incessantly, the light remains constant in brightness, and it is stated that it constantly presents to the eye an image of a moving body, without exhibiting the slightest irregularity or interruption.

A mirror, A B (Fig. 1), being placed at a certain distance from a picture, C D, the image of the latter will be reflected and visible at C′ D′. When we now turn the mirror as well as the picture, C D, around a common center, O, in the same direction, so that they will occupy positions at B E and D F respectively, the image of the picture will be seen at C″ D″. As will be seen, its axis has remained unchanged.

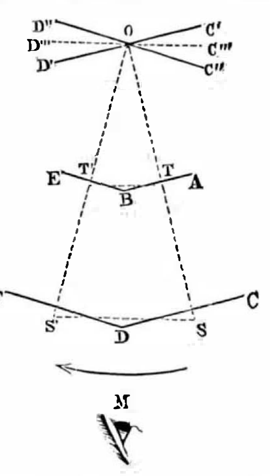

Fig. 1.—THE PRAXINOSCOPE.

If another mirror is placed at A B and another picture at C D, the eye being placed at O, one half of the first picture will be reflected from O D″, and one half of the second picture from O C′. When both pictures and mirrors are turned, the second mirror at T T′ and the second image will be fully visible at C‴ D‴. Afterward the second mirror and the picture will be found in B E and D F respectively. By replacing them by another mirror and design at A B and C D, the same succession of changes of position will be produced.

In the apparatus of Mr. Reynaud the pictures are placed within a polygonal box. Turning around a common center there is a concentric polygonal prism formed of mirror plates, and having a diameter equal to the radius of the exterior

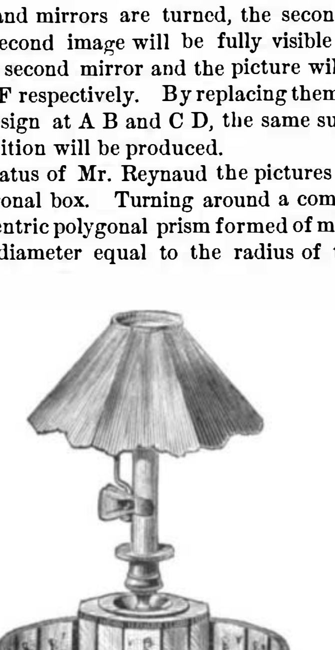
Fig. 2.—THE PRAXINOSCOPE.

polygon, as shown in Fig. 2. The box carrying the pictures and the reflecting prism is revolved at a moderate speed by means of a crank, pulley, and cord.

In the evening the apparatus may be lighted by a lamp or gas flame, the light being reflected downward by a shade.—*G. Fussandier, in La Nature.*

The Piezometer.

This is an apparatus invented by Dr. W. E. Woodbridge, M.D., in 1853. It signifies a pressure measurer, or, more accurately, a measurer of a great or hard pressure. Among all the philosophical instruments that have been invented this deserves to take a place as one of the most ingenious. It consisted essentially of a small steel cylinder, in which was placed a piston fitting it accurately. The cylinder was filled with oil, on which the piston rested, and was screwed into the bore of the gun, inside the powder chamber. All liquids are compressible in a very small degree. When the powder in the gun was fired, the piston was forced down on the oil in the piezometer and compressed it. The distance to which the piston was driven in was recorded on what may be termed the piston rod by a small steel point in the side of the cylinder, which scored a line in the side of the rod. The length of this line was subsequently measured by a micrometric scale, divided into ten-thousandths of an inch, with the aid of a microscope. In order to establish a standard of comparison, the compression of the oil under various pressures was first ascertained by means of a hydraulic press and gauges of special construction. Precautions were taken to prevent changes in temperature from affecting the accuracy of the indications of the instrument.

The experiments were made at Washington Arsenal in 1855, under the direction of Major Alfred Mordecai. Two six pounder guns, one of iron, the other of bronze, were used. The diameter of the bore of each at the shot was 3·69 inches, very nearly. The iron gun was used in the first three experiments, the piezometer being attached to the bottom of the bore. It was afterward pierced through the side to receive the instrument, inclosed in a hollow steel plug, the place in the hole being 1·5 inch in advance of the bottom of the bore. It was thus employed in many experiments. The bronze gun was, however, more used. It was drilled with nine holes at different distances from the bottom, beginning with 1 inch and ending at 47·8 inches. They were arranged alternately to the right and left of a central vertical plane in the upper half of the gun, and inclined 45° to that plane. Not the least interesting feature in the trials consisted of tests made with a musket barrel. The results obtained are very instructive, and support most of the theories held in the present day concerning the action of fired gunpowder. For example, the larger the charge the greater the pressure, irrespective of the space in which the powder was fired. Thus, while pressures of as much as 22,000 pounds, or over 9·8 tons to the inch, were registered in the six pounders, the highest that would be got in the musket barrel was 18,500 pounds to the square inch.

Bennet Woodcroft, F.R.S.

The death is announced of Mr. Bennet Woodcroft, for many years the executive officer of the British Patent Office. Mr. Woodcroft was widely known as a successful inventor, manufacturer, and author of several works relating to invention and the industrial sciences, as well as an efficient public officer. Born in December, 1803, Mr Woodcroft early learned the art of weaving. He studied chemistry under Dalton. On reaching his majority he joined his father in business as dyer and velvet finisher, at Manchester. In 1826, in one of his patents, he described himself as a silk manufacturer. About this time he became acquainted with Whitworth, Nasmyth, Fairbairn, and other eminent Manchester mechanicians. In 1843 he started in Manchester as consulting engineer, removing to London in 1846. From 1847 to 1851 he occupied the Professorship of machinery at University College, and in 1852 was appointed Superintendent of Specifications in the British Patent Office, becoming, in 1864, the sole controller of the department, with the title of Clerk of the Commissioners. From this office, which he had filled with signal ability for twelve years, he retired in March, 1876. His death occurred at his residence in South Kensington, February 7.

Mr. Woodcroft took out his first patent when only twenty-four years of age. It was for processes and apparatus for printing yarns before being woven. It was a valuable invention, and notably useful in the manufacture of ginghams. His next inventions were in naval engineering, the principal being the well known increasing-pitch screw propeller. About the same time he patented certain improvements in calico printing. The patent with which his name is most widely associated was granted in 1838, for an improved tappet for looms. In his official capacity Mr. Woodcroft is accredited with the foundation of the South Kensington Patent Office Museum, the Patent Office Library, and many improvements in the management of the Patent Office.

A New Insect Pest.

At the annual meeting of the New York State Agricultural Society, held in January last, at Albany, Mr. J. A. Lintner, the entomologist of the State Museum, read a paper in which, among other injurious insects recently observed, he gave an account of the larvæ of an insect which had been discovered two years ago in several localities in eastern and northern New York, hidden within the seed pods of the red clover, and destroying the seeds. The perfect insect had not yet been seen, but the examination of the larva showed it to belong to the cecidomyidæ, and in all probability very nearly allied to the wheat midge. A description of the larva was given under the name of *Cecidomyia trifolii*, Lintn. (n. sp.).

The range of the insect's depredations, or the extent of its ravages, was as yet unknown. In some localities in the western counties of New York the clover was so infested with it last year that it was worthless for seed. It is believed that the not infrequent failure heretofore reported of the clover seed crop throughout the country, which has been ascribed to imperfect fertilization of the blossoms and various other causes, has been the result of the secret operations of this destructive little insect.

IT is said that a gentleman of wealth and liberality, in the city of Rochester, whose name is not given for the present, proposes to furnish a site and build an observatory for Professor Lewis Swift, at an expense for both of $20,000, provided a glass of sixteen inches in aperture is purchased. Such a telescope complete, with globe and charts, will cost several thousand dollars. The heirs of the late Lewis Brooks have already given $3,000 toward a telescope, and an effort is to be made to raise the necessary sum remaining by subscription.