claim for a revolving tower for offensive and defensive warfare, whether used on land or water. When therefore the monitors were to be built, the constructors at once recognized the validity of his claim, and paid him a liberal sum for the right to use his invention."

Perhaps in the next edition of the Cyclopædia the editor will take occasion to correct the foregoing and give the true history of the invention.

The long and short of the whole matter appears to be this: Captain Ericsson was the first to design and construct a war vessel carrying an armored revolving tower or turret; and he was unquestionably entitled to all the honors and emoluments that pertained to that great production of his genius.

TYROTOXICON.

A number of cases of poisoning from eating ice cream have recently occurred. On June 30 some forty people in the neighborhood of Third Avenue and Seventy-fifth Street, New York, were poisoned in this way, the cream having been purchased of a confectioner in the neighborhood. A few weeks previous to this, a man was poisoned by cream partaken of at a saloon in New York. He was confined in St. Vincent's Hospital for several weeks, and has since instituted a suit against the proprietor of the establishment where the cream was purchased. On August 18, some twenty-five guests at Hotel Berwick, Narragansett Pier, were poisoned from eating ice cream, and a number of them were reported to have been very seriously ill. Cases of poisoning from eating cheese and drinking milk have also been of sufficiently frequent occurrence to stimulate inquiry and experiment regarding their true cause. Among the most successful of these investigators have been Doctor Victor C. Vaughan and Doctor Frederick G. Novy, of the University of Michigan, who have made an exhaustive study of the nature of poisons which are introduced into the human body from without, and those which are generated within the body. They have recorded the results of their investigations and experiments in a volume entitled "Ptomaines and Leucomaines," in which is also given the results of the labors of other eminent chemists in the same field. Vaughan and Novy succeeded after a series of most interesting experiments in isolating tyrotoxicon, and have cited a number of cases where it has been found in poisonous cheese, ice cream, and milk. Tyrotoxicon, however, is but one of a number of basic poisons which these scientists have designated as ptomaines, and in order to convey a comprehensive idea of the place assigned to tyrotoxicon, as well as ptomaines in general, in the chemistry of putrefaction, the following definition by Vaughan and Novy is given:

"A ptomaine is a chemical compound which is basic in character, and which is formed during the putrefaction of organic matter. On account of their basic properties, in which they resemble the vegetable alkaloids, ptomaines may be called putrefactive alkaloids. All putrefaction is due to the action of bacteria, and ptomaines result from the growth of these micro-organisms, the kind of ptomaine formed depending upon the individual bacterium engaged in its production, the nature of the material being acted upon by the bacterium, and the conditions under which the putrefaction goes on, such as the temperature, amount of oxygen present, the electrical conditions existing, and the duration of the process. Different ptomaines will be formed in decomposing matter freely exposed to the air and in that which is buried beneath the soil or from which the air is largely excluded. Even when the same ferment is present, the product of the putrefaction will vary, within certain limits, according to the extent to which the putrefying material is supplied with air.

"The kind of ptomaine found in a given substance will depend also upon the stage of putrefaction. Ptomaines are transition products in the process of putrefaction. They are temporary forms through which matter passes while it is being transformed by the activity of bacterial life from the organic to the inorganic state. Complex organic substances, as muscle and brain, are broken up into less complex molecules, and so the process of chemical division goes on until the simple and well known final products, carbonic acid gas, ammonia, and water, result; but the variety of combination into which an individual atom of carbon may enter during this long series of changes is almost unlimited, and with each change in combination there is more or less change in nature. In one combination the atom of carbon may exist as a constituent of a highly poisonous substance, while the next combination into which it enters may be wholly inert."

The case of ice cream poisoning which is cited above as occurring in New York on June 30 was thoroughly examined by the New York Board of Health, and Dr. Martin, the chemist of the board, made an analysis of a sample of the cream; but while the symptoms of those who suffered ill effects from eating the cream all pointed to poisoning by tyrotoxicon, it was not found in the sample submitted for test. The failure to find tyrotoxicon in this case may be due to the fact that this poison is present under certain conditions and not present under others.

Doctors Vaughan and Novy found tyrotoxicon in ice cream which made many persons sick at Lawton, Michigan. Vanilla had been used in flavoring, and it was at first thought that this was the cause of the sickness, and a similar error has been made in other cases of ice cream poisoning. Each of the gentlemen took twenty drops of the vanilla extract, and one of them took two teaspoonfuls more without results, which clearly proves the non-poisonous nature of the vanilla. It was found that the portion of the custard which had proved to be poisonous was allowed to stand for some hours in an old building which was surrounded by shade, had no underpinning, and the sills of which had settled into the ground. There were no eaves troughs, and all the water falling from the roof ran under the building, the streets on two sides having been raised since the building was erected. The building had been unoccupied for a number of months, without ventilation, and the back end, where the cream had been frozen, was previously used as a meat market. The symptoms of the persons poisoned were severe vomiting and purging, griping of the stomach and abdomen, with headache and backache. The tyrotoxicon obtained from this cream was administered to a kitten about two months old, and in ten minutes it began to retch and soon vomited, and was unable to retain food upon its stomach.

It seems clear from the statement just made that the cream absorbed the putrefactive elements from the old and unsanitary building in which it was made, and other cases of ice cream poisoning can be traced to similar causes. The cream which poisoned forty people in New York on June 30 stood in a cellar two days without freezing, which was ample time for putrefactive germs to enter into its composition. The copper found in the sample of cream by the New York Board of Health was not sufficient to cause the poisoning, neither was there any other poisonous element discovered. The further tests regarding poisoning by tyrotoxicon made by Vaughan and Novy are most interesting, and the facts they elicited and recorded should be better understood than they are. Not only are laymen generally in ignorance of these important discoveries, but many physicians are yet unfamiliar with them.

Natural Gas Phenomenon in Indiana.

On August 11, at 9 o'clock A. M., the farmers near Waldron, which is eight miles southeast of Shelbyville, Ind., were startled by a terrific explosion. When they reached the Ogden graveyard, which is on a bluff near the Flat Rock stream, they discovered that fully ten acres of the earth was in commotion. Geysers were shooting up to the height of six and eight feet, and gas was blazing from ten to fifteen feet above the water of the geysers. The river bed was torn up and the water had stopped running below the graveyard. Flames are still shooting from fifty different fissures in the earth.

The county had not been considered in the gasbelt, although local companies have sunk many wells. At Waldron a sufficient flow of gas was found to supply the citizens with fuel. Nobody thought that a gusher was slumbering near the town, and few have entertained the idea of permanent flow of gas in this locality. A little stream known as Flat Rock runs southwesterly through the county, and about three miles south of Waldron, on the banks of Flat Rock, is a sort of butte upon which a country graveyard has been in use for many years. The river at this point runs west, and Conn's Creek empties into it from the north, forming a kind of horseshoe-shaped strip of land opposite the graveyard. Edmund Cooper owns the land on the north side of the river, and it was in this strip that the explosion occurred.

J. H. Lowe, who lives on the Cooper farm, heard a terrific report, and felt the earth quivering beneath his feet. He went toward the graveyard, and was soon confronted by a sheet of flame 200 feet high.

Then fifty or more fountains of fire burst from the earth. These were interspersed with six or eight active geysers. At the east side of the eruption a large stack of straw was in flames, and a field of green corn was drooping before the excessive heat from the ten acres of flame. The river bed was torn to pieces, and huge fissures were receiving the river's water. Sheets of flame swept over the water, and an area of about one acre was quickly converted into a huge hole, from which a continuous roaring and rumbling noise proceeds.

Within the bend of the river and for one-eighth of a mile along the stream great rents were seen in the earth and river bed. At the bend of the river, which is of limestone, is a fracture a quarter of a mile in length and stones the size of a house have been hurled from their places. The graveyard was shaken up, the skeletons of the dead being distinctly seen in the fractures of the earth. Gas flows freely from the entire surface of the ten acres.

It is said when the explosion occurred, rocks and trees were thrown 200 feet high.

A correspondent of the New York *Sun* who visited the locality the next day says: Birds, snakes, rabbits, and fish in profusion are dead, and the fish, thoroughly cooked, are thickly scattered through the waters.

A log fire was blazing on the ten acre tract when, without warning, the earth belched forth flame. Great rocks and trees were hurled skyward, a part of the adjoining graveyard was torn off and reduced to dust, and the waters of Flat Rock were converted into foam and steam. A vast pocket of natural gas under or near the log fire had exploded. The gas had accumulated apparently under the creek bed, held in by a thick stratum of bluish clay, and fed from the great depths below, whence the somewhat meager natural gas supply of Shelby county is obtained.

The explosion threw great volumes of the blue clay into the air, and left yawning caverns, some of them big enough to hold a house. Through the caverns and holes the gas continued to pour after the explosion. It blazed fiercely up above the trees. The gas escaped under such pressure that the flame was forced as high as the tree tops. The flames at times would rise 100 yards. This continued all of one afternoon and the same night.

On August 12, the fire had been extinguished, but the gas, under reduced pressure, still escaped. The gas is odorless, like the Pennsylvania natural gas.

The general conviction is that no other agency than gas could have produced the effect. Neighbors who saw the flying debris and heard the roaring noise say they thought for a moment that a tornado was doing the mischief, and many hurried with their children to places of shelter.

One of the marvelous results is the effect upon the water. Not a drop of Flat Rock's water has gone below the cavern since the upheaval. The great caverns have taken in the current, and a wild foaming Niagara is created on the edges of the abysses as the volume of gas comes in contact with the falling water.

At noon to-day the holes are about full of water and the creek begins to deepen with the back water. The water is even flowing up stream, but presently will doubtless cut a new channel and flow on its downward course.

Across the river from the Haban farm are fissures, and the explosion in its scope took in many more acres besides the ten where its damage was greatest. In these, every living thing apparently was killed, and the fish, if not killed outright, were cooked by the gas blazing on the river's surface. The water still boils to-day, but the fires are out.

The excitement over the natural gas explosion still prevailed on the third day, August 14, throughout the country, and thousands of people were flocking to the scene. It is now discovered that the soil for many miles around is impregnated with the combustible, and by piercing the soil with a stick or crowbar the gas may be ignited and a blaze produced large enough to cause considerable illumination. In Van Buren township, twenty-four miles north, the gas has broken into the water wells, and the use of water from them has been abandoned. Some of the farmers cased the wells, and are using the gas from them for fuel.

The whole neighborhood in the vicinity of the young volcano is saturated with natural gas and the soil is full of it.

This would indicate that the gas from the wells has found its way below the limestone, and in many places fractures in the stone permit it to escape into the sand and gravel immediately below the surface soil, which partially prevents its escape into the air. This bears out the theory that gas has for some time been escaping from the sides of the gas wells and diffusing itself in the sand and gravel below the limestone.

The whole township seems to be filled with the combustible and the inhabitants are threatened with disaster. No telling but the lighting of a match may blow two or three townships into smithereens. It is altogether probable that the diffusion of gas into the soil more or less affects the growing crops. The great question may yet be as to the advisability of sinking gas wells, or if sunk at all whether other methods should not be used to case and confine the explosive. Pockets of gas are no doubt forming beneath the limestone all over the region of the gas belt, and it is only a question of time when it will break forth in terrific force. It is yet a question as to which is the most hazardous, the accumulation of gas in pockets, followed by eruptions similar to the Waldron blowout, or permitting it to permeate the soil as it is now doing in Van Buren and Noble townships, poisoning the water and air. On August 14, boys were roasting corn by gas jets produced by sticking canes down in the soil a few feet near the volcano.

THE shipbuilding industry on the American lakes is active, and Cleveland claims to lead the way. Since January 1 the vessels built number 78 steamers, the gross tonnage being 63,922, and 18 barges and sailing ships of 15,315 tons. Last year the vessels built on the great lakes measured 107,080 tons.

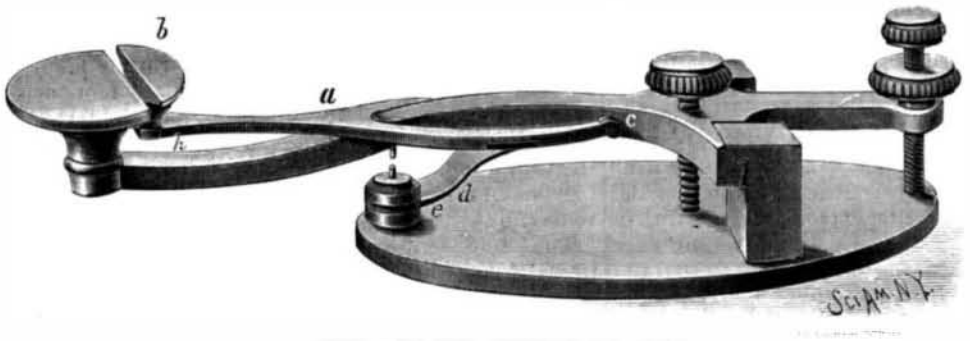
Relief of the Idiot.

Dr. Lannelongue, an eminent specialist in the Children's Hospital, Paris, has just succeeded in the effort to give intelligence to a poor little idiot. The child, a little girl four years old, had a deformed head, only about one-third the size of an ordinary little one of her age. She never smiled, never took notice of anything, and she could neither walk nor stand. The doctor became convinced that the condition of the little creature was due to the abnormal narrowness of the head, which hindered the natural growth of the brain. About the middle of May last he made a long and narrow incision in the center of the skull and cut a portion out of the left side of it, without injuring the "dura mater." The result of this operation was something astounding. In less than a month the child began to walk. Now she smiles, interests herself in everything around her, and plays with a doll. A tolerably bright little child has taken the place of the idiot.

AN IMPROVED TELEGRAPH KEY.

The accompanying illustration represents, in perspective view, a telegraph key provided with means for automatically closing the circuit as the operator releases the key, and for opening the circuit when the key is grasped by the thumb and finger. The cut shows the attachment as applied to a "Victor" key. It is a patented invention of Mr. John B. Van Deusen, of Saratoga Springs, N. Y. The key is of the ordinary construction, with base plate and standards in which the key lever is pivoted, while a leg, *e*, passing through the base plate and insulated therefrom, is provided with an anvil contact for opposing the contact of the key lever.

Under the head of the leg is a flat spring, *d*, curved rearwardly and upwardly, and slit at the ends to form arms at opposite sides of the key lever, a central arm contacting with the under surface of the key lever. A short distance in front of the trunnions of the key lever at *c* is pivoted a forwardly extending forked lever, *a*. The key knob is divided, its forward portion being attached directly to the end of the key lever in the usual way, and the rear portion, *b*, attached to the forward end of the forked lever, each arm of which has a strip of insulating material resting on the side arms of the springs on each side of the key lever. The key is operated in the same way as an ordinary key, the circuit being opened and closed at the anvil contact points, but when the operator releases the key the forked lever is automatically lifted by the spring, as shown in the illustration, and the circuit is closed, a matter which the operator, through neglect or otherwise, often fails to attend to.



VAN DEUSEN'S TELEGRAPH KEY.

A WORK-HOLDING TABLE FOR CARVING MACHINES.

The table shown herewith, patented by Mr. Frank. R. Potter, is designed to support work of different lengths and widths, or work curved upward or downward, or to either side, without the use of "blocking up" blocks or plates, thereby saving time and facilitating the doing of the work in a more satisfactory manner. The illustration represents in perspective a wood-carving machine to which this work-holding table is applied, the upper figure being an end view of the table. The table is adapted for reciprocation on the bed of the machine, and is made with a support to which two screw shafts are held in boxes or bearings adjustable along the support, the shafts having adjustable work-clamping collars. The table is made with a supporting frame open at the center to give room for bent or curved work. In the application of the improvement, as represented, the carving bits or cutters are rotated by flexible shafts driven by an overhead shaft, pulley and gearing (not shown), the cutter head supporting the stylus and cutters being sustained from the machine frame by universally jointed links. This work holding table may, however, be used with any other style of carving or cutting machine, almost any shaped pieces of work of ordinary length being securely and quickly clamped by the screw shaft collars. For further information relative to this invention, address Mr. Allen E. Maynard, No. 540 East Twentieth Street, New York City.

AN IMPROVED CULINARY VESSEL.

The illustration represents a form of ear and bail for a tea kettle or other vessel, by means of which the bail may be retained in an upright position or folded down on the top of the vessel. This improvement has been patented by Mr. Franklin Z. Hicks, of Rapid City, South Dakota. One of the ears, as shown, is of the ordinary form, to receive the eye on one end of the bail in the usual way, but the other ear is elongated, and the aperture therein for the other end of the bail is made in the form of a vertical slot, while extending in from the top of the ear is also a similar vertical slot, as shown more plainly in the small view. With this construction, the bail swings freely in either direction when it is lifted, but when the eye at one end of the bail is allowed to come to rest in the vertical slots of the ear, the bail is thus held in upright position.

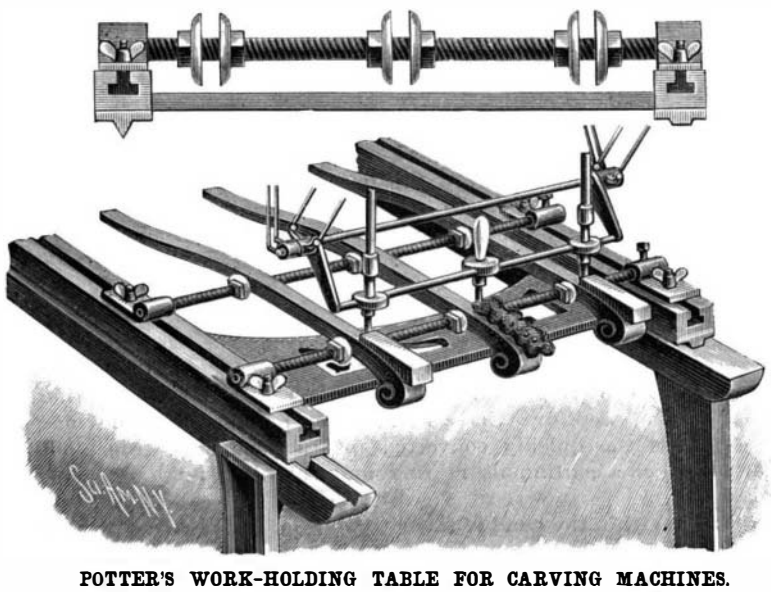
HICKS' EAR AND BAIL.

Surgeon Parke.

Dr. Parke, whose brilliant services with the Emin Pasha relief expedition have excited the admiration of the civilized world, was on the 6th of June last presented by the editors of the *Lancet* with a massive silver salver, and on the evening of the same day, says the New York *Medical Journal*, was the guest of a brilliant representative gathering of the members of the medical profession, who had assembled to do him honor at a dinner at the Criterion restaurant. Sir Andrew Clark presided. Mr. Jonathan Hutchison, Sir James Paget, Sir Prescott Hewitt, Sir Joseph Fayrer, Sir Spencer Wells, and many other distinguished members of the profession were present.

After several speeches suitable to such an occasion had been made, Surgeon Parke, amid great applause, rose to respond and made a very modest speech, in the course of which he said that he would remind the company, if they were not already tired of hearing about Africa, that it was just three years and three months before that Mr. Stanley started from England to bring relief to Emin Pasha—not to bring him away from Africa, but to bring him relief. With a force of about eight hundred strong, they started from the mouth of the Congo on March 18, 1887. The shortest time any of them spent in the forest was one hundred and sixty-two days. The pygmies or dwarfs they met stood about three or four feet high, had tiny hands and feet, with fairly good features, and were bright and intelligent. They were covered all over with down, such as is seen on the cheeks of a boy of eighteen or nineteen in this country. The European provisions that the party took with them were finished within a month. The two bottles of brandy which each had were also soon exhausted. They had exactly the same food as the natives—bananas, with occasionally a goat a week divided among six or eight.

The Europeans survived much better than the natives did. Of the two Europeans who died, one died from climatic causes and the other was murdered. Emin Pasha was qualified in medicine by a German degree, of which he was very proud. He spoke twenty-two languages, of which he could write and read thirteen. When they started he (Surgeon Parke) took the precaution of vaccinating the majority of the men, and when the epidemic of small pox broke out, only four were attacked by the disease, and none of them died. On the other hand, the camp followers, who had not been vaccinated, took the disease in a bad form and died in great numbers. After a three years' march across Africa they reached Zanzibar with Emin Pasha. He wished to place on record the great admiration he and his brother officers felt for their illustrious leader, Mr. Stanley.



POTTER'S WORK-HOLDING TABLE FOR CARVING MACHINES.

A SEPARABLE SPINDLE FOR SPINNING WOOL.

The spindle shown in the engraving is designed to obviate the necessity for using cop bobbins or quills in spinning wool, and secure better results in the quantity and quality of work performed. It has been patented by Mr. George Bailey, of Middleborough, Mass. The lower portion of this separable compound spindle has a cylindrical stub piece on which is a whirl to receive a driving band, and on the upper end of the stub piece is mounted a coupling head, secured in position by a cross key, or the stub piece may be screwed into the coupling head. The detachable part of the spindle, shown at the left in the illustration, is slightly tapering, and annularly grooved at intervals in its length, to prevent yarn from slipping off until its removal is desired. Near the top surface of the coupling head is a transverse rectangular slot, and in alignment with this slot is vertically formed another slot of less width and length. The latter slot extends an equal distance on each side of the center hole in the coupling head, and is adapted to permit diametrically opposite locking pins to enter into the wider slot below it, when, by a partial revolution, the detachable part of the spindle is locked fast to the coupling head. Just above the top end of the stub piece a transverse slot extends through the coupling head to permit the removal of dirt that might enter the socket hole in which the detachable part of the spindle is seated. Cops or quills may be used with this spindle if desired, in the same manner as with other forms of spindles. When a spindle is filled it can be removed bodily from the stub piece and coupling head by grasping the spun yarn and lifting the spindle, a slight revoluble movement releasing the interlocking connection of parts.

BAILEY'S SEPARABLE SPINDLE.

A Broken Neck Mended.

Physicians connected with the Presbyterian Hospital are highly elated over the fact of their having successfully mended a broken neck. The patient, Harry Reigel, aged fourteen years, fell from an elevator, landing on his head and dislocating his neck, on May 8. When brought to the hospital the case was considered hopeless, but by experiments with extending weights attached to the patient's head and feet the neck was eventually set and kept in place by means of a plaster of Paris jacket The displaced bones are now properly set and the patient has full power of the neck.

AN alloy that expands in cooling and is suitable for repairing cracks in cast iron is made with nine parts of lead, two of antimony, and one of bismuth.