Science Notes.

The University of Utrecht celebrated the twenty-sixth anniversary of its foundation on June 22 and the five following days.

A case of complete and immediate relief from the effects of ivy poisoning is reported in the Medical World by Dr. W. L. Shanks. His patient was swollen from head to foot, but in an hour after bathing in a solution of sodium hyposulphite was attending to business as if nothing had happened.

Science states that the extended use of small pilot balloons would result in giving us much valuable information as to the air currents in and around clouds. These balloons, which are cheap, reach considerable altitudes and are especially useful in indicating the drift of the air currents when there are no clouds in the sky, the direction of the lower currents when only the upper currents are visible, etc.

Observations made by M. Perrotin on Mount Mounier, at an elevation of about nine thousand feet above the sea, have convinced him that the period of the rotation of the planet Venus is equal to that of her revolution round the sun, the time of both being two hundred and twenty-five days or less. The observations were carried out in December of last year and in February, 1896.

Shillington (Montreal Medical Journal) reports the case of a man thirty years of age who was exposed to illuminating gas for about ten hours, and at the time he was found was profoundly asphyxiated. Artificial respiration, strychnine and the faradic brush were employed, which caused temporary improvement; but, the condition becoming worse, oxygen was employed, with immediate and slow improvement in all symptoms. In all about fifteen gallons were used in the course of eight hours. The reporters are firmly convinced that if this remedy had not been used, their patient would have died.

An account is given in the Physical Review by R. A. Millikan of some careful tests of light emitted by glowing solids and liquids, with a view to discover the laws of its polarization. This phenomenon is exhibited strongly by incandescent platinum, silver, gold, and by molten iron and bronze; a somewhat feebler polarization is shown by copper, brass, lead, zinc, and solid iron. The most significant result named is that polarization is minimum with rays emitted normally to the surface and maximum at a grazing emission, thus indicating that the vibrations take place in a plane at right angles to the emitting surface. Glass and porcelain also emit polarized light, but to a lesser amount; fluorescent bodies do the same, so that evidently a high temperature is not necessary; and in the case of uranium glass it is said to be the green reflected light which is polarized, and not the blue incident light diffused from the surface.

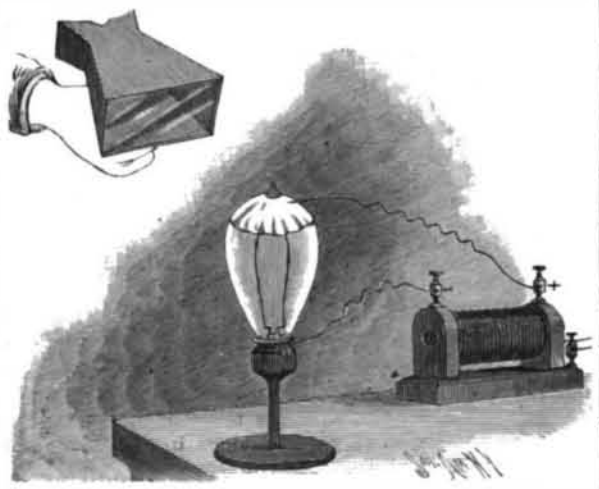
The first of the two annual conversaziones of the Royal Society was held on May 6, says Science. The exhibits included X ray photographs by Messrs. Swinton, Jackson and Sydney Rowland. Mr. F. E. Ives exhibited his method of color photography and Prof. Mendola gave a demonstration by means of the electric lantern of Prof. Lippmann's color photographs by the inferential method. Prof. Worthington showed photographs of the splashes produced by a falling drop of water taken with the electric spark, the exposure being less than three millionths of a second. A method was shown by which two or three thousand copies of a photograph can be printed, developed and fixed in an hour. The exhibits seem to have been largely in photography, but in addition Prof. Dewar repeated his experiments with liquid air, and the new binocular field glasses and stereo-telescopes of Mr. Carl Zeiss were exhibited.

Novak and Sulc have examined nearly 300 substances on the absorption of the Roentgen rays by chemical compounds. Their method of investigation consisted in attaching rings of glass to a sheet of paper and placing uniform layers of the finely pulverized materials in the different rings, so that the thickness of the layer was 0·4 cm. in each case. The paper with the rings was then placed over a photographic plate which was enveloped in black paper, and exposed to the Roentgen rays for a period of 20 to 25 minutes. By comparing the photographic effect of the rays where the substances were interposed, the relative absorptions were determined. The authors found, says the American Journal of Science, that a great number of organic compounds containing only carbon, hydrogen, oxygen and nitrogen are equably penetrable, and hence they conclude that the absorption has no relation to molecular weight or the arrangement of the atoms. Organic halogen derivatives were found to possess much greater absorption, which increased with the number of halogen atoms present. This effect increased with the atomic weights of the halogens, two atoms of bromine having a greater effect than six chlorine atoms, while iodine derivatives were entirely impenetrable under the conditions used in the experiments. This indication of the influence of elements of varying atomic weight led the authors to examine a series of elementary substances, all of rather low atomic weights.

INEXPENSIVE X RAY APPARATUS.

The expense of special Crookes tubes, powerful coils, and batteries has deterred many from entering this interesting field of experiment; but Mr. R. McNeil, of this city, has recently devised apparatus in which an ordinary incandescent lamp is substituted for the Crookes tube, and an induction coil of common form is made to supply electricity of sufficiently high potential to produce the X ray phenomena.

The lamp, which is a 52 volt, 16 candle power Sawyer-Man lamp, is made of German or lime glass. For convenience, it is mounted in an insulating standard. The top of the lamp is covered with aluminum



X RAY EXPERIMENT SIMPLIFIED.

foil, which is connected with one terminal of the secondary of the induction coil, and the bottom is connected with the other terminal of the secondary, as shown. The X ray proceeds from the cathode. By means of the fluoroscope the shadows of the bones of the hands and feet, also of the limbs, may be seen, when they are placed between the instrument and the lamp.

It has been found in this experiment that when a blue fog appears in the lamp, the vacuum is too low for the best results. By placing the lamp in the house circuit for fifteen or thirty minutes the high vacuum is restored by the heat and will remain good for about fifteen minutes.

The coil is capable of giving a three inch spark, and the X ray produced by this simple and inexpensive apparatus is sufficient for making radiographs.

THE DANCERS.

We present an illustration of one of the toys of the year. It consists of a nickel plated box some three inches in diameter. In the center of the top projects the end of a spindle, and at one side is a lever. To operate the toy this side projecting piece is pulled out,

THE DANCERS.

and one of the triangular pieces of tin to which paper figures are attached is placed in contact with the spindle in the top of the box. The dancers then begin a lively waltz on the top of the box. The secret of operation is not at first apparent, though it is evident that magnetism has something to do with it. On opening the box the mystery is solved. The spindle is of magnetized steel and extends through the top of the box, forming a slight projection. It turns freely and carries a pinion and a metal disk. The pinion is actuated by the projecting side piece through the medium of a toothed sector. Motion is transmitted to the triangular piece of tin carrying the dancers by the magnetized spindle causing a horizontal movement, giving it a movement around its own axis. Curved wires and a spiral, one side of which is colored, are also provided, and they all move around the pin at a lively rate, producing novel effects.

A Homeric Fight at Sea.

We were cruising in the Strait of Malacca, between the Nicobars and the Malay Peninsula, and had succeeded in killing a full-sized sperm whale. He had been a tough customer, needing all our energies to cope with him; but a well-directed bomb closed the negotiations just before sunset. As usual, he had ejected the contents of his stomach before dying, and we specially noticed the immense size of some of the masses floating about. By common consent they were about as large as our hatch-house, which measured 6×6×8 feet. I must very distinctly state that these masses were not square, but irregularly shaped masses, bitten or torn off in blocks from the body of some gigantic squid.

The whale was secured alongside, and all hands sent below for a good rest prior to commencing to "cut it" at daybreak. I had the watch from eight bells to midnight, and at about 11 P. M. was leaning over the lee rail, idly gazing seaward, where the rising moon was making a broad lane of silvery light upon the smooth, dark waters. Presently there was a commotion in the sea, right in the way of the moon, and I immediately went for the night glasses to ascertain, if possible, the nature of it. In that neighborhood there are several active volcanoes, and at first I judged the present disturbance to be one of these, sending up debris from the sea bed. A very short examination satisfied me that the trouble, whatever it might be, was not of volcanic or seismic origin. I called the captain, as in duty bound, but he was indisposed to turn out for anything short of actual danger; so the watch and I had the sight to ourselves. We edged away a little under the light draught of wind, so as to draw nearer to the scene, and presently were able to realize its full significance. A very large sperm whale was engaged in deadly conflict with a monstrous squid, whose far-reaching tentacles enveloped the whale's whole body.

The livid whiteness of those writhing arms, which enlaced the cachelot like a nest of mighty serpents, stood out in bold relief against the black bowlderlike head of the aggressor. Presently the whale raised itself half out of the water, and we plainly saw the awful-looking head of the gigantic mollusk. At our distance, something under a mile, it appeared about the size of one of our largest oil casks, which held 336 gallons. Like the rest of the calmar visible, it was of a peculiar dead white, and in it gleamed two eyes of inky blackness, about a foot in diameter.

To describe the wonderful contortions of those two monsters, locked in a deadly embrace, is far beyond my powers, but it was a never-to-be-forgotten sight. The utter absence of all sound, for we were not near enough to hear the turmoil of the troubled sea, was not the least remarkable feature of this Titanic encounter. All around the combatants, too, were either smaller whales or immense sharks, who were evidently assisting in the destruction of the great squid, and getting a full share of the feast. As we looked spellbound we saw the writhings gradually cease and the encircling tentacles gradually slip off the whale's body, which seemed to float unusually high. At last all was over, and the whole commotion had completely subsided, leaving no trace behind but an intensely strong odor as of a rocky coast at low tide in the full blaze of the sun. Since that night I have never had a doubt either as to the origin of all sea serpent stories or the authenticity of the old Norse legends of the kraken; for who could blame a seaman witnessing such a sight, and all unaccustomed to the close observation of whales, for reporting some fearsome monster with horrent mane and floating "many a rood"?—Nature.

IT is well known that the bones are relatively opaque to the X rays, and that this opacity is due to the chemical composition of the fundamental bony tissues, which are made up of calcium salts (phosphates, carbonates, and fluorides). The question would then be a natural one, whether, by introducing a salt of lime into the veins, they could be made to leave a shadow on the photographic plate. The Physical Institute at Rome has performed this experiment. Into the brachial artery of a dead body was injected a paste of sulphate of lime, sufficiently liquid to penetrate all the blood vessels, and then, after it had hardened, the hand was photographed, the Crookes tube being held at a great distance, so that the shadows would be very sharp.—Cosmos, Paris.

AN American firm has obtained a concession to build a railroad between Seoul and Chemulpo, in Corea, a distance of 30 miles.