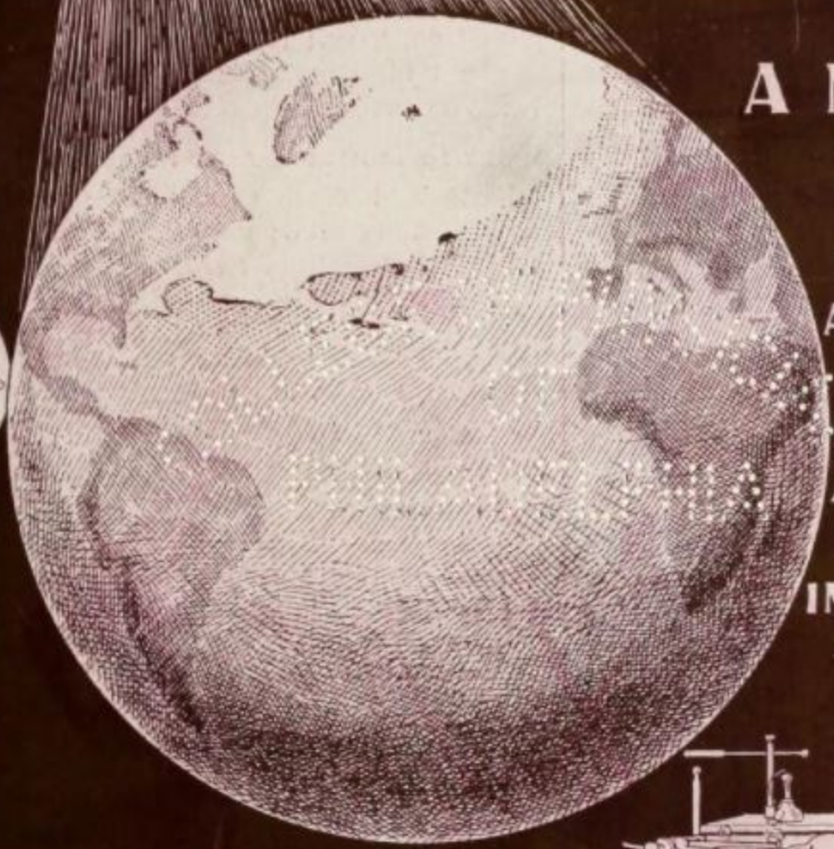
VOL. I. No. 1. MAY, 1897.

THE AMERICAN X-RAY JOURNAL



A MONTHLY DEVOTED TO THE PRACTICAL APPLICATION OF THE NEW SCIENCE AND TO THE PHYSICAL IMPROVEMENT OF MAN.

HEBER ROBARTS, M.D., EDITOR,
2914 MORGAN ST.
ST. LOUIS, MO.

THE AMERICAN

X-RAY JOURNAL.

A Monthly Journal devoted to Practical X-Ray Work and Allied Arts and Sciences.

VOL. I. ST. LOUIS, MO., MAY, 1897. NO. 1.

THE AMERICAN X-RAY JOURNAL.

PUBLISHED MONTHLY.

YEARLY SUBSCRIPTION RATES—IN ADVANCE.

United States, Canada, and Mexico	$1 00
Single copies	10
Foreign Countries	1 25
Single copies	15

HEBER ROBARTS, M. D., EDITOR,
2914 MORGAN STREET, ST. LOUIS, MO.

ANNOUNCEMENT.

No apology is considered necessary for undertaking the publication of the AMERICAN X-RAY JOURNAL, the "first born" of its kind, and a journal in line with human thought and the practical needs of man.

Fifteen months have passed since the Wurzburg professor first announced the discovery of the x-ray, and so great has the interest become that every item pertaining to the new science is grasped by the public press with avidity. The claims made by Professor Roentgen were received at the time with commingled incredulity and amusement, and are even at this date not properly appreciated by some professional reading people.

The medical profession have a record for amplifying, pruning, and utilizing new facts for the benefit of humanity and themselves, but in this instance there are financial, mechanical, and technical difficulties which must be surmounted by them before the x-rays can be practically applied. Again, inefficient apparatuses are everywhere used by exhibitors and forced upon the attention of doctors. It is on account of these facts that physicians do not readily adopt the new science, notwithstanding the public clamor for its use.

The ease and certainty of diagnosing some surgical affections has advanced more in the past twelve months than any previous hundred years. In the first experiments with the x-rays it was thought possible to photograph only the bones of the hands, and this only after long exposure, while examinations with the fluoroscope were considered too tedious and impracticable. But the usefulness of the x-rays has so rapidly extended that no bone of the human body has escaped successful photography, and the bones have been examined directly with the fluoroscope.

Successful work is being done also in diagnosing cases of cancer, tumors, appendicitis, gall stones, renal and urinary stones, exostosis of the cranium and blood clots, in addition to the more common cases of fracture, diseased joints, and the locating of foreign substances in any portion of the body. In the fluoroscope the heart is observed and studied in its movements, the diaphragm is outlined and seen to rise and fall with respiraton, and the visceral organs can be studied.

The application of the x-rays has been used with success in certain cases of the blind, in nervous twitching, tremulous agitations of the hands and body, and also the annoying rotatory movements of the eye-ball (nystagmus). Other avenues of inquiry have been opened for the x-ray application, notably cold abscesses within the body, degenerative germinal affec-

tions, especially consumptive abscess and the early diagnosis of this disease, and also the practical use of the x-ray in dentistry.

It is the design of this journal to give to readers and thinkers a faithful resume of all x-ray work done in any portion of the globe. The editor's personal experience with the x-rays for practical purposes, together with seventeen years of medical and surgical experience, filling many official medical positions, and traveling largely in search of medical facts, renders the task of imparting x-ray information more appropriate for those who read and think. It is the intention of the promoters of this journal to give to the world only truthful results, with full credit to the experimenter in all its relations to the new science.

This field of inquiry must have associated with it practical and useful adjuncts. The most essential which shall occupy space are medico-legal jurisprudence, the therapy of electro-medical science, preventive medicine, hygiene, dentistry, and collateral branches.

We shall favor correspondence with pro or con criticism so long as it deals with the subject matter of the journal.

No advertisements shall appear in this journal that savor of quackery, deception, or fraud.

Medical and scientific publications reflect the siftings of individual thought, and the press gives the practical side and vitalizes the facts. Their work must be equally commended and personal gratitude acknowledged.

The conduct of this journal shall not be arrogant, defiant, or bigoted, but it will have the courage of conviction to press forward the truth as we understand the truth. It will be ethical, as the throbbings of every breast should be, regardless of any written code devised by man for another's guide. There will be no personal venom, as we hold no animus against any man, but false principles will be attacked with the vigor of our ability. This is a pioneer journal of x-ray work. We are not imitators. We are casting our hopes among the needs and wants of man. We expect encouragement.

While it can not be expected nor desired that we shall escape just criticism, and it may be contumely, yet our aim shall be to improve each coming journal, encouraged as we are in the faith and usefulness of our mission.

HEBER ROBARTS, M. D., Editor.

A PREMIUM OFFER.

The subscription price of the AMERICAN X-RAY JOURNAL is $1.00 per year. While this price is low when the character of the journal is taken into consideration, we have made arrangements by which we can offer additional inducements to subscribers. We will send the JOURNAL for one year and the following named books pertaining to x-rays at the prices annexed:

"A B C of the X-Rays" (price, 75 cents) and the JOURNAL for $1.40.

"The X-Ray of Photography of the Invisible" (price, 75 cents) and the JOURNAL for $1.40.

Both of the above books and the JOURNAL for $1.80.

"Roentgen Rays and Phenomena of the Ariode and Cathode" (price, $1.50) and the JOURNAL for $2.00.

These three books are richly illustrated, beautifully printed on coated paper, and handsomely bound in cloth.

THE great number of questions coming to us through the mail seeking information in regard to the x-ray have become too voluminous and too important for individual reply. We have concluded, therefore, to make a catechismal text of these inquiries, and annex to each a brief answer or definition. Calculating from what we have now, and the probable result from general extended requests for further questions as a basis for judgment, we feel confident of being able to continue

an instructive and interesting page for readers in each number of the JOURNAL. These questions and answers will ultimately comprehend all information ascertained about the x-ray science. There will be an abridgement of all new facts up to the time of going to press with each number of the JOURNAL, so that the readers will have an easy and valuable reference page. Invitation is, therefore, extended to those who desire to send questions pertaining to electricity, radiant matter, discharge tubes, fluorescence, surgical and medical use of the x-ray, and all other allied phenomena. Questions do not have to be restricted to the x-ray, but may extend into any of the phases of science and art into which the JOURNAL enters. Should writers at any time send questions which they desire withheld from publication, "personal" should be written upon the letter for individual answer. No names will be printed unless requested.

THE shock of a Tesla current taken through the body is less than that given by a small medical coil. The current can be passed through the body and then through an incandescent lamp, illuminating the latter and producing no material shock to the person. The Tesla current has a very high frequency, up in the millions or thousands of millions, while the others are in the hundreds. It is not advisable to try this experiment unless previously guarded against accident by an armature and an additional commutator put on to an electric motor. The liability to accident is always present, and especially made so, when the street current is used, by the crossing of a high-tension current on the street.

THE physicians of Missouri, Illinois, Arkansas, and Texas are to be congratulated that St. Louis offers them in the St. Louis Physicians Supply Company a house where they can get their drugs, instruments, tablets, fluid extracts, and surgical sundries. This house tries to fill all the wants of the physician. The president of the company is a physician, and knows the needs of the medical fraternity, and the secretary, who is also manager, is an experienced druggist, and superintends the manufacture of their specialties. Read their advertisement on the second page of cover, and send for their catalogue.

WE would be ungrateful indeed not to express our appreciation of Mr. Strauss, the photographer, and his assistants for their invaluable kindness and most excellent service in the execution of our x-ray pictures.

In this connection an injustice would be done should we fail to proclaim our continued reliance upon James Heber Robarts, a lad of 14 years, who has mastered the x-ray art with wonderful facility and used it for our constant guide and dependence.

THE manner of using Tesla's high frequency current as a remedial agent has been thus far very crude and unsatisfactory. With a suitable commutator and resistance it is destined to occupy a very prominent place therapeutically with physicians.

THE fortieth annual meeting of the Missouri State Medical Association will be held the in Century Theater in this city on May 18th, 19th, and 20th. The Illinois State Medical Society will convene in regular session at the same time in East St. Louis. There will be joint sessions of these associations in both cities. Elaborate preparations are being arranged by the committees for the entertainment of physicians and their wives, and it is expected that these meetings will surpass, socially and intellectually, any ever before held in either state.

WE have much to be thankful for along the path of life's duty, but the greatest debt of obligation, and the thing for which we should be most thankful at this time is for the journalistic appearance of the AMERICAN X-RAY JOURNAL. The work was superintended by Mr. O. F. Oberbeck,

whose knowledge of publications extends into the minutest details. We are not only indebted to him for assistance and courtesies, but also for the perfect typographical arrangement of this JOURNAL.

THE University of Strasburg contained in 1883 three men, each unknown to the other, and each of whom has since achieved international fame. The trio consisted of Paderewski, then musical instructor at the University; Prof. Roentgen, professor of physics, and Nicola Tesla.

For the beautiful half-tone of Professor Roentgen, printed in this issue of the JOURNAL, we are indebted to Edward P. Thompson, M. E., E. E., author of "Roentgen Rays and Phenomena of the Ariode and Cathode." Professor Roentgen was born in Holland in 1845.

WE feel it our duty to express our appreciation of the uniform courtesy shown us by the Sanders Engraving Company, of this city, in the preparation of this first number of the JOURNAL. The excellent half-tones made by them are models of art, and reflect credit on the JOURNAL and themselves.

THE large circulation of this journal naturally offers increased advantages to physicians who offer their practice and property for sale. Stamps should accompany inquiries on these subjects.

DR. WILLIAM J. MORTON, of New York, has recently radiographed the entire adult in one picture.

BRIEFLY NOTED.

The chief symptoms of death-approach are shallow and irregular breathing; rattling in the throat; a peculiar far-off expression of the face; dulled sensibility; restlessness and subsultus tendinum; muttering and incoherent speech; a morbid appetite; unnatural ecstasy; failure of radial pulse; coldness of the extremities and vaso-motor paresis, as evidenced by cold sweating, etc.—*The Nursing Women.*

ACUTE APPENDICITIS (WITHOUT TUMOR).

By A. G. GERSTER, M. D., Professor of Surgery New York Polyclinic, Etc.

SIMPLE APPENDICITIS (NO TUMOR).—Anatomy teaches that in the supine body the attachment of the vermiform appendix can be found directly underneath a point located two inches from the anterior superior spine of the ilium, on a line connecting this bony prominence with the navel. Whenever acute and persistent pain appears in this region, accompanied by fever and retching, the pain being markedly increased by palpation of this area, trouble of the appendix can be confidently diagnosticated. In women bimanual palpation ought to exclude the presence of an inflammatory process of the displaced uterine appendages. Though the local and general symptoms may be very alarming, tumor can rarely, if ever, be detected in the early stages of the affection. Meteorism is also absent.

In view of the impossibility of foretelling whether, in a given case, spontaneous evacuation of the contents of the appendix or perforation is to take place, and in the latter case whether a superficial or a deep-seated abscess is to develop; and, considering the fact that laparotomy followed by excision of the appendix has yielded uniformly good results if done before the access of perforation, it is safe to follow McBurney's advice, which recommends laparotomy and removal of the appendix whenever severe symptoms persist and increase for more than forty-eight hours.

The steps of the operation are these: A longitudinal incision, four or five inches long, parallel with and just outside of the outer margin of the right rectus muscle. Having opened the peritonæum, the appendix is found, which will be rendered easy by first ascertaining the location of the caput coli. The mesentery of the appendix is included in a double ligature of stout catgut and divided. Then the root of the appendix is secured by two ligatures, between which the viscus is cut

off. The mucous lining of the stump is either seared with the thermo-cautery, or, after careful disinfection, is touched with a few drops of perchloride-of-iron solution and dried off. Then the stump is dropped back and the external wound is closed.

Case.—Miss F. L., aged 20, has had altogether sixteen or eighteen attacks of appendicitis in two years. Characteristic local pain, irregular fever with temperatures reaching 104° F. No tumor; uterine appendages normal.

April 20, 1890.—Laparotomy. The free appendix is found very much thickened, its distal half distended and bent upon itself, containing a quantity of fetid serum. It was removed. Uninterruped recovery.

JUVENILE OFFENDERS.

Lord Chief Justice Coleridge, of England, in charging the Grand Jury at Bedford, England, recently, took occasion to remark on some of the methods by which society manufactures crime. One of these, he insisted, was the unreasonably severe punishments which are too commonly allotted to small offenses against propriety. If such excessive punishments should be awarded to the petty pilferer, there is no kind of severity which the law can, with relative adequacy, administer for the greater and more serious crimes. Commenting on a case in which two little boys had been sentenced to three months' hard labor for stealing apples, after a previous conviction, he said that it was monstrous to make these boys felons for life for having done what some of the best men in the world had done, and for which they certainly deserved to have their ears boxed, but not to be sent to prison with hard labor.—*London Medical Times.*

The rod in the family or at school, properly administered in the old-fashioned way, notwithstanding the growing disinclination for and prejudice against, is far more efficacious as a moral and social correction than judicial sentences of children for petty offences. We concur with the English Chief Justice in his views—many a boy is ruined at home by that neglect of judicious parental correction which might have saved a wayward child from becoming at last a criminal.—*Medico-Legal Journal.*

We question very much if the Lord Chief Justice intended corporal punishment when he referred to the boys, "and for which they certainly deserved to have their ears boxed." The idea he wished to convey was that the parent or guardian should show to the children a contempt for any one who would be guilty of such petty larceny. By this no anger would intermingle with the chastisement, which is always an associate of boxing, striking, and rodding children. It is the element of disapproval, associated with reason and and respect, which rules the child in the guardian's absence. Fear of the supernatural may create obedience, but fear of corporal punishment does not enter into a single factor of the good qualities of a child. If it is obedient for fear of punishment, it is controlled through the animal and baser elements of nature. Such persons will never benignly influence mankind. They are cowards either by inheritance or servitude. A child generally realizes that about the only difference between a man and a boy is their size. Any punishment inflicted upon him after the age of such realization, which occurs very early in life, is instinctively taken as a superior "bully force" used against a weaker.

In connection with the above the following may be read with interest. The clipping was taken from the *Berbice Gazette* of May 23, 1896, a paper printed in New Amsterdam, Berbice, British Guiana:

POLICE COURTS OF NEW AMSTERDAM.

Before Mr. J. E. Hewick, S. J. P.

SENT TO THE REFORMATORY.—Manoel Gomes Pimento was charged with having, on the 15th inst., stolen $2.88, the property of Mary Marks at Asylum street, New Amsterdam, under circumstances already described in this paper. Defendant pleaded guilty, and he was ordered to be sent to the Reformatory for three years.

RIDING ON A CART.—Thomas Hooper was charged by T. C. Barron with having, on the 8th inst., ridden on his donkey cart while plying for hire in New Amsterdam. Defendant pleaded guilty, and he was fined $1 and costs, or seven days' imprisonment with hard labor.

ABSENCE FROM SERVICE.—Robert Lambert was charged by Anemandoo with having, on April 21st, absented himself without lawful cause from his work as a fisherman. Fined $1.68 and costs, or seven days' imprisonment with hard labor.

GLASS is opaque and diamonds transparent to the x-rays.

THE USE OF THE X-RAYS AND FLUOROSCOPE IN SURGERY.

By Arthur Ayer Law, M. D., Minneapolis, Minn.

Thomas A. Edison took advantage of the hint given by Professor Roentgen in his description of the phenomena noticed when plateno barium cyanide paper was subjected to the influence of the x-rays, and experimented along the same line, finally devising the fluoroscope, with its tungstate of calcium screen, and in so doing gave to the world one of the most important adjuncts to the x-rays themselves.

Much has been written about the photographic application of the x-rays in taking the skiagraph, but the subject of the use of the fluoroscope has not received the attention its importance deserves, for in the practical application of the x-rays, either as a means of surgical diagnosis or as an aid in operating, the fluoroscope is of infinitely greater service than the skiagraph. With this device we have a speedy and certain means of locating foreign bodies (providing they are opaque to the rays) in practically any region of the human economy, admitting, of course, that your apparatus is sufficiently powerful to excite the tube to the degree necessary to enable the rays to penetrate the body. Instead of being limited to but one view, as in the skiagraph, we may examine our patient from any position, determine with absolute certainty the exact position of the foreign body—be it bullet, needle, metal, or glass—and its relation to the adjacent bones, enabling us to much more intelligently operate for its removal. Obscure fractures and dislocations are easily determined, even though the edema of the soft tissues is so great as to preclude the possibility of an exact diagnosis by other methods. Exostosis or congenital malformations can be detected at once, and their removal or correction be facilitated.

Admitting the importance of the fluoroscope as a means of diagnosis, as an aid in operating it is well nigh indispensable, for by covering the instrument with a sterilized towel we can use it to watch the steps of an operation in removing foreign bodies or to verify their absence; indeed, if the foreign body can not be readily found, and we are well aware how elusive needles or bullets can be, we can follow our instruments as they penetrate the flesh and determine their proximity to the body sought. As a means of medical diagnosis the fluoroscope has as yet been of little aid, its use being confined almost exclusively to the surgical aspect of medicine.

Dependent upon their location, some of the denser tumors cast darker shadows than the surrounding tissues. Tubercular or syphilitic osteitis is revealed, showing either the rarified areas incident to the disease, or the blurred and irregular outline of the bones, a lack of the usual clear-cut, well-defined shadows. In the location of bullets or foreign bodies in the thorax, trachea, esophagus, or indeed in any part of the gastric-intestinal tract or abdomen, the fluoroscope is of infinite service, as also in the detection of fractures of the ribs.

Dr. Heber Robarts, of St. Louis, has suggested an ingenious device attached to the handle of the fluoroscope, where by pressure on a button under the thumb the current is cut off, enabling you to study the soft structures, and when the desired illumination is obtained cut off the current and repeat at will.

I am aware that the theoretical consideration of a subject has much less weight than its practical presentation; therefore, to illustrate the surgical adaptability of the fluoroscope, I quote the following cases:

Case 16. Mr. F., Grand Forks, North Dakota. Referred to me by Dr. Walter Courtney, of Brainard. Mr. F. was sent to him with a diagnosis of rheumatism. Dr. C. suspected a bullet in the knee joint, as the man had been shot in the thigh in the early fall. Fluoroscope revealed small bullet in the knee joint. Skiagraph taken and sent along with the patient back to his surgeon.

Case 18. Mr. B., in September, 1896, shot himself in left foot, necessitating amputation of great toe; foot torn. Dis-

Case 16. Bullet in knee joint.

charging sinus persisted for some time. Fluoroscope revealed five large shot and fracture of second and third metatarsal bones. Two of the shot removed.

Case 19. Mr. S., brakeman, shot in left elbow; wound probed, but no bullet found; believed to be imbedded in forearm. Fluoroscope revealed no bullet: struck acromion process and glanced; while plowing a furrow in tissues, it was not imbedded.

Case 20. Miss X., colored. Referred by Dr. Frank R. Wright. Received a charge of buckshot in right arm; four in triceps muscle, one two inches above wrist, one wedged between ulna and radius at wrist, and one in hand. Fluoroscope revealed them. Skiagraphed and returned to her surgeon.

Case 27. Mr. K., Utica, South Dakota. Referred by Dr. Dunsmoor. Tumor in lower third of femur. Fluoroscope revealed bone shading off into tumor; skiagraphed the same. Diagnosis, osteo sarcomo. Dr. Dunsmoor amputated at hip joint. Microscopic section verified diagnosis.

Case 34. W. H., aged 12. Referred by Dr. Fitzgerald. Fluoroscope revealed old backward dislocation of radius and ulna, fracture of olecranon and joint cap-

Case 20. Buckshot in wrist and hand.

sule filled with adhesions. Dr. F. operated, cleaning out fosse and reducing dislocation.

Case 37. Mr. M., brakeman. Referred by Dr. Frank Burton. Right hand pinched in making coupling. Cellulitis and swelling so great as to prevent diagnosis of the condition of the bones. Fluoroscope revealed fracture of third metacarpal bone at the middle of shaft and partial crush of head of bone.

Case 42. M. S., aged 7, Valley City, North Dakota. Referred by Dr. Gerish. Hand puffed badly; last two fingers flexed

Case 42. Needle in palm of hand.

and numb. Two weeks previous child ran a needle into palm of her hand and broke it off. Fluoroscope revealed it at once. With instruments under fluoroscope I incised, introduced forceps, and removed needle. Flexion and anesthesia of fingers cured.

Case 43. E. M. B., child of 16 months, Rice Lake, Wis. Referred by Dr. Chas. Wheaton. Five days previous swallowed a safety-pin open. Fluoroscope revealed pin in ascending colon; open, but pointed the right way. I refused to operate, holding that if it had gone so far it would probably go further, an assertion which was verified by pin passing next day.

Case 44. G. C. D., bridge builder. Referred by Dr. Dunsmoor. While drilling a steel girder a small chip of steel flew off clamp and buried itself in the heavy muscles of the calf of his leg. A doctor in Wisconsin enlarged the wound at entrance, but failed to find foreign body. Fluoroscope revealed it at once. Under fluoroscope I introduced forceps into the wound, opened them, watched them grasp piece of steel and removed the same.

Case 46. Mrs. R. Referred by Dr. Dunsmoor. Fluoroscope revealed sarcoma of right shoulder so extensive as to make operation inadvisable.

Case 49. Miss S. Referred by Dr. Dunsmoor. Domestic with needle in hand, which is puffed and tender. Revealed at once under fluoroscope, and removed by small incision and introduction of forceps.

The above cases illustrate the ease with which diagnosis can be made and surgical operations aided by the assistance of the fluoroscope. The operations in cases 42, 44, and 49 were made with the room perfectly dark, simply using the fluoroscope as a guide.

I have had several cases with a medico-legal aspect, cases where patients proposed to bring suit either against corporations or individuals. With these my fluoroscopic examination gives me knowledge as to whether it is advisable to take skiagraphs or not, as the latter are already playing an important part when introduced as testimony, for they can not be controverted.

While great proficiency with the fluoroscope is a question of some experience, yet almost all cases can be as readily diagnosed by the novice. Its use is so extremely simple that it should find its legitimate place in the armamentarium of the modern surgeon.

LIFE INSURANCE OF WOMEN.

Only eight or nine of the life insurance companies insure women at the same rate as men. Further experience is now convincing these companies of the injustice of this discrimination. The mortality rate among the female risks in one company did not rise above eighty per cent of its anticipation.—*The Nursing Women.*

PHOTOGRAPH.

RADIOGRAPH.

THE POSSIBILITIES OF THE X-RAYS.

We present here two half-tone illustrations which afford one of the most interesting subjects caught by radiography, and indicate, to some extent, the possible uses of the x-ray. The illustration of the photograph is that of a mummified hand of an Egyptian princess, believed to be between 3,000 and 4,000 years old, obtained near the Tombs of the Kings, Thebes, in 1892, and the illustration of the radiograph is of the same hand, made in the laboratory of the Keystone Dry Plate Works on a Carbutt x-ray plate by John Carbutt.

The x-ray has thus been made to go back further than it ever went before, and has opened the way for a new industry. The bones are inside a mass of pitch, perfume, delicately woven fabric, and dried human flesh, in full number, just the same as any one's hand, and presents a wonderful study. It is not a view within the warm and quivering flesh, but rather a sight beneath a golden covering in old, cold death. Is it the hand of Ma, the daughter of Ra? or of Nepthys? or of Safekh? or of Muth? or of the daughter of Pharaoh? That the ray does not tell.

BACTERIA IN ICE.

It has been shown by Foster that some kinds of bacteria live and grow in melting ice. Putrefactive bacteria having gained access to the ordinary household refrigerator, where the temperature is a few degrees above the freezing point, can live and multiply there, thus contaminating meat and other food kept therein. A butcher's refrigerator so contaminated will taint his meat and perhaps injure his patrons.—*Centralblatt fuer Bacteriologie.*

THE X-RAY IN THE CASE OF ARTHUR DUESTROW.

By Ex-Governor Charles P. Johnson.

It was Friday night, January 29, 1897, that I had my last interview with Arthur Duestrow. He was then under sentence of death, to be hanged on February 16th following. About every move or expedient possible within the judicial domain to save his life had been made and urged without avail, and there were but few chances left, the final one among these being evidently the possibility of impressing the governor of the state with the fact that he was insane. For years I had been constantly laboring, in connection with a number of the ablest and most conscientious alienists of the country, to obtain a recognition, through the regular channels of the law, of the insane condition of my client. A long and intimate association with him made me to know beyond the peradventure of a doubt that his mental condition was such as to make him irresponsible in law. But it had been, and was still, an utter impossibility to cause judicial tribunals or the public to believe the truth. This condition was owing to several causes, the principal ones being the continuous and persistent misrepresentation of the press that he was a multi-millionaire, when in fact he was, comparatively speaking, a poor man, and that all his acts evidencing insanity were carefully planned and studied, and that he was simply an unscrupulous malingerer. This necessarily involved the integrity of a number of able and honorable physicians and attorneys, but that was of little account to those who were bent upon the consummation of a lynching under the forms of law. The brutal characteristics of the tragedy itself, together with the innocence and helplessness of the victims, were enough in themselves to arouse a widespread and deep-seated prejudice, which could only be fought and neutralized by proof of an affliction of the disease of insanity. That this proof existed is now beyond controversy; but the misrepresentations referred to kept alive and increased the prejudice to such an extent that the mob spirit entered and permeated every avenue of justice, and finally succeeded in the consummation of one of the most remarkable judicial murders in the annals of criminal judicature.

Inclined already to the belief that it might again be necessary to present evidence of Duestrow's insanity, either to the governor or a sheriff's jury, as a last resort, and knowing the great odds against which I had to contend, it required but a suggestion to cause me to assist in an endeavor to enlist in behalf of Duestrow the latest achievement of science, and have his brain examined under the penetrating and searching light of the Roentgen ray.

The experiment was conducted by Dr. Heber Robarts. Associated with him in preparing and working the machinery was his son, who, though but fourteen years of age, has already proven his capacity of being an able assistant. The x-ray machine, together with its accompanying coils of wire, cans of insulating oil, glass tubes, etc., were quite bulky, and, the opportunities for adjustment being inconvenient, some two hours elapsed after our arrival in the jail before the motor was started. We reached the place about 8 o'clock. At first the party consisted of Dr. Robarts and son, Miss Ada Patterson, reporter of the *Republic*, the writer of this article, two or three attaches of the jail, and one or more officials of the police department. During the time occupied in arranging, connecting, and adjusting the x-ray machine an almost continuous conversation was kept up with Duestrow by the reporter and myself. That conversation was in itself sufficient to convince any unprejudiced person of Duestrow's insanity. For over two years I had been conversant with the birth and development of the various delusions that had occupied his mind. I had been with him in that same jail the

day following his desperate attempt at suicide, when he sat morose and sullen, not repeating more than ten monosyllabic words under continuous questionings for two hours. For six months that condition lasted. Then all of a sudden he became talkative and social. He claimed that he had seen his wife—that she had called to him at the screen of the jail. Then came another delusion that others worked electricity on him. He heard voices calling him opprobrious names. Strange odors were wafted to him in a mysterious manner. Telephones transmitted communications in his cell, and phonographs registered not only his spoken words, but his unexpressed thoughts. He discovered, in delusion, "Duestrow's System," which was a claim that the spleen was the seat of all diseases, and that he could cure any disease by sending electric sparks from that organ, which is the store-house of electricity. Again, in delusion, he hypnotized his enemies and others, present or distant. He could transmit odors, agreeable or otherwise, to persons, however far away, and chloroform them if needs be. In delusion, he could coagulate ink at a distance or change water into wine. In delusion, he often saw his child, little Louie, and sent words of endearment and love by imaginary transmission. His discoveries had merited appointment and promotion in the medical department of the United States. At one time the pope of Rome had recognized his achievements and conferred a cardinalate.

Yes, I repeat, for over two years, hour after hour, over a hundred times, have I sat and talked to him about all these various delusions and vagaries that at different times afflicted him — humoring, conceding, opposing, persuading, ridiculing, abusing; but always closely observing, analyzing, and studying. I groped continuously in the darkened avenues of a diseased brain. From first to last it was confusion, distraction, disconnection, and obscurity. About the time of his conviction, in February, 1896, a new delusion developed, of which there is no record in the court proceedings. He imagined that he had received an appointment in the regular army of the United States. This delusion had developed to such an extent about the time noted that he wrote a letter to his attorney, dated at Union a few days before the motion for a new trial was to be heard, to send his uniform, which he claimed he had ordered by electricity, so he could correctly appear in court. Shortly after this his identity changed. He received messages from Europe — William, emperor of Germany, particularly — informing him of his connection with the nobility of that nation. He exhibited a statement, genealogical in character, making the relationship with distinguished persons of rank, and assumed the name of Arthur Von Brandenberg, under which imaginary name he died. He was given in marriage, by order of the emperor of Germany, the Countess Von Brandenberg, whom he sent his love to just before dropping to death on the scaffold. It was as such imaginary character that the conversation was carried on with him during the time Dr. Robarts was arranging the machine in a manner to take the picture required. During the conversation he was somewhat exercised in seeing the movements going on in his cell. He demanded several times to know what it meant, and it required a good deal of ingenuity to keep him from interfering with and stopping the proceedings. Strategem was resorted to, and he was persuaded that the machine was placed for the purpose of having his picture taken, as was customary in the army — a picture was needed of every general, needed to preserve among the annals of that illustrious corps. By reason of my long association with Duestrow I exercised a power over him which no one else, I believe, had. Insane men are in many respects subject to the same influences as sane men. They have their likes and dislikes. They are moved by

the same impulsions. They are subjects of fear, of hope, of desire, and generally susceptible to the same emotional impressions. At times he called me his superior officer, and would defer to me as if I were such. At another time he would address me as a subordinate, a major; and when he did this he adopted the tone of a superior. On this memorable night, fortunately in part, he addressed me as his superior or ranking officer, and seemed willing to obey orders. It was the ascendency of this idea which finally made it possible to get him in position before the Crooks tube. Finally every difficulty met in connecting and arranging for a perfect working of the machine was overcome by the indefatigable perseverance of Dr. Robarts, and Duestrow was seated in his cell alongside of his attorney. I had ordered him officially to repair to the place, and further informed him of General Miles' desire that the picture should be taken in that manner. He was first urged to lie down, but his dignity revolted so emphatically that the idea was immediately abandoned. After being seated I took hold of his hand and tried to compose him by light and pleasant conversation. The plates were in readiness and the motor in motion. I experienced at this time a feeling of intense gratification. Dr. Robarts evidently shared it with me. A new page in science, as it were, was about to be written. In a few minutes that piercing, searching electrical ray might solve the problem of life or death. It might reveal what was yet stubbornly denied—through ignorance, prejudice, and hate, and the conflicting and warring opinions of alienists—that Duestrow was suffering with the direst disease that afflicts mankind; and instead of hate, vengeance, and ignominious death he merited the sympathy of his fellowman, kind and humane treatment in an insane asylum, and a life to run its natural and allotted period. We were, however, doomed to disappointment. The motor had gotten fairly under way. The strange, buzzing sound vibrated in the narrow cell; the lights, vari-colored and radiant, flashed and scintillated hither and thither, painting in pale and ghastly lines the faces of those huddled in the small, attentive group. The effect on Duestrow was what we ought to have anticipated. His nervous organization was originally weak, and his long confinement and the excessive use of cigarettes had still further impaired it. Besides, his mental condition made it impossible for him to exercise a normal will power. He clutched me by the hand as a child seeking protection. His entire body quivered with nervous agitation. In a whisper he said: "Do not let me be killed—I know it is a machine for instant death. Good-bye." When I assured him that it was nothing of the kind, that if he died or was killed I would necessarily meet the same fate, that the object was simply to take our picture together, I felt him strain every nerve to try to compose and control himself. But he could not do it. It was asking too much. He sprang from his seat, and in an instant I had lost all control over him. His mind again wandered in the realms of confusional insanity. He lost all coherence. His delusion again took the ascendent. No manner of reason could reach him. He was a general, commanding intruders to depart. "It is irregular," "it is irregular," he kept repeating again and again. "I command you to leave here." "What is your objection to this experiment?" the reporter asked. "That is none of your affair," he responded. "It is nothing to you. I will only say that it is irregular." With this he broke away from us; disdained all persuasion and entreaty, and started on his accustomed walk across the long corridor of the jail building. It was a weird scene. The electric lamps suspended from several points above the tiers of cells reflected in shadowy outline the iron network of girders and rafters that support the lofty dome, and

threw gleams of pale light below, enshrouding the various stationary and moving figures with a ghostly halo. Backwards and forwards, tall, slender, straight, with lithe figure, Duestrow walked. His carriage was that of a soldier. He turned neither to the right nor to the left. He pushed aside any one who obtruded in the way of his chosen path, and looked more like a lone night sentinel pacing his rounds on the ramparts of some ancient castle than a prisoner doomed to death. His hair, long, uneven, and unkempt, and a straggling beard covered his face; there was a strange look in his eye, and a nervous, restless energy in his every motion. To make one last effort for success in the desired experiment, I joined in his walk and explained to him the advantage of his allowing himself to be subjected to the x-ray. I talked to him as if he were sane—told him that the discovery of a brain lesion or adhesion might save him from impending death. It was impossible. He was General Von Brandenberg—and I ceased my efforts.

Before retiring from the jail, however, I thought I would address Duestrow in a manner to show the impossibility of his shamming. The original party entering the jail had been reinforced by the arrival of two other members of the press. It had been some time since I had seen Duestrow; in fact, I had not conversed with him since the affirmance of the judgment of the lower court, and his sentence to hang on February 16th. My questions were impromptu and delivered as rapidly as possible. The following is the conversation:

"See here, Arthur, I want to talk to you. Don't you know that the Supreme Court has decided that you must be hanged?"

"No," answered Duestrow, with a smile.

"There has been such a decision, and the date for your execution is February 16th. They will hang you then, unless something intervenes. You understand?"

He replied, with a smile, "They can't do it—they can't hang a superior officer."

"But they will do it, sure."

As I said this I had his hand grasped in mine, and my grasp he returned. There was not the faintest indication of a realization of the awful fact I was telling him. He simply looked at me, and with the same peculiar smile—broad, and to me idiotic—said: "They can't, I tell you."

Instantly I then changed the subject, and said: "What is your name?" He answered, "General Von Brandenberg."

"And where is Arthur Duestrow?"

"He is dead."

"Where did he die?"

"I don't know."

"What killed him?"

"He died of heart failure."

"Where is his son?"

"He is at home."

"What is his name?"

"Louis."

"And Arthur Duestrow's wife—where is she?"

"She is alive and at home." "Albertina."

There was not in this conversation the least indication of Duestrow's shamming. The idea of asking the questions I did was the result of an impulse to show those present his true mental condition. I knew it myself, but doubt whether this conversation, in the very shadow of the gallows, was looked upon as anything else than a ruse to enable the lawyer and client to play upon the credulity of the public. To such condition had the community arrived—their mental vision was so distorted—they were determined not to see the truth as long as their vengeance was unappeased. Do they see it now? On the morning of the execution, as Duestrow stood at the window of his cell and looked at the process of building the scaffold on which he was to hang—heard the hammering of nails, the sawing of the boards, and other accompanying sounds made by the workmen—a heartless guard told him

it was being built to hang him on. His reply was in keeping with his reply when I told him, "They will hang you then, unless something intervenes," and he said "They can't do it; they can't hang a superior officer." He said to the guard, "They can't do it. I patented that gallows myself, and they can't hang me on it."

In the interests of science it will always be a source of regret that the effort of Dr. Robarts to get an x-ray picture of Duestrow's brain was not successful. Even a cursory and superficial examination at the postmortem showed a diseased condition of that organ, and since then Dr. Rolfing, under whose direction the microscopical examination is being made, has discovered an adhesion sufficient in kind to have interfered with the functional actions of the brain. True, as yet it can not be claimed that such condition warrants a definite conclusion of abnormal mental impairment, but it unquestionably raises a strong doubt in cases where the acts and sayings of the individual are of such a character as to raise a question of his mental soundness. In Duestrow's case there was what unfortunately arises in so many like cases—a conflict of opinion in the diagnosis of his disease. That his was a perfectly normal mind at the time of the tragedy, no one claimed; but the diversity of opinion as to the character and extent of the perturbation covered a wide field. Will it be possible even to reach such perfection in examination as will insure safety in like cases to the afflicted son of humanity, or turn over to just punishment the unscrupulous fraud? It is very doubtful, and will remain so as long as partisanship and pecuniary interest enter so largely into the investigations arising in the department of medical jurisprudence. What a glorious achievement in behalf of humanity will be recorded when the x-ray is the medium of determining with scientific precision the extent and character of that disease which dethrones reason and makes life a curse. Heaven speed the time of its arrival.

TREATMENT OF CHANCROIDS.

By John M. Langdale, M. D.,
Kansas City, Mo.

A neglected chancroid or an improperly treated one may, and sometimes does, become the source of distressing complications, while, if taken in time and intelligently treated, it rarely gives trouble of any consequence. It is not my purpose in this short paper to deal with any phase of the chancroid other than the treatment, nor shall I attempt to give the various treatments of different writers, but will confine myself to a brief statement of the treatment which has proven entirely satisfactory in my hands for some time. I do not know how I can better give this treatment than by reporting a few cases from recent practice.

Case 1. C. W., male, white, single, aged 28, clerk, consulted me June 8, 1896. General health good. Examination revealed two preputial chancroids, one near the frænum, left side, the other just above this one and separated from it by a narrow margin of healthy tissue. These ulcers were first washed with hot water and soap, as well as the balance of the penis, and further cleansed by spraying with peroxide of hydrogen; they were then cainized and thoroughly cauterized with fuming nitric acid and dressed with campho-phenique powder and gauze prepared with the same drug, when the patient was allowed to go to his work. The after-treatment consisted of cleansing the sores with hot water and peroxide of hydrogen, and dressing with the phenique powder and gauze. The sores healed rapidly and completely. No complications; no other treatment.

Case 2. J. F., male, white, married, aged 42, agent, came to my office for treatment September 17, 1896. The prepuce was the seat of a large chancroidal ulcer, situated near the dorsum, involving both the dermal and mucous layers. There was a large suppurating bubo in the left inguinal region, which had received no treatment further than the application

of tincture of iodine and laterally flaxseed poultices. The ulcer on the prepuce was thoroughly cleansed by the use of hot water, scraping, and the peroxide of hydrogen spray; after which it was dressed with phenique powder and gauze. Under thorough aseptic and antiseptic precautions the bubo was now freely incised and emptied, the cavity cleansed with hot water and peroxide of hydrogen and curetted. The wounded surface was covered with the phenique powder and packed with gauze, a bandage applied, and the patient put to bed. The subsequent treatment consisted of thorough cleansing, followed by the phenique powder and gauze dressing. Recovery rapid.

The third and last case I shall report is that of M. G., aged 24, male, white, single, clerk, who presented himself for treatment October 3, 1896. Examination showed large chancroidal ulcer on the mucous surface of the prepuce near the frænum, and a small one situated on the anterior surface of the scrotum. The scrotal chancroid was evidently due to auto-infection, being situated on that part of the scrotum exposed to contact with the pendulus penis. There was an unusual amount of inflammation in connection with these sores, and, while the patient could not afford to leave his work, it was thought best to use no cautery. The ulcers were cleansed in the same manner as in Nos. 1 and 2, and dressed with iodoform and iodoform gauze. There was little change for the first four days, but on the fifth day I noticed a dermatitis had developed, covering the front aspect of the scrotum. I at once came to the conclusion that the dermatitis was due to the iodoform, as I had seen the same results follow its use before. I substituted phenique powder for the iodoform; the dermatitis soon disappeared and the sores were healed in two weeks. I do not report these cases as unusual or remarkable, for I could report many more like them, but simply to show that they can be treated with absolute certainty of success by the course I pursued in the first two cases, and the latter part of the treatment of the third. I do not hesitate to say that the splendid results in these cases were due to the thorough cleansing of the sores and the free use of the phenique powder.

I thought for a long time, as many others do now, that iodoform was indispensable in the treatment of sores of venereal origin, and often forced my patient to submit to its use, in spite of his objections and the suspicion created by its too familiar and disgusting odor. The odor is, however, not the only objection to to use of iodoform, for I have seen some very aggravating conditions follow its use, such as posthitis, balano-posthitis, dermatitis, etc. Experience has convinced me that many times these conditions were due to the iodoform and not a result of the disease. I have never seen any such complications follow the use of the camphophenique powder, which is non-irritating and possesses decided anesthetic and antiseptic properties, rendering it peculiarly adaptable to the treatment of venereal sores and the resultant inflammatory conditions which may attend them.

EPILEPSY AND ITS TREATMENT BY ELECTRICITY.

Dr. W. H. Walling, in the *Medical Brief*, mentions a case of epilepsy of twelve years' standing which was greatly benefited by electricity—faradization of the spine, stomach and abdomen, and galvanization of the sympathetic. Then the anode was placed below the mastoid process, toward the median line, and the cathode on the forehead near the left temple, and one-half a milliampere allowed to pass for two minutes. The electrodes were cautiously changed, and the current continued for from three to five minutes. Improvement continued for a time, but the doctor had to use the tribromide of gold and the oxybromide of arsenic to complete the cure.

PAOLO (PAUL) ZACCHIAS.

PAOLO (PAUL) ZACCHIAS.

We present a portrait of this distinguished man, reproduced from the *Medico-Legal Journal* (Vol. III, No. 3), and was obtained by that journal from Dr. Herman Karnfeld, of Grottkau, Silesia, who had received a portrait of him from a friend in Florence, copied from an original painting.

Paul Zacchias was born in Rome in 1584, and died there in 1659, in the fullness of his mental vigor at 75. He was the father of medico-legal science. To him is due the systematizing of that peculiar combination which compels the jurist to examine into the physico-mental condition of the man who stands charged with violating the law, and forces the physicist to inquire into the working of the physiological machine, in order to trace a disorder, if any there be, and to bring to the light of day the mysterious cause that destroyed the harmony between mind and body, thus determining the responsibility of the will power and the irresponsibility of fatality.

Paolo Zacchias wrote independent works which were famous for their medical information and legal knowledge, though, of course, more or less tainted with the superstitious views regarding magic, demons, and witches which were so widely diffused at that time. He was the administration dictator over all matters pertaining to public hygiene, and was made expert to the *Rota Romana*, the highest Court of Appeals, composed of twelve princes of the church, elevated and inducted into these high offices by Pope Innocentius X., to whom he was body physician. The instigation of the practice of legal medicine was introduced into the courts by the penal code of Emperor Charles V. in 1532, but not until the remarkable production of Paolo Zacchias did medical jurisprudence become a science. He wrote the *Ques-*

tiones Medico-Legalis, which embraced three large volumes. The first contains the decisions of the "Rota," or Court of Appeals, and the others the questions propounded to him and his opinions. It is very remarkable, indeed, that there is hardly a question known to medico-legal science today which is not treated in that remarkable book, while problems are taken into consideration which our advanced position of physiology is not yet prepared to solve satisfactorily—such, for instance, as the questions of the formation of hermaphrodites, the animation of the fetus, superfetation, etc. Another treatise published by him discusses one of the most vital questions of medico-legal science. It isentitled "*De dementia et rationis laesione et morbis omnibus qui rationum laedunt quæstiones*," which furnishes hundreds of observations regarding mental disease that may be studied with interest and profit to this day. He wrote learnedly on medicine, and his talent was appreciated for poetry, music, painting, and theology. He was one of the foremost scholars of his time, a philosopher, an intellectual genius, and the peer of all his cotemporaries.

"W. S." X-RAY PLANTS.

Mr. James G. Biddle, 912 Drexel Building, Philadelphia (sole agent for Messrs. Willyoung & Co.), has been very successful in securing a large number of orders for the now widely known "W. S." x-ray apparatus. The most expensive part of an x-ray outfit is the induction coil, and this very important piece, as made by Willyoung & Co., is said to be remarkably effective and enduring. In addition to the adjustable condenser invented last year by Mr. Willyoung, a new improvement has been introduced in the "Ideal" automatic interrupter just placed on the market. It is claimed that only one-half the amount of current is required to energize a coil, as the apps or other form of hammer head vibrators require. Furthermore, the "Ideal" interrupter does away almost entirely with sparking at the platinum contacts, and can be operated continuously without sticking. It can be connected to any direct current up to 110 volts if the primary current is regulated by a suitable rheostat, but without necessity for rotary or mechanical break of any kind. The makers claim this to be the first automatic interrupter that can be safely connected to a 110-volt circuit in the manner indicated.

Other parts of these equipments are equally meritorious as the induction coils, and interested parties should avail themselves of Mr. Biddle's offer to mail his new x-ray catalogue No. 200 upon request. Some of the recent orders received by Mr. Biddle are from the Episcopal Hospital, Philadelphia; Jefferson Hospital, Philadelphia; German Hospital, Philadelphia; Girls' High School, Philadelphia; Johns-Hopkins Hospital, Baltimore; Pennsylvania Hospital, Philadelphia; United States Marine Hospital Service, Washington; Emergency Hospital, Washington; Williamsport Hospital, Williamsport, Pa.; West Penn Hospital, Pittsburg; Catholic University, Washington; Hospital, Alton, Ill.; Hospital, Boise City, Idaho; College of Medicine, Cincinnati; Hospital, New London, Ct.; Hospital, Lancaster, Pa., in addition to a very considerable number of private physicians and surgeons.

AVENIN.

Recent experiments show that oats contain a substance, easily soluble in alcohol, which has an irritant action on the motor cells of the nervous system. It is a nitrogenous substance apparently of an alkaloid character. The quantity present varies according to the quality of the grain and the soil on which it is grown. The darker varieties contain more than the light. Its composition is given as $C_{56}H_{21}NO_{18}$. The bruising and milling of the oats diminishes the quantity of this substance very rapidly, but it is quicker in its action.—*Hardwick's Science Gossip.*

The increase of dyspepsia, especially among young persons, is largely attributable to the extensive use of oat meal.

DR. WILLIAM KONRAD ROENTGEN.
From a photograph by Hanfstaengl, Frankfort-on-the-Main.

LOCATION OF FOREIGN BODIES IN THE EYE WITH ROENTGEN RAYS.

Dr. Clark, Columbus, reported at the recent meeting of the American Ophthalmological Society at New London a case in which the presence of a small fragment of metal in the extreme angle of the anterior chamber and the iris, where it could not be seen, had been determined by radiography. The sensitive plate had been introduced into the adjoining nostril, the patient being put under ether, and the rays directed upon it through the eye from the temporal side. He also suggested that the plate could be placed in the cocainized conjunctival sac, or an opening could be made in the conjunctival and the small plate slipped behind it. He believed that this method of locating a foreign body in the eye-ball was perfectly practicable, especially if the particle were lodged an-

teriorly, as in the ciliary region, where it could not be seen with the ophthalmoscope.

Dr. Williams, Boston, reported a case in which a fragment of the copper case of a cartridge had passed through the cornea and lens. Nothing could be seen of it, and it was not certain that it was in the eye. The use of the x-rays showed the presence of the fragment, and it was removed. The radiograph was obtained with ten minutes' exposure by laying the patient's head with the side of the injured eye upon the plate, and placing the Crookes tube above and rather in front of the patient's head.

Foreign bodies are now being successfully radiographed after the suggestion made by Dr. Clark.

THE X-RAY IN SURGERY.

By Dr. GEORGE F. SHRADY in "The Forum" for March.

Even independently of the knife the hitherto hidden intrenchments of mortality have been revealed by the electric light, which has opened for intelligent inspection and successful invasion the interiors of all the hollow organs.

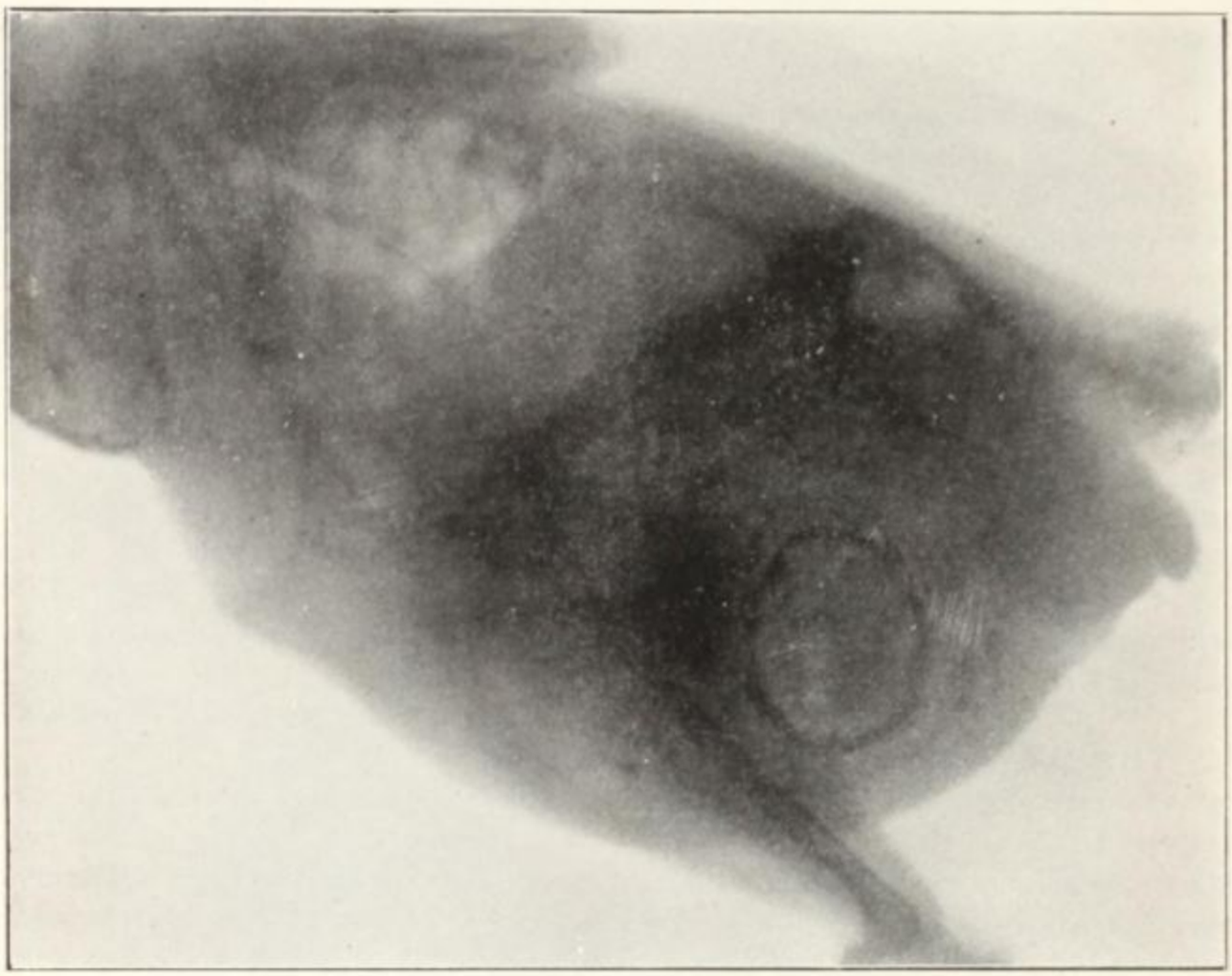
A still greater revelation was in store for workers in such fields, more especially for such as were in search of more marvelous methods. It is scarcely more than a twelvemonth since Roentgen of Wurzburg cheated reason and tricked prophecy by demonstrating the miracle of the x-ray. With the first announcement of the discovery came the application of the new light to the needs of surgery. The skeleton was laid bare in the warm and breathing body, and, for the first time, photographing the hitherto invisible was an overpowering fact. It is not necessary to speak of the world-wide astonishment with which this new discovery was received, nor of its probable benefit to the medicine and surgery of the future. In the enthusiasm of anticipation the possibilities of good appeared to be almost unbounded, but in the light of actually demonstrated results we must needs cultivate patience and perfect methods. Thus far the bones in the living subject have been very clearly and beautifully shown through various thicknesses of super-imposed solids, but expectations in other directions have not yet been realized. Opacity has lifted its veil and has approvingly blinked at the new light, but has not yet yielded absolute homage. Much more is yet to be accomplished. Although solid bodies of differing density have been duly located in the various tissues and cavities; though bullets, coins, and needles have by such means been discovered and removed, the outlines of the internal organs have not been so accurately rendered as was at first anticipated. This is in the main due to the want of distinctness in the demonstration of substance, and to the lack of sharpness of outline.

The best results so far from the x-ray have been obtained in cases of dislocated bones, of fractures, and in the discovery of imbedded bullets. In the present aspect of such accomplished facts there is a melancholy retrospect associated with the lost missile in the body of the lamented Garfield. All the devices known at that time were of no avail in locating the bullet. It was believed, and was thought to have been proven, that it had taken a downward course and lodged in the right groin, whereas in reality it traversed the body in an entirely different direction, through the spinal column, and at the autopsy was discovered behind the region of the stomach on the left side. With the Roentgen ray the whereabouts of the truant could doubtless have been accurately determined, and a successful operation for its dislodgement might have been possible.

Nurse—"I thought you would like to see the new baby. Isn't it awfully cunning and sweet?"

Papa—"Beautiful! Lovely! It is a peach."

Nurse—"Yes, sir; but am't you glad it isn't a pear?"



HEN AND EGG.

Exposure, two minutes.

Radiograph of a hen at 9 p. m., showing the egg *in situ*. This egg was duly laid the following day at 10 a. m. The hen showed no inconvenience from the effect of the x-rays. The picture indicates under exposure.

In subsequent issues of this journal we will give full particulars of a series of experiments made on eggs at different periods of incubation. These investigations will be extended so as to include the animal and vegetable kingdom, to ascertain what effect, if any, the x-rays have upon vital cells. The effect of the Roentgen rays on fetal life under forty-five minutes' exposure at two, four, and six months has not apparently influenced the normal issue. Researches by others made in this line will be gladly accepted.

ODD CAUSES OF ELECTRICAL FIRES.

From the quarterly report of the Electrical Bureau of the National Board of Fire Underwriters we learn of the following odd causes of fire:

A plush curtain in a theater, on being hoisted, came in contact with a 32-candle power incandescent lamp. The common size is 16-candle power. The heat from the lamp ignited the curtain, but the fire was discovered, with no loss, except the curtain.

A stage hand was ordered to turn out an incandescent lamp, and, not knowing how to do it, instead of turning the switch, wrapped a damp towel around the bulb. Some time afterward the towel was discovered smoldering.

A portable incandescent lamp was allowed to remain lighted lying on a mattress. The heat from the lamp ignited the cloth and the excelsior of the mattress, and the fire spread through the basement and store.

An electric pressing iron was allowed

to stand with the current turned on. The heated iron after a time set fire to the table, and the flames communicated to the surrounding combustible material.

A wagon loaded with gasoline collided with an electric car. The wagon was demolished and the oil flooded the street. The accident attracted the attention of the motorman of another car, who ran his car up to the scene. Seeing the oil running under his car, he turned on the current to get away. A spark from the wheel immediately ignited the gasoline fumes and instantly the street was ablaze. Four people were injured, one seriously, and one horse was burned to death.

Fire occurred in a basement owing to dripping water falling on an electrical measuring instrument, thereby short circuiting it. No damage was done beyond the loss of the instrument.

Sparks from arc lamps in a department store ignited cloaks on a table underneath.

An elevator motor was burned out, having been left running when the employees left the store, the motor brushes having been badly adjusted.

A carpenter dropped a nut on the coils of a rheostat, short circuiting them with an iron frame resting against a gaspipe. An arc was formed between the frame and the pipe; the latter was melted and the escaping gas ignited. But small loss occurred.

Rats gnawed the insulation from a wire which lay on a gas pipe; an arc was established between the wire and the gas pipe, setting fire to the gas.—*New Ideas.*

THE BANANA CURE.

Crichton Campbell, writing to the editor of the New York *Sun*, speaks as follows of the banana:

Bestow a boon on humanity and help to popularize the baked banana as an article of food for rich and poor, especially the poor. One cent will buy a good sized banana, which, when baked in its skin in an oven for fifteen or twenty minutes, until it is quite soft and bursts open, alone makes a full meal. I say from personal experience that three bananas, weighing one pound, are equal in nourishment to twenty-six pounds of bread when baked.

Bananas should never be eaten raw. They are full of animal germs and very indigestible.

Baked bananas are also the ideal food for nervous persons and anemics, also brain workers. I learned their great power to sustain mental effort in India. I am as hard a brain worker as any person in New York, and I have subsisted for years entirely on baked bananas. When I see lean, blood-poor persons I advise them to eat baked bananas, and they unfailingly build up and gain flesh.

This subject, which might not inappropriately be called the "banana cure," because many diseases can be cured by eating baked bananas, merits the closest investigation. The introduction of the potato was a great boon to the people, but I predict that the spreading of the above facts over this country will prove of still greater benefit.

MEDICAL LONGEVITY.

The average duration of a medical man's life during the sixteenth century was thirty-six years, five months; in the seventeenth century it was forty-five years, eight months; in the eighteenth century forty-nine years, eight months; and in the nineteenth century fifty-six years, seven months. It would appear, from these data that—whether the survival of the fittest or not—the duration of medical life has been increasing in a marvelous manner. Should the same rate be maintained, practitioners of medicine may ere long look forward to centennial honors.

This is doubtless to be accounted for by the frugal diet and abundant exercise of the average doctor. He escapes the enervating effects of luxurious ease. If this continues, the surest method of obtaining longevity will be to become a doctor.—*The Alkaloidal Clinic.*

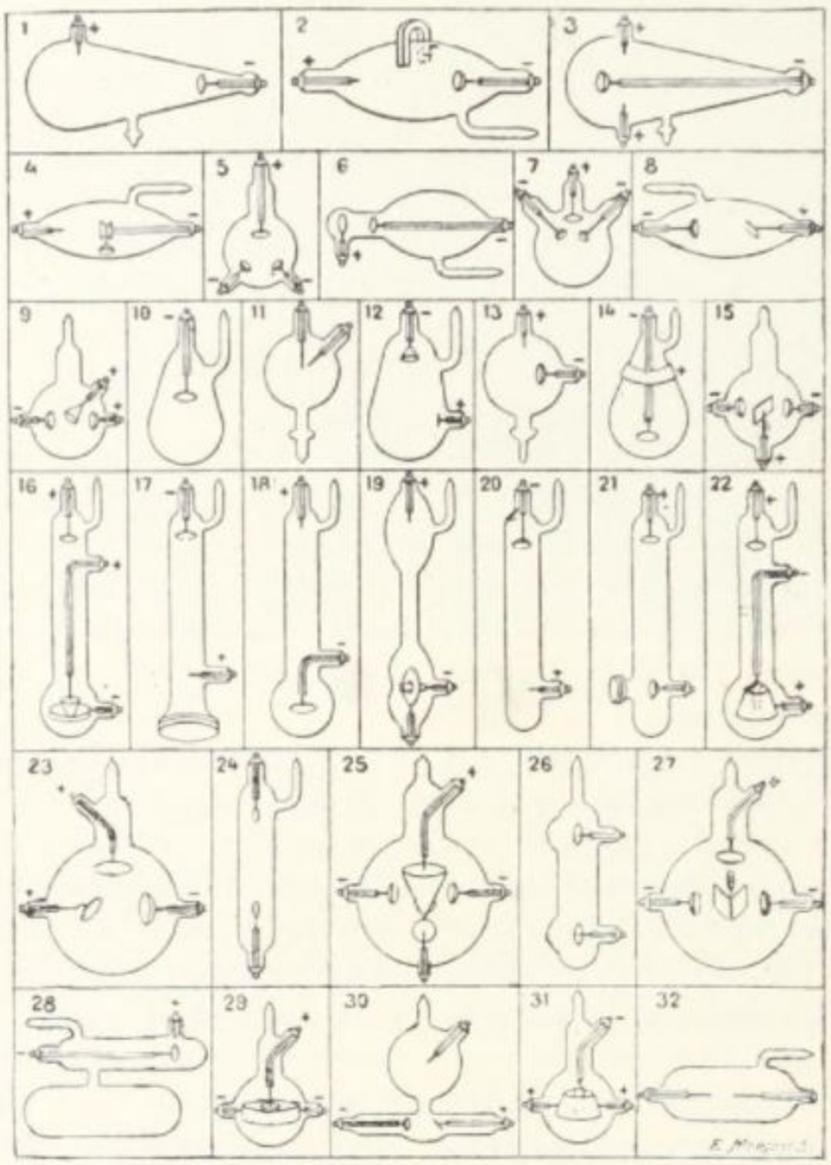
SOME VARIOUS TYPES OF X-RAY TUBES.

A large number of tubes have already been employed in different experiments with and applications of the x-rays for photography, and in connection with the fluoroscope.

Mr. G. Séguy has constructed and experimented upon several types, and he has gathered a collection which is illustrated in *La Nature*.

There exists at the present time three methods of obtaining the x-rays. That employed in the very beginning is based on the direct action of the ray. The second permits of obtaining instantaneity in the radiograph, and is based upon a reflection action. The third is the result of the combination of the first two methods.

In the accompanying engravings, Nos. 1, 2, 3, 4, 6, 7, 10, 11, 12, 13, 14, 17, 18, 20, 21, 24, 26, 28, and 32 are constructed according to the principles of the first methods. Nos. 5, 8, 9, 15, 16, 23, 25, 27, 29, and 30 employ the second method; that is the theory of the reflection of the cathode rays and of the phenomenon of internal electrolysis of the volatilized molecules. The tubes Nos. 19, 22, and 31 produce x-rays according to the two combined theories.—*Bubier's Popular Electrician.*



VARIOUS TYPES OF X-RAY TUBES.

SIMILIA SIMILIBUS.

"They say microbes are in a kiss,"
Quoth he—their lips had barely parted.
"I am a homeopath," the miss
Returned in tone not quite faint hearted:
"In 'like cures like' I put my trust,"
Whereat their lips again concussed.

CATAPHORESIS AS APPLIED TO SENSITIVE DENTINE, RENDERING DENTAL OPERATIONS PAINLESS.

By CHARLES G. PEASE, M. D., D. D. S., New York, in "The Journal of Electro Therapeutics."

I will not trespass upon your time in writing at full length upon so limited a subject. We are still experimenting, for, although the results which have been obtained by cataphoric action upon the dentine have been satisfactory, in the light of our present knowledge and in view of the purposes for which it is employed as limited by the scope of this paper, yet we do not know what the future may reveal.

The question arises, is there any damage sustained by the pulp that will result in permanent injury and final death through driving or carrying the obtruding medicament into the toothbone and pulp? (Arsenic, of course, not being used, cocaine being largely employed, as also some of the essential oils.)

To this question I reply, we have not been able to discover any damage to the pulp in cases in which anesthesia has been produced by cataphoresis up to the present. Whether any of these pulps will ultimately die as a result of the treatment time will tell. Years may be required before we can positively say they will not.

The fraction of a milliampere of the current will produce pain at the onset when applied to sensitive dentine, therefore the utmost care is required in controlling and graduating the current, which should be gradually increased, each increase of current causing pain at first. In seven to ten minutes there will be no pain on increasing current, which is then carried to two or two and one-half milliamperes, and continued for three or four minutes. Operative procedures may then be endured without pain.

During the application of the current the applicator should not be removed from contact with the part, that sensation may be avoided by reaction of current, and the current should not be increased until the pain of the previous accretion has subsided, and it is also advisable to place the medicament used into the cavity of the tooth about five minutes before the application of the current. This will modify the pain of first contact. The medicament is conveyed into and retained in the cavity by means of a small pledget of cotton the size of the cavity, and the applicator is placed against the cotton, which should be kept well saturated with the medicament by means of a pipet or other instrument.

In a recent operation a mesial approximal cavity, the dentine of which was extremely sensitive, was subjected to cataphoric treatment and then thoroughly excavated without pain. A disto-approximal cavity was then discovered in the same tooth, which was cut out without the cataphoric application and without any pain whatever, showing conclusively that the pulp had been invaded by the medicament sufficiently to anesthetize it, and the whole tooth could have been cut to pieces without pain. This is a great accomplishment and a boon to the sensitive patient. The rubber dam should be applied before making the application.

THE PASSING OF THE PHYSICIAN.

"It needs no prophetic eye," says the *Medical News*, "to see the extinction awaiting the practicing physician, using the term in contradistinction to the hospital or dispensary physician. Surgeons, aside from professors and hospital and dispensary surgeons, are already extinct. The dragnets of ambulance, dispensary, clinic, and hospital have secured such a 'corner' in surgery that no man outside the chosen few can make a living. What has occurred in surgery is now occurring in medicine. No patient able to walk or ride in a cab need pay a cent for medicine or treatment. If slightly hesitating on the brink, the maelstrom of dispensary, clinic, or hospital will suck him into its hungry and capacious maw, from which nothing is ever vom-

ited back but statistics. If too sick to walk or ride in a cab, an ambulance waits to carry him tenderly, and without shock or exposure, to sumptuous hospital apartments, built possibly by misused funds donated to the hospital for charity. Ambulating and portable sick people being thus provided for, there remains only a small class of the desperately sick whose removal might mean death. To provide for these cases it is only necessary to slightly enlarge the staff of out-door visiting physicians, and, presto, the thing is done. And the weary and struggling outside general practitioner can go home, shut himself up with his emaciated wife and starving children, and turn on the unlighted gas."

This same death knell was preached when Gross was a student under McClellan in 1827. We recall the long, sad wail sent up against free clinics and the rich, the beneficiaries, by Dr. P. S. Connor, before the alumni of the Jefferson Medical College of Philadelphia in 1877.

Clinics have their abuses and should be restricted, but doctors today are better paid, and there are more of them in proportion to the population than at any previous period.

MORTALITY IN LARGE CITIES.

The mortality rate of sixteen of the largest cities in the United States in 1892 was as follows:

	Population.	Death rate per 1,000.
New York	1,687,072	25.9
Chicago	1,200,000	22.3
Brooklyn	871,723	24.37
St. Louis	460,000	19.4
Boston	459,062	23.02
Baltimore	455,472	21.92
San Francisco	330,000	20.82
Cincinnati	300,000	22.09
Buffalo	255,664	23.48
New Orleans	254,000	27.48
Washington	250,000	24.03
Pittsburg	247,000	24.3
Louisville	227,000	14.88
Detroit	220,000	19.33
Milwaukee	220,000	21.33
Minneapolis	200,000	10.93

The great disparity of mortality is more noticeable in cities of less population. Quebec, of the Province of Quebec, with a population of 62,000 has a mortality of 41 per thousand, while that of Des Moines, Iowa, with a population of 62,000, has a mortality of only 9.

FOREIGN BODIES SWALLOWED BY CHILDREN.

The *American Medical and Surgical Bulletin*, in an article on this subject, says that pins, safety-pins, pebbles, jackstones, etc., swallowed by children need occasion no alarm, as they will all pass through without harming the child. The greatest danger is from the castor oil with which the child is usually dosed in such cases; it is better to leave the bowels at rest and give gruel, crackers, baked potatoes, milk, anything that will constipate the child and make a pultaceous mass in which the foreign bodies will be imbedded and carried through.

When foreign bodies stick in the throat and the child is unable to swallow, it should receive an emetic, or the coin catcher should be introduced. This is a basket-like affair easily used. In one case both a 1-cent and a 2-cent piece were removed at the same time by this instrument.

MODERN MEDICINE.

"What are you studying so intently?" said Mullins to his friend, Dr. Paresis.

"I'm trying to ascertain whether a patient of mine can stand a consultation."

"That book you are reading treats of his ailment, I suppose."

"No, this is Bradstreet's."

THE latest exploit with the Roentgen rays is reported from Lisbon. It was at the instance of the Queen of Portugal, who takes a keen interest in science, that the ladies of her court submitted themselves to the searching action of these vibrations. The ladies have been startled at the sight of their distorted ribs and bones, the result of tight lacing. Henceforth they have determined to be free women. Corsets are to be cast aside.

BOOK REVIEWS.

ROENTGEN RAYS AND THE PHENOMENA OF THE ARIODE AND CATHODE. By Edward P. Thompson, M. E., E. E., author of "Inventing as a Science and Art." Concluding chapter by Professor A. Anthony, with sixty diagrams and forty-five half tones. 8vo., cloth. Price, $1.50.

The book involves researches of Spottiswoode, Lichtenberg, Karsten, Hammer, Poggendorf, Gassiot, Plucker, Crookes, Goldstein, Hertz, Lenard, Kowalski, Roentgen, Righi, Varley, Elster, Geitel, Thomson (J. J. and Elihu), Lodge, Swinton, Salvioni, Rowland, Edison, Tesla, Borgmann, Pilichikof, Meslans, Chas. Henry, Branly, Stolstow, Pupin, Stine, Dufour, Sylvanus P. Thompson, Terry, Scribner, M'Berty, Rice, Minchin, Appleyard, Buguet, Rood, Mayer, Murray, Lafay, McKay, Perrin, Thomson (Lord Kelvin), and many other eminent physicists and electricians. The contents are arranged into chapters as follows: Chapter I, "Anode and Cathode Phenomena in Open Air, Compressed Gases, and Low Vacua;" II, "Action of the Magnet upon the Cathode and Anode Columns of Light, and other Kindred Occurrences in the Discharge Tube;" III, "Electric Images, Electrographs, Anode and Cathode Dust Pictures, Photo-Electric Pictures and Portraits, Bas-relief *Fac-similes* and other Curious Pictures based upon Discharge of Current;" IV, "Anode Radiations, Motions, Effects, Striæ, Velocity, and Kindred Occurrences, such as Heat Striæ and Sensitive State;" V, "Cathode Rays in High Vacua, Inside of Discharge Tube;" VI, "Cathode Rays Outside of Discharge Tube;" VII, VIII, XI, X, XI, XII, "Roentgen Rays; Properties, Laws, and Principles of;" "Applications;" "Instructions on Electrical Apparatus for Generation;" "Construction of Discharge Tube;" "Difficulties Experienced and How Overcome;" "Miscellaneous Phenomena;" XIII, "Roentgen Rays in Diagnosis;" XIV, "Generalizations, Theories, and Kindred Radiations." These are divided into 210 paragraphs, in which the author recites the experiments of physicists, and with each are numerous cross-references together with the lesson taught by each experiment.

The book opens with the investigations of Faraday in 1831, which marked the time when the first researches were made in electricity bearing upon the recent x-ray discovery. Separate chapters are devoted to Reiss, Gassiot, Lenard, Roentgen, Hertz, Thomson, Edison, Tesla, and miscellaneous researches on Roentgen rays. Chapter XIII gives "A few Typical Applications of X-Rays in Anatomy, Surgery, Diagnosis, etc." The book concludes with "Theoretical Considerations," ably written by Professor Wm. A. Anthony. The author has encompassed the scientific range of all x-ray phenomena, and epitomized this vast domain of interesting research. It is a thesaurus of information on all that pertains to the Roentgen ray, and it is doubtful whether its equal exists in any language. The book is a study. The student of radiant matter, discharge tubes, and all electrical phenomena bearing on this subject can not pass judgment on the history and intricacies of this science without having first studied Mr. Thompson's valuable book. The first edition has the fault of not being indexed, but the contents are, however, conveniently arranged and easily understood.

THE X-RAY, OR PHOTOGRAPHY OF THE INVISIBLE. By William J. Morton, M. D., in collaboration with Edwin W. Hammer. New York: American Technical Book Company. Price, 75 cents.

This book is bound in cloth, covers about 200 pages of printed matter, illustrated throughout and with an additional ending of thirty well-executed x-ray half-tones. The authors show a technical familiarity with the subject, revealed in a most striking manner by elementary teaching, simplicity, and practical use of the x-rays. The book is divided into four parts, and these again into chapters, concluding with appendices A, B, and C. Appendix A is by Professor Wilhelm Konrad Roentgen, entitled "A New Form of Radiation;" appendix B is by Thomas A. Edison, "Experiments with the Roentgen Rays;" and appendix C is by Dr. Oliver Lodge, F. R. S., "The Surviving Hypothesis Concerning the X-Rays." While these subjects are interesting to those somewhat familiar with electrical phenomena in vacua, it is the more elementary portions of this book which will invoke the greatest interest. Part I, including seven chapters, is beautifully primary, defining the volt, ampere, and coulomb, the ohm, the watt, the farad and microfarad, induction, and conservation of energy. The definitions are made with familiar and commonplace examples, and are so rudimentary in detail and withal interesting that each sentence conveys to the reader a clear and well-defined understanding. "Sources of Electricity," "The Induction Coil," "Crookes' Tubes and their Variations," "The Fluoroscope and Photographic Apparatus," makes up the subject matter of Part II. Part III enters into "The Practical Detail of the Choice of Apparatus, and How to Make Proper Connections," "On the Nature of the X-Ray," "The Source of the X-Ray and How Demonstrated," "X-Rays and their Relation

to Vacuum," "Taking the First X-Ray Pictures," "Photography with the Camera." Part IV gives the "Surgical Value of the X-Ray," and concludes with "Fractures and Dislocations," "Diseases of the Bones and Deformities," "Stiff Joints," "The X-Ray in Dentistry," "Foreign Bodies in the Body," "Soft Tissue and Location of Organs," "Medico-Legal," and "Curative Action of the X-Ray." Those persons who desire to extend their knowledge in this popular branch of science will find easy and ready information in this most excellent book. Those who are working with the x-rays will find labor, anxiety, and expense saved by carefully perusing these pages. The book reflects the author's knowledge of the x-ray work after exhaustive personal experience.

THE A, B, C OF THE X-RAYS. By William H. Meadowcroft. New York: American Technical Book Company. Price, 75 cents.

Whatever may be said of elementary works written on the subject of the x-rays, the A, B, C must always occupy an unoccupied field of information for students and beginners. Any one who will familiarize himself with this readable book can satisfactorily manipulate an x-ray apparatus. The sections are carefully arranged. The matter is written so plain and readable that the student, though unfamiliar with any part of the new science, will in one evening find himself in possession of a good understanding of the x-ray phenomena. The book is well indexed. Handsomely bound in cloth, about 200 pages, richly illustrated.

LIABILITY OF MEDICAL MEN.

An astonishing ruling has, according to the reports of the German medical journals, been recently made by the courts of that country on a point of alleged malpractice. In April of the present year a serving man was wounded in the chest with a knife, and was treated by a practitioner without antiseptic precautions. The man died from septic poisoning, and the practitioner was arraigned on the charge of culpable homicide, which was upheld by the magisterial court on the ground that a medical man should be so far abreast with modern science as to avail himself of the recognized rules of treatment, and that in the case in question the practitioner should have been aware that the procedure adopted by him might lead to the death of his patient. The Reichsgericht being appealed to, confirmed this decision. In view of the wide differences of opinion still obtaining among practitioners in England and America regarding so-called "Listerism," one can not help thinking what havoc would be made with professional reputations and pockets were such a cause recognized in either of the latter countries as a fit ground for legal interference.—*Boston Medical and Surgical Journal.*

THE ROENTGEN RAYS IN OCULAR THERAPEUTICS.

The unexpected result of the application of the Roentgen x-rays of relieving pain and reducing inflammation in the effort to detect the presence and location of a foreign body in the eye is worthy of a passing notice. A man had complained of severe pain in the ball, incapacitating him from work and causing sleepless nights, and had earnestly requested relief. The experiments undertaken by Dr. Stern in the Polyclinic laboratory were eminently successful in detecting the presence of a piece of metal in the vitreous. Coincidently the pain was relieved, and the man could both work and sleep. Whether this happy result was only a coincidence or a real effect of the rays can not be positively asserted, nor can its application be general until further experiments on a sufficiently large scale demonstrate the truth or falsity of the statement that the x-rays are a therapeutic agent.—*Philadelphia Polyclinic.*

EXPERIMENTERS are discovering that the Roentgen rays are quite complex. One electrician reports in *Nature* that he has differentiated them so as to be quite sure of three distinct kinds. To one kind wood is transparent and flesh opaque. To another kind bone is almost as transparent as flesh. The suggestion has been made that the difference is due to frequency rather than quality. Another experimenter has succeeded in taking photographs through a plate of iron eight inches thick.

FOREIGN BODY IN THE EAR RESULTING FATALLY.

Voss (*La Sem. Med. de St. Petersbourg*, January 10, 1895) reports the case of a child five years old who pushed a dry pea into his ear. Four doctors spent several days endeavoring to extract this body, but only succeeded in pushing it quite out of sight. On the fifth day the foreign body was imbedded in the tympanic cavity, whence it was removed after dissecting the ear forward and opening the posterior wall of the auditory passage; the tympanum was crushed, the ossicles were broken, the cavity was suppurating. The fever from which the child was suffering at the time of abstraction continued, and the patient became comatose and perished four days later. To determine the position of foreign bodies, the patient should be examined at once with the aid of the x-ray.

THE drinking cup as a carrier of contagious disease among school children is now under consideration by the New York Board of Health.

X-RAYS IN LEGAL CASES.

Lucien I. Blake, professor of electricity in the University of Kansas, went to Wichita, Kan., the other day to take a Roentgen shadowgraph of the wrist of Pete Noel, who has brought suit in the District Court against the Atchison, Topeka & Santa Fe Railroad for $10,000, claiming that the company's physician damaged him to that extent by bunglingly setting his fractured wrist. The shadowgraph will be introduced in evidence, plaintiff and defendants having agreed to accept it as final evidence.

In Denver, Colo., December 4, 1896, James Smith brought suit against Dr. W. W. Grant for $20,000 damages for false diagnosis of an injury that led to treatment of contusion instead of fracture. The x-ray was recognized in court as disclosing the true nature of the trouble.

In Waterloo, Iowa, recently a suit was brought against Dr. D. W. Overholt for alleged malpractice in settiag a fractured leg. The x-ray was admitted in evidence.