

Papers Past news on X-Ray History in New Zealand Newspapers
Compiled by Steven Muir 2025

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1 February 1896 Otago Daily Times, Cable about discovery

CABLEGRAMS. AN IMPORTANT DISCOVERY. London, January 30. The doctors are using Rontgen's discovery in photography, which enables pictures to be secured through opaque substances, and have already obtained some astounding results. Gallstones, stones in the bladder, and injuries to the bones are easily seen.

8 February 1896 Press, news via London and New York

PHOTOGRAPHY THROUGH OPAQUE SUBSTANCES.

With reference to Rontgen's discovery in photography, described in & recent cable message, a London correspondent of a New York paper says:—"The noise of war alarms should not distract attention from the marvellous triumph of science which is reported from Vienna. It is announced that Professor Rontgen of Wurzburg University, has discovered a light which, for purposes of photography, will penetrate wood, flesh, or most any other organic substances. The Professor has succeeded in photographing metal weights which were enclosed in a wooden case, and also has made a photograph of a man's hand which shows only the bones, the flesh being invisible. The correspondent says: He takes a so-called crooked pipe, namely, vacuum glass pipe with an induction current going through it, and by means of the rays which the pipe emits, photographs on ordinary photograph plates. These rays penetrate organic matter, and other opaque substances, just as ordinary rays penetrate glass. He has also succeeded in photographing hidden metals with a cloth thrown over the camera. The rays penetrated not only a wooden case containing metals, but the fabric in front of the negative. The Professor is already using his discovery to photograph, broken limbs and bullets in human bodies."

6 March 1896, Southland Times, skull imaged and reporter couldn't sleep

Seeing Through Things.—A living man's skull has been photographed by means of the new process discovered by Professor Rontgen. An editor, eager to observe the process, offered to have his skull taken, but is said to have been so shocked at the result that he has not slept since he saw his own 'death's head.' Some of the Rontgen experiments are of a practical character. The photographs

showed the internal injuries caused by a revolver shot in a man's hand and the position of the projectile. In the case of a girl, the nature of a malformation of her foot was ascertained.

13 March 1896 Oamaru Mail X-Ray image from Europe shown in shop window

The Otago Daily Times says: A specimen of Professor Rontgen's new process of photography, is at present being exhibited in the shop window of Mr Frank Hyams, jeweller, Princess street. The picture is that of the living hand, but the outline of the flesh is scarcely visible, while every bone and joint may be seen with remarkable clearness. The photograph is the same as that shown by Professor Rontgen at the Hamburg University, and is attracting a great deal of attention.

14 March 1896 New Zealand Herald, the feeling in Berlin from McDowell

THE GREAT PHOTOGRAPHIC DISCOVERY. The following are extracts from a private letter from Dr. W. C. W. McDowell, of Auckland, who is now completing his studies in Berlin. He gives an instructive description of the state of feeling in Germany against England, and also of the wonderful discovery of Professor Rontgen, of Wurzburg. The picture which he has sent, and which we now reproduce, shows plainly what this new discovery effects. It is a copy of a photograph made of the living; hand by the newly-found invisible rays. The bones and ligaments are as clearly seen as if in a skeleton. The fleshy parts through which the light has penetrated are faintly seen. A ring is on the fourth finger. The photograph is from Das Echo, of January 16, a weekly paper published in Berlin.

Berlin, January 25, 1896.

PROFESSOR RONTGEN'S DISCOVERY, It is pleasant to turn from the troubled state of international politics to the peaceful paths of science. Within the past few weeks Professor Rontgen, of Wurzburg, has startled the world with the announcement of his discovery of a new manifestation of light. For a long time it has been known that when an electric current is passed through a glass tube which has been exhausted of air (named Crookes' tubes, after their English inventor), a brilliant light is produced, Professor Rontgen has now found that when the tube is covered with black cardboard so that no visible rays escape—nevertheless, when a sheet of paper, painted with a fluorescent material, such as a compound of Barium-platinum and cyanic acid—it at once glows with light. This fact proves that for a the Crookes tube invisible rays of light must pass. These rays not only pass through cardboard, but also through a printed book of more than 1000 pages, varying thicknesses of wood, aluminium, platinum, copper, and other metals, and can cause fluorescence effects at a distance of two yards. That these rays possess chemical action is shown by their effect upon the photographic plate. An ordinary photographic plate is placed in a wooden box, on the lid of the box is placed a person's hand, and these remarkable rays have the power of passing through the fleshy parts of the hand through the lid of the box, and leave on the photographic plate the shadow impress of the impenetrable bones of the hand, and if a ring be upon one of the fingers its impenetrable mass is also seen in the photograph. One of the more immediate practical uses of this

property of these rays is the application to medical science. It will prove of especial value to the surgeon as an invaluable aid to the diagnosis of the site of fractures, or fragments of bones, or the lodgement of bullets, etc. At one of the medical societies here the other night there was exhibited a photograph of a hand, which enabled a surgeon to diagnose the site of a fragment of glass which could not otherwise be detected. Every day are fresh reports of its useful application coming to hand. These wonderful rays conduct themselves in a way quite contrary to the laws of refraction, reflexion, and response to magnetism, which govern the other known rays of light. Until their nature is more fully known Professor Rontgen designates them "X rays." He inclines to the belief that they are due to waves of light travelling in a longitudinal as contrasted with the transverse direction. Altogether this is a very marvellous discovery, and its further development and application will be awaited with the greatest interest.

14 March 1896 Auckland Star, Experiments by Dr Spiess in Europe

The Photography of the Invisible. More Striking Experiments.

Some very interesting experiments have been made at Berlin with the newly discovered Rontgen photographs. They took place in the 'Urania', an institution which has for its object to make the people acquainted with all forms of progress, inventions, and new discoveries in natural philosophy and the related sciences. The experiments were attended by a very numerous audience, in which literary and scientific circles were largely represented.

Dr. Spiess, the experimentalist of the Urania, has from the moment that Professor Rontgen's discovery became known, placed his ability at its service, and he has succeeded in producing photographs which have turned out better than even those of the discoverer himself. After a brief but very clear lecture about the basis of Professor Rontgen's discovery, and the differences between the x rays and the known cathodic rays produced in Crookes's tubes, Dr. Spiess passed on to the experiments. He showed that the xrays pass through wood, aluminium, and other solids, penetrating more easily, however, bodies of light specific gravity than substances of greater density. They pass through wood, for instance, more easily than through glass. Dr Spiess took a purse, put a key and some coins into it, and wrapped up the whole in black paper, and laid it on a photographic plate. In order to show the great penetrating power of the rays, he laid on the top of the wrapped-up purse a board two fingers in thickness. He then exposed the whole to the rays electrically produced in the Rontgen tubes. After about 15 minutes, which were occupied with various very interesting demonstrations, Dr, Spiess took out the plate, developed it, and had it thrown by limelight on to a white curtain. With the greatest clearness one now saw the key and the coins, while even the outlines of the purse were scarcely seen.

Among other photographs shown was a very interesting one representing the hand of a servant belonging to the institution. This man years ago ran into his hand a piece of glass, which could not be extracted, and always penetrated deeper. The photograph of the skeleton of the hand produced by Professor Rontgen's method showed this bit of glass quite distinctly. Another interesting photograph was the following: Dr Spiess took a box, the sides of which were held together by screws, only the heads of them, of course, being visible to the human eye, the other part being inside the wood. In this box he laid a watchchain, and then exposed the whole to the x rays. The photograph produced showed the chain, the whole length of all the screws, and not a trace of the wood. Another photograph of a hand showed clearly a broken bone in one of the fingers. Very interesting also was the reproduction of a photograph made by Professor Rontgen of a large metal plate. It appeared

that the plate had been broken in different places, then welded together, and so smoothed over that one saw nothing of the joins. The Rontgen rays brought the fracture to light quite distinctly. Dr Spiess warned his audience against premature optimism as regards the practical employment of Professor Rontgen's discovery. He nevertheless said that hopes were justified that it would be brought to greater perfection before long. Considering that Professor Rontgen made his first experiments only, a few weeks ago, the result achieved was a very favourable one.

The discovery was put to practical use at Vienna on January 22nd by Professor Mosetig, whose experiments on two patients, on whom operations were to be performed, were attended with complete success. The photographic pictures taken showed with the utmost clearness and precision the injuries caused by a revolver shot in the left hand of a man, and the position of the small projectile. In the other case, that of a girl, the position and nature of a malformation in the left foot were ascertained. The experiments are regarded as affording a means of determining the exact spot where an operation may be necessary.

16 March 1896 Poverty Bay Herald, Photographing the Invisible news from Europe.

SOME STRIKING EXPERIMENTS.

The Berlin correspondent of the Daily News on 20th January had the opportunity of attending some experiments in the Rontgen system of photography, and describes the results in an interesting despatch. The experiments, he says, took place in the "Urania," an institution which has for its object to make the people 'acquainted with all forms of progress, inventions, and now discoveries in natural philosophy and the related sciences. Dr Spiess, the experimentalist of the Urania, has, from the moment that Professor Rontgen's discovery became known, placed his ability at its service, and he has succeeded in producing photographs which have turned out better than even those of the discoverer himself. After a brief but very clear lecture about the basis of Rontgen's discovery and the difference between the "x" rays and the known cathodic rays produced in Crooke's tubes, Dr Spiess passed on to the experiments. ■ He showed that the "x" rays passed through wood, aluminium, and other solids, penetrating more easily, however, bodies of light specific gravity than substances of greater density. They pass through wood, for instance, more easily than through glass. Dr Spiess took a purse, put a key and some coins into it, wrapped up the whole in black paper, and laid it on a photographic plate. In order to show the great penetrating power of the rays, he laid on the top of the wrapped up purse a board two fingers in thickness. He then exposed the whole to the rays electrically produced in the Rontgen tubes. After about 15 minutes, which were occupied with various very interesting demonstrations, Dr Spiess took out the plate, developed it, and had it thrown by limelight on to a white curtain. With the greatest clearness one could now see the key and the coins, while even the outlines of the purse were scarcely seen. Among other photographs shown was a very interesting one representing the hand of a servant belonging to the institution. This man years ago ran into his hand a piece of glass, which could not be extracted, and always penetrated deeper. The photograph of the skeleton of the hand produced by Professor Rontgen's method showed this piece of glass distinctly. Another interesting photograph was the following. Dr Spiess took a box, the sides of which were held by screws, only the heads of them, of course, being visible to the human eye, the other part being inside the wood. In this box he laid a watch-chain, and then exposed the whole to the "x" rays. The photograph produced showed the chain, the whole length of all the screws, but not a trace of the wood. Another photograph of a hand showed clearly a broken bone in one of the fingers. Very interesting, also, was the

reproduction of a photograph made by Professor Rontgen of a large metal plate. It appeared that the plate had been broken in different places, then welded together, and so smoothed over that one saw nothing of the joins. The Rontgen rays brought the fracture to light quite distinctly. Dr Spiess warned his audience against premature optimism as regards the practical employment of Professor Rontgen's discovery. Professor Faul Czermark, of Graz, has (the Daily News Vienna correspondent says) succeeded in photographing a living skull without its fleshy integument by means of Professor Rontgen's "x" rays. An editor of the Grazer Tagblatt, eager to observe the process, offered to have his skull "taken." But when he saw the result he absolutely refused to have the picture reproduced or even shown to anyone except men of science. He is reported not to have slept a wink since he saw his own "death's-head."

16 March 1896 North Otago Times, Rontgen's Photographic Discovery.

As time goes on we are hearing more about the great photographic discovery said to have been made by Professor Röntgen, of Wurzburg University. It will be remembered that some weeks ago a cable message was published to the effect that by the new process the exact position of fractures in bones, and of bullets, in the case of bullet wounds, in human patients, could be discovered by means of photography. The assertion was scoffed at by scientific photographers in Australia, but according to the Vienna correspondent of the London Daily Telegraph it is quite true. Professor Röntgen has, it is stated, discovered a new conductor of light, by which light penetrates wood and the flesh of men and animals without, however, penetrating bones and metals. We have already heard that the Professor succeeded in photographing metal weights shut up in a wooden case, the photograph showing only the weights and nothing of the case, while another photograph of a man's hand shows only the bones, the flesh covering them being invisible. The Professor's experiments are said to be conducted in the following manner: "He takes a so-called Crooke's pipe, viz., a well-pumped out glass pipe, with an induction current going through it, and by means of the rays which that pipe is emitting he photographs on ordinary photographic plates. In contrast with the ordinary rays of light these rays penetrate wooden and organic matter and other opaque substance", just in the same way as the ordinary rays of light penetrate glass. Experiments were also made in photographing hidden meals with the apparatus shut, and produced equal success. The rays penetrated not only the wooden case containing the metals, but also the cover placed before the plate of the apparatus." The scientific world of the Continent is said to be much agitated by the discovery, which it is believed will be of far-reaching importance for many branches of knowledge. Already in its present stage, says the writer, it will be an excellent expedient for surgeons, particularly in cases of complicated fractures of limbs, in searching for the bullets of the wounded, etc. The photograph will show not only an exact picture of a fracture, or the situation of a bullet, but spare the patient much painful probing with the sound. Nowadays it is only the very rash man who declares that anything is impossible for science to accomplish, and though, before completely accepting all that is claimed for this latest marvel, one would like to have fuller details, there seems no reason to doubt that Professor Röntgen has accomplished a feat which but a year or two ago would have been deemed utterly impossible by the most sanguine theorist.

20 March 1896 South Canterbury Times, Berlin news from London

Röntgen's Photographs.

A telegram to London from Berlin of January 30th says The new system of photography has received official recognition in Germany. The Reichsanzeiger publishes the following "The Ministry of War, in conjunction with the Imperial Institute of Physiology, has carried out experiments on the application of the Röntgen discovery to war surgery. A series of photographic impressions gave a clear picture of

bone injuries, and permitted the position of an imbedded projectile to be ascertained with precision. The experiments will be continued on a larger scale. Mr A. W. Porter, lecturing on the subject in London, showed some photographs obtained by himself by a simpler apparatus than Rontgen's. The first photograph, which showed a pair of scissors enclosed in a leathern pocketcase lined with silk, was taken through two layers of black paper and one of cardboard, the exposure lasting ten minutes. It showed distinctly the scissors inside the case. The second represented a hand, and showed with peculiar distinctness the form of the skeleton, and even revealed the texture of some of the bones, the exposure in this case was only for four minutes. The third photograph was one of a pod of peas, in which the seeds themselves were well marked.

Another English experimenter, Mr A. C. Swinton, said it was obvious that for surgical purposes and in the study of medicine the ability to take correct photographs of the bones and the interior of the body would enable medical men to deal with diseases and fractures in a manner far more certain than they had ever been able to deal with them before. In engineering it might be possible in the course of time to so develop the process that "flaws" and "blow-holes" entirely concealed in the interior of metal structures would be discovered. Mr Swinton, his illustrations, showed a frog photographed by the new process, in which the minute skeleton was plainly depicted.

20 March 1896 Star (Christchurch) News from Europe

REMARKABLE SCIENTIFIC DISCOVERY.

A sensational discovery, likely to be attended by important consequences for physical and medical science, is spoken of in scientific circles here (says the Vienna correspondent of the London Chronicle) . A new conductor of light has been discovered by Professor Rontgen, the well-known physicist at the Wurzburg University. So far his experiments have resulted in the discovery that LIGHT PENETRATES "WOOD and the flesh of men and animals, without, however, penetrating bones and metals. The professor succeeded in photographing metal weights placed in a shut up wooden case. The photograph sent to Vienna shows only the weights, but nothing of the case. Another photograph of a man's hand shows only the bones, while the flesh remains invisible. Professor Rontgen's experiments are conducted in the following way : — He takes a so-called Crookes' pipe — namely, a well pumped-out glass pipe, with an induction current going through it, and by means of the rays which that pipe is emitting he photographs on ordinary photograph plates. In contrast with the ordinary rays of light those rays penetrate wooden and organic matter and other opaque substances, just in the same way as the ordinary rays of light penetrate glass. Experiments were also made in PHOTOGRAPHING HIDDEN METALS' with the apparatus shut, and produced equal success. The rays penetrated not only the wooden case containing the metals, but also the cover placed before the plate of the apparatus. The scientific world here is much agitated by the discovery, which it is believed will be of far-reaching importance for many branches of knowledge. Already in its present stage it will be an excellent expedient for surgeons, particularly in cases of complicated fractures of limbs, in searching for the bullets of the wounded, etc. The photograph will show not only an exact picture of a fracture, or the situation of a bullet, but spare the patient much painful manual probing with the sound. The New York Tribune has the following interesting reference to the new discovery : — A parallel to Professor Rontgen's brilliant achievement was described in The Tribune more than two years ago, and that the Wurzburg investigator must divide the honours with Professor Fernando Sanford, of Leland Stanford University, in California, in what proportion it is too soon, perhaps, to say. Late in 1893 (at first in September, and several times thereafter), a photograph was obtained at Palo Alto in the following manner : A silver half-dollar was laid down on an ordinary photographic dry-plate, with a thin sheet of mica interposed. At the back of the glass

there was a round piece of tinfoil of the same size as the coin, and directly opposite it. THIS PECULIAR SANDWICH was completed by applying a hard rubber plate to the tinfoil, and a block of wood to the coin. These were all pressed firmly together, and the edges protected from any light, so that the package could have been taken out into the open sunlight without producing any effect on the sensitive film of the plate. However, it was not so taken out, but kept in a dark room where the discharging apparatus of an electrical machine was situated. The brass knobs of this device were about one-sixteenth of an inch apart, and a constant stream of little sparks . from one to the other was maintained for an hour. Professor Sanford believes, however, that he completely excluded all light produced thereby from his photographic plate. To the rods on each side of the spark-gap were attached copper wires, one being connected with the rear of the coin, and the other to the tinfoil on the back of the photographic plate. Any ELECTRIC IMPULSE . proceeding from one rod of the discharger along this new circuit to the other rod, it will be seen, was obliged to cross another gap. In order to get from the coin to the tinfoil it would have been necessary for the waves of energy to penetrate mica (one of the best insulators in the world), the sensitized gelatine film on the face of the photographic plate, and then the glass of that plate. The rest of the route was metallic. At the end of an hour the current was shut off, the plate carefully removed and "developed," and an image of the coin was found impressed thereon. Those portions of the film opposite the raised features of the coin were most acted upon, so that a print from the negative (and the Tribune has had one for two years) reproduces the relief in white and the depressed portions in black.

PROFESSOR RONTGEN'S EXPERIMENTS. Professor Rontgen employed somewhat different apparatus, as well as different subjects for photography. For fifteen or twenty years an elaborate series of experiments have been conducted by a number of distinguished electricians and chemists to discover the behaviour of electricity when passing through gases, and especially rarefied gases. A brief allusion to Professor Rontgen, in Thomson's "Recent Researches," shows that he has taken part in these investigations and has, therefore, been long familiar with the attendant phenomena. In many of the experiments in question electricity was discharged through a closed tube, into each end of which was sealed a wire or tiny metallic disc, and from which most of the air was pumped out. Sir William Crookes, after which the device has been named, has been able to exhaust the contents so as to have only a twenty-millionth of the average amount of atmosphere at sea level, while another physicist reduced the pressure to a three-hundred-millionth. The effects produced, some of which are exceedingly beautiful, vary with the degree of exhaustion. But up to a certain point the rarefaction of the gas promotes the discharge. One object of employing a vacuum is that the spark (if it may be so called) is thereby greatly elongated, and therefore can be examined more minutely with various scientific instruments than would be possible otherwise. The same end may be attained by other means also. Instead of connecting the two wires from his frictional electrical machine directly to the electrodes (or metallic terminals) in the ends of the tube, the operator may send his current through an induction coil. This is composed of two distinct and carefully insulated coils, one of coarse wire and the other of very fine wire, the former usually placed inside the latter. The machine is connected with the coarse wire, or primary circuit, and the tube with the fine wire, or secondary circuit. By means of an induction coil it has been possible to get a spark over three feet long in open air, and in a vacuum Professor J. J. Thomson has stretched out the discharge for fifty feet! THE CROOKES TUBE. Crookes found, however, that after a certain degree of exhaustion was obtained, the true electric discharge ceased, and the tube became entirely dark. If he then continued to pump out air an entirely new phenomenon presented itself. The interior of the glass began to glow with a strange yellow or greenish-yellow phosphorescence. His theory is that molecules of gas are shot away, so to speak, from the negative electrode and bombard the glass. The collision produces a certain amount of heat, which he calls "radiant heat," and as the molecules behave in such an unusual way under these conditions of rarefaction and electrification, Crookes thinks he has found a "fourth state of matter," different from the solid, the liquid, or the gaseous. Professor J. J. Thompson, of Cambridge, a high authority on physics, accepts Crookes' The Engagement and the Wedding Ring should be bought of the manufacturer. R. Kennett, 183, High Street. 157 Irving W.

Larimore, physical director of V.M.C.A., Des Moines, Iowa, says he can conscientiously recommend Chamberlain's Pain Balm to athletes, gymnasts, bicyclists, football players and the profession in general for bruises, sprains and dislocations ; also for soreness and stiffness of the muscles. When applied before the parts become swollen it will effect a cure in one half the time usually required. For sale by Wallace and Co., chemists.

explanation in the main, although inclining to the belief that it is the atoms, and not the molecules, which produce this faint illumination. Now it is with a Crookes' tube, operated with an induction coil, that Professor Rontgen obtains his remarkable pictures. The meagre accounts first received left some I doubt whether he places this device behind the object, so that its rays may pass through the latter to the lensless camera, or near the camera so as to illuminate the front of the object, The former arrangement proves to be the one actually employed, and is obviously the most rational. Since the visible light, at best, is feeble, it does not appear probable that it is this, but something else, SOME INVISIBLE RADIANCE, which impresses the photographic plate or (what amounts to the same thing) a sensitized paper. A substance (copper, for instance) may be opaque to light and transparent to electricity, while another (glass, for example) will transmit the former and stop the passage of the latter. But Hertz has shown that there is still another form of energy which will, freely pass through materials which are opaque both to light and electricity. However, whether that was the particular agent which made Sanford's pictures and Rontgen's also is a question not easily answered at present. It is evident that we have much to learn yet about the properties of matter and the properties of hitherto unrecognised rates of vibration. DISCOVERED BY ACCIDENT. Professor Rontgen, it seems, made his discovery by accident. He was experimenting one (lay with a Crookes tube, covered with cloth. Near it lay. some prepared photographic .paper. Next day there appeared on the paper certain unexplained streaks. The professor's curiosity and suspicions were excited, and he proceeded to make some tests. He found that his tube was the source of the mysterious influence, and that a cloth cover was no barrier to the latter. Furthermore, it was apparent that no lens was necessary. On the other hand, the rays which do the work cannot be refracted. Indeed, a lens is worse than useless. A Vienna paper says that the image is not obtained if a lens is used. Professor Rontgen s reported to have ascertained also that the rays possess this strange characteristic : They do ' _ not travel in waves, but move forward in a j direct line. Professor. Boltzmann, a Vienna physicist, thinks that the discovery of this "new light," as he calls it, "marks an epoch in the history of science," and, while recognizing that there are points which need to be cleared up, he is no longer sceptical. Further tests by Professor Rontgen show that the mysterious radiance will penetrate aluminium plates a quarter of an inch thick, and also a number of books. At Vienna attempts to repeat these wonderful experiments have not been very successful, but Professor Kluparthy, at the University of Perth, has duplicated nearly all of Professor Rontgen's experiments.

25 March 1896 New Zealand Herald, Martin and Edwards failed experiments in Auckland

SPECIAL INTERVIEWS. THE NEW PHOTOGRAPHIC DISCOVERY.

EXPERIMENTS IN AUCKLAND. Since the intelligence was first published in the Herald of the wonderful discovery made by Professor Rontgen of Wurzburg, of the power to photograph the very bones of a living being, scientists and photographers, professional and amateur, in Auckland have been busily investigating and experimenting. These experiments have gone on now for some time, in fact since the first cablegram announcing the discovery was received. In order to ascertain what progress had been made, a Herald representative yesterday waited upon sorts of the photographers who have been experimenting on a larger scale than ordinary, and whose experiments have been

Watched by scientists. Mr. Josiah Martin said he had found the apparatus referred to was far too powerful for any Ordinary laboratory. The experiments, he said, can only be of use when there is not only a very large and powerful battery, but a very large coil and tubes. The apparatus must be of the most extensive and expensive character. I tried the experiment on a small scale, but there was not the slightest effect. We have not yet the apparatus, and as far as I can see at present the discovery is of no practical use. The current is so immense that all becomes fused. Mr. Edwards said, in answer to our representative, that so far as he had gone with the electrical appliances to hand he had not been successful. "I find," he said, "that the Tesla coil is absolutely necessary, and that is not procurable in the colony. As far as I understand it, up to the present the discovery would only be applicable to what we call contact work; that is, where you would have, say, a hand placed over a sensitive plate and your light immediately above. You could not hope to succeed with an ordinary camera." "Is that because present appliances are incomplete!" Quite so. The whole matter is in the future; this is the first step, and all rests now, in my opinion, with the appliances. We do not know of these rays yet; they are invisible, and it is only by experiment that we can get to understand them. I think, however," said Mr. Edwards in conclusion, "that it is quite possible, in a very short time, that the difficulties in the way of doing in Auckland what has already been done in Europe will be overcome, and that we shall be able to give remits in the first stage at any rate—and as is in the first stage as yet—in this new discovery."

14 April 1896 Hawke's Bay Herald. Martin and Edwards fail to take X-Rays in Auckland

Two Auckland photographers, Messrs Martin and Edwards, have been making praiseworthy efforts to produce photographs by Professor Rontgen's new method, but without success, owing to the absence of special appliances. Perhaps because of their disappointment they were both inclined to disparage the discovery, Mr Martin going so far as to say that it was of no practical use. But doctors are of a different opinion. A Napier medico remarked to a patient whose symptoms were somewhat obscure, "Now if you could have put this off for a year or two we might have been able to photograph the part and so seen exactly what is the matter." And surgeons in Europe, who have the means, have not been slow to make practical use of Rontgen's wonderful discovery. In Aberdeen recently a fragment of a needle, an inch long was removed from a girl's foot, the surgeon making the incision at the spot where the needle was shown in the photograph— or shadowgraph as it is called— thus avoiding the usual probing. In another case the exact position of a fish bone was shown in another man's throat. In another a doctor was enabled to declare, after seeing a shadow photograph of a hand, that the owner thereof would, at some future period, suffer from gout, two very alight protuberances being shown to exist just under the middle joints of the first and second fingers. In a case at the Munich Hospital, the patient had been shot in the knee four months, previously and was convinced that the bullet had lodged in the knee joint, but the surgeon sought for it without result. The joint was severely inflamed and swollen. A Rontgen photograph showed that the bullet actually lay outside the joint, close to the inside of the thigh-bone, and the surgeon was able to extract it immediately. A Berlin scientific man, speaking of Rontgen's discovery, said :—"I believe that the time will come soon when a badly injured subject will be brought into the accident receiving-room of a hospital, where the surgeons, after rendering urgent aid. will instantaneously photograph the wounded members, and then decide upon the course of further treatment. Probing ballet wounds will become a medical treatment of the past. Foreign substances in the body, such as needles and pins, will be immediately located. A splintered thigh from gunshot, a smashed elbow joint, will be so exactly revealed that the humanest of surgeons will not for a minute hesitate to amputate or not. But the brain, strange to say, remains excluded; being enclosed within bone walls no foreign body can be discovered. Rontgen rays are baffled here." But with improvements in the method we do not see why the brain should not be photographed. Indeed, a

Dr. Simon, of New York, claims to have done it already. He refuses to explain the process, but admits that it is based on Rontgen's discovery. But there are two sides to everything. A camera which can photograph through wood, paper, and cloth may be an awkward thing in the hands of an unscrupulous man. A secret hid in a box, or a confidential letter in the thickest of envelopes, would be no secret in the presence of Rontgen's "X" rays and a suitable camera. Letters have, in fact, been deciphered within their enclosures. Invention must be met by invention. A Berlin man has already patented an envelope which consists of a sheet of tinfoil enclosed in paper, and that effectually stops the rays. But it would be decidedly inconvenient if, to stop the pranks of photographic fiends anxious to display our bodily infirmities to a curious world, we had to go clothed in tinfoil. Another invention is wanted there.

24 April 1896 Lake Wakatipu Mail News from Europe

POPULAR SCIENCE. The New Photography.

Sir Benjamin Richardson knows -Something about everything; therefore one turned to him naturally for information on such a subject (says "Westminster," in reference to new photography). And the result was what might have been expected. The diaphanous nature of human tissue has been the subject of special study on the part of Sir Benjamin for years. Indeed, it is almost a matter for consideration whether he may not claim to have anticipated Professor Rontgen's discovery by twenty years or so. For as long ago as 1865 a paper was read by him before the British Association at Norwich "On the Transmission of Light through Animal Bodies," a quotation or two from the summary of which published at the time will be read with interest in the light of Dr. Rontgen's later researches. Thus we end in the published "Transactions" of the Association.

'The author exhibited a lamp which he had constructed for transmitting light through the structures of the animal body. He believed the first idea that such transmission could be effected was given in Priestly's work on Electricity. That great experimentalist, the Shakespeare of physical science, had observed, on passing a discharge of a Leyden battery through his finger, that the structure seemed to present luminosity, but the operation was extremely painful. The author had repeated this experiment with similar results. ... In the human subject, especially in the young, having fragile tissues, the thinner part of the body could be distinctly rendered transparent; and in a child the bones under a somewhat subdued light could be seen in the arm and wrist. A fracture in a bone could, in fact, be easily made out, or growth from bone in these parts. In a very thin young subject the movements and outline of the heart could also be faintly seen in the chest, but the light he had as yet employed had not been sufficiently powerful to render this demonstration all that he could desire. It would be possible, lastly, to see through some diseased structure, so as to ascertain whether, within a cavity, there was a fluid or a solid body. . . . The structure the most diaphanous was the skin; after that, and singularly enough, bone; then thick membranes; next, thin superficial muscles, lung tissue fat, and the dense tissues of the liver and the kidney. Various lights had been tried, viz., the electric, oxyhydrogen, the lime light, and the magnesium. For all practical purposes the magnesium light was the best; it was the most convenient to use, and the light had the advantage of penetrating deeply." The discovery embodied in the foregoing is not quite the same as that

which has been made more recently. of course, as will be perceived by all who have perused the accounts of Professor Rontgen's investigations. But so far as it relates to the permeability of supposed opaque substances by certain kinds of light, the resemblance between the older discovery and the later one is certainly curious. No wonder, therefore, that Sir Benjamin Richardson is keenly

interested in the new theory, though, having only seen the newspaper accounts of it so far, he is not yet in a position to discuss it in detail.

Mr Frederick Treves, F.R.C.S., who, is one of the principal surgeons of the London Hospital, where accident cases abound, is in a position to speak as authoritatively on the subject as any man, was also interrogated by our representative as to the probable uses of the new photographic method from the surgical point of view. His opinion was not altogether favorable as to the probability of the discovery being of any great practical value, though he agreed that it was by no means a matter to be pooh-poohed. For the detection of the presence of foreign substances in the human body, as possibly for the location of cancerous growths in some instances, it might possibly be useful, he thought, though as regards fractures he doubted if it would assist surgeons very much. At the same time he agreed that the subject was one emphatically to be pursued and worked out. In the "Frankfort Gazette" Dr i Kraft, of Strasburg, tries to prove j that the rays discovered by Professor Rontgen are identical with the phenomena discovered by Reichenbach. Our Berlin correspondent says that the quotations given from the hitter's work show indeed a curious resemblance between his discovery and that of Professor Rontgen. Another claimant to the honor of tiie discovery is Professor Zenger, of Prague, who asserts in the "Tagblatt" there that he succeeded in taking photographs with cathodic rays, as early as ISSS. and iu September in that year obtained by the aid of these rays a very beautiful photograph of Mont Blanc between eleven o'clock and midnight. He made a report to the Austrian Academy of Sciences in ISSG, and is surprised that Professor Routgen's experiments are now published without his own earlier discovery being mentioned.

7 May 1896 New Zealand Times, X-Rays expected in Wellington

The use of the Rontgen, rays (for the discovery of foreign substances in the human body has become an established scientific fact, and numerous experiments by Professor Rontgen himself and others in this direction have been rewarded, with complete success. It is understood that the Rontgen apparatus will be in Wellington within a very short period, and that an attempt will then be made to locate the bullet which still remains in the body of Mr George Norbury, who was shot in Messrs Harcourt and Co.'s auction rooms, Lambton quay, some time since. Naturally very wide interest will be taken in the experiment, which will be the first of the kind undertaken in Now Zealand.

7 May 1896 Taranaki Herald, Wellington expecting X-Rays to arrive

RONTGEN APPARATUS FOR WELLINGTON. It is expected that a Rontgen apparatus will arrive in Wellington shortly, when an effort will be made to locate the bullet which still remains in the body of George Norbury, who was shot by Mrs Locher in Harcourt's auction mart some time ago. (Note this could be Hausmann or Turnbull)

9 MAY 1896 Hawkes Bay Herald Edison's progress on fluoroscope

Unless the San Francisco correspondent of the Otago Daily Times has been sadly hoaxed Edison has made a vast stride on Röntgen's marvellous discovery of the powers of the "X ray" to penetrate flesh, wood, cloth, and even some metals just as ordinary light passes through glass. In Röntgen's process, it will be remembered, the photographic camera had to be used to show the hidden mysteries. The photograph of a hand, for instance, showed the bones as a pile of film, with the bones standing out in black relief. Shortly afterwards an Italian Professor was stated to have so adapted the apparatus that, in looking through it, the human eye could penetrate an aluminium box and see the coins inside it. Edison says he has gone "one better," and has perfected an apparatus which will literally enable a doctor to see through the flesh of a patient as if it were glass. He calls the instrument a "fluoroscope," and says he does not intend to patent it, but to publish minute specifications, so that any instrument-maker can make it. In an interview he is reported as saying:—When I finish up my experiments with the Röntgen rays I will go back to my business. But I want to see just what we have, that is all. I am at present interested in trying to see through the body by means of X rays, and will be able to do so as soon as I can get a lamp that is strong enough to stand the strain. I have found that when I get the force of 23 incandescent lamps into a tube it perforates. I want 30, and when I get that number of lamps into one tube the whole skeleton will be revealed. I have found one thing, that is, Röntgen worked not with a tube in which a vacuum had been created, but with one attached to a pump, I am now working with my lamps connected with a pump, and find the result is a deal more satisfactory. The fluoroscope is, I believe, destined to accomplish great things. As soon as I can get everything as I wish it, so that the whole frame will be visible, I shall make a small apparatus and let the medical men have it, I shall not patent it or attempt to control it, I will publish it, and any dealer will be able to make it, induction coil and all, and sell it for 150 dollars at a fair profit. This will bring it within the reach of every one who may have occasion to use it. We are yet in the infancy of experiments with the X-rays. We know now that we can, by placing an object between the lamp and the fluoroscope, see flesh at a certain distance, and that at a shorter distance from the lamp only the bones show. Whether we shall ever be able to differentiate between the tissue, the muscle, and bone I do not know, but I believe that we will be able to locate tumors by its aid and tell whether they are hard or soft. The fluoroscope is able to do what the photograph required an hour to do. That, of course, is an improvement. When I get through with experimenting I am going into the scientific field of the X-ray and find out just what it is. This may be a hoax, but the correspondent of our Southern contemporary evidently believes in its truth. He adds that a number of reporters who had called upon Edison submitted their own limbs to the electricity, who very clearly demonstrated the practical benefits already obtainable from his latest machine. The visitors held their hands before the fluoroscope, and saw the flesh fade away and the bones exposed to view. A block of wood six inches in diameter was held between the lamp and the machine. The rays went through it as though it were a piece of paper, and the hand held between it and the "X-ray spectacles" still showed the skeleton hand. The inventor then showed the visitors how to hold it so that they could see the bones of the wrist and forearm. So dear to me was the outline that one of the party present who had a finger broken years ago was able to see the difference between the joint of it and the joint of the corresponding finger on the other hand. At the time the lamp, as the tube is called, was lighted by 16 lights, according to Mr J. Edison's way of reasoning. He put on four more for an instant, and the result was immediately apparent. The fluorescence became much brighter, and the shadows of the skeleton hand were marked as though they had been drawn with a fine pencil. The bones of the wrist stood out clear and strong, the indentations and the form of the metacarpal bones being marked clearly. All we can say is that if this is true the discovery is more wonderful than any the American Wizard has previously given to the world. At present, from all we can gather, neither Röntgen nor Edison can explore—that is hardly the correct word, but one is wont to say—the thicker parts of the human body with the "X ray". That, however, is only a question of time, and in a very few years a "fluoroscope" or some

similar instrument will be considered as necessary to the equipment of a medical man as a stethoscope.

9 May 1896 Press Edisons progress on fluoroscope

THE NEW PHOTOGRAPHY. Probably no scientific discovery of modern times has been diffused all over the world with such rapidity as Professor Rontgen's ingenious device for photographing through opaque substances. It is a striking instance of the far-reaching agency of the Press. Within a few hours of the original discovery being announced, investigators in all parts of the globe were endeavouring to reproduce the experiments and to extend and elucidate the process. Some striking results "with the mysterious "cathodic light," or "arrays" have been obtained in Victoria, and, as our Wellington telegrams -announce, the value of the discovery in surgery is to be practically tested in New Zealand. Meanwhile we hear of further exfcenions of the invention, some of them of a very remarkable kind. For example, it has been used, we are told, to detect adulteration in wine. One of Professor Rontgen's disciples has photographed with the " cathodic rays" several specimens of Bordeaux wine, and in every case he discovered certain tell tale "black spots" upon the plate. Each wine was then chemically analysed, and the black spots were found to be due to various foreign substances with which the wine had been •"improved," of which fuclisine was one most frequently-" met with. Needless to say this revelation has not endeared Professor Rontgen and his process to the hearts of the Bordeaux manufacturers of wine—or at least the less scrupulous of them. It will raise both, however, in the estimation of many a lover of good red wine, and even the prohibitionists will, no doubt, see in these revelations reason to bless Professor Rontgen's name.

So long as the new process merely confines itself to finding black spots in wine, and even to photographing the bones of human beings for surgical purposes, it is comparatively harmless. If the news which comes from America about a new application of the rays by' Edison is true, however, it may prove that Profossor Rontgen has invested life with a new and grisly terror. Edison, "it is stated, has invented an extension of the process so that. you can, not only photograph a person's bones, but it actually enables you with your own eyes to see through his flesh and gaze' on his skeleton in all its naked articulations. The baleful instrument, which enables this uncanny feat to be performed, is christened a fluoroscope. It is a kind of screen on which the "shadow" thrown by the Rontgen . rays is projected, instead of on the photographic plate, with the result that the shadow is at once visible to the eye instead of having to be developed by a chemical process, as in the case of the photography Mr. Edison is not yet able to make* manifest the whole of the skeleton at once. He hopes to be able to do even this so soon as he can get a lamp strong enough. At present he finds that when he gets the force of twenty three incandescent lamps into one tube ,it perforates. He wants thirty, and | when he gets that number of lamps : into one tube " the whole skeleton will be revealed." Pending that awful time the discovery has already reached a very wonderful stage, if we may credit an account of a recent press interview with Edison, forwarded by the American correspondent of the Otago Daily Times. We extract the following :—

A number of reporters who bad called upon Edison submitted their ewn limbs to the electrician, who very clearly demonstrated the practical benefits already obtainable from his latest machine. The visitors held their hands before the fluorescope, and saw the flesh fade away and the bones exposed to view. A block of wood 6in in diameter was held between the lamp and the machine. The rays went through it as though ib were a piece of paper, and the hand held between it and the "X-ray spectacles " still showed a skeleton hand.. The inventor then showed the visitors how to hold it so that they could see the bones of the wrist and forearm. So clear was the. outline that one of the party present who had a finger broken years ago waa able to Bee the difference between l the joint of ib and the joint of the corresponding finger on the other hand. At the time the lamp, as the tube is called, was lighted by sixteen lights, according to Mr Edison's way of reasoning. He pnb on font l

more for an instant, and the result was immediately apparent. The fluoscope became much brighter, and the shadows of the skeleton hand were marked as though they had been drawn with a fine pencil. The bones of the wrist stood out clear and strong, the indentations and the form of the metacarpal bones being marked clearly. The limit of the electricity that the lamp would stand was not put on, as Mr Edison was afraid that it would perforate." The nature of this marvellous screen has not yet been disclosed, although it is stated that the substance of calcium is the substance which Edison found to be "potential for the rays" after experimenting with 1800 different materials. But Edison does not intend to keep the secret to himself for his own profit. "As soon I can

"give everything & I wish it, so that the whole frame, will be visible," he says. "I shall make a small apparatus and let the medical men have it. I shall not patent it or attempt to control it. I will publish it, and any dealer will be able to make it, an induction coil and all, and sell it for as much as a fair profit. This will bring it within the reach of every one who may have occasion to use it." The imagination recoils appalled at the prospect thus opened up. When an enemy, armed with one of these infernal machines, is able to see not only through your front door, but into your pockets, and even to lay bare your vertebrae, will life be worth living? Sydney Smith used to speak of weather which made a man wish to "take off his flesh and sit in his bones." He little thought that a time would come when a man's skeleton might be made visible to an unfeeling world, without even the compensation of his feeling any the cooler for the process. Doubtless the invention may be put to some beneficial uses. We can imagine sensational preachers employing it to point a moral in their sermons, even as they do with the magic lantern at the present time. What could be more telling as an illustration of the fleeting nature of this world, and the inevitable ending thereof? Fancy a

preacher, after discoursing of "graves and worms and epitaphs," turning the Roentgen rays on to a portly deacon and transforming him into a ghastly memento mori on the spot. Then might he say with Hamlet to his shuddering congregation—"Now, get you to my lady's chamber, and tell her, let her paint an inch thick, to this complexion she must come; make her laugh at that." Let those laugh who can. The subject is too serious for mirth. Can nobody kidnap Mr. Edison, or forcibly stop his demoniacal experiments before he succeeds in confining his fatal number of thirty lamps in his magic tuba? Something ought to be done even if it leads to a fresh international crisis.

13 May 1896 Evening Post, Hamilton takes Xray of frog

also nz herald, Timaru Herald, NZ times, Oamaru mail, southland times, north otago times, south canterbury times, Press, NZ Mail, hawkes bay herald, Napier daily telegraph

PRESS ASSOCIATION. Dunedin, 12th May. At a meeting of the Otago Institute tonight Professor Shand read a paper on the Roentgen rays, and a shadow picture of a frog taken by Mr. A. Hamilton was shown. The picture had been under-exposed.

13 May 1896 Dunedin Evening Star Page 1 Shand demonstrates fluorescence but no mention of the frog

OTAGO INSTITUTE.

Mr A. Hamilton (president) occupied the chair at a large meeting held last night. Dr Murray wrote from Edinburgh accepting the congratulations of the Institute in connection with the completion of the official publications concerning the Challenger expedition.

It was announced that Professor Shand had been appointed a member of the Council in place of Mr J. M'Leod (removed to Invercargill), and that the following new members had been elected :—
Messrs J. Ewing, W. M'Connochie, A. T. Cavell (of St. Bathans), R. G. Whetter, G. Roberts, Miss Marchant, Messrs A. Michael, B. C. Aston, C. W. Hay, and A. J. Kidston-Hunter.

The report of the Committee on Fisheries was presented and adopted, and a committee, consisting of Mr Hamilton, Dr Parker, Dr Don, Mr Chapman, and the mover (Mr G. M. Thomson), was appointed to co-operate with the Council of the Acclimatisation Society and the local members of both branches of the Legislature in securing the establishment of a marine fish hatchery at Purakanui.

Dr Shand made a communication on ' The Electrical Discharge and Professor Rontgen's Photographic Rays.'

Treating the subject purely from the physical standpoint, and not from the point of view of the practical photographer, he gave demonstrations of the electrical discharge through vacuum tubes, and distinguished the different portions of the discharge, indicating the anode (or positive pole), the cathode (or negative pole), the Faraday dark space, and the Crookes dark space, and pointing out that it was with the phenomena in Crookes's dark space that they really had to do, for it was there that the Rontgen rays had their origin. He showed how fluorescence can be excited by an electric discharge and how the effect called phosphorescence is produced ; and then described the original discovery of cathode rays, which were believed to consist of electrified molecules shot violently out from the cathode, and which possessed extraordinary powers of creating fluorescence and powers of penetrating objects. Quite eighteen months ago, he said, it was well known to all physicists that rays existed which had the power of creating fluorescence, the power of photographing through opaque materials, and the power of discharging electrified bodies. What had produced so great a sensation now attracted no attention when discovered then by Leonard. The speaker believed there were two reasons for that. In the first place, one of the shadow photographs which Professor Rontgen took was of a human hand in which the shadows of the bones were very perfectly delineated. Rontgen himself gave no prominence to this fact; he remarked it, as it were, incidentally and dismissed it in half a dozen words. They could not accuse Rontgen of sensationalism in the matter, but people realised at once the immense help this new discovery would be to surgery. Then, in the second place, Rontgen recognised that he had to do with a new kind of radiation, and this Leonard did not recognise, thinking that his rays were cathode rays. Rontgen threw out the suggestion that this kind of radiation consisted of longitudinal vibrations in the ether, but physicists were rather reluctant to accept such a view. Rontgen seemed to have been forced to the conclusion in favor of longitudinal vibrations by the exclusion of every other possible hypothesis. It was quite inconceivable that this radiation could consist of radiant matter, for they could not conceive of radiant matter going through boards an inch thick or through brass plates half an inch thick, and the idea of ultra-violet light and that of transverse vibrations were equally excluded. There seemed to be no other conclusion than that the new kind of radiation must be longitudinal vibrations. Such leading physicists as Lord Kelvin, Professor J. J. Thomson, and others looked not unfavorably on this suggestion, and if this should turn out to be the case the discovery formed the germ of a new and distinct branch of physical science, the outcome of which could not be predicted in any way. If it turned out that the radiation consisted of longitudinal vibrations, the probability was that tho

vibrations were of exceedingly short period, which would account for their strong fluorescent properties, and it was also probable that the wave lengths of the rays would be large, which would account for their penetrating power. If the rays were of minute period and of great wave length, then their velocity must be enormous greater than that of light.—The President expressed the thanks of the members to Dr Shand for the information he had afforded them.

13 May 1896 Otago Daily Times, Dr Shand lecture and Hamiltons frog image

Also in 21 May 1896 Otago Witness,

Dr Shand made a communication on " The Electrical Discharge and Professor Rontgen'a Photographic Rays." He said that when the council of the institute asked him to give an exposition of the nature of the new discovery which had created so great a sensation he willingly complied, for he happened to have by him some appliances that would enable him to make the explanation intelligent and even intelligible. He need not say that he meant to treat the subject purely from the physical standpoint, and not from the point of view of the practical photographer, for he regretted to say that he had very little knowledge of the practical art of photography; and he was bound to say that the discovery seemed to him to be fully more important from the scientific point of view than from that of any practical applications of which it was capable. Dr Shand gave interesting and beautiful demonstrations of electrical discharge through vacuum tubes; exhausted to various extents, and distinguished the different portions of the discharge, indicating the anode (or positive pole), the cathode (or negative pole), the Faraday dark space, and the Crookes dark space, and pointing out that it was with the phenomena in Crookes's dark space that they really had to do, for it was there that the Rontgen rays had their origin. He showed how fluorescence can be excited by an electric discharge and how the effect called phosphorescence is produced; and he then described the original discovery of cathode rays which were believed to consist of electrified molecules shot violently out from the cathode and which possessed extraordinary powers of creating fluorescence and powers of penetrating objects. Dr Shand then went on to describe the nature of the Rontgen rays and explained how upon a barium platino-cyanide plate being placed near a tube having a current turned on it became illuminated with a fluorescent light. **Having exhibited a shadow photograph of a frog, taken by Mr Hamilton, but underexposed, in which the shadow of the bones was faintly discernible.** Dr Shand observed that quite 18 months ago it was well known to all physicists, that rays existed which had the power of creating fluorescence, the power of photographing through opaque material, and the power of discharging electrified bodies. What had produced so great a sensation now attracted no attention discovered then by Leonard. The speaker believed there were two reasons for that. In the first, place, one of the shadow photographs which Professor Röntgen took was of a human hand in which the shadows of the bones were very perfectly delineated. Röntgen himself gave no prominence to this fact; he remarked it, as it were, incidentally and dismissed it in half a dozen words. They could not accuse Röntgen of sensationalism in the matter, but people realised at once the immense help this new discovery would be to surgery. Then, in the second place, Röntgen recognised that he had got to do with new kind of radiation, and this Leonard did not recognise, thinking that his rays were cathode rays. Rontgen threw out the suggestion that this kind of radiation consisted of longitudinal vibrations in the ether, but physicists were rather reluctant to accept such a view. Rontgen seemed to have been forced to the conclusion in favour of longitudinal vibrations by the exclusion of every other possible hypothesis. It was quite inconceivable that this radiation could consist of radiant matter, for they could not conceive of radiant matter going through boards an inch thick or through brass plates half an inch thick, and the idea of ultra-violet light and that of transverse vibrations were equally

excluded. There seemed to be no other conclusion than that the new kind of radiation must be longitudinal vibrations. Such leading physicists as Lord Kelvin, Professor J. J. Thomson, and others looked not unfavourably on this suggestion, and if this should turn out to be the case the discovery formed the germ of a new and distinct branch of physical science, the outcome of which could not be predicted in any way. If it turned out that the radiation consisted of longitudinal vibrations, the probability was that the vibrations were of exceedingly short period, which would account for their strong fluorescent properties, and it was also probable that the wave lengths of the rays would be large, which would account for their penetrating power. If the rays were of minute period and of great wave length, then their velocity must be enormous greater than that of light. Dr Shand was loudly applauded at the close of his interesting address

The President expressed the thanks of the members to Dr Shand for the information he had afforded them.

28 May 1896 Evening Post, The Rontgen Rays In Wellington (Satire)

SOME STARTLING LOCAL EXPERIENCES. Knowing that the public take an absorbing interest in every new development of the properties of the Rontgen photography, a representative of this paper was more than pleased at receiving an invitation to be present at some experiments with the Rontgen rays and the fluorescent screen, which took place last night. The full details of the experiments, which were highly successful and disclosed some startling facts, are given below. On arrival at the house of the experimenter, whose name we are not at liberty to give, our representative found the room full of leading figures in the political world, who had been invited to attend the demonstration. All being ready, the electric light was turned out, two wires were attached to a transmitter and to a Ruhmkorff coil, leading thence to the two ends of a Crookes's tube. Then the electric current was turned on, and inside the tube was observed a glowing blue flame vibrating, and the discharges leapt through the vacuum from one pole to the other. After a little regulating, rays were pronounced to be those of Rontgen. The attention of the spectators was now pointed to a large screen that had been erected in another part of the room. This now was seen to glow as if it had been phosphorised, and the operator informed us that it was a modification of Edison's fluorescent screen. He now asked for volunteers who wished to be operated on. The first to step forward was a gentleman who possesses a very high position in the political world, and his portly form seemed the likeliest of any to withstand the penetrating properties of the rays. The spectators retired behind the screen, and the subject stepped between the light and the screen. Immediately his shadow could be seen on the screen; but after a moment's pause a sense of disappointment made itself felt. The shadow was merely the familiar outline of the prominent politician. No sign could be seen of bone or tissue. The operator seemed as much disappointed as the other spectators, and to test the matter took his place beside the figure of his political friend. Immediately there was an exclamation of wonder from the spectators, as they seemed to be looking right through that gentleman's flesh, and before them was only a skeleton. But the figure of his companion still remained impervious to the rays. What was the strange power that prevented the public from seeing into the body of the politician, as it had long ago seen into his mind? Suddenly the operator had an inspiration. He turned to the transformer, and in a few minutes the light from the tube was increased a hundred-fold, and the skeleton of the politician was all we saw. The front that that gentleman shows to the world was the cause of the rays' failure to penetrate his anatomy, but with increased light even that was pierced! There is evidently no limit to the power of the mysterious rays. Now we could see through the subject as clearly as possible. Will the day come when the public of New Zealand would? The

thought was almost awesome. Next we observed that a great number of black objects could be seen on the screen apparently attached to the skeleton. Some doubt was expressed as to what these were. They were about the size and shape of a florin, but were present in extraordinary number. It seemed as if the subject must have had his clothes lined with a chain suit of armour composed of these round metal objects. At last one of the audience solved the problem, and a whisper of "German silver " went round the room. Of other coins there were none. Then the rays were turned into the subject's brain, and the audience saw a number of ideas which in fairness to the subject we cannot at present say anything about. But this was noted — that some of the ideas were not that gentleman's own. The operator next placed a large box before the screen and the rays threw its shadow before us. At first nothing could be seen but the shadow of the box ; but, when the light was increased, we saw that the thing was nothing more or less than a mystery box. "What is it?" asked one. " The Treasury," was the unanimous reply. At this point the political gentleman who had before been operated on thought that the experiments had gone far enough, and commanded the tell-tale rays to be shut off. The experimenter instantly complied. As we left the politician was heard explaining that the rays would easily penetrate banknotes, and so, if there were any in the Treasury, they would not show on the screen. "No more would I.O.U.'s," said somebody, more in sorrow than in anger. — Katipo.

13 June 1896 New Zealand Times Melbourne operation success

WITH THE AID OF THE X RAYS. BY CABLE.

THE RONTGEN PROCESS APPLIED FOR THE FIRST TIME IN THE COLONIES. By Telegraph.—Press Association. — Copyright. Received June 13, 1 n.m. Melbourne. June 12. The first practical test of Professor Rontgen's discovery took place in the Melbourne Hospital to-day. The patient was one who had had a needle buried in his hand. Dr Syme and Professor Lyle photographed the hand, and the position of the needle being clearly ascertained, an operation was performed, and the needle extracted.

19 June 1896 Christchurch Star Milner and Thompson intention

The New Photography. — Messrs Milner and Thompson intend exhibiting in one of their windows to-morrow evening an illuminated vacuum tube, as used for producing the X rays that were discovered by Rontgen, and applied to photographing the unseen. The exhibit will no doubt attract a considerable amount of attention.

20 June 1896 Christchurch Star Thompson takes images

RONTGEN PHOTOGRAPHY IN CHRISTCHURCH.

A number of photographs by the Rontgen process, believed to be the first of the kind taken in New Zealand, have been taken at Messrs Milner and Thompson's by Mr Walter Thompson, and will be exhibited, together with the apparatus employed in their production, in the window of the firm's place of business to-day. Mr Thompson used a Crookes tube and a Bunsen battery of ten cells. The electric current was sent through an induction coil of local manufacture, and was of about twenty

volts, giving a spark, in atmosphere, of some three inches in length. A photograph of a hand, showing the bones with tolerable clearness, was taken, with about twenty-five minutes' exposure, on a plate wrapped in four thicknesses of brown paper. A coin and other metal articles contained in a leather purse, a metal comb and other objects were photographed through a sheet of ebonite, a substance absolutely proof against ordinary rays of light. In impressing the pictures, or rather silhouettes, of the articles in the purse upon the plate, the X rays passed through four folds of leather.

NOTE Milner and Thompson's was a music shop, sold to Begg in 1920s

Above was also in, Lyttleton Times 20 June, Hawera & Normanby Star 23 June 1896

New Zealand Mail 25 June 1896, New Zealand Times 22 June 1896,

Waipawa Mail 2 July 1896, Kumara Times 6 July 1896.

22 June 1896 Press, Page 4 Thompson

The Rontgen Rays.—The display in Messers Milner and Thompson's window on Saturday evening, of the apparatus used in connection with the new process of photography, attracted a goodly number of people, Mr Thompson has been successful in getting some excellent negatives showing the bones of the human hand, articles in a purse through three thicknesses of leather, &c. It is understood that the Photo Section of the Philosophical Institute intend carrying out a series of experiments at an early date. These will no doubt be looked forward to with a good deal of interest.

22 June 1896 Evening Star, Thompson mentioned

BRIEF MENTION. Rontgen photography has been successfully tried in Christchurch.

23 June 1896, Auckland Star, Professor Brown lecture

Note this may have inspired Hugh Boscawen

Professor Brown, of the Auckland University College, delivered a popular lecture on "Fluorescence" at the Auckland Institute last evening. There was a crowded attendance. Mr D. Petrie, M. A., presided, and introduced the lecturer. Professor Brown dealt with his subject in a simple manner, and by means of a number of experiments, highly interested the audience and enlightened them as to what fluorescence is, besides giving them an idea of the X rays by W. C. Rontgen, the Swiss professor. At the close Mr Petrie moved a hearty vote of thanks to Professor Brown which was carried by acclamation.

25 June 1896 New Zealand Mail, Thompson with more detail of tube & coil

A number of photographs by the Rontgen process, believed to be the first of the kind taken in New Zealand, have been taken at Messrs Milner and Thompson's by Mr Walter Thompson (says the

Lyttelton Times). Mr Thompson used a Crookes tube and a Bunsen battery of ten cells. The electric current was sent through an induction coil of local manufacture, and was of about 20 volts, giving a spark, in atmosphere, of some three inches in length. A photograph of a hand, showing the bones with tolerable clearness, was taken, with about twenty-five minutes' exposure, on a plate wrapped in four thicknesses of brown paper. A coin and other metal articles contained in a leather purse, a metal comb and other objects were photographed through a sheet of ebonite, a substance absolutely proof against ordinary rays of light. In impressing the pictures, or rather silhouettes, of the articles in the purse upon the plate, the X rays passed through four folds of leather,

29 June 1896 Christchurch Star Thompson Lyceum

Rontgen's X Rays. Mr. Robert Thompson exhibited the method of producing photographs by Professor Rontgen's X rays in the Lyceum last night. There was a large audience, and after the process had been explained the photo of a hand was taken. The results of previous experiments were distributed among the audience. Some beautiful effects were also shown by means of Geisslers vacuum tubes, after which Mr A. H. P. Noble gave some interesting experiments in electricity, light, heat and combustion. Some of these were exceedingly pretty, and were evidently much appreciated by those present.

3 July 1896 Taranaki Herald Li Hung Chung bullet

Some time ago an attempt was made on the life of Li Hung Chung, and the bullet from the revolver lodged in his face and all attempts to trace the leaden missile were futile. However, by means of the Rontgen rays the seat of the bullet has been discovered. (Note this is a Japanese leader)

13 July 1896 Hawera & Normanby Star, baldness reported

Baldness Produced by X Rays. The most interesting observation is a physiological effect of the X rays. A month ago we were asked to undertake the location of a bullet in the head of a child that had been accidentally shot. On February 29 Dr William L. Dudley and I decided to make a preliminary test of photographing through the head with our rather weak apparatus before undertaking the surgical case. Accordingly Dr Dudley, with his characteristic devotion to the cause of science, lent himself to the experiment. A plate-holder containing the sensitive plate was tied to one side of his head, with a coin between the plate and his head, and the tube was set playing on the opposite side of his head. The tube was about one-half inch distant from his hair, and the exposure was one hour. The plate developed nothing ; but twenty-one days after the experiment all the hair came out over the space under the X-ray discharge. The spot is not perfectly bald, being two inches in diameter. This is the size of the X-ray field close to this tube. We, and especially Dr Dudley, shall watch with interest the ultimate effect. The skin looks perfectly healthy, and there has been no pain nor other indication of disorder. I called attention to the plate before Dr Dudley had himself noticed it, and we were both for some time at a loss to account for it, as we had no previous intimation of any effect whatever. — Prof. John Daniell, in Science.

21 July 1896 Wairarapa Daily Times, Page 2 Hosking intention

Some time ago Mr E. Collotte injured the wrist of his right arm while working in Mr A. Elkins' garden. The bone has now become diseased, and it is almost certain that the arm will have to be amputated. After consultation with Dr. Hosking, the doctor has decided to examine the arm by the aid of the Rontgen rays, the apparatus for which will arrive very shortly. Mr Collotte is now totally unable to follow his ordinary occupation; he will therefore feel grateful for any kind of work which can be performed with one hand. Mr Collotte was, at one time, French master of the Masterton School, and should be able to secure a good number of pupils again. One of the highest class of apparatus for producing the now celebrated Rontgen rays, which will enable the bony structure of the human and all other animal systems to be looked into and examined, will arrive in Masterton at an early date to the order of Dr W. H. Hosking. The apparatus is a very powerful one, and will be capable of producing the bone picture of any vertebrate organism. The ordinary apparatus, as used by the medical profession, produces a six inch spark; the one Dr. Hosking is getting produces a nine inch spark. It is highly gratifying to have a medical man in our midst who exhibits such determination to acquire the latest and most scientific apparatus in use by the profession.

21 July 1896 Auckland Star, Page 1 Auckland College advert for gear

TABLE TALK The Auckland University college is in need of various requisites for lecturing purposes, including apparatus required for demonstrating the Rontgen rays.

23 July 1896 New Zealand Mail, Page 12 science notes update from Sydney

SCIENCE NOTES.

THE RONTGEN RAYS. SOME INTERESTING EXPERIMENTS IN SYDNEY. At the annual meeting of the medical section of the Royal Society, which was held at the University recently; a lecture was delivered by Professor Threlfall upon the "Rontgen Rays." After the lecture, which was accompanied by a number of interesting demonstrations, a radioscript was taken of the arm of a boy who had a few days ago been accidentally shot in the wrist. The lad held his hand over the plate upon the fluorescent tube for about seven minutes, and when the negative came out the bullet was clearly seen. This was a genuine test of the applicability of the to surgical uses. Br Sydney Jones explained that efforts to obtain the bullet had been unsuccessful. The radioscript showed that the bullet was embedded in the large bone of the arm, about 2in distant from the point at which the arm had been probed in search of the bullet. This case is interesting, because it was one in which all attempts to find the bullet had failed, and it was desired to ascertain its position in order to perform an operation for its extraction. Dr Frizelle, whose patient the lad is, immediately expressed his intention to endeavour to extract the bullet, as the radioscript would enable him to find it without difficulty. This is the first time in Sydney, so far as is known, that an experiment has been made for direct surgical utility. Another patient was also experimented upon. He had contracted a disease of the bones in the arm about eleven years ago, and it was desired to ascertain the extent of the disease. A shadow picture was produced, and it was found that the disease had gone further than was thought, the large bone or radius having become affected. Dr Hankins, who has charge of the patient, intends

to utilise the information he has obtained, and to perform an operation upon the arm, and scrape the affected bone. Lastly, the professor enabled some of those present to examine the bones of their own hands. This was done by placing a fluorescent tube in a cardboard box, and by the spectator, who was shut out from external light by a fluorescent screen placed over the head, inserting his hand between the screen and the box. All the bones of the hand were distinctly visible, so that a foreign object in the body might be traced without taking a shadow picture. Speaking to a reporter at the conclusion of the meeting, Professor Threlfall stated that if the hospitals purchase electrical coil and other apparatus necessary for the production of shadow pictures—and this could be done for an expenditure of £50— professor might assist in the instruction of some of the medical students, so that the shadow pictures could be made at the hospitals whenever it was necessary. The present intention of Professor Threlfall, however, is to make no more demonstrations. — S.M. Herald. SLEEP AND DIGESTION. Dr Schule, of Fribourg, finds that after all it is not good to follow the example of some animals and take a nap after meals. Digestion, he discovers, goes on less easily and less rapidly in sleep. This may be a good reason for not going to sleep after dinner, but it is no reason why a light meal should not be taken before going to bed. It has always been known that digestion goes on more slowly during sleep, else people would rise more ravenously disposed in the mornings than they usually do. But though the digestive process goes on more slowly in sleep it does go on to some extent, and there is plenty of time to digest and get the benefit of a light meal during the hours of retirement.

23 July 1896, New Zealand Mail, Page 13 detailed description of Rontgen Rays

CATHODE RAY PHOTOGRAPHY.

Some people prefer to call the new method of photography cathode ray photography rather than X ray photography because they have some knowledge of the cathode rays, and know that if the X rays are different from the cathode rays they certainly owe their origin to the latter. Let us in the first place ask ourselves what is meant by a cathode. If one carefully examines the street electric lamps it will be seen that the upper carbon rod is much longer than the lower. The electric current enters the lamp by the upper carbon, which is called the anode, and after lighting the lamp leaves it by the lower carbon, or the cathode. The upper or positive carbon burns away twice as fast as the lower carbon or cathode, hence it is made twice as long. The path of the sun at sunrise can be called anode, and the path at sunset cathode. If now instead of producing a light between the carbons in air we should enclose them in a glass vessel and exhaust the vessel of air to a high degree, having first greatly increased the electromotive force at the carbons, we should pass from a white, crackling spark to a blue, phosphorescent glow which would fill the entire space within the vessel. From the cathode bluish rays would proceed, which do not pass from the cathode to the anode, or from the lower carbon to the upper*, but fly off perpendicular to the surface of the cathode. If the latter consists of a little aluminum mirror about the size of a sixpence, the cathode rays can be sent in any direction by suitably inclining the mirror. Now these peculiar cathode rays do not appear in the vessel until the vessel is exhausted to a high degree—much higher than the degree of exhaustion in an ordinary Edison lamp, such as we see in our streets in Wellington. The pressure of air remaining in the vessel must not be greater than one millionth of the pressure of the atmosphere, which we know is about fifteen pounds to the square inch. When, this very high degree of exhaustion is reached, which, however, is far from a perfect vacuum, these peculiar rays are formed, which excite a fluorescent gleam in the glass walls of the containing vessel, and cause the new rays, which can pass through at least an inch of wood, a book of one thousand pages, or the human hand, and

impress a photographic plate. The rays pass more readily through the flesh of the hand than through the bones, and thus a picture of the skeleton of the hand is obtained. Moreover the rays are greatly absorbed by metals and by glass, and therefore the presence of shot, bullets and pieces of glass in the extremities of the body can be detected by cathode ray photography. In order to take a photograph of the hand it must be placed with its back, closely pressed against the side of an ordinary plate holder containing a dry sensitive plate, and with the palm of the hand towards the cathode and about six inches from it. The slide of the holder is not drawn, and the picture is therefore taken through it in ordinary daylight. In order to excite the cathode rays in the exhausted vessel, which is called a Crookes tube, and which is very like an ordinary electric light bulb, one can use an electric machine, or an induction coil similar to that employed for the purpose of giving shocks. This induction coil—Ruhmkorf coil—should be large enough to give a spark of about two inches in length. The time of exposure varies from a quarter of an hour to one hour. Cathode photography is limited at present to the extremities of the body, for objects more than one inch away from the sensitive plate throw too diffuse shadows to serve for identification. It would be impossible, for instance, with our present means to locate a needle which had penetrated deeply into the abdomen, or to photograph the cavity in which the brain is situated. The tissues of the brain itself would not in any event be made manifest. In the photograph of the hand there is no sign of the veins or the tendons—nothing but the skeleton, with whatever foreign metallic bodies may be embodied in the flesh. The new method of photography, however, is certainly wonderful, even with its present limitations, and is already proving of use in surgery. The scientific questions which have arisen in connection with this marvellous manifestation of the cathode rays are many. Have we, in this new phenomenon, evidence of a new form of energy? Is it propagated by longitudinal waves, instead of by transverse waves? In other words, is the method of propagation of the waves more analogous to that of sound than that of light? Is the velocity of propagation greater than that of light? Are the cathode rays present in sunlight? We know they cannot be brought to a focus by any form of lenses with which we are acquainted, and that they will pass through a perfect vacuum, although they cannot be generated in such a vacuum. Thus it will be seen that they are as great a marvel to the scientific man as to the reader who may chance to glance at this article.

25th July 1896 NZ Times Hausmann offers X-Ray show at Wellington Exhibition

At meeting of the Executive Committee of the (Wellington) Industrial Exhibition last night, Mr S. Brown (president) said the show-cases promised by the Government were stored at the Upper Hutt Railway Station, and would be available for use when necessary. A letter from Mr Hausmann, offering to provide an entertainment at which would be exhibited X rays, three large illusions, a fluorescent screen, and also the cinematograph, was referred to the Music and Entertainment Committee.

25 July 1896 Evening Post, Berlin correspondent

The Latest "X" Ray Developments. LUNGS AND HEART SEEN IN ACTION.

The Berlin correspondent of the Standard, in a message dated 29th May, says that the General Electricity Company there, after a long series of experiments, has succeeded in bringing Rontgen

tubes to such perfection that it is now possible to observe on the fluorescent screen not only the bones of the various extremities and what goes on in the joints, but also certain details of the head and the larynx, and especially the ' process of breathing and the action of the heart, by means of an inductor producing a flash 15 to 20 centimetres in length. The company about to exhibit their apparatus in action before the Congress of Surgeons in Berlin. Numerous German physicians ' of eminence have expressed their approval of this development^ of Rontgen's discovery— an approval which, we fancy, will find a pretty general echo if these lofty possibilities are found to be perfectly " practicable " on all occasions. An interesting contribution to the literature of the new photography is the account of Miss Elizabeth L. Banks' experiences which that lady sends to the Daily Courier, accompanied by two remarkable reproductions. She has been photographed by Mr. Mitchell (of the London Stereoscopic Company). "The negative," she says, "was a remarkable success from a scientific standpoint. The 'X' rays had not only perfectly photographed the bones of my neck, but they had also taken the liberty to poke about among my ribs, reproducing six of them on both sides, as well as my shoulderblade and collar-bone. This was accounted for by the fact that the photographic plate was much larger than— my neck, and although the rays of light had been directed only towards the neck bones, they had penetrated far below and through my clothing. Had any of the ribs or other bones been broken or out of place, there would have been' no difficulty in discovering this by* means of the photograph. The chain which I wore showed very prominently, and even the links of that part worn in front were dearly discernible through the shadow of the flesh and muscles of the neck. The length of time required for obtaining this photograph is explained on the very easily understood principle that the thicker the object to be photographed the longer it takes the rays of ' invisible ' light to penetrate it. It also follows, as a matter of course,* that the length of time required for photographing the different bones of the body depends very much upon the size and weight of the person to whom the bones belong ; so I, with no weight or stature to speak of, was a comparatively easy subject." Miss Banks was painfully surprised by the picture of her foot, which is shown. " That plate, when it had been developed in the ' dark room ' and held up to my horrified vision, gave me the first glimpse I ever had of my feet, in stocking and boot, not as they seemed, but as they were. In the portrait of the foot in the stocking— the texture of which, by the way, showed up wonderfully— the bones of the toes, which should naturally be straight and separated, were crowded one upon the other, while the portrait of the foot that was shod was still more terrible to contemplate. The bones were squeezed up? into the shape of a triangle— to fit my American pointed boot. ' Are you sure the "X" rays don't exaggerate ?' I asked in horror-struck tones of Mr. Mitchell. ' The "X" rays are like figures— they cannot lie,' he answered solemnly. ' Please show me every portrait you have of people's feet. I want to see if mine are worse than the others.' So six or eight portraits of feet were brought to me— none, however, taken in boots ; but even without the boots they were all not only quite as unshapely as my own, but, to my infinite delight, I found several that were very much worse ; and I also noted, with feminine satisfaction, that the photographs of men's feet showed the bones to be quite as badly out of shape as were those of my own sex. Investigations into the matter having convinced me that my own foot is what might be termed ' the common foot of all,' I publish the portrait that was taken by the 'X' rays to ' point a moral.' This is not for the benefit of those who have grown up and have already spoiled their feet, and who will probably not wish to change their style of foot* gear at their time of life (and, after all, the ' common-sense ' foot is very ugly), but to warn the mothers of small boys and girls to provide their children with proper boots."

30 July 1896 New Zealand Mail, Mr Collette about to be X-rayed by Hosking

At the District Court at Wanganui, Mr J. C. Martin, who presided, remarked that the criminal calendar was a very sad one. Out of the five persons indicted four were under the age of 20 years, were New Zealand born, and so far as it went —they were all able to read and write—had received their education in the Colony. He wondered what many of our young people were coming to. Some time ago Mr C. E. Collette injured the wrist of his right arm while working at Masterton, says the Daily Times. The bone has now become diseased, and it is almost certain that the arm will have to be amputated. It is first to be examined by the aid of the Rontgen rays, the apparatus for which will arrive in Masterton very shortly.

27 July 1896 New Zealand Times, X-Rays to prove fitness to marry reported

New X-ray possibilities have been suggested by the president of the London Camera Club, who in his address " anticipated that announcements of engagements in the morning papers would one of these days conclude with the intimation that the photographs of the skeletons had been mutually exchanged. Surely it was desirable that everybody should be tested as to whether they were sound in limb before entering the married state."

30 July 1896 New Zealand Mail, Xrays overseas

THE RONTGEN RAYS. Much has been said about the Rontgen rays, of the certainty they have imparted to medicine, of the revolution that will follow in the treatment of disease, of the immortality which they guarantee to man here below. One would think to hear these panegyrics that man is only mortal because the doctors never know what is the matter with him. It is, of course, certain that the Rontgen discovery has already done a great deal for medical practice. But it has not done all, or nearly all, that its enthusiastic votaries claim for it. That it will do more is certain. How much must be left to the future and the experimenters, who are extremely clever, to decide. The practical thing for the public of every country to consider at present is the exact position of the Rontgen system in medical practice. What can it do for the anxious practitioner and the painful patient? The question is answered by the Daily Chronicle (in a recent issue), which has been investigating the matter carefully. That enterprising and usually correct journal puts the matter thus: "To summarise the present use of the Rontgen photography in ordinary hospital and surgical practice, where energy has been thrown into the matter, our representative found (1) that it was being used with conspicuous success in all operations affecting the limbs, especially hands and feet; (2) that it is especially successful in detecting substances like bullets, which can be seen in almost any part of the body, but (3) that it still requires to be perfected before it can be applied with any certainty either (a) to fractures and injuries in the trunk of the body, or (b) to growths of only comparative opacity, like stone, cancer, or tumour. We must await corroboration of the latest news from America before we can, with any surety, prophesy that the photography will be applied to these branches of surgery" That is the exact position. What it will be depends on the investigators. The Chronicle admits that the achievements so far point to a new era of surgical opportunities, and

points out that the present competition between investigators in Europe and America suggests new and startling developments. So mote it be.

7 August 1896, Evening Post, Turnbull negotiating with Wellington exhibition against Hausmann

Mr. Turnbull wrote in regard to his "X"-rays entertainment, which he is importing from Home, stating that he had heard that another X-rays entertainment was prepared for exhibition, and asking which had the prior claim, adding that he was willing to give 20 per cent, of the profits to the funds of the Exhibition. It was decided that the Secretary should make an appointment with Mr. Turnbull.

27 August 1896 Evening Star, Kempthorne images with one successful

X RAYS. In connection with the meeting of the Medical Association a series of experiments in cathodography, or photographing by means of the Röntgen rays, were held in the hospital last evening. The process is an exceedingly interesting and comparatively simple one. Spherical and oval globes from which the air has been previously exhausted are the principal factors in the operation. In the spherical globe a small platinum mirror has been inserted, and by passing a strong electric current through a big induction coil an electric spark is discharged into the globes. What are known as the X rays are reflected from the mirror on to the object which is to be cathodographed, and which is lying on an ordinary photographic negative plate. The Oval globe has no mirror, and the rays are cast from the end of the globe on to the object in a horizontal direction. Last evening the principal experiments were upon two deformed hands, on one of which the doctors wanted to discover where a joint had been dislocated. The exposure in the first instance was hardly long enough, and the finished print is not quite a success. The other one was completely successful, and the photograph of the break of the finger is quite distinguishable. Mr R. A. Ewing had charge of the experiments for Messrs Kempthorne, Prosser, and Co., who provided all the apparatus, whilst Mr Henry, the electrician, had charge of the induction coil.

27 August 1896 Evening Star, Kempthorne

Note: Ewing was president of Otago pharmaceutical association 1906, secretary of photographic club 1890

27 August 1896 Otago Daily Times, Page 2 Kempthorne fitful tube problems

Also Oamaru daily times, & Chch Star 28th

An experiment in photography by means of the Röntgen rays took place last evening at the Dunedin Hospital in the presence of a number of medical men and others interested. The experiment was conducted by Messrs Henry and Ewing, on behalf of Messrs Kempthorne, Prosser and Co. who have gained satisfactory results in similar experiments recently made by them. Last evening the hands of two subjects were submitted to the cathodographic process — the test being applied in the case of a boy from the Industrial School, one of the subjects, with a view to locating if possible the break in a

fractured finger — and the plates are in course of development, but it is not anticipated that very satisfactory results will be obtained, as the rays proved to be fitful, and there was in each instance under-exposure of the plates.

4 September 1896 Evening Post, Turnbull takes X-rays in Wellington

SUCCESSFUL LOCAL EXPERMENTS.

The advent of the X rays in this city is a matter of interest to all. One evening this week two representatives of the EVENING POST were present at a series of experiments into the marvellous properties of the new rays conducted by Mr. Robert T. Turnbull, the well-known electrical engineer, at his residence on the Terrace. The one thing that made itself abundantly clear as our representatives witnessed the process was that a thorough knowledge of electricity is requisite in the operator; in fact, an amateur attempting to manage the production of the X rays with any high voltage of electricity would probably end by electrocuting himself. Mr. Turnbull had the advantage of working under specially favourable circumstances. He was in his own workshop, and used his own electricity. In his first experiments he found that his condenser would not produce the requisite length of spark, and he had to construct another, with the result that on Tuesday night he was working with a spark of 5 1/4 inches in length. With such a power the mere grasping of both wires would be quite sufficient to cause death—a cheery fact which the operator imparted to his visitors before asking them to be shadowgraphed. The appearance of the X rays is distinctly disappointing. The reason of this is that they are invisible, the only light given being a pale green fluorescence in the tube itself. The tube used is the latest improvement, and is known as the focus tube. In it the rays are supposed to come from an aluminium pole and strike a platinum mirror in the tube, with the result that some of the rays are deflected downwards. The part of the patient to be operated upon is placed on a photographic plate well wrapped in dark cloth, and the focus tube is hung above the object. Then the current is switched on, the glass globe lights up with a pale green glow, and the sitter wonders he will emerge from the operation alive.

The first picture taken was that of a closed jewellery-box, filled with various ornaments. An exposure of seven minutes was deemed sufficient, and on the plate being developed in the ordinary way a clear shadowgraph of the metals and jewels was given. A curious point noticed was that piece of glass placed on the plate absolutely impervious to the rays, while of wood and other opaque substances the rays took no account.

Mr. Turnbull then turned to the living. One of our staff who had a foot of the classic shape of which he was deservedly proud, submitted to have its impression transferred to the plate. An exposure of seven minutes was first tried, but the plate proved to be over-exposed, and subsequently an exposure of only one minute produced an excellent picture, which, greatly to the owner's disgust, showed unmistakable evidences of his having worn tight boots. The other member of our staff possessed an elbow to which he felt confident that if once the shape of its bones was known people would come miles to see it, as with Katisha. The plate was exposed for six minutes, but again was found to be over-exposed. The attention bestowed upon that elbow made the other pressmen jealous, and a rivalry ensued as to which possessed the most shapely humerus. An exposure of four minutes on the other pressman elbow found to be still too much, and ultimately the best picture taken with an exposure of only two minutes. Whose the elbow was, no pressure will cause us to divulge.

Mr. Turnbull also showed us some interesting prints already taken, one of which plainly showed the bones of a lady's wrist, another the bones of the ankle, and a third the effect which wearing tight

gloves has upon the osseous structure of the feminine hand. Mr. Turnbull had ordered a number of focus tubes as well as fluorescent screens, as he intended to exhibit the apparatus at the Exhibition but, owing to a misapprehension which led to his neglecting to apply for space; the public will not at the Exhibition have the benefit of his experience. This is the more to be regretted, as he is eminently qualified to thoroughly exploit this great discovery.

5 September 1896 Tuapeka Times, Kephthorne and Hamilton

DUNEDIN LETTER. THE "X" Rays.

The X rays have at last penetrated even to Dunedin. A few days ago the first experiment with the new apparatus, as far as practical purposes are concerned, was carried out at the Hospital, but owing to some defects in the appliances complete success was not attained. The proceedings were carried out under the direction of Mr Ewing, of the N.Z. Drug Co., who has been for some time back engaged in experimenting with the Rontgen invention. He has succeeded in producing some very fine plates, notably one of a living hand, in which every bone, with its articulation, is distinctly visible, while the flesh presents but the appearance of a thin shadow, forming the outline of the fingers and palm. Mr Augustus Hamilton, of the University, has also produced some very fine "carthodographs" or "skiagraphs," as they are variously termed; and it seems but a question of a few months ere the Rontgen rays will be in everyday use in Dunedin. I understand that the Drug Co. have sent Home for a complete apparatus, with a view to its being employed in connection with surgical operations. The field presented is practically limitless in its scope, and the benefits which its use will confer upon humanity are almost inestimable. In future, in the case of broken bones, fractures, etc., instead of a system of probing and experimental operations in the vain search of locating the point for operation, surgeons will be able to photograph the injured part, locate the place with accuracy, and proceed with the operation. I note that photographers in London are now catering for the demand for novelties by photographing the hands of people with the "X" rays at a charge of 6d each. Professor Rontgen's discovery is another of these modern miracles which electricity is almost daily unfolding, and it is to be remembered that this particular invention is but in its infancy, the bare principle is but disclosed, and who shall say where its development will land us? Even now a French savant declares that he has found a means of photographing thought itself.

8 September 1896 Press Palmerston North exhibition Hausmann

PALMERSTON EXHIBITION. (press association telegram.) PALMERSTON NORTH. The Industrial Exhibition was opened by the Premier to-night. He dealt at considerable length with the history of exhibitions and the great strides Palmerston had made during the last twenty years. The exhibits chiefly comprise Home manufactures, most of which are intended for the Wellington Exhibition. The display was very interesting and creditable, the entries numbering 600. The celebrated Rontgen X rays are in working order at the Exhibition.

8 September 1896 Hawera & Normanby Star, Palmerston North exhibition Hausmann

September 7. The industrial Exhibition was opened tonight by the Premier, who dealt nfc considerable length in his epoch on ,the history of exhibitions and the great strides Palmerston had made during the last 20 years. The exhibits chiefly comprise home manufactures, most of which are intended for Wellington. The display was very interesting and creditable, the entries numbering six hundred. The celebrated Rontgen X Rays are in working order at the exhibition.

10 September 1896 New Zealand Times, Dr James in England

Also 17 September 1896 New Zealand Mail

THE X RAYS. "It is exceedingly simple," remarked Dr James to a New Zealand Mail representative as he ushered him into one of the handsome rooms of his house in Charlotte street and pointed out the Rontgen apparatus. Anri exceedingly simple it looked. The necessary apparatus consists merely of a battery or other source of electricity, an induction coil, and a Crookes tube. Connect these, turn on the power, and you have the renowned Rontgen rays. Put a sensitised plate, such as photographers -use, below the Crookes tube, place your hand on this plate, and you get the shadowgraph, and when the picture is developed you are able to see what your bones are like.

In the present instance the motive power came from a battery three innocent-looking jars of black glass, quite harmless and respectable to all outward appearances, but capable of generating power enough to kill a couple of men. The coil stood on another small table, and -with it the frame holding the Crookes tube.

This Crookes tube is a very important part of the process. It is a bulb of glass from which the air has as far as possible been exhausted, and has two wires fused into opposite sides of it, the other ends of these wires connecting with the wires from the coil. It was while Professor Rontgen was experimenting with the Crookes tube that he accidentally came upon the X rays. He was working with a tube covered with black paper impenetrable by ordinary light, when he noticed | that a fluorescent substance brought near the tube became luminous. This was the track. He started on it, and it led him to fame. Experimenting further, he saw that even at a distance of six feet from the tube the fluorescence was still excited. Next he found that the strange rays penetrated a deal board of an inch in thickness, a book of a thousand pages, and other like substances. The rest is the story which has made his name celebrated throughout the world

After a brief explanation of the simplelooking 1 machine, Dr James took up the "wires, and. established the connection, j Then he pressed forward a little handle, and lo ! into the Crookes tube there leaped a bluish-green light, which flashed somewhat irregularly to the accompaniment /of the sharp whirring noise from the electric current. This bluish-green light all that could be seen of the X

rays an fact, the rays could not be seen at all. The little square of canvas below, covering the object to be shadowgraphs, which irests on the sensitised plate, was undisturbed, yet to the amazingjpower of the rays which were shooting forth unseen from the tube, no canvas, nor stout wood even, could offer the merest shred of resistance.

This apparatus," explained the doctor, " was ordered some time ago, when the advertisement first appeared in the Lancet, and since then the process has been improved in various ways, so that what you see here has in some respects been superseded. For instance, the power of the rays or the sensitiveness of the plate has been increased, so that an exposure for a much less period than 20 minutes is now quite sufficient."

"Yes, some care is necessary in using the apparatus," the doctor agreed. " One night, for example, while I was photographing a knee to discover whether a piece of bone had been chipped off, the patient saw a little spark from the wire leap to my hand a foot away, and at the same moment I felt a distinct shock. Obviously the gutta-percha covering of the wire had become worn at that particular aapot, and leakage had resulted." " And do you think/" asked the interviewer, " that the X rays will assist in the (detection of disease of tissue. For instance, will a physician be able with its assistance to trace the presence of consumption or

cancer ?" "It is difficult, of course, to say what th© developments of the process will be," -was the doctor's reply. "Even under under present conditions the rays do not pass through the hand without leaving traces of the flesh on the picture, and the process may therefore be so highly developed that it shall be possible to distinguish changes of tissue —changes in the structure of the flesh or the lungs, and this naturally will be of assistance to the surgeon in the detection of disease. At the present time, however, the value of the rays in surgery is confined merely to the detection of fractures or decay of bone, and the presence of foreign substances in the body." " A man in busy practice," declared Dr James, " will never have time to look after the apparatus and keep the battery replenished, with such a machine as this one. The power from the battery is very great, and it becomes exhausted very rapidly, and needs constant renewing. Just now, for instance, it has run very low. What I will occur will be that the apparatus will be fitted up at certain central places, as, for example, a hospital, and that surgeons will go there to use the rays. Experts will have charge of the apparatus at such a hospital, and the nuisance of waiting for the developing of the picture will be minimised as much as possible, or even done away with altogether, if the story of Edison's process, which dispenses with the shadowgraph entirely, is to be relied upon." . Instead of replenishing the batteries continually in the way described, Dr James intends to use the street main as the motive force. Of course the power from the street main would be far too great, and in such a case a transformer fitted with a coil to regulate the power will be employed. Dr James has such a transformer already in position in his house, and showed the pressman how it may be used with the greatest benefit in surgical operations ??? up a cautery, a long fork-like .instrument of ivory, attached to a connecting wire, lie drew what looked like a trigger, and instantly a platinum wire at the top of the ivory prong glowed with the brilliant white heat of electricity. This platinum wire is used in cauterising in throat operations. To assist the operator a small electric lamp is provided, which is fixed to the forehead by an overhead clamp. The lamp is similar to a section of a telescope, and throws a beautiful white disc of light which in delicate throat operations is invaluable. The doctor also produced an ophthalmoscope, an admirable apparatus for searching the eye. It is fitted with a mirror, and the brilliant light is of the utmost assistance in the surgical treatment of the eye. Dr James turned on the current, and there was the light, keen and clear. These two instruments are largely used by the busy surgeon, and as it is often necessary to work with them in the sick room, Dr James take 3 with him on such occasions a portable battery for the electric current. Two shadowgraphs taken by his Rontgen apparatus were produced. They were of the hand of Dr James's little daughter, and were taken by the doctor himself. Having been too busy to develop the prints, he

sent them to a photographer, and though some faults are apparent, probably in the developing, the pictures are exceedingly clear, and in every way satisfactory for surgery. It was hoped that the rays would be used to discover the bullet which still remains in Mr Norbury's body, but the present apparatus is, it is feared, too small for that purpose. New developments of the X rays, as has been stated, are continually taking place, and now the London Daily Telegraph announces that the latest is a system of electric lighting for the interior of the human frame. No dynamo or other elaborate apparatus is required. The machinery consists of a small transparent pill, which, instead of containing aloes and soap, is _ charged with Rontgen rays. The patient ! swallows it and it at once lights up his internal economy, and greatly facilitates the investigations of his medical advisers. When the light goes out the transparent capsule simply melts away. "It is an American who has invented the Rontgen pill (adds the Telegraph), but it is quite evident that the system is capable of much wider utility than a mere aid to diagnosis. With a supply of these pills in his pocket every man is capable of becoming his own lamppost, and on the darkest of nights may turn himself into an ambulatory lighthouse to the advantage of himself and the neighbourhood. But a limitation of the dose would become absolutely necessary, because if a rash person swallowed two or three at a time a policeman might mistake him for a conflagration and call out the fire brigade. There is evidently a great future in store for this medicine."

14 September 1896 Hawera & Normanby Star Palmerson North industrial exhibition Hausmann most beautiful light

Also in 17 September 1896 Wanganui Chronicle

Rontgen Rays. Mr Thomas Stagpoole writes to us from Palmerston, sending an account of the X or Rontgen Rays, which are now being shown in connection with the Industrial Exhibition at Palmerston, and remarks "To say that this new light is wonderful is to put it in the mildest form. The proprietors, Messrs Hausmann and Gow, gave me every opportunity of examining their apparatus for producing the light and although working at a great disadvantage in consequence of the committee giving them a room, or sort of room, upon the stage, I was enabled to see the bones of my hand through an ebony screen, an inch and a-half totara board, a cardboard box, a coat and a thick pair of kid gloves, by holding my hand between the light rays and the ebony screen. The room is made dark before the light is turned on, and all draughts must be got rid of, as this light is very sensitive to changes of temperature. I send a sketch of the apparatus which contains the light and also the screen or box you look through. When the light is turned on the globe of the tube is seen to fill with rays of most beautiful light. It is impossible to describe the colour, but it seems to be a bluish-green. It is the softest and most beautiful light I ever saw. Any object unable to stop the rays, placed between the box screen and the tube, and attempted to be viewed from the open end of the box-screen cannot be seen except as a faint shadow, in some cases not at all. Wood, iron, etc., appears as a dark shadow on the screen. Thinking Hawera people would like to see this wonderful light, I have induced Messrs Hausmann and Gow to pay you a visit, and they will do so next week if a suitable room can be procured, when you will have an opportunity of seeing this marvellous light. They are also agents for the new photo -projecting Kinetograph. They are both nice, intelligent electricians and understand their work thoroughly.

16 September 1896 Press, Dr Evans lecture coming up

The Rontgen rays. So much has been written and said about the Rontgen rays and the shadowgraphs or radiographs, as they are called, produced by their aid, have become so common in colonial and English illustrated papers that the public are kept well informed as to the progress made in developing the wonderful new power. Christchurch people will, however, be afforded, on October 21st, an opportunity seeing what is probably the finest collection of radiographs that has been made in the colonies, for on that date Dr. Evans, Christ's College, will deliver a lecture on the subject of the X-rays in conjunction with the Philosophical Institute. The lecture will be illustrated by a number of lantern slides, showing radiographs taken by Dr. Evans with specially imported apparatus of the latest design, some being obtained from Professor Rontgens own laboratory. With this apparatus Dr. Evans has achieved some remarkably successful and valuable results. One of his plates shows the skeleton of a child's hand. In this the separation of the bones, which are not united as in the case of an adult's hand, is clearly visible and forms an excellent record of one of the peculiarities of infancy. Dr Evans also "photographed" a girl's hand, and plainly, shown embedded in one of the fingers is a needle, which was subsequently successfully extracted. Another hand shows all too, plainly for the owner's comfort, gouty deposit on the bones, and in this connection it may be suggested that before long a radiograph of his hand may be required of any man desiring to take out a life insurance policy, in order to let the examining doctor know if he has hidden gouty tendencies. An illustration of a crushed ankle joint, showing the deformation of the bone, is another curiosity. Dr. Evans applied to Dr. Dendy for specimens of New Zealand natural history, and obtained a most interesting radiograph of a flat sea urchin, found on New Brighton beach. Broken fan shaped segments of this creature may frequently be picked up, and are remarkable for the beauty of their calcareous formation, which resembles curious carving. This is excellently brought out by the Rontgen rays. From Captain Hutton was obtained a specimen of the very rare native frog, which on being submitted to the action of the rays gave a very good photograph of its skeleton. This opens up another field of usefulness for the rays. Captain Hutton has no skeleton of this rare frog, and the only way he could have obtained one would have been to destroy the specimen. Dr. Evans was however, able to show it to him, and in this way a very good idea of the skeleton of any rare animal may be obtained with little trouble. These are only some of the special features of a splendid collection of radiographs, which will add much to the interest and value of Dr. Evans's lecture.

18 September 1896 Wanganui Chronicle, Hausmann equipment broke

Owing to an accident to their instrument, Messrs Hausmann and Gow are obliged to return to Wellington to get it repaired. They will return at an early date, which will be duly notified, to exhibit the X rays and fluoroscope.

18 September 1896 Lyttelton Times Measuring-Ray intensity with filter rings

An aluminum ring has been devised to measure the intensity of the Rontgen rays. It is formed of four segments or quadrants of varying- thickness, ranging from one to ten millimetres. The ring is held between the excited Crookes tube and a phosphorescent screen or sensitised plate, and the intensity of the effect on the screen or photographic plate after passing through a certain thickness of aluminum is a measure of the intensity of the rays.

19 September 1896 Press, Bickerton mentions X-Rays

Experimental Lecture.—Two series, each of six experimental lectures, were commenced at Canterbury College yesterday by Professor Bickerton. In the afternoon there was a moderate attendance, mostly of ladies, to hear his introductory lecture on "Sound and the Physical Theory of Music." He explained the analogy between light and sound, and the importance of understanding the peculiarities of vibration. He showed, by a number of simple experiments how sound was produced and its effect, and in treating with the waves of light illustrated the principle of photographic printing, remarking that the exceedingly minute vibrations produced the **Rontgen rays**, which was quite a revelation in photography. He explained how it was possible to weigh bodies and judge their dimensions by the slightest variation of vibration, and touched on points where sound and light were identical. He dealt briefly upon the necessity and value of a knowledge of the principles of light and sound in connection with the study of the modern sciences, and announced the subject of the lecture of Friday afternoon next. In the evening there was also a moderate audience in the College Hall, when Professor Bickerton opened the series on the modern applications of chemistry, which he illustrated as he proceeded. He commenced by a reference to the inter-dependence of modern science and the importance of chemistry in scientific progress, treating with geology, physics, energy, agriculture, and so on, and referred to the value of chemistry in successfully carrying out such work as electrotyping, silver-plating and galvanising. In concluding, he announced that at the next lecture the experiments would be projected on to the screen.

30 September 1896 New Zealand Times, Hausmann Willis St show

Owing to His Excellency the Governor having a prior engagement, an exhibition by Messrs Hausmann and Gow of the Rontgen rays at Government House last night was postponed until Friday. The Wellington public will have an opportunity of seeing this wonderful light in operation, as Messrs Hausmann and Gow have taken an office in Willis street, where it will be on exhibition for a few evenings. At Palmerston North Industrial Exhibition a few weeks ago the rays were made to penetrate an inch and a half totara board. By the aid of a fluorescent screen, which is said to be the only one in New Zealand, the subject under the rays is seen at once, and entirely does away with the "shadowgraph" process, which entails waiting until the picture is developed. This exhibition, which is scientifically and educationally valuable, should not be missed, as the rays are now being used in surgical operations.

1 October 1896 New Zealand Mail, Jupp's Band Fancy Fair.

The Skating Rink was gaily decked out on Thursday on the occasion of the opening of the Jupp's Band Fancy Fair. The building was literally covered with flags, greenery and pretty floral ornaments in infinite variety. The fair attendants were attired in graceful fancy costumes, and this lent an additional charm to the attractive surroundings. The fair was opened by Mr Duthie, M.H.R., who alluded in very complimentary terms to the services rendered by Jupp's band on all occasions during

the last seven or eight years, and he expressed a hope that the public would show their appreciation in a practical way now that the instrument fund was in need of replenishment. The various stalls are in charge of the following ladies : — Flower, Mrs Tidrnan, Miss Quinn and assistants ; toffy, Mrs Cabot, Misses Geary; fancy, Mrs Jupp, Mrs Hindley and Mrs Sturgess; tea-room, Mrs Spankust, Mrs Martin and assistants; linen, Mrs Ashton and Mrs McGill; bran tubs, Misses Howe, Cole, Braid, Clark, Dobinson, Duff and Mrs Hawker. There are numbers of side shows, including the Rontgen rays, in charge of Messrs Hausmann and Gow, shooting gallery, Ascot races, and a shooting game called “ Our New Zealand Cousins.” Last night’s programme consisted of an overture by the band, comic song by 11. Hall, double song and dance by Garbes Bros., songs by O. Higgins and R. Hall, and a recitation by T. Leydon.

8 October 1896 New Zealand Mail Hausmann & Lord Glasgow

At Government House last week, an exhibition of the Rontgen X rays was given by Messrs Hausmann and Gow, before His Excellency and Lady Glasgow, suite and a large number of invited guests. The greatest interest was manifested by everyone present, and surprised expressed at the rapidity with which operations were conducted. The photographic exposures only occupied one minute. Lord Glasgow subjected a number of articles to the process, and Lady Glasgow and guests were shown the bones of their hands and arms by the aid of the fluorescent screen. The exhibition was a most successful one in every respect, and His Excellency complimented the proprietors, and expressed himself pleased at their unique, scientific entertainment.

8 October 1896 New Zealand Mail Hausmann & Gow with Lord Glasgow

At Government House last week, an exhibition of the Rontgen X rays was given by Messrs Hausmann and Gow, before His Excellency and Lady Glasgow, suite and a large number of invited guests. The greatest interest was manifested by everyone present; and surprised expressed at the rapidity with which operations were conducted. The photographic exposures only occupied one minute. Lord Glasgow subjected a number of articles to the process, and Lady Glasgow and guests were shown the bones of their hands and arms by the aid of the fluorescent screen. The exhibition was a most successful one in every respect, and His Excellency complimented the proprietors, and expressed himself pleased at their unique, scientific entertainment.

10 October 1896 .Observer, Auckland first X-Ray likely Boscawen

They Say ... That there is only one Rontgen Ray apparatus in Auckland, and that is the property of a Government official of a scientific bent of mind.

20 October 1896, Lyttelton Times, Evans lecture add

Philosophical Institute. —Dr ' Evans will lecture in the Art Gallery tomorrow evening on "Rontgen Rays and Their Use in Photography."

21 October 1896 Press Evans lecture add

The Rontgen Rays — Up to the present no full exposition on the lecture platform of the wonders of the Rontgen rays has been given in Christchurch, though elsewhere — notably in Dunedin—it has been seen. It will, therefore, be most interesting to hear the lecture which Dr. Evans proposes to give to-night in the Art Gallery on the subject. It will be fully illustrated, and Dr. Evans, being an expert, should give a very excellent account of the latest wonder of science.

15 October 1896 New Zealand Mail Poem about Rontgen Ray-sor

IN LIGHTER VEIN. EASY SHAVNG UP-TO-DATE

The hair of patients whose heads have been
subjected to the influence of the Rontgen
rays has, in some cases, fallen out entirely.
If there's an ordeal, high or low,

'Gainst, which a spite I harbour
In this world of woe it's having to go
And be shaven by a barber.

My nerves, you see, are frail and weak ;
And, when the razor dashes Across my cheek,
I could almost shriek
With dread of murderous gashes.

But Rontgen rays will from this fear
Be soon my sweet salvation,
For hair, I hear, doth disappear
On their constant application !

Yes, since those rays have robbed of hair
Men's heads in certain cases,
Their magic rare may well keep bare
And bristle-free men's faces.

And I, to whom the tonsor gave
The liveliest fits of terror,
Shall grow so brave that myself I'll shave
Sans brush, or blade, or mirror !

No more shall barber's butchering ways
Be of my nerves a crazer

In the halcyon days when the Rontgen rays
I use as a Rontgen rays-or !

20 October 1896 Poverty Bay Herald, Hausmann & Gow tour and Glasgow mishaps

Messrs Hausmann and Gow are undertaking a flying trip through the colony with the X rays before showing the apparatus at the Wellington Exhibition. The Exhibition committee object, however, to any public display of the apparatus in Wellington before the Exhibition, and talk of arranging to prevent it. 'Cycling is booming in Wellington. Fully 150 wheelists, including several ladies, took part in the opening of the season last Saturday, and the start was witnessed by over 300 spectators. Steps are being taken to form a 'cycling contingent in connection with the Wellington City Rifles. An English paper says : — Lord Glasgow's reign in New Zealand has been by no means enjoyable. He was nearly shipwrecked at the start, he was subsequently tossed by a prize bull at an agricultural show, and in the hunting field one of his daughters met with an accident that resulted in the amputation of a leg.

22 October 1896 Lyttelton Times, Evans lecture to philosophical institute

Also in The Star

THE RONTGEN RAYS.

Until last night this interesting subject —Professor W. C. Roentgen's photography of the unseen by means of electric rays from vacuum tubes—had not been dealt with on the lecture platform in Christchurch. Last night Dr W. P. Evans, under the auspices of the Philosophical Institute, delivered an excellent and splendidly illustrated lecture in the Art Gallery before a crowded audience. The lecturer was introduced by Dr Bendy, president of the Institute, who pointed out that it was in furtherance of one of the 'most important objects of the Institute that the lecture was given. Dr Evans opened his exposition of "the champion fat, baby of science" by explaining the theory of the Ruhmkorff coil and the difference between discharge in air and in vacuo. He went on to deal with the historical course of experimenting, the incandescence theory of luminosity, Crooke's vacuum tubes and his hypothesis, the fluorescence of the X ray tube (this matter was dealt with thoroughly and carefully illustrated) and the luminosity of the Rontgen lamp. He explained the beneficial results obtained by placing the vacuum tube with an earth connection, thereby keeping up a steady fluorescence. Slides of Geissler and Crooke's tubes were shown by the lantern, manipulated by Mr Beardsley. The doctor then referred to Crooke's idea of matter in motion, and in a radiant state. No one, he said, doubted that particles were projected, but it was doubted if such projection was the essence of the matter. The difficulties in the way of Crooke's theory were (1) the enormous velocity that would be necessary; (2) want of reciprocal action (equal and opposite) between a magnet and the X ray stream. Scientists differed, but the continental hypothesis was that the projection of matter was only an accompanying effect of the real cause of the phenomena, viz., electric waves. Lenard's experiments were touched upon, and the lecturer then dealt with Roentgen's discovery, and how he came to make it. He showed the tube at work, and the cathodographs taken were developed by Mr Page while the lecturer proceeded with a discursus on varieties of dry plates, their suitability to X ray work and the method of getting the best results. A second set of slides was then shown, including various mummy subjects, the famous German frog, lizards, a bunch of keys taken through 8 inches of wood, cats, illustrations of real and sham jewels, the last showing the importance of X rays to the dealer in gems. The results of the photos taken during the lecture were then projected on the screen, and turned out admirably, one of the contents of a box being especially fine. Dr Evans then dealt with the theoretical part of the subject, and concluded by stating that Roentgen's discovery was only another link between electrical phenomena and the phenomena of light, breaking further the barriers separating the provinces of science. In a few well-chosen words Sir John Hall moved a vote of thanks to the learned lecturer, which was carried with applause.

28 October 1896 Bay of Plenty Times, Images from Rontgen shown in Auckland

The X rays in Auckland. Auckland, 'this day.— As considerable interest is being taken in the Rontgen rays, Messrs Holland and Son, Victoria St., have received from London prints from original negatives taken by the Rontgen or X rays, all exhibiting the human hand. One shews deformity or malformation at the wrist, in the second bracelets and rings on the fingers are seen through the

bones. These are the first original prints that have reached Auckland a large number of the public inspected the prints yesterday.

31 October 1896, Hawera & Normanby Star Overseas use of xrays

THE RONTGEN RAYS.

Yesterday we published a cable stating that the Rontgen rays had been applied not merely to the exact location of cancer, but to the curative treatment of a disease which has so far baffled medical skill. In connection with the cable we printed an extract from an address given before the annual meeting of the British Association, which indicated that the transmission of the rays through the human body may have a positive effect upon internal organs. We see that a Wellington paper further quotes a case recorded in the British Medical Journal where a man who was suffering from cancer in the stomach submitted himself to the rays daily. After some time the tumour had decreased to half its former size, and the improvement was found to be assignable to the effects of the rays. It is needless to say that this further application of emphasises the declaration of Sir Joseph Lister that the discovery of the rays is perhaps the most astounding of all achievements of purely physical science. Lister himself of course has made a world wide reputation by his development and application of Pasteur's discoveries to antiseptic surgery, making practically safe operations which a few years ago had the greatest of risks attaching to them. In the address referred to he spoke of the application of the rays, saying : —

I need hardly point out what important aid this must give to the surgeon. As an instance, I may mention a case which occurred in the practice of Mr Howard March. He was called to see a severe injury of the elbow, in which the swelling was so great as to make it impossible for him by ordinary means of examination to decide whether he had to deal with a fracture or a dislocation. If it were the latter, a cure would be effected by the exercise of violence which would be not only useless, but most injurious if a bone was broken. By the aid of the Rontgen rays a photograph was taken, in which the bone of the upper arm was clearly seen displaced forwards on those of the fore arm. The diagnosis being thus established, Mr Marsh proceeded to reduce the dislocation, and his success was proved by another photograph, which showed the bones in their natural relative position. The common metals, such as lead, iron, and copper, being still denser than the osseous structures, these rays can show a bullet embedded in a bone or a needle lodged about a joint. At the last conversazione of the Royal Society a picture produced by the new photography displayed with perfect distinctness through the bony framework of the chest a halfpenny laid down in a boy's gullet. It had been there for six months, causing uneasiness at the pit of the stomach during swallowing; but whether the coin really remained impacted, or, if so, what was its position, was entirely uncertain till the Rontgen rays revealed it. Dr Macintyre, of Glasgow, who was the photographer, informs me that when the presence of the halfpenny had been thus demonstrated, the surgeon in charge of the case made an attempt to extract it, and although this was not successful in its immediate object, it had the effect of dislodging the coin; for a subsequent photograph by Dr. Macintyre not only showed that it had disappeared from the gullet, but also, thanks to the wonderful penetrating power which the rays had acquired in his hands, proved that it had not lodged further down in the alimentary passage. The boy has since completely recovered. If a part of the human body is interposed between the screen and the source of the rays, the bones and other structures are thrown in shadow upon it, and thus a diagnosis can be made without the delay involved in taking a photograph. It was in fact in this way that Dr Macintyre first detected the coin in the boy's gullet. Mr Herbert Jackson, of King's College, London, early distinguished himself in this branch of the subject. There is no reason to suppose that the limits of the capabilities of the rays in this way have yet been reached. By virtue of the greater density of the heart than the adjacent lungs with their contained air, the form and dimensions of that organ in the living body may be displayed

on the fluorescent screen, and even its movements have been lately seen by several different observers. It was also noted that the present year is the jubilee of anresfchasia in surgery, for though it had been foreshadowed by Sir Humphrey Davy in the first year of the present century it was not till 1846 that Dr Morton, of Boston, first extracted a tooth painlessly by giving an inhalation of the vapour of sulphuric ether. Later came chloroform. The discoveries in the realm of bacteriology were also brought under review. A perusal of even the abbreviated report of the address brings home to the mind what wonderful strides have been made during the present marvellous century in the noblest of all branches of study and science — that which devotes itself to the relief of the physical pain and suffering of humanity.

31 October 1896 Observer, Slattery locates a bullet

Rev. D. Laseron (Anglican), of Victoria, has for two or thrtre years carried about with him a bullet accidentally discharged from the pistol of the sportive Thomas Walker, who will be remembered as having filled the roles of Spiritualist, Materialist, and Member of Parliament, and who is now engaged in a Christian temperance crusade. Walker was monkeying with the weapon in a railway carriage. Hitherto the doctors have failed to locate the bullet, but it has now been distinctly placed by the Rontgen process manipulated by Father Slattery, of St. Stanislaus R.C. College, Bathurst How pleasant are these little ecclesiastical amenities! One shepherd doing his best to see what his rev. rival is stuffed with.

5 November 1896 Timaru Herald, Premier at Palmerston North Exhibition

THE PREMIER MAKES A STARTLING SUGGESTION WHICH MAY PROVE AWKWARD FOR SOME PARLIAMENTARY CANDIDATES.

THE Premier when speaking at the opening ceremony of the Palmerston North Art and Industrial Exhibition on Monday last, said :— " I must not forget to mention the Rontgen X Rays which are on view, and have done so much to advance medical science and assist suffering humanity. Now, if any constituency doubted that their member had any brains, they could get his head, photographed in order to see, and I would strongly advise all constituencies to have the brain of the candidates photographed before making a choice." This was a most thoughtful suggestion of the Premier's. But what is the value of brains without digestion ? He should have gone further and recommended the application of the X Rays to the digestive organs of the whole of Her Majesty's subjects, when it would have been found that those who were in the habit of drinking ordinary teas find the coating of the stomach converted into a sort of partially tanned leather. This causes indigestion, shortens life, and spoils the most angelic temper

16 October 1896 Ashburton Guardian Zander wool broker add using exaggerated X-Ray story as a selling point.

This is an Add for Zander that appeared multiple times over October- November, and no real X-Rays were likely produced, and certainly imaging a handwritten card through 17 inches of solid steel, when X-Ray tubes could barely image a human hand, is unbelievable.

J Henry Zander. RONTGEN X RAYS. TRIAL IN ASHBURTON. KEEN interest has been shown by most leading residents and farmers, who are of a scientific turn of mind, in a trial made this week by Mr Mitchell, the well known local Photographer, of the Rontgen Rays, or the New Photography. Many knowing ones predicted a failure, and speculation was rife as to what would be the ultimate result, but we are proud to be able to state that it surpassed all expectations, and we congratulate him on his success. The mode adopted was as follows A solid bar of chilled cast steel, 17 inches thick, was placed on a stand, and a large card, with a well-known name printed out, was placed behind it and the ' X Rays ' turned on at about two million horse-power, and exposed for twenty minutes. The slide was then removed, and the assembled, gentlemen, who had been awaiting the result with breathless interest, beheld the following : —

WOOL SEASON, 1896-97. Henry Zander, WOOL BROKER. Wool Store — West street, Ashburton
Advances Made Against Clips Free of All Commission. My Clients Wool, last year, Realised Half-penny More than any other Wool of same quality.

Then there was a tremendous outburst of applause and admiration, and one local farmer announced his belief that the same name could be photographed through a mountain of granite.

11 November 1896 New Zealand Herald, Marinus Felseneck sets up X-Rays in Auckland

MARINUS FELSENECK, M.D., SPECIALIST FOR THE EAR, EYE, AND THROAT, Has commenced practice in Auckland, and may be consulted daily at Mr. Cooper's Pharmacy, corner of Victoria and Hobson-streets, from the hours 10-11 am, and 3-4 p.m. Rontgen X Rays employed.

19 November 1896 Otago Witness Hamilton & Shand describing his low power system

OTAGO INSTITUTE.

The annual meeting of the Otago Institute was held at the museum on the 12th. Mr A. Hamilton (president) occupied the chair, and there were about 25 members present. Mr A. Hamilton, the retiring president, said : From the report just read ...

We were favoured in the early part of the session with a lucid demonstration of the Rontgen rays by Professor Shand, and were then enabled to follow the various developments of the original discovery that have been made recently with additional interest. I regret extremely that from various causes I have not been able to place before you any form of Edison's cryptoscope, for although several kind friends have endeavoured to produce the crystallised form of scheelite required, their efforts have not yet been successful. I have to thank them for their trouble. I think it probable that, like many other recipes, the formula given leaves out an important part of the process. It certainly seems desirable that there should be in Dunedin, at the hospital, a set of the apparatus of a practical nature, as there is no doubt that, even in the present stage, the X rays are of use in locating small foreign bodies in certain parts of the body. The cost of a complete installation is now quite moderate, and I notice that several of the Australian hospitals are now provided, either by private gift or by public subscription.

The small Crooks tube possessed by the university serves, as we saw at our first meeting, to exhibit the phenomenon, but is not suitable for any research work. In this matter, as well as in other matters of scientific interest, I regret to notice that there is apparently very little desire on the part of the public in general throughout the colony to provide funds for the pursuit of science, even if the particular branch of science be of what is called a practical nature. For a country so advanced in many respects in its views as New Zealand seems to be, there is very little recognition of the desirability - not to say the duty of those who can afford to do so - to provide funds for the pursuance of scientific research.

19 November 1896 Wairarapa Daily Times, Hausmann Gow visit to Masterton confirm edisons kit

We might mention that Messrs Hausmann and Gow intend shortly visiting Masterton with the Rontgen rays, arrangements having been made with Edison for the supply of his latest invention for exhibition in New Zealand,

30 November 1896, Evening Post, Lady Alice Boyle at Wellington exhibition, Hausmanns Xrays broken

His Excellency the Governor, accompanied by Lady Alice Boyle, visited the Exhibition this morning, and was shown the model dairy at work. His Excellency also went round the different exhibits, liking considerable interest in the different displays. Mr. Meadows (Superintendent)-, and the Exhibition staff had everything in apple-pie order for the visit of His Excellency, who was received by the President, Mr. S. Brown, and some members of the Executive. To judge by the crowded state of the building on Saturday, there is no diminution in the interest taken by the public in the Exhibition. Both afternoon and evening the building was fairly packed. Mrs. Francis's- Mount Cook Infant School children were the performers on Saturday afternoon of a number of action songs in the Concert Hall, and subsequently of Maypole dances in the centre of the sports ground, Minifies String Band supplying the music. The children were very nicely dressed, and deserve, with their teachers, every praise for the manner in which they acquitted themselves. Hundreds of children visitors, with their parents or adult friends, witnessed the performance, and were charmed by what they saw and heard. Special mention should be made of the Japanese Fan Song, in which the little girls rendering it

were dressed in the Japanese costume, and I used their fans as if to the manner born. Mr. Seager made a great hit on Saturday 1 evening with his lantern pictures, by the oxy- ether light. He had a numerous audience, and took them most pleasantly for a trip from New Zealand round the world, via New York. Then, by request, for the people wanted more of so good a thing, he gave them glimpses of scenery up the Thames, starting from London Bridge. These slides were much admired, and then the curiosity of the audience was gratified by some pictures showing results obtained from the "X" rays. It was all most enjoyable. The proprietors of the Kinematograph were unfortunately unable to show it on Saturday evening, in consequence of some electrical connections not being completed. We are assured that everything will be ready, however, in a few days.

19 December 1896 Auckland Star, C.E Mackie advertises Xray kit for sale

We have to arrive per Star of Victoria, now due. a complete Apparatus, consisting of Crookes' and Rontgen's Tubes, Screens, Coil, Dynamo, Gas Engine, etc. All information cheerfully given. Have for Sale, Second-hand Optical Apparatus, Lanterns (for oil or limelight), Cameras, enquiries for Cameras, all sizes, second-hand. CHAS. E. MACKIE & CO.. 286b QUEEN STREET (Over Alexander's, Confectioneer).

19 December 1896 Evening Post X-Ray burns reported

Also in 24 December 1896 Hastings Standard

It seems that the frequent use of the Rontgen rays has a singular effect upon human beings. "An x-rays operator " writes to an English paper that after being engaged for some months in demonstrating the Rontgen apparatus, he has lost most of his finger-nails and the skin of one hand three times. Besides this, he has suffered from severe eruptions and discomfort, including a painful swelling and discharge from the tips of the fingers. The only remedy he has found effective is to cover the hands perpetually with lanoline, his theory being that the X rays, which are practically a concentrated form of actinic light, burn up the natural oil of the skin. The *Electrotechnische Rundschau* also contains an account of an X-ray operator whose hands have peeled, and who is threatened besides with premature baldness. This physiological effect of the rays, which is now pretty well confirmed, opens up some interesting possibilities as to its future use in cases of cutaneous disorders, for a thing which harms may generally be employed as well to heal.

21 December 1896 New Zealand Herald, Auckland exhibition add

THE AUCKLAND INDUSTRIAL EXHIBITION. Productions from the brushes of leading artists will be exhibited in the art gallery attached to the exhibition, and suitable space has been set apart for collections of South Sea Island curios; while the Rontgen rays, kinematograph, and other results of scientific research will also be publicly shown.

16 December 1896 Evening Post Hausmann & Gow advert Wellington Exhibition

RONTGEN X RAYS AND FLUORESCOPE. IN THE EDISON ELECTRIC HALL. Messrs. Hausmann & Gow, Manipulators. Be Sure and See this Great Discovery! The BONES of the BODY seen with the NAKED EYE. Keys, Money in a Purse, Knives, Skeletons. &c , seen through several inches of wood, books, &c. Admission — Adults, 6d; Children, 3d.

30 December 1896 New Zealand Herald, Mackie Auckland exhibition

Messrs. Mackie and Co, also show the latest result of scientific research, the Rontgen X Rays, which is at present exciting universal attention, and is being extensively utilised by the medical profession,

4 January 1897, Auckland Star, Mackie Auckland Industrial Exhibition.

Messrs Charles E. Mackie and Co., of Queen-street, have an interesting exhibit. This includes an imported Rontgen X ray apparatus, and photographic and optical apparatus and material.

5 January 1897 New Zealand Herald, Mackie Auckland exhibition

Last evening, for the first time in Auckland, the Rontgen Xrays, recently imported by Mr. C. S. Mackie, and now being shown in the-Auckland Industrial Exhibition, were utilised by the medical fraternity to discover the location of a bullet in the hand of a patient. The gentleman in question was a Mr. J. A. Mitchell, of Remuera, who some four years ago, while in the act of going through a clothes chest in his possession, accidentally discharged a loaded revolver therein, the bullet from which went through the palm of the hand. The wound, however, caused very little inconvenience, and soon healed again, the sufferer thus allowing the matter to pass without having the bullet extracted. Recently a pain and stiffness had been experienced in the hand, but the bullet could not be located, and last evening Mr. Mitchell decided to endeavour to find its whereabouts by means of the Rontgen X rays. He was attended by Dr. T. Hope Lewis, who almost immediately detected the bullet in the back of the hand between the microcarpal bones of the fourth and fifth fingers. Dr. Wine was also present and viewed the bullet, as did also a representative of the Herald. Today it will be extracted by Dr. Lewis. At a later stage in the evening a Mrs. Lewis was brought in by Dr. King, and an exposure to the rays discovered a needle in the forefinger of the left hand, set obliquely across the finger.

5 January 1897 Auckland Star, Mackie & Boscawen

Last evening at the Auckland Industrial Exhibition the Rontgen X rays were utilised for the first time in Auckland by the medical fraternity to locate a bullet in the hand of a patient. The sufferer was Mr J. A. Mitchell, of Remuera, who some four years ago accidentally discharged a loaded revolver into the palm of his hand. Two operations were performed for its removal, neither of which were successful, but the wounds healed and little or no inconvenience resulted. Recently pain and stiffness had been experienced in the hand, but the bullet could not be located, and last evening, at the suggestion of Dr. Lewis, it was decided to endeavour to find its whereabouts by means of the Rontgen X rays. By the kindness of Mr C.E. Mackie the X rays now on view at the exhibition building were utilised for this purpose. The patient's hand was exposed to the rays, and Dr. Lewis almost immediately located the bullet in its position, firmly embedded between the fourth and fifth metacarpal bosses. The outlines of the bullet, and also of the bones, were perfectly clear and distinctly visible to others who were then shown the hand. Dr. Wine was present during the examination. The position of the bullets was carefully marked on the hand, and Dr. Lewis will extract it this afternoon; The X rays apparatus in question was imported by Mr S. C. Mackie. The only other Rontgen rays apparatus in Auckland is in the possession of Mr Hugh Boscawen, of the Crown Lands Department in Auckland, who imported it from Germany several months ago, and who has taken many successful pictures of the hand, etc., with it, besides experimenting on fish and other difficult objects.

7 January 1897 New Zealand Herald, Mackie and Mr Mitchells bullet

The Rontgen X Rays, shown by Mr. C. E. Mackie at the Auckland Industrial Exhibition, has attracted 'considerable attention, and several applications have been made by persons 'ailing'" from Internal injuries of various descriptions for a private trial of this wonderful invention, The bullet referred to in a recent issue of the raid was yesterday ! successfully extracted from the hand of Mr. Mitchell by Dr. Lewis, who discovered its location by means of the rays.

7 January 1897 New Zealand Herald, Mackie busy

The X rays were again shown last night, and Mr. C. E. Mackie had a busy time in , explaining the apparatus to his many visitors.

11 January 1897 Auckland Star, Mackie exhibiting Xrays

AUCKLAND INDUSTRIAL EXHIBITION.

Messrs Chas. E. Mackie and Co., of Queen Street, show the complete apparatus for production and utilisation of the Rontgen X Rays, which the firm recently imported. This is of course a great attraction, and a special charge of 1s is made for admission to see the different tests. The apparatus comprises a gas engine capable of keeping up 3,000 revolutions of the dynamo per minute, together with spark coil, all necessary tubes, Rontgen Crookes, and the new focus-fixing tube. A number of experiments were made on Saturday night in the presence of a Staff representative. The bones in the hands of our representative and the hands of others were made plainly visible, while metal articles placed in a book could also be seen clearly. The rays also penetrated through a book five inches thick. A large number of other equally wonderful and interesting experiments were also made. During the present week, Messrs Mackie and Co. give a private exhibition to the medical fraternity.

12 January 1897 Oponake Times, Mackie uses Xray to find bullet Lewis removes

The Rontgen X rays were successfully used at Auckland on January 4, by Dr Lewis for the location of a bullet in the palm of the hand, which two previous operations had failed to discover.

12 January 1897 Press, Smith doing electrical supply for Frozen Meat patent.

Refrigerating Patent.—At the invitation of Mr F. Arenas, the patentee of the invention, for ascertaining the alteration of temperature on board ships carrying frozen meat, a number of representative gentlemen attended at the Oddfellows' Hall yesterday morning to inspect it. The work, it may be noted, has been done by Messrs "Smith and Son, electricians, and to them as well as to Mr Arenas great credit is due for the ingenuity displayed. Those present were:—Captain Anderson, Hon. E. W. Parker and Mr G. F. Martin (Shaw, Savill and Albion Company), Messrs I. Gibbs (New Zealand Shipping Company), Waymouth (Belfast Freezing Company), W. A. Moore (Shire Line of Steamers), E. G. Staveley (New Zealand Loan and Mercantile Agency Co.), George Humphreys (Fletcher, Humphreys and Co.), W. D. Meares, and A. Loughrey. Mr Arenas explained the working of the patent very lucidly, and all those present spoke in high terms of the ingenuity displayed. It was also mentioned that if on a trial on board one of the frozen meat carrying steamers the results shown yesterday were practically worked out the invention would be a valuable one in connection with our frozen meat industry (note first shipment was made 15 February 1882 see [https://en.wikipedia.org/wiki/Dunedin_\(ship\)](https://en.wikipedia.org/wiki/Dunedin_(ship))).

13 January 1897 Bay of Plenty Times, Mackie images bullet in Mitchell, extracted by Lewis

SURGERY BY THE RONTGEN RAYS IN AUCKLAND.

Last evening in a recent issue says the N.Z. Herald for the first time in Auckland, the Rontgen X rays, recently imported by Mr C. S. Mackie, and now being shown at the Auckland Industrial Exhibition, were utilised by the medical fraternity to discover the location of a bullet in the hand of a patient. The gentleman in question was a Mr J. A. Mitchell, of Remuera, who some four years ago, while in the act of going through a clothes chest in his possession, accidentally discharged a loaded revolver therein, the bullet from which went through the palm of the hand. The wound, however, caused very little inconvenience, and soon healed again, the sufferer thus allowing the matter to pass without having the bullet extracted. Recently a pain and stiffness had been experienced in the hand, but the bullet could not be located, and last evening Mr Mitchell decided to endeavour to find its whereabouts by means of the Rontgen X rays. He was attended by Dr T. Hope Lewis, who almost immediately detected the bullet in the back of the hand between the metacarpal bones of the fourth and fifth fingers. Dr Wine was also present and viewed the bullet, as did also a representative of the Herald. To-day it will be extracted by Dr Lewis. At a later stage in the evening a Mrs Lewis was

brought in by Dr King, and ! an exposure to the rays discovered a needle in the forefinger of the left hand, set obliquely across the finger.

15 January 1897 Bay of Plenty Times, Mackie receives X-Ray kit

THE RONTGEN RAYS IN AUCKLAND.

The New Zealand Herald says— By the last mail steamer from San Francisco Mr C. E. Mackie received a complete apparatus for the production and utilisation of Professor Rontgen's X rays This included a small gas engine capable of keeping up 3000 revolutions of the dynamo per minute all requisite coils and tubes. Since their receipt Mr Mackie has been fixing and experimenting. All has now been perfected, and a considerable number of experiments, conducted in the presence of Herald representatives and others, were completely successful. The new focus fixing tube having been affixed to the coil the bones of our representatives' hand, and the hands of others, were made as plainly visible as in hands seen in photographs previously received in Auckland. An envelope containing, five metal articles was then placed in the centre of a book an inch thick; the exact shape of these articles was as clear as though seen with the naked eye. Several pieces of wood were then placed between the eye and the rays, and still hands and the metal articles were as clear as before. Acting on a suggestion, an ordinary wooden butter-box, with walls about nine inches apart, the interior of the box being filled with many kinds of things, was brought into service ; apparently it had been used as a box for scraps. The box was no obstacle to the clearness of the picture presented. A thick leather purse was then subjected to the rays, and the outline of the coins inside could not have been more evenly marked, the purse itself being a mere shadow. To prove the experiment further a watch was taken from its owner's pocket, and placed inside the purse ; through a sheet of celluloid, a thickness of wood, and the butter box, the silhouette of the watch was such that it could distinctly be seen that the ring was turned down. Other interesting experiments with the Crookes's tube, with rubies, the original Crooke's tube, Rontgen, tube, etc.

18 January 1897 New Zealand Herald, Mackie exhibiting Xrays opp Garlicks shop

Messrs. C. E. Mackie and Co. are exhibiting their Rontgen Rays apparatus in Queen street, opposite Mr. J. Tonson Garlick's shop. The apparatus will be shown tomorrow evening before a number of the local medical fraternity.

21 January 1897, NZ Herald. Mackie and Dr Lewis

The Röntgen X Rays apparatus is now being shown by Mr. C. E. Mackie in a shop directly opposite Mr. J Tonson Garlick's furnishing warehouse in Queen-street, large attendances presenting themselves each evening to witness the exhibition by this wonderful result of scientific research. On Tuesday evening a private test was given before a large attendance of the local medical fraternity, one and all

of whom expressed themselves surprised and delighted at the marvellous results arrived at. A splendid photograph of the bones of the hand of Dr. T. Hope Lewis, for which six minutes exposure was allowed, the negative being decidedly clearer than a similar portrait sent forward with the exhibition, in which the exposure was stated to be considerably over double the length of time.

19 January, 1897, NZ Herald, Auckland hospital not buying xrays

It appears that the Auckland Hospital authorities do not intend, at any rate at present, to obtain the necessary apparatus for utilising the famous Röntgen rays for medical or surgical purposes. The matter was considered, but it was not thought wise to spend something like £40 in this way until the methods of utilising the discovery for the treatment of accidents and disease were considerably improved. It is only about twelve months ago since the world was startled by the discovery, and as the whole matter is still in an experimental stage the Hospital people have apparently decided to wait. Careful experiments have been made at the Sydney University, and it is stated that the Sydney Hospital authorities have countermanded an order which they had sent Home for the apparatus. Some experiments have been made at the Auckland Hospital, and though these proved most interesting, they are not altogether satisfactory from a medical point of view, and it seems clear that there are few cases indeed in which the Röntgen rays would prove of much practical use. Of course the possibilities of the discovery from a medical point of view are very great, but the Hospital authorities think they can well afford to await further developments.

22 January 1897 Hastings Standard, Turnbull uses X-Rays in Wellington

The utility of the Rontgen X rays as an auxiliary to surgical science is being well proved by their employment in the treatment of a little daughter of Mr. J. L. Murray, of Masterton. Some ten months ago the child, who is six years of age, fell from a table, and received injuries to the elbow joint of the right arm, as the result of which the forearm has ever since been paralysed, through partial stoppage of the blood circulation, and the fingers of the hand have been drawn up very painfully. The patient has suffered intense agony and has been under chloroform some 30 times, but her medical attendants have found it impossible to ascertain the condition of the arm without, opening the flesh. Now, however, thanks to an application of the X rays to the arm, and the taking of a shadowgraph by Mr, R. T. Turnbull, the exact position of the displaced bone has been revealed, and the nature of the growths at the joint to some extent made clear, so that the surgeons will know exactly the position where they will need to operate.

21 January 1897, NZ Herald, Mackie and Dr Lewis

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26 January 1897 Matura Ensign, Made Bald by X Rays.

William Levy, of Eau Clair, Wis., who recently had an X-ray examination of his skull made by Professor Fred S. Jones at the physical laboratory of the Minnesota State University (says the ' St. Paul Despatch '), had an experience in consequence not generally supposed to accompany that process. Levy was shot in the head about ten years ago by an escaping bank defaulter. The bullet has been somewhere in t his head ever since, and in July he made up his mind to have it located. Accordingly he came up and sat from eight o'clock in the morning till ten at night for a Rontgen ray picture of his head. After taking a couple of negatives they finally found about where the bullet was located. The doctors wrapped his head up in wires, which were definitely located. A picture was taken through the skull from the front towards the back of the head, the tube from which the rays radiated being for this purpose placed inside his mouth. The picture thus secured showed the bullet very distinctly. A very strong current — about 100,000 volts— had , been passed though the tube in making the exposures. The next day Mr Levy began to notice a peculiar effect on his skin wherever it had been most exposed to the rays, and the hair on the right side of his head was perfectly bald. His right ear had swollen to twice its natural size, and presented the same appearance as if very badly frozen. Sores were visible on his head, his mouth and throat were blistered so that he could not eat solid food for i three weeks ; and his lips were swollen, cracked, and bleeding. In fact, the long exposure to the X rays, while giving him no pain at the time, seemed to have produced very severe burn. Mr Levy has recovered from the effects of his burns, but he still has half a bald head. He is plucky man, about thirty years of age, and intends to have the investigations carried further and the bullet removed.

9 February 1897, NZ Herald, Mackie receives cinematograph and using X-Rays medically

Mr. C. E. Mackie, of Queen-street, has received one of the latest and most improved of those wonderful electrical machines, the cinematographe, which will be erected and in working order this evening, when it will be shown at his rooms in conjunction with the X-raysDuring the past week, the Röntgen X-rays shown by Mr. Mackie have been largely used by the medical fraternity with excellent results, several maimed and broken limbs, the injuries to which could not be otherwise located, having been photographed.

12 February 1897, New Zealand Herald, Mackie and fresh injuries

A large number of visitors attended at Mr, C. E. Mackie's Rooms, Queen-street, yesterday to witness the exhibition of the Rontgen X Rays and Cineinatographe. Several fresh injuries to

limbs have been discovered by means of the first-mentioned invention, and the realistic pictures shown by the cineinatrographe continue to astonish and delight the sightseers.

13 February 1897 Observer, Mackie most enjoyable show

C. E. Mackie and Co 's Cinematograph and X Rays form about the best and most enjoyable show that has been offered to the public for some time. Go and see them ; it only costs a shilling.

12 February 1897 Ashburton Guardian, Queen of Portugal & corsets

The Queen of Portugal recently amused herself by taking X-ray photographs of the Court ladies, and was so horrified at the sight of deformed skeletons that the corsets is now tabooed in Court circles.

12 February 1897 New Zealand Herald, Mackie is popular

A large number of visitors attended at Mr, C. E. Mackie's Rooms, Queen-street, yesterday to witness the exhibition of the Rontgen X Rays and Cineinatrographe. Several fresh injuries to limbs have been discovered by means of the first-mentioned invention, and the realistic pictures shown by the cineinatrographe continue to astonish and delight the sightseers.

15 February 1897 New Zealand Herald, Electric Mining Machinery Company shows X-Rays

Thames News. The Rontgen X rays were exhibited here this evening for the first) time by the electric engineer of the Electric Mining Machinery Company, Fort-street, Auckland. A good deal of interest was evinced in these rays.

18 February 1987 Dr Murdoch MacKenzie using xrays on Coast

Dr Murdoch MacKenzie using xrays in churches empire hotel Ross (west coast times)

2 March 1987 Dr Murdoch MacKenzie using xrays in oddfellows hall revell st (west coast times)

19 February 1897 Thames Star, Capt. W. Blanch Brain

We learn that Capt. W. Blanch Brain, mining engineer and electrician, will deliver a lecture on Monday evening on the "Transmission of power by electricity." The Rontgen Rays will also be publicly on exhibition.

Also see <https://www.newzealand.com/nz/plan/business/thames-school-of-mines-and-mineralogical-museum/>

20 February 1897 Thames Advertiser Blanch Brain

The Rontgen rays will be exhibited this evening from 7 till 10 o'clock in Mr Grigg's warehouse. A large number of Thames people have now seen this wonderful discovery.

We learn that Capt. W. Blanch Brain, mining engineer and electrician, will deliver a lecture on Monday evening on the "Transmission of power by electricity." The Rontgen Rays will also be publicly on exhibition.

20 February 1897 Thames Star, Captain W. Blanch Brain

Captain W. Blanch Brain's lecture will be delivered not on Monday (as previously stated), but on Tuesday evening. The subject is: "Electricity as applied to Mining, especially for the Electrical Transmission of Power and Electric Blasting" The address will be given in the School of Mines, the lecturer having given his services gratis, and the subject will be dealt with in a manner which will not only prove interesting and attractive to the professional section, but to the public as a whole. To-night is the last occasion on which the Rontgen X rays will be on exhibition. We would advise intending visitors to Mr Grigg's warehouse, Pollen-street, to call early.

https://en.wikipedia.org/wiki/O._W._Brain

William Blanch Brain, often referred to as W. Blanch Brain, was inventor of "Brain's powder", a powerful explosive. He emigrated to Tasmania in 1885, accompanied by his son Austin Lionel Bennett Brain and his son-in-law, Arthur Legge Goold. Tasmanian newspapers reprinted several papers and articles about his experiences with dynamos and electric motors in British coalfields. and was soon occupied at Henry Mason's "Norwich" coalfields at Norfolk Plains, near Launceston, then was taken on as mine manager, known in mining parlance as "Captain Brain". He also went into private practice as Blanch, Brain & Co., consulting engineers. In 1886, while living at Sandy Bay, he invented the Blanch-Brain butter churn. In 1890, while living at "Abernethy", Hotham Street, St Kilda, Victoria, he and Arthur James Arnot developed and patented an electrically-powered rock drill, claimed to be the world's first electric drill, though it may have required two men to operate it. They patented an improved AC electric motor in 1891. In 1892 he opened a course of instruction in electrical engineering at the Technical School, Launceston. He was proved bankrupt in 1893 and left for Auckland, New Zealand, never to leave.

2 March 1987 Dr Murdoch MacKenzie using xrays on coast

in oddfellows hall revell st (west coast times)

4 March 1897 Evening Star, Kempthorne sets up new X-Ray lab in Stafford st Dunedin

Also in Mataka Ensign, Issue 261, 6 March 1897

Otago Daily Times, Issue 10742, 5 March 1897

RONTGEN X RAYS PHOTOGRAPHY.

A very interesting departure has been made by Messrs Kempthorne, Prosser, and Co. at their premises in Stafford street. They have fitted up an electrical laboratory provided with the latest Rontgen X rays apparatus, and are prepared to co-operate with the medical profession in conducting experiments. A very practical and successful test of the efficiency of the apparatus was made in the laboratory last night. A young man named E. W. Watkin, in Messrs Hallenstein Bros.' employ, had the misfortune in November last to break a fishhook in one of his fingers, the barb being so embedded as to defy removal, it being impossible to locate the position. Last night Mr Watkin submitted himself for experiment, and a radiograph on a fluorescent screen was taken of the hand. The barb was located quite distinctly in the tip of the middle finger, and Dr Stephenson, who was present, at once lanced the finger, and without any difficulty extracted the barb. This is the first experiment of this kind that has been attempted in Dunedin, and its complete success will doubtless lead to many others of a similar nature, for as an auxiliary to medical skill the X rays photography is generally admitted to be very powerful, especially where bone malformation or some foreign substance is sought to be located. The coil used is one of App's inductorium, giving 10 inch sparks, and is specially manufactured for the Rontgen rays. The coil is agitated by a lithanode storage battery of six cell, giving a current of fifteen volts at a pressure of thirty ampere hours. This lithanode battery is different from the primary battery, inasmuch as it gives a constant current without any fear of polarisation on the plates. The battery is supplied with the current from the dynamo at Mr R. Hudson's flour-mill. Mr Henry, Messrs Kempthorne, Prosser's electrician, has charge of the battery and coil, whilst Mr Ewing has general charge of the laboratory.

MARCH 6, 1897 The Evening Star, Gow in Dunedin

Last evening, at Gladstone House, in Moray place, Mr John Gow gave a private exhibition, for the benefit of the medical faculty, of the Rontgen rays. About a dozen gentlemen were present, and the keenest interest was evinced in the result of the various experiments that were essayed. The apparatus is fitted with a coil giving a 4in spark, and a steady, clear light was obtained. The first observation made was of a hand held behind the fluorescent screen, and the radiograph clearly showed the bones and joints and very prominently a ring which was on one of the fingers. A pocket book in which were two keys was placed behind the screen, and the keys were as plainly seen as if they had been held up to the observers in broad daylight. An ordinary silk umbrella was then tried, with the result that everything vanished with the exception of the metallic ribs. To further test the wonderful power of the Rontgen rays a two-inch board, six inches thickness of books, and behind these the pocket book containing the keys were placed between the spark tube and the screen. The result was the same as in the former cases, the books and thick board being no impediment to the rays, and the keys were quite plainly seen against the light on the screen. One has only to see these tests to be thoroughly convinced of the wonderfulness of the rays, and satisfied as to the usefulness of the adaptation of the discovery. Mr Gow explained the apparatus, and went into detail in regard to its working. He also exhibited a photograph of a hand taken by means of the X rays, not only the bones being visible but also the veins. It may be mentioned that in the radiograph on the fluorescent screen the veins are not visible to the naked eye. Mr Gow, although he has been away from Dunedin

for about fifteen years, is no stranger here, and is a son of the late Mr Gow, at one time writing master in the Otago Boys' High School. He intends giving public exhibitions of his Rontgen rays apparatus, and we have no doubt that his scientific seances will attract a great deal of attention.

8 March 1897 Bay of Plenty Times, MACKIE'S FORTUNATUS COMPANY

THEATRE ROYAL, Wednesday and Thursday, 10th and 11th MARCH. Fibbt Appearance of MR CHAS E. MACKIE'S FORTUNATUS COMPANY, COMBINED WITH THE TWO WONDERS OF THE WORLD. VIZ., THE CINEMATOGRAPHE AND THE RONTGEN X RAYS. Pictures from Every-Day Life. Life-like Movement. Our Artistes include : Mr Morton Prior, Miss Beatrice Hermann, Mr James Edwards, Miss Edith Earle, Mr Fred. Will. Popular Prices

10 March 1897 Bay of Plenty Times Chas E. Mackie Fortunatus Company

Mr Chas E. Mackie's Fortunatus Company arrived by the Chelmsford last evening and commence their season at the Theatre Royal to-night. The Cinematograph and Rontgen X Rays are said to be the latest wonders of the world and the Company include the following ladies and gentlemen :—Misses Beatrice Hermann and Edith Earle, Messrs Morton Prior. James Edwards, Fred Will and Chas. E. Mackie. At Opotiki and Whakatane the Company played to packed houses and we hope to see bumper house tonight. A few seats may be reserved at Mr. T. E. Wayte's.

18 March 1897 Grey River Argus, Gow in Dunedin with details of him and kit

Mr John Gow, an old citizen of Greymouth, at present exhibiting the Rontgen X rays, receives the following notice from the Dunedin Evening Star: — Last evening, at Gladston House, in Moray place, Mr John Gow gave a private exhibition, for the benefit of the medical faculty, of the Rontgen rays. About a dozen gentleman were present, and the keenest interest was evinced in the result of the various experiments that were essayed. The apparatus is fitted with a coil giving a 4in spark, and a steady, clear light was obtained. The first observation made was a hand held behind the fluorescent screen, and the radiograph clearly showed the bones and joints and very prominently a ring which was on one of the fingers. A pocket book in which were two keys were so plainly seen as if they had been held up to the observers in broad daylight. An ordinary silk umbrella was then tried with the result that everything vanished with the exception of the metallic ribs, To farther test the wonderful power oi the Rontgen rays a two-inch board, six inches thickness of books, and behind these the pocket book containing the keys were placed between the spark tube and the screen. The result was the same as in the former cases, the books and thick board being no impediment to the rays, and the keys were quite plainly seen against the light on the screen.

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22 March 1897 Otago Daily Times, Gow in Dunedin

NEXT CITY HOTEL RONTGEN X RAYS and FLUORESCOPE. Marvellous and Amusing.

Do not miss seeing this wonderful discovery. Bones of the body, keys, money in purse can be seen through boots, wood. &c, with the naked eye ADMISSION, 1s. 2-m J. GOW, Manipulator.

6 April 1897 Taranaki Herald, Filmer and the mouse

Mr Filmer, electrical engineer, Newcastle, has carried experiments with Rontgen Rays to such perfection that he obtained perfect radiographs of all the interior organs of a mouse. He claims that it can be applied with equal success to the human body.

6 April 1897 New Zealand Herald. Mackie images bullet in hip

Through the use of the Rontgen X rays, Mr. C. E. Mackie has succeeded in locating the bullet in the body of the man Samuel Agnew, injured at the Thames on the 27th ult. The bullet appears to have flattened against the hip bone, and traversed downward and outward from entry fully an inch from the edge of the bone.

8 April 1897 Timaru Herald, Gow in Timaru

THE X RAYS IN TIMARU. The public of Timaru have now an opportunity of making personal acquaintance with the greatest scientific discovery of recent years— the X rays— in an exhibition now open afternoon and evening next door to Grandi's coach factory. The following from the Dunedin Star gives some indication of what may be seen : — " A large number of people visited the premises adjoining the City Hotel on, Saturday night with the object of seeing the interesting exhibition given by Mr J. Gow by means of the Rontgen X rays. By the aid of the X rays the visitors were enabled to see in a darkened room various objects through wood and other materials. A key was seen through a deal board one inch thick, and the same article was also seen inside a purse through a piece of wood. The bones of different people's hands were made visible to the naked eye as were also the ribs of an umbrella through the covering. One gentleman among the audience, who has had a shot embedded in the flesh of one of his fingers for several years, had the position of the shot located ; and various other experiments showing the wonderful power of the X rays were brought under the notice of those present. The visitors to the exhibition were further afforded an opportunity of listening to the reproduction of musical selections, etc., by the vitaphone — an instrument similar to the phonograph discovered by Mr Edison." The exhibition will open every day from 2.30 to 5. p.m. We are requested to state that only a limited number of people can obtain a view of the X-ray result at once,,, and those desirous of seeing them had better not wait till there is a crowd. The phenomena are not shown as photographs, but as temporary graduated shadows on a suitable screen.

9 April 1897 Timaru Herald, Gow in Timaru

RONTGEN X RAY f and FLUORESCOPE. Also Edison's VITAPHONE. Marvellous and amusing. The talk of the World. Patrons can see the bones of their own body ;' also many other amusing tests. Exhibitions from 2.30 to 5 p.m., and 7.30 to 10' p.m. Admission Is. J. GOW, Manipulator.

9 April 1897 New Zealand Herald Mackie images dislocated shoulder

C. E. Mackie, the well-known exhibitor of the Rontgen rays X and cinematography, has lately "radiographed" the dislocated shoulder of a lady in the Waikato. The negative plate shows with startling distinctness the nature of the injury, and gives a vivid idea in which the bones of the human frame may be pushed entirely out of their places.

26 April 1897 Taranaki Herald, Christie & Hall

Some interesting experiments were made with the Rontgen Rays at Mr F. W. Hall's Pharmacy on Saturday night. The instrument was brought out by Dr. W. W. Christie on his recent return from England. Drs. W. W. Christie and A. E. Walker were present at the Pharmacy on Saturday night, and Mr Hall having got the instrument in working order the experiments were made. First Mr Hall's hand was taken, and then Master Bert Rennell's elbow was similarly treated. This Monday morning Mr Hall showed our representative the negatives of the two, and in each instance the bones stand out clearly, so clearly in fact that the slightest injury could be detected by the naked eye. The instrument is quite up-to-date in the matter of improvement. Mr Hall gave our representative to understand that an injured limb will probably be treated this Monday night.

29 April 1897 Press, Mr Smith in Christchurch has X-Rays

Mr Smith, of High street, had a powerful battery, and exhibited an electric train and the Rontgen X rays.

4 May 1897, NZ Herald, Mrs Tait & Mackie

A most interesting operation was performed yesterday by the aid of the Röntgen rays. A Mrs. Tait was suffering from the effects of a needle embedded in the sole of the foot, and a photograph of it was taken for surgical use, by Mr. Mackie. The photograph showed the needle quite plainly, but the difficulty lay in ascertaining its precise position, whether right or left of the centre line of the foot. The attending surgeon then, by means of wire, divided the foot off into squares, but this was not successful. A third trial, however, was. This result was obtained by making a slight incision along the sole of the foot, and placing therein a piece of silver wire. A photograph was then taken from above the limb, and the head of the needle, which was in a vertical position, was seen as a small black speck, and located. Its removal was after that an easy surgical matter.

6 May 1897 Evening Star Mr Leslie with equipment details

The 'Timaru Herald' says that Mr Leslie, telegraphist at Temuka, a student and experimenter in electricity, is constructing a Rontgen ray apparatus of great power. The X ray effects can be produced with a Ruhmkorff induction coil giving a two-inch spark. Mr Leslie has a coil giving a ten-inch spark, the voltage being 10,000, or ten times that usually applied in electric lighting. The coil contains ten miles of No. 36 wire. A powerful battery is needed to work such a large coil, and Mr Leslie is constructing one equal to the duty, the elements of each cell being two carbon and one zinc plate—the carbon obtained at the Timaru Gasworks. (The largest induction coil yet made contains 280 miles of wire, and may be called an artificial lighting machine, as it will give a spark 42in long.) The vacuum tubes to be used are the best material obtainable, giving photographic positives with one or two minutes' exposure, and he has one of the best kind of fluorescent screens for direct vision, with which it is possible to see through a man's body and study his interior.

6 May 1897 Taranaki Herald, Hall

Mr F. W. Hall announces that he is prepared to take Rontgen Ray photos for the purpose of locating injuries, etc

7 May 1897 Taranaki Herald F. WALDEN HALL sets up xrays in New Plymouth

X RAYS. I am now prepared to take RONTGEN RAY Photos for the purpose of . LOCATING INJURIES, foreign bodies, &c. Appointments must be made F. WALDEN HALL, a 56 Chemist, New Plymouth.

14 May 1897 Taranaki Herald STOMACHS SCOURED WHILE YOU WAIT.

IN CONJUNCTION WITH THE RONTGEN RAYS. Under the above somewhat forbidding but characteristic American heading we get the following particulars of a successful test in Chicago on 2nd April : — With a little machine, which looks like an egg-beater, Dr. Fenton B. Turck has performed the feat of laundering the inside of a man's stomach at the Post Graduate Medical School, and by means of the Rontgen ray he at the same time viewed the interior of the stomach where his little device was at work. The invention marks an era of progress in the medical world, as his experiment was the first of the kind made in full view of the operators. One of the largest and most complete Rontgen ray outfits ever produced was furnished to the college for the experiment. Attached to the end of Dr. Turck's instrument, which is called a gyromole, or revolving Bound, was a flexible cable of spiral steel wire, on the end of which was a small sponge. The cable was enclosed in a rubber tube, and this, with the sponge, was swallowed by the patient. The latter, who was stripped to the waist, then stepped before the Rontgen light, the doctor put the fluoroscope to his eyes, and an attendant turned the handle of the gyromole. The cable revolved as fast or as slow as was desired, the sponge at the farther end proceeded to its work of scouring the inner walls of the patient's stomach, while the doctor, through the fluoroscope, viewed the work by locating the metal cable by means of the X ray. By pushing or pulling on the cable the various portions of the inner walls of the stomach were operated upon, and the matter which was gathered in the sponge was then removed for microscopic examination. No nausea or other discomfort were felt by the patient, though he stood before the rays for over an hour, while the doctors in attendance, the nurse, the

operator of the X ray outfit, and a newspaper man examined his interior. At the close of the ordeal he was offended that none of the party would gratify his curiosity to see the operation by temporarily taking his place as patient and swallowing the sponge and tube despite his asseertion that it had not hurt him. The Rontgen ray outfit used in this operation is capable of throwing a 14in. spark and illuminating a very largo Crooke's tube By this means it was not only possible to see the ribs and backbone of the patent, but to view the vibrations of the heart and to ontlne the liver and kidneys. Dr Turck is enthusiastic over the success of the experiment.

23 June 1897 Taranaki Herald Christie & Hall

Through the means of tha Rontgen Rays at Mr F. W. Hall's a needle that had been imbedded in the man's foot was located after other efforts to find it had failed, and Dr Christie was able to extract the needle without further trouble. The needle was deeply embedded and lay alongside a bone.

23 June 1897 Taranaki Herald, Christie takes X-Rays of needle in foot

Through the means of the Rontgen Rays at Mr F. W. Hall's a needle that had been imbedded in the man's foot was located after other efforts to find it had failed, and Dr Christie was able to extract the needle without further trouble. The needle was deeply embedded and lay alongside a bone.

24 June 1897 Wairarapa Daily Times Hosking upgrading his battery

Dr. Hosking is having a special storage battery made for the better working of his X rays plant. Last night Dr W. H. Hosking assisted by Dr. Archer Hosking, made an examination of Mr J. Cochrane's injured leg with the aid of the X ray's. A decided enlargement of a portion of the bone has been revealed.

19 August 1897 Evening Post Reception To The Governor And Lady Ranfurly.

THE RONTGEN X- RAYS. Perhaps of all the side-shows the Rontgen Rays was the most popular, possibly because it was the most exclusive. It certainly was the latter, for a small crowd waited doggedly for at least hah' an hour outside a closed door, within which they were told the mysteries of the X Rays were being unfolded. At last, suddenly the door opened, there was a wild swirl of garments, a rush of folk eager to be enlightened, and the foremost batch stood in a tiny room, li in a

Faust-like way with two red electric lamps that showed the dark hangings and dimly lit up the eager faces. They saw all sorts of extraordinary things, which, after the lights were turned out and total darkness reigned around, were introduced with an alarming fizz and splutter that reminded one of a firework that had failed. Last of all was exhibited the ghostly shadow of a boy, in his bones, and a voice from the depths of darkness said, with a kind of cannibalistic glee, " Here is a boy, ladies and gentlemen; you can pick out the different parts of the body for yourselves." The excellent set of apparatus provided by Mr. R. T. Turnbull who was assisted by Mr. R. C. Jones, consisted of a fluorescent screen nine square feet in size, and in addition smaller screens were available. A private view was afforded to Lord and Lady Ranfurly, who had their hands radiographed, and each had the pleasure of looking through the body of the patient little boy, a son of Mr. J. K. Logan, Inspector of Telegraphs. In a close view of the boy's interior, which the operator kindly allowed our representative, the boy's heart and ribs could be easily discerned, though a glance at his stomach disclosed the fact which he sorrowfully admitted — that he had not been having a heavy supper.

12 August 1897 Otago Witness, Dr McKenzie uses X-Rays in Hokitika

A case has occurred at Hokitika in which the Rontgen rays have been made use of with a highly satisfactory result. Some two years ago a young lady residing in that town had the misfortune to run a needle into one of her feet, and there it had remained ever since, for it could not be located without risk of permanent injury. The other day, however, Dr M'Kenzie brought the X rays into use, and the needle was revealed lying alongside a bone. It was not long before the source of intense discomfort had been deftly taken out, and modern scientific research had scored another success.

26 August 1897 New Zealand Mail, Governor Ranfurly's Reception.

Issue 1330, While this concert was proceeding in the House, limelight pictures were being shown in the Legislative Council Chamber by Mr T. A. Chapman to crowded floor and galleries, the red plush chair of the Speaker having been summarily thrust into rude oblivion behind a great white sheet on which the views—and excellent ones they were—were thrown. The room provided for the Government whips was given up to the Rontgen rays, exhibited by Mr R. T. Turnbull, assisted by Mr R. C. Jones. About this room there was a crowd of sightseers all night, the mysterious rays being of absorbing interest, and during the evening Lord and Lady Ranfurly had their hands photographed by the apparatus.

23 August 1897 The Taranaki Herald, Hall pharmacy gets a fluorescent screen

The penetrating powers of the Rontgen Rays can now be applied to any object with great despatch and distinctness through the means of a fluorescent screen . Mr F. W. Hall, of Devon-street, has one of the screens, and by its aid the rays show a coin placed in the middle of a thick volume, any object placed between two boards, and by placing the screen on the arm or leg and moving it along the whole anatomy of the limbs is exposed to view. So powerful indeed is the penetrating power that a person's ribs can be distinctly shown on the screen.

31 August 1897 Star (Christchurch), Leslie in Timaru has X-Rays

The X-Rays. — Mr Leslie, of the Timaru Post Office, has built up an X-ray apparatus, with which he has taken some instructive photographs for medical purposes. Last week he located a small pistol bullet in the palm of the hand of a youth named Melton, who had carried it in his flesh for thirteen months. A clear photograph was obtained, showing the pellet lying close to the outer bone of the palm and outside it. It was supposed to have lodged in the middle of the palm.

10 September 1897 Oamaru Mail X-Rays of chickens to find layers

The owner of a large poultry farm in America has devised a way of finding out which of his hens are laying eggs, and which are sterile. The hen that does not lay eggs does not perpetuate her species, hence she is not commercially valuable, being fit for the pot or the boiler, and that is an end to her usefulness and her money-making qualities. But the hen that lays—she is indeed a joy for years. On a ranch of 10,000 hens 2000 of the birds may be classed as the non-producing class. Hence it occurred to Mr Spreckles that if the drones were eliminated from his flock, the cost of the maintenance of the whole would be materially reduced. A nest to nest surveillance was impossible. The unprofitable hen might live in idleness and luxury undetected for an indefinite period. Mr Spreckles had read of the location of vagrant bullets, stray buttons and elusive fish bones in the human frame by means of the radiograph. Why not cause the hen to give up its secrets? Two experts in the use of the Rontgen rays were called in. They stated that they believed they would be able to differentiate the layers from the nonlayers. By way of experimenting half a dozen chickens were selected from the ranch and placed before the fluorescent screen. Of these the first four were found to contain eggs. The other two appeared to be barren. The proof of the finding was in the killing of the hens. The X-ray had revealed truly. The next day hens of known reputation both good and bad, were selected, and the results shown by radiographs were verified by post-mortem examination. As a result, an X-ray plant was established at the Spreckels ranch, and the work of examining the 10,000 hens was commenced. About thirty hens each hour can be submitted to this rigid examination. There has been a glut in the dressed poultry market of San Francisco in consequence of the untimely end of such hens as were found to be not earning their oats.

10 September 1897 Oponake Times, Christie & Hall show X-Rays to press

In company with a number of other interested gentlemen, a News representative was given an opportunity, on Saturday, of witnessing at Mr F. W. Hall's pharmacy, N.P., the marvellous effects of the Rontgen Rays when worked with the fluorescent screen. By means of the screen—a delightfully simple looking arrangement—the penetrating powers of the Rays can be applied with astonishing distinctness, and one can only approximate the enormous benefit such an invention will be to science. Various tests were made under the superintendence of Mr Hall and Dr Christie, all of which were highly successful. A coin placed in the centre of a large book could be seen on the screen with surprising clearness; a bunch of keys deposited between two boards stood out equally distinct, while a surgical instrument secreted in a fairly sturdy box looked, when held to the light, as though it was suspended in space with nothing intervening. A still more wonderful test was the view obtained of a

human being's ribs. One of the company sat in the chair facing the Rays, the screen was placed on his back, and a clear outline was obtained of the gentleman's frame. Any part of the anatomy can thus be easily seen, and any object— such as a needle embedded in the flesh is clearly and speedily exposed to view.

27 September 1897 Pahiatua Herald, Dr Gault gets X-Rays

Dr Gault brought with him from Europe a complete Rontgen Rays apparatus. In the practice of medicine, at all events, Pahiatua is well abreast of the times.

7 April 1898 HOSPITAL AND CHARITABLE AID BOARD.Colonist

HOSPITAL AND CHARITABLE AID BOARD.

The usual monthly meeting was held last evening, when there were present — Messrs Everett, Talbot, Pattie, P. Best, Beuke, Eidson, and G. Rout (in the chair). The minutes were read and confirmed. Accounts were passed as follows : — Hospital, £157 13s 4d; and Charitable Aid, £185 7s sd. The Sub-committee reported that the alterations to the Old People's Home were in hand, and that a new morgue was to be erected at a cost of about £25. The report was adopted. X Eats Appabatus. Dr Talbot forwarded the following report regarding procuring the Roentgen or X Rays apparatus for the Hospital : — " Sir, — I have the honour to submit to you, in accordance with the request of the Board, the following report on the Roentgen or X-ray apparatus and other electrical apparatus that would be required for the Nelson Hospital. It is advisable to get a good X-ray apparatus that would be strong enough to take photographs of the bones of any part of the body, and for this end a Ruhmkorf coil giving a 10-inch spark would be required. The catalogue price of a complete set of apparatus made by Newton, of London, is £52 10s in London. The price of a set giving the same length of spark by Watson, of London and Melbourne, is £50 3s 6d. It would be advisable to get some small parts of apparatus in duplicate, but this would not increase the price by more than £3. I have asked Dr Deck, who is new on a visit to Melbourne, to examine the apparatus made by Watson. Should apparatus be ordered from England, it would be well to order through Mr R. T. Turnbull, electrical engineer, of Wellington, for he would get it thoroughly tested in London, and in the event of any repairing being needed subsequently, he would be as competent as anyone in New Zealand to do it. Mr Turnbull is at present in England, but, being on the eve of returning to New Zealand, no apparatus could be ordered through him until he returns to New Zealand. A Faradic electric battery for ward use is required, price £1 10s ; and the galvanic battery is in need of repair. With regard to the latter, I would suggest that it be sent to Mr R. T. Turnbull to be repaired ; and if it is beyond repair, that a new one be obtained—price about £15." The members considered it was highly desirable to procure such apparatus, and it was resolved on the motion of Mr P. Best, that one of the best apparatuses be procured as soon as convenient, and the Sub-Committee and Dr Talbot be left to order same. On the motion of Mr Pattie, it was resolved to agree to Dr Talbot's proposals regarding the electric and galvanic batteries.

11 July 1898 Wairarapa Daily Times, Hosking finds needle

Last week a patient came to Dr Hosking with a crippled hand, caused by a portion of a needle being embedded in it. A previous incision had failed to reach the part under the tendon where the needle point was lodged, but by means of his X ray apparatus Dr Hosking was enabled to absolutely locate the exact position and to remove the impediment.

27 July 1898 Wairarapa Daily Times, Hosking upgrades his equipment

Dr. W. H. Hosking has just had a complete plant for the electrical treatment of diseases installed in especially constructed apartments at his surgery in Church Street, Masterton. The appliances are for the treatment of disease in accordance with the very latest scientific discovery. A dynamo, worked by a pretty little gas-engine, generates the electricity to supply light for examination, and also for charging the storage cells from which the current is used in the working of the Rontgen ray apparatus. Provision has been made to obtain electricity of all qualities used in the treatment of disease. There are elaborate arrangements for the production of the galvanic and the induced currents, and their use can be so graded that an imperceptible current can be administered or a strong shock can be given. Dr. Hosking's surgery has been fitted up similarly to the surgery of Dr. Playfair, in London, and that of M. Apostoli, of Paris.

15 August 1898 Otago Daily Times, Kempthorne demonstration

The first of the monthly meetings ; which the Otago Pharmaceutical Association propose to hold regularly was held in the association's rooms on Friday evening, some 30 members being present. Mr T. W. Kempthorne occupied the chair. It is intended that these meetings should instruct as well as promote a social feeling amongst the members, and this object was eminently fulfilled on Friday night, when a lecture on the " Rontgen Rays " was given by Mr R. A. Ewing, who was assisted in the demonstration by Mr R. Henry, electrician. Mr Ewing's remarks were most attentively listened to and, the apparatus working well, photos of the hands and forearms of several of the members were taken, amongst those who were operated upon being Dr M'Kellar, who was present "as secretary of the Otago Medical Association. It may be stated that the Rontgen rays have already been put to practical use in Dunedin. At the hospital a few days ago a person presented himself for treatment for a mysterious pain in his ankle. The medical staff were unable to locate the cause, but the rays showed plainly a pellet of shot in between two of the ankle bones, the result of an accident many years ago. The pellet, of course, was promptly removed, and the patient cured of his lameness. A hearty vote of thanks was accorded to Messrs Ewing and Henry for the educational treat they had provided.

1 November 1898 Bruce Herald X-Raying the queens food

THE QUEEN AND THE X-RAYS.

A most interesting communication has just been made by a member of the Royal Household, and it shows how thoroughly up-to-date are those who cater for Her Majesty's creature comforts. We learn that the fluorescent screen and X-rays have been introduced into service in the Royal kitchen with much benefit. They are instant and infallible detectives of stray bones, plum-stones, and what not, improperly situated in the prepared articles of Royal food. 'An X-ray glance : at each "dangerous" dish, ere it leaves the kitchen, lifts a great weight of responsibility from the cook's mind.

31 August 1899 Otago Witness inflatable film in stomach to image tumour

Mr John Foster, a Cleveland millionaire, underwent a remarkable operation in one of the Chicago hospitals recently. He was suffering from a serious abdominal ailment. The doctors in diagnosing the case made him swallow an india rubber bulb, covered with a photographic film, which was inflated until it completely filled the stomach. An X-ray exposure was then made, the bulb deflated, and the film withdrawn. When developed an excellent photograph of the interior of his stomach was secured, revealing the presence of a large tumour, which would soon have proved fatal. It will now, however, be removed.

12 March 1898 Ohinemuri Gazette spoof article

Miss Slimmer had been suffering from nervous prostration for the past week, owing to a severe shock she received when she went to the photographer's. Miss Slimmer is very thin, very slim, and very proper, and Mr Kammerer, the photographer, is the very pink of politeness in the opinion of most of his customers. But Miss Slimmer declares that he is a wretch. This is how the difference of opinion came about. She wanted a clever photographer to take a view of her drawing room, so she went to Mr Kammerer. Do you take interiors, Mr Kammerer? she asked after the usual polite introductory remarks about the weather. Mr Kammerer looked troubled, and hesitated, finally he replied: Well, I have not begun to do that sort of thing yet. It takes a good time to get a good picture of the interior. But I shall have an X-Ray apparatus added to my outfit shortly, and here he spoke in some confusion - if you want to have a picture of, your interior, I shall- But Miss Slimmer fainted on the spot.

1 June 1898, Auckland Star, Mackie X-Rays

Special attractions are announced for tonight's programme at Howley's Waxworks in the Agricultural Hall. There will be a recitation competition for young men, the prize being a watch. A present will also be given to the best tin or brass whistle performer. The Indian basket trick will again be performed. Mr C. E. Mackie's Rontgen X Rays apparatus will again be on exhibition, and visitors will be shown the bones of their hands, etc., without extra charge. There are various other novelties, and the price of admission, sixpence, is certainly very cheap.

7 April 1898, Colonist, Wellington Hospital X-Ray gear and Turnbull

HOSPITAL AND CHARITABLE AID BOARD.

The usual monthly meeting was held last evening, when there were present — Messrs Everett, Talbot, Pattie, P. Best, Beuke, Eidson, and G. Rout (in the chair). The minutes were read and confirmed. Accounts were passed as follows : — Hospital, £157 13s 4d; and Charitable Aid, £185 7s sd. The Sub-committee reported that the alterations to the Old People's Home were in hand, and that a new morgue was to be erected at a cost of about £25. The report was adopted. X Eats Appabatus. Dr Talbot forwarded the following report regarding procuring the Roentgen or X Rays apparatus for the Hospital : — " Sir, — I have the honour to submit to you, in accordance with the request of the Board, the following report on the Roentgen or X-ray apparatus and other electrical apparatus that would be required for the Nelson Hospital. It is advisable to get a good X-ray apparatus that would be strong enough to take photographs of the bones of any part of the body, and for this end a Ruhmkorf coil giving a 10-inch spark would be required. The catalogue price of a complete set of apparatus made by Newton, of London, is £52 10s in London. The price of a set giving the same length of spark by Watson, of London and Melbourne, is £50 3s 6d. It would be advisable to get some small parts of apparatus in duplicate, but this would not increase the price by more than £3. I have asked Dr Deck, who is new on a visit to Melbourne, to examine the apparatus made by Watson. Should apparatus be ordered from England, it would be well to order through Mr R. T. Turnbull, electrical engineer, of Wellington, for he would get it thoroughly tested in London, and in the event of any repairing being needed subsequently, he would be as competent as anyone in New Zealand to do it. Mr Turnbull is at present in England, but, being on the eve of returning to New Zealand, no apparatus could be ordered through him until he returns to New Zealand. A Faradic electric battery for ward use is required, price £1 10s 3d ; and the galvanic battery is in need of repair. With regard to the latter, I would suggest that it be sent to Mr R. T. Turnbull to be repaired ; and if it is beyond repair, that a new one be obtained—price about £15." The members considered it was highly desirable to procure such apparatus, and it was resolved on the motion of Mr P. Best, that one of the best apparatuses be procured as soon as convenient, and the Sub-Committee and Dr Talbot be left to order same. On the motion of Mr Pattie, it was resolved to agree to Dr Talbot's proposals regarding the electric and galvanic batteries.

7 July 1898 Otago Witness PROFESSOR G. P. HAUSMANN, CONJURER AND ILLUSIONIST.

(Decorated by Lord Glasgow.) [Specially Written for The Otago Witness. Professor George Percy Hausmann, the well known clever conjurer and illusionist, who has just returned to Australia from an extended Maoriland tour, was born in Christchurch (M.L.) September 27, 1869, and received his education in Wellington. After seeing Heller conjuring and Professor Hazelmere he made conjuring a hobby, and, like Carl Hertz, used to amuse his chums at school, when, playing with a coin one day, His teacher called him before the class and asked him to give up the coin. He held it out to her on his finger tips, but on reaching for it the teacher found the coin had vanished. (Hausmann also vanished!) The following day he was "trying the changes" with an orange, when he was again called out. Hurriedly wrapping the orange in a sheet of paper, he stepped up and gave it to his teacher, who, on unwrapping the paper, to the amusement of the whole class, turned out an apple.

George Hausmann returning from a pleasure trip with his people to America, entered the profession in 1881 as assistant to Professor Anderson (son of the world-famous old master of that name and the

Wizard of the North) on his first Maoriland tour, at the conclusion of which he put in six years at the brewing trade, finishing up by owning the brewery. Selling out, he re-entered the profession at the Theatre Royal, Wellington, with John L. Hall and Co., playing James. in "Hand and Glove." Clousen "Rip Van Winkle." Joe ' Queen's Evidence."

In 1888 Professor Hausmann went to Invercargill and took on roller skating, and being a crack fast skater - he learnt the art in America, the home of roller skating – he succeeded in putting up a record doing the 5 miles in 17min 25 sec for which he was presented with a gold star medal. This secured him a three months engagement as manager of the Palmerston North Skating Rink.

A trip to Sydney followed, via the Bay of Islands, where, with his tricks, he paralysed the Natives who came to the boat's side selling fruit. Purchasing a kit of peaches from an old Maori, he cut one open, when a florin fell from the broken peach. A few more were cut, with the same result. The professor offered to buy the whole of the Maori's fruit, but the wily Native "wasn't having some," and sat down to extract two shilling pieces from his peaches; with the result that he cut up all his fruit, but found, " nary a florin." Rising to his feet, he executed a war dance, exclaiming "Kahawai Pakeha Tipoi!" and fled from the small crowd that had assembled. This led to Professor Hausmann giving an entertainment on the trip across to Sydney.

On arrival Professor Hausmann secured the managership of the Masonic Hall Skating Rink, North Shore, for the best part of six months, during which time he challenged W Griffen, the Australian champion skater, to a match on two wheel skates for tho championship of Maoriland and Australia and a £20 purse. Griffen declined, leaving Hausmann champion in default.

Professor Hausmann returned to Maoriland in 1890, and became lessee of the Masterton Theatre Royal (now a grocery establishment) on August 25, buying out the then lessee, Mr Geo. Coker, an old pro. While at the Royal, he booked all the principal touring companies, combined in the winter with roller skating.

The Town Hall, Gladstone, Wairarapa, was opened in '91 by Professor G. P. Hausmann's Palace of Mysteries. Here again the Maoris gave him a wide berth. Mr Hausmann sold out his interest in the Masterton Theatre Royal to J. Barnard, the then lessee of Greytown Palace Theatre, and at the end of 1891 went on tour with Wizard of the North Anderson. Another trip to Sydney in 1892, and Professor Hausmann returned to Maoriland with the Windsor Tragedy Waxworks Exhibition, which, after travelling the Wellington, Wairarapa, and Hawke's Bay districts with same, he sold out in Woodville to Horace St. George, now in M.L. with his Elite Quartette of Comedians.

McLean's Young Australian Burlesque and Comedy Company was the next show he was associated with, business managing the whole of the Wellington-Hawke's Bay tour. With McLean's Company were Miss Violet Murray ("Bubs"), the strong man of the company, the youngest Mercutio on the colonial stage, which character was, perhaps, her best. She made a splendid "boy," and put her in her own attire and she was lost. Miss Murray a few months back married the clever young actor and journalist, Mr Hal de Caro. Others in McLean's Company were Misses D'Elroy and Lynne (then playing under their right names of Breakwell and Waller), who are now such favourites on the colonial vaudeville stage; Miss Bella Adair, who played Romeo to Miss Breakwell's Juliet; and Arthur B.C.D.Olyn (brother of Neva Carr Glyn and Mrs Walter Baker).

In 1894 Professor Hausmann again took on his own show, opening Carnival Week at Hastings where he sold one of his dates to Tom Pollard for £15. Pollard's Opera Company drew £85! Closing a tour of Hawke's Bay, Professor Hausmann joined the Gourlay- Stokes Company for their North Island tour, opening at Thomas's Hall, Wellington December 26, 1894, for six nights roll call. Amy and William

Gourlay (now in Sydney), who did a good burlesque on music hall artists entitled "Their First Appearance"; Miss H. Randall (now singing at the Wellington, M.L., Wednesday Pops.); Morton Prior (whose right name was Smith); Professor G. P. Hausmann; Axel Newton, pianist and William Stokes, business manager.

During their stay in Wellington, Professor Hausmann, Amy and William Gourlay, and Axel Newton appeared, by invitation, before Lord and Lady Glasgow and Government House society at the vice-regal establishment. One incident during Professor Hausmann's turn caused not a little amusement. A small boy was required to assist in carrying out one of the conjurer's tricks, and one of his Excellency's sons offered. On the professor pointing a revolver at the little fellow, he became frightened, and began to cry. Professor Hausmann managed to quieten the boy, telling him he should not be afraid of firearms, but should love the smell of powder, and one of these days he would become a brave soldier. This pleased the little earl, who cried out; 'Yes, like, papa!' which brought a hearty round of applause.

Before leaving Wellington Lord Glasgow decorated Professor Hausmann with a splendidly-finished bronze medallion inscribed "to Professor G. P. Hausmann, in recognition of his skill as a conjurer, from Lord Glasgow ; December 24, 1898." This was an honour highly valued by Professor Hausmann, to which few conjurers, not only in the colonies, but in the whole world, can lay claim.

In 1895 Mr Hausmann left for Sydney, where he organised the Australian Merrymakers who opened their Maoriland tour at the Criterion Theatre, Wellington, July 13, 1895. Roll call. Valerie Ellesmere, Daisy Montgomerie, May Cullen, Beatrice Moss, Blanche Leslie, Phoebe Levy, Harry M'Candsdale, Chas Horton Bob Bell, Frank Lynch, Jas. A. Walsh, Walter Smith, and Percy Shannon ("the 'throaty tonor") A tour of Wellington, Christchurch, Wairarapa, Hawke's Bay, and Manawatu districts followed. While at Palmerston North Professor Hausmann had a narrow escape of losing his life. Everyone who reads the Witness will remember the burning of the P.N. Theatre Royal, on which occasion Tom Pollard, whose opera company was then running there, had a heavy loss. Professor Hausmann was assisting to save some of the company's wardrobe, and while in one of the dressing rooms a large case fell against the door, thus blocking his escape. As the flames were rapidly approaching the quarter in which he was penned the professor began to look for means of exit. After vainly calling loudly for assistance and exerting all strength to open the door, he attacked a small window, which, after breaking, he managed to get through with a tight squeeze, severely cutting himself with the jagged pieces of the broken pane. He had a narrow escape, for within five minutes the room was enveloped in flame.

In 1896 he imported the first exhibition Rontgen X rays apparatus, which he exhibited before Lord and Lady Glasgow at Government House, Wellington, and after showing same at Palmerston and Wellington Exhibition, toured the colony. Next imported the first cinematograph in M.L and L. J. ("Daddy") Lohr, "the whitest manager I ever met," says the professor, signed him on to exhibit the graphe with Charles Godfrey's Vaudeville Co. "The company," says Professor Hausmann, " was more like a pleasure party than a travelling company of workers. While on the Maoriland tour we lost a most valued member of the troupe— Little Dixie, without doubt the finest orchestral drummer ever seen or heard in the colonies. We buried him at Napier, and I never shall forget Miss Ada Baker's singing of , that beautiful hymn, ' The sweet bye and bye over his grave. There was not a dry eye in the assemblage at the grave. Every member turned out to pay their last respects to our brother pro. Everything possible to assist his recovery was done by Manager Lohr and Mr Charles Godfrey; and poor Mrs Chas. Godfrey (who, God rest her soul! has since passed the way of all flesh) acted more than a mother for poor Dixie during his illness. When," says Professor Hausmann, " I mentioned that every member of Mr Godfrey's company attended the funeral I should have said all except Miss ---, which was noted with disgust by the other members; but that is her trouble — not mine."

While at Palmerston Chas. Godfrey's Company appeared at both theatres the one night, to packed houses. Cabs were used to convey, each member to the second theatre at the conclusion of his turn at No. 1. "Mr Godfrey's company is, I think," says Mr Hausmann, " the first to attempt this and successfully, carry it out in Maoriand." Leaving the Godfrey Company, Professor Hausmann went on an extensive tour of Maoriland with the kinematograph and X rays apparatus. The Vitograph and Biograph were followed by Professor Hausmann's Lumigraph Company, which included Miss Milly Richardson and Mr Albert Timmings, with which he has only recently closed an extensive and successful tour of Maoriland. His latest illusion entitled "Gone," which is a real smart invention of its kind, promises, when completed, to eclipse anything of the sort previously seen in the colonies.

Although he has three times escaped being burnt alive and once nearly had his head taken off in a railway train— he lost half an ear — he is still very much alive, and intends to let the Sydney theatre-goers know the same very shortly. Clever conjurer and a thorough gentleman, may the success which has attended him in the past follow him in the future.— Yours truly, Bis. Poverty Point, June 14.

19 July 1898 Auckland Star, Auckland to loan Haines X-Rays

X-RayApparatus.—Dr. Baldwin wrote stating that he had been requested by the honarary staff to ask the Board to purchase an X-ray apparatus. He pointed out the apparatus for many surgical cases was almost a necessity.—The majority of the members supported the purchase of an apparatus.—Dr. Baldwin said that Dr. Chas. Haines had an up-to-date apparatus for sale which had been brought out from England.—It was agreed to write and ask Dr. Haines for a loan of the apparatus for one month on trial, with a view to purchase.

Note Haines had a year leave of absence approved to travel to England for study of bacteriology at Kings College in 1896 Auckland Star, 7 July 1896, New Zealand Herald, 7 July 1896. He returned on 31 August 1897, but no mention of xrays. New Zealand Herald, 31 August 1897. Auckland Star, 31 August 1897

1 August 1898, Wairarapa Daily Times, Hosking finds needle in wrist

Mr Manginnon, the Assistant Town Clerk, brought a young girl named Kate Robertson to Masterton yesterday, who had, while working at Mr Mellutchon's at Whakataki, run a needle into her wrist while cleaning a table. It appears the needle broke into three pieces and the eye end of it penetrated the girl's wrist. She has been brought to Masterton for Dr. Hosking to locate the piece by examination with the Rontgen rays.

15 August 1898 Otago Daily Times, Kempthorne finds gun pellet in ankle

The first of the monthly meetings ; which the Otago Pharmaceutical Association . propose to hold regularly was held in the association's rooms on Friday evening, some 30 t members being present. Mr T. W. Kempthorne occupied the chair. It is intended that these meetings should instruct as well as promote a social feeling amongst the members, and this object was eminently fulfilled on Friday night, when a lecture on the " Rontgen Rays " was given by Mr R. A. Ewing, who was assisted in the demonstration by Mr R. Henry, electrician. Mr Ewing's remarks were most attentively listened to and, the apparatus working well, photos of the hands and forearms of several of the members were taken, amongst those who were operated upon being Dr M'Kellar, who' was present "as secretary of the Otago Medical Association. It may be stated that the Rontgen rays have already been put to practical use in Dunedin. At the hospital a few days ago a person presented himself for treatment for a mysterious pain in his ankle. The medical staff were unable to locate the cause, but the rays showed plainly a pellet of shot in between two of the ankle bones, the result of an accident many years ago. The pellet, of course, was promptly removed, and the patient cured of his lameness. A hearty vote of thanks was accorded to Messrs Ewing and Henry for the educational treat they had provided.

16 August 1898 New Zealand Herald, Auckland to buy Haines gear

The Board resolved to purchase nr. X rays apparatus from Dr. Haines for £23 15s, on the recommendation of Dr. O. I'. Baldwin, the medical superintendent.

20 October 1898 Evening Star, Ewing demonstrating X-Rays

DUNEDIN PHOTOGRAPH SOCIETY.

The members of the Dunedin Photographic Society spent another enjoyable evening last night, when some capital views were shown. Mr B. A. Ewing occupied the chair, and the first business dealt with was a letter from the secretary of the Otago Sunday School Union asking the to exhibit at their exhibition. It was decided to leave the matter in the hands of the individual members to assist. The secretary announced that Mr Dunsterville, president of the Madras Photographic Society, would shortly arrive in Dunedin. The Secretary was instructed to welcome him to Dunedin on behalf of the society. After the ordinary business was over, Mr R. A. Ewing gave a demonstration of the Rontgen rays, which was keenly watched, two photographs being taken with excellent results. The lantern was next brought into use, and Mr A J. Barth exhibited a splendid series of views of old Dunedin, many of the pictures causing much amusement. This was followed by slides by Messrs Fletcher and Melville. .

20 July 1899 New Zealand Mail Adelaide gets 12 inch coil setup

The Adelaide Hospital authorities have received from the Edison workshops, U.S.A.. a very fine X-ray apparatus. It is said to be the largest in the colony; at any rate, the Ruhmkorff coil throws a spark of upwards of 12in. When used with the X-ray focus-tube the barium platino cyanide screen of the fluoroscope distinctly shows the bones of those portions of the body placed in front of it, objects of metal being opaque to the rays, which, however, pass readily through the clothing, books, wood, and such materials. For varying the strength of the current an Edison sliding rheostat is provided. Twenty Edison-Lalande cells, having a capacity of 300 amperehours, generate the electricity.

31 December 1898 Hawera & Normanby Star details of hair removing technique factors

A New Delipatory: the Rontgen Rays Drs Schiff and Freund, have found by experiment that short and frequent exposures to a X-ray influence will remove hair from the human skin. The use of a current not exceeding 2 amperes at not more than 11 volts is necessary in order to avoid inflaming the flesh. The vacuum tube should be kept from 20 to 25 centimetres from the place operated on, and each operation should last about ten minutes. From seventeen to thirty operations usually suffice.

9 January 1899 Lyttelton Times, Mr Leslie Timaru

Mr Leslie, of the Timaru Telegraph Office, who possesses a good Rontgen ray apparatus, last week took an excellent radiograph of the hand of a young man, showing a piece of glass embedded among the bones. A considerable time ago a bottle burst in the young man's hand and cut the palm severely, but no glass could be found in the wound, which healed up properly. Subsequently the back of the hand became inflamed, and the Rontgen ray has indicated the reason for this.

7 March 1899. Hawera & Normanby Star, Mackie in Auckland

Kinematograph and X Rays.

The comparatively new, but marvellous scientific discovery, that of Rontgen rays, is not unfamiliar to most people in a general way, but this evening the Hawera public will be enabled for the first time to survey the invention and its wonderful working at close quarters by a recognised exponent of radiography, Mr Chas. E. Mackie. In addition to this, Edison's 1898 model kinematograph will depict a number of scenes from the recent Spanish-American War, as well as a long list of diversified subjects. A third attraction is a micro phonograph; and amongst the selections to be given is the now celebrated "Baniago March." The box plan is now open at Mr D. N. Scott's. In addition to the above, the management have enlisted the assistance of the Misses Espagne and Mr D. W. Fraser, who will contribute to the evening's entertainment.

8 March 1899 Hawera & Normanby Star, Mackie in Auckland

Kinematograph and X Rays. This was a good evening's entertainment, diversified enough to please all. The programme opened with a song by Mr Fraser "Queen of the Earth," in which full justice was 'done to the song. Then followed a long succession of kinematograph pictures, interspersed with phonograph records. The pictures included almost everyclass, those in connection with the Spanish-American War being especially good. Some of them had to be repeated in deference to the wish of the audience. The records were also first class. During the evening Mr Fraser recited "Bairnies, Cuddle Doon," which was highly appreciated. The entertainment concluded with an exhibition of the power of the Rontgen Rays, which were manipulated by Mr C. E. Mackie. The rays were thrown upon a screen alter having been intercepted by a whisky case, several thicknesses of cardboard, and a human hand on the top of that. A number of people put their hand in front of the apparatus, and in each case the bones were clearly shadowed on the screen. The workings of this marvellous invention are no doubt wonderful— indeed they almost border on the uncanny. Everyone at all interested in the progress of "science and scientific inventions should not miss the opportunity of attending to-night when something even more wonderful in the way of penetration is promised by Mr Mackie. Taken all through the entertainment and instructions provided were worth going a long way to see and hear.

12 April 1899 Evening Post Mackie in Auckland

Many hundreds of persons have within the last few days enjoyed the peculiar experience of literally-"seeing their own bones," or, rather, the reflection thereof, i by means of the Rontgen rays apparatus J that is being shown by Mr. Budd in j Montague's buildings, Manners - street. The operator (Mr. C. E. Mackie) has a fluorescent screen fixed in a frame, and on interposing his hand, or arm, between this screen and the greenish rays emitted from the Crookes tube, the visitor finds the bones, with any defects or deformities, shown clearly through the woodwork. The entertainment also includes a number of micro-phonograph musical selections, and an exhibition of a series of kinematograph views. The most interesting of these present scenes on the deck of an American warship, in the action off Manila, with the guns in operation and shells bursting on board, as well as some exciting incidents in a Manila house during an engagement.

18 April 1899 Evening Post Turnbull Wellington Technical School

The opening of the new wing of the Wellington Technical School and Industrial Hall on 26th April should prove a most attractive and enjoyable function. The programme drawn? up by the subcommittee shows that from 7.30 to 8.30 on the evening in question will be spent in the inspection of rooms, classes, and exhibits. On the ground floor the woodcarving and clay-modelling classes w.u» be seen at work, and Mr. R. T. Turnbull will supervise an exhibition of the Rontgen rays

8 MAY 1899 The Oamaru Mail de Lautour room description

Last week we paid a visit to Dr de Lautour's laboratory in Dunedin, and were deeply interested in what he had to show us. The rooms are as admirably adapted to the purpose for which the doctor is using them as if they had been constructed to order. They are light, spacious, cool, and airy, with scarcely even a trace of the peculiar "doctory" smell which usually clings to such places. Of course, it goes without saying that there are marvels everywhere. The doctor, who specially studied bacteriology during his recent visit to Europe, in order that he might bring himself abreast with the new pathology, takes up a glass tube, whose mouth is stopped with cotton wool, and, with all his old enthusiasm, he tells us that he has therein a colony of microbes, so infinitely minute that many millions of them would go on the point of a needle. He is cultivating these marvels of latter-day science in a gelatinous Japanese seaweed, somewhat similar to that which we have seen thrown up on our beach after severe easterly weather; but he tells us also of "broth" for microbe cultivation purposes, and, for once, we find that the word has not at all an appetising sound. We are in the vicinity of a number of the most deadly maladies that afflict poor humanity—only a thin piece of glass between us and them; but the doctor's cool courage in the handling of the tubes is so reassuring that we begin to feel quite at home so long as our novel and vicious "mity" associates are securely chained and within bolted doors, which he assures us they are. One sad reminder of a recent fatality we had, when the doctor took up a tube and told us that it contained the virus of diphtheria taken from a young person who had just died, and which had been sent to him for accurate scientific identification whilst the patient yet lived. There was within those flimsy walls of glass enough awful poison to envenom and throw the whole community into mourning. Bidding our adieux to these insidious enemies of mankind, we were ushered into another compartment, where was installed the wondrous Rontgen rays apparatus. Everybody has heard of its penetration, but one really has not the smallest idea how remarkable it is until one has seen it and its results. Our perception was enhanced beyond conception through the instrumentality of the unassuming, weird, pale green light. We saw further than we ever saw before through an inch board into the frame work of the doctor's hand, and into the dark recesses of his leathern pouch, where two modest coins reposed. Then we were regaled with pictures taken by means of these X rays, exposing the true nature of fractures in arms and legs, and so forth, and then we became fully conscious of the inestimable and priceless value of the discovery. But this feeling was accentuated when we were shown an X rays photograph of the upper part of the poor little boy who, in Dunedin, only a few days ago, in an unlucky moment, sucked the leaden part of his trumpet into his trachea. Medical skill having failed to extract the distressing interloper. Doctor de Lautour was asked to locate it by means of the rays, and there it was only too plainly, on the photograph, lodged, if we remember rightly, on the left side, and there, up to the present time, it remains, despite all expert efforts to get it out. The depression caused by being brought face to face with sad episodes was relieved by the reflection that we had now, within reach, the most modern scientific and accurate means of detecting the true nature of disease and accident, so that sufferers may be afforded a better chance of relief.

27 July 1899 Lyttelton Times, X Ray equipment received by HOSPITAL BOARD.

A meeting of the North Canterbury Hospital Board was held yesterday afternoon ; present—Messrs J. M. Douglass (chairman), W. Dunlop, J. G. Murray, C. M. Gray, G. H. M'Haffie, G. Payling, E. Feldwick, W. Jacques, J. Dobson, G. Wallace and J. Wolfe.

It was reported that the receipts since last meeting had been £1437 9s 2d, including £589 13s 4d from the Selwyn County Council, and the expenditure £1347 1s, including £B6 14s 8d for Rontgen Ray apparatus; £137 for boiler-house contract, £120 for Marks' Ward plastering, . and £300 to Hement Bros.

The accounts as recommended were passed for payment. A letter from Dr. T. L. Crooke, thanking the Board for his appointment as House Surgeon was received. ; . Applications' for 1 the position of assistant house surgeon were received from Dr W. E. Williams, a graduate' of Melbourne University, . and Dr M. Campbell, a graduate of New Zealand. University./ Dr Campbell was appointed to the position.

A letter from the Canterbury Trades and Labour Council, with reference to the wages of porters in the institution, was ordered to be laid on the table. . The Board decided not to consider the application of J. Whitelaw, porter., for an increase in wages. The House Committee reported that it had reconsidered the question, of porters' remuneration, and recommended! ,the appointment of George Jones at £39 per annum, with. board and residence, and that Porter Brown should be placed on the same footing. The contractor for the electric light installations had applied for a further extension of time for about .four weeks, which the committee had sanctioned, subject to the Board's approval. The machine was in position, and most of the wiring laid. Steam would be connected with the engine in about,two weeks, the electrical engineer having commenced duties. A progress payment had been applied for, and the committee recommended a further amount of £300. The X-ray apparatus had been received, and would shortly be adjusted. The plastering of the Marks Ward was progressing. The report was adopted, with the exception of the first clause, which was referred back to the House Committee to bring up a report on the number of the Board's employees and their hours, duties and wages. The House Surgeon reported that during the month of June 108 patients had been,admitted, 107 had been discharged, and 8 had died, leaving 80 remaining in the hospital on June 30. The causes of death were pyopneumo thorax, phthisis (4), fractured skull, typhoid, and diphtheria. Fifty operations had been performed under anaesthetics, and 791 cases had been treated in the out-patient department. The report was adopted. The Matron reported that Nurse Sealy had resigned, having received an appointment in Napier. Nurse Stening was recommended' for promotion to the £25 grade. Probationer Urquhart was recommended' to the nursing staff. The report was adopted, and-the meeting-closed.

26 September 1899, Auckland Star, Mackie takes a movie 75 feet length

We were to-day shown the result of the animated photograph of the Auckland-Wairoa football match. The Hinemoa Syndicate, of Auckland, had their animated camera in operation during this

match. The teams as they enter the field of play are distinctly recognisable, and their actions are perfect. The spectators too in the pavilion can be plainly distinguished. The attempts made to kick the goals are depicted, the flight of the ball as it soars upwards and finally drops to the ground being intensely realistic. The action, of Constable Mackle chasing the ubiquitous gamins is also very amusing. To Mr C- E. Mackie (operator to the Syndicate) belongs the credit of successfully performing the various manipulations, from the taking of the picture, the developing of the negative, which is 75ft in length, the printing of the positive, and the subsequent developing of the latter. We understand the film is to be exhibited shortly in Auckland and surrounding districts, including Northern Wairoa.

20 June 1900, The Press, Poem peppermint cure

The unassuming Rontgen Ray
Appears to burn the flesh away
And leave the white and ghastly bones,
The cause for shudders, sighs, and groans;
So like a man who is ill and cold,
Who thinks he's dead until he's told
The way to health in manner sure
By taking Woods' Great Peppermint Cure.

17 August 1899, Otago Witness, Wehnelt's electrolytic interrupter exposure times

The influence of Dr. Wehnelt's electrolytic interrupter upon the history of the X-rays is likely to be considerable, for it may mean, in time, an entire change in the construction of the coils and tubes now used in the Eontgen system of photography. Like most valuable discoveries, the Wehnelt interrupter is a singularly simple apparatus, through which the X-ray tubes are worked as steadily as an incandescent light, whilst the efficiency of the coils is largely increased and the time of exposure necessary for the taking of a radiograph considerably reduced. Thus, a negative of the hand taken with the old contact-breaker requires from 40 to 60 seconds' exposure, whilst with the electrolytic interrupter from five to nine seconds is a sufficient time to attain as good results. In taking a radiograph of the chest with the contact breaker, five to fifteen minutes have been necessary ; the electrolytic interrupter makes the same operation possible in one or two minutes. The value of this greater expedition to the surgical radiographer cannot be too highly rated, and better results still may be looked for when the improvements in the tubes and coils that the use of this interrupter admits of have been made. — St. Paul's.

8 February 1900 Otago Witness, Hausmann train fire

Mr (G. P. Hausmann) Verto, a conjurer well known in Moaland (he received a gold medallion from Lord Glasgow for a Government House performance), had rather a thrilling experience t'other side recently. When the Broken Hill express was about two miles from Mannahill, at about 12.40 a.m., a fire broke out in the smoking car which was occupied by seven or eight men, and a lady with a child. The first alarm was given by a sleeping passenger, who suddenly found that his hand was being scorched. In a moment the greatest confusion prevailed in the car, and the alarm was immediately communicated to the car behind, in which there were 14 ladies and four or five men. Efforts were

made to secure the water bag at the rear of the car, but that was found impossible, as no one possessed a knife. Pannikins of water from the bag were thrown on the fire, which was gradually extending along the floor of the car. Mr Percy Verto, of the Verto Vaudeville Company, and his troupe were passengers by the tram, and Mr Verto climbed, at great risk, along the outside of the cars to give the alarm to the guard, who was altogether ignorant of the affair. Mr Verto had to travel along seven cars, and the risk which he ran may be imagined when it is understood that on the outside of the sleeping car there were no handrails, and that he was compelled to hang on by the mouldings. He succeeded in reaching the guard, whom he found on the alert, and the brakes, were immediately applied and the train brought to a standstill. The guard and Mr Verto then, returned to the car and assisted to put the fire out. Although a hole a few feet square only had been burnt in the car, the appearance of the fire was alarming, and it is doubtful what the result would have been if Mr Verto had not given the warning to the guard. The ladies in the car behind were terrified, and attempts were made by some of them to throw themselves out of the train. The men had to throw themselves in the doorways and use force to drive the frantic women back. During the confusion three or four of the ladies fainted. The particulars of the incident were explained to the General Traffic Superintendent at Adelaide, who greatly praised Mr Verto for his coolness.

11 July 1900 Timaru Herald, Leslie and Timaru hospital

At the Hospital Board's meeting yesterday the chairman stated that Mr Leslie of the Post and Telegraph Office, an enthusiastic electrician, and possessor of a Rontgen Ray apparatus, offered to lend it to the Hospital, gratis, if the Board would provide a source of electricity for it, and appoint him honorary electrician to the Hospital. The galvanic battery or storage battery required would cost about £15. This was so much required for other purposes that Dr Gabites had ordered a battery on his own account; but as the Board wished the Hospital to be up-to-date they would no doubt sanction the expenditure. It was resolved to thank Mr Leslie for and accept his offer to lend his X-ray apparatus to the Hospital, to procure the necessary storage battery, and to appoint Mr Leslie honorary electrician to the Hospital

20 December 1900 Press Turnbull & Jones in Christchurch

CANTERBURY JUBILEE CELEBEATION The Rontgen Rays and numerous other interesting and scientific apparatus will be exhibited by Messrs Turnbull and Jones.

29 May 1905 Evening Star Wright The X Ray Burn

THAMES, May 29. What is probably the first affair of the kind in the colony has occurred in connection with the working of the X-rays to Mr Wright, instructor on electricity at the Thames School of Mines. As the result of an operation he sustained an injury to the hand in the shape of an electrical burn. This occurred some months ago. Medical advice was then sought, but was unable to effect a cure. The injury was puzzling, owing to the doctors having no previous experience. It appears as though the, rays have destroyed the blood tissues of the hand. The bones are not so far affected. Under treatment they grow stronger, but are unable to maintain their strength and break down. The injury appears as formidable and painful as ever. A recommendation has been made to the Minister of Mines, as the result of which Mr Wright will probably be allowed six months leave of absence on full pay, and will proceed Home to seek expert advice, as there is a danger of the bones becoming affected, and he may lose his hand or arm, as occurred in similar cases reported from Edison's laboratory.

27 June 1905 Southland Times, Wright The X Ray Burn

Per United Press Association. THAMES, June-26. Regarding the case of E. G. Wright, electrical instructor at the Thames School of Mines, who received injuries to his hand while carrying out experiments with X rays, amputation was considered necessary, and the hand has been removed at the wrist. Medical advice was that, without amputation, Mr Wright would, be unable to make the voyage Home. Tho pain was increasing, and temporary improvement was followed by re-appearance of the worst symptoms, the absence of sleep making such ravages on Mr Wright's constitution' that he was anxious for amputation. He is now much easier. The case is attracting considerable attention from members of the medical profession.

5 July 1905 Otago Witness, Wright

EFFECTS OF X BAYS. THAMES, June 26.

Regarding the ease of Mr E. G. Wright, electrical instructor at the Thames School of Mines, who received injuries to his hand while carrying out experiments with the X-rays, amputation was considered to be necessary. The left hand was consequently removed at the wrist. Medical advice, after careful examination of the affected portion, was that without amputation Wright would be physically unable to make the voyage Home, for which the Mines Department had granted him six months leave of absence on full pay. The pain was increasing, a temporary improvement being followed by reappearance of the worst symptoms, and the absence of sleep making such ravages on Mr Wright's constitution that he was anxious for amputation. The patient is now much easier, and will possibly soon be able to proceed to England and place himself under the care of English medicos skilled in the treatment of electrical injuries. Such cases as this are extremely rare. A similar case was reported from Edison's laboratory some time back, followed by a result which it is believed may be checked in this instance. The case is attracting considerable attention by members of the medical profession.

26 June 1905 Hawera & Normanby Star, Mr Wright's Hand Amputated

DANGERS OF X-RAYS- MR WRIGHT'S HAND AMPUTATED.-

Regarding the case of Mr E. G. Wright, electrical instructor at the Thames School of Mines, who received injuries to his hand while carrying out experiments with the X-rays, amputation was considered necessary and the left hand was removed at the wrist. Mr Wright is going Home for further medical treatment, but would have been physically unable to make the voyage without amputation, owing to the pain making such ravages into his constitution. The case is attracting considerable attention amongst the medical profession.

10 October 1905 Gisborne Times, RONTGEN RAYS. LETTER FROM MR WRIGHT,

Thames, last night. News has been received from Mr Wright, electrical instructor at the Thames School of Mines, who received injuries while conducting X-Rays experiments, and the amputation of one of his hands followed. He is making a satisfactory recovery. He left for England to consult specialists, and showed great improvement during the voyage. It is not believed the injury will affect the arm or body, as was at first feared.

6 January 1906 Auckland Star WAIHI HOSPITAL.

Mr E. G. Wright, electrical lecturer to the Thames and Waihi Schools of Mines, who is in London, wrote offering to purchase on most advantageous terms apparatus in connection with the installation of X-rays. Consideration of the matter was deferred.

6 January 1906, Waihi Daily Telegraph, Wright helps purchase X-Rays

Waihi Hospital Trustees Monthly Meeting

Mr E. G. Wright, lecturer on electricity to the Thames and Waihi Schools of Mines who is at present in London on a six months leave of absence, wrote giving particulars of an apparatus for use with X-Rays outfit stating that if given authority to place an order, he could, owing to his being in touch with firms in England, purchase the necessary outfit on most advantageous terms. It was resolved that the letter be received, and that the matter be referred to the medical committees, they to report at next meeting, Also, that Mr Wright be thanked for his letter, and informed that the matter was under consideration.

19 April 1906 Waikato Times, Wright's Death

Information has been received from London of the death of Mr E. G. Wright, late electric instructor at the Waihi and Thames Schools of Mining, on the 4th March, after an operation from appendicitis. Mr Wright, whilst experimenting with X-rays at Thames, received injuries resulting in the loss of an arm after going home for medical treatment.

17 April 1906 New Zealand Herald, DEATH OF Mr E. G. WRIGHT.

Whiting on March 17. our London correspondent says:—"It is with regret that I. have this week to record the death, which occurred in London, of Mr. E. G. Wright, who for several years past had been instructor of electricity at the Thames School of Mine-, Auckland, New Zealand. It will be recollected that Mr. Wright was granted leave of absence last year on account of his health, he having met with a painful accident, which involved the loss of his left hand. On his arrival in London he told me that he felt he had derived much benefit from the voyage, and that he intended to go in for a course of study in his special branch of science so as to be quite up to date when he should resume his work in the colony. He stayed with friends in London, and up till a few weeks ago he was able to carry out his plans, he having devoted himself to hard study in all subjects of electricity and its latest improvements and developments. On application to the colony an extension of leave was granted him, but he had made all arrangements for sailing from London some time next month. Recently, however, Mr. Wright had been feeling somewhat out of sorts, but he did not regard his ailment as being anything of a serious nature. Finally, medical examination discovered him to be suffering from appendicitis in an acute form, and an immediate operation was considered to be necessary. With all

possible speed the sufferer was taken to the Middlesex Hospital, where the operation was performed, but other serious internal trouble was found to exist, and his case was from the outset regarded as hopeless. The surgeon of the Middlesex Hospital, Mr. Viand Sutton, did all in his power for his patient, who, however, passed away quite peacefully on the fourth day after the operation had been performed. His friends were present with him at the last. At the request of his mother, who resides at Crewo, Mr. Wright's remains were conveyed thither, and laid to rest beside those of his father. He was only 27 years of age.

2 May 1906 colonist, Wright Death

The death is recorded in London of Mr E. G. Wright, who for several years past has been instructor of electricity at the Thames School of Mines, Auckland. Deceased, who was only 27 years of age, lost his left hand owing to a mysterious influence upon the flesh by the X-rays. His death however, was due to appendicitis.

5 May 1906 Waihi Daily Telegraph, Waihi Hospital Trustees

THE LATE E. G, WRIGHT. A letter announcing the death of Mr. E. G, Wright, received from Jane Wood, was received. The deceased had always taken a deep interest in the affairs of the hospital, especially in regard to the introduction of the X rays, It was resolved that a letter of condolence be sent to his people,

10 October 1908 Wairarapa Daily Times, Hoskings tube lost at sea

Among the cargo on the steamer Aeon, which recently wrecked on Christmas Island, was a lamp valued at about £10 for an X-rays apparatus, consigned to the W.F.C.A. , Masterton, for Dr W. H. Hosking. This, of course, has been lost, as the vessel has now been abandoned to the underwriters. A new order has been cabled Home

14 August 1909 New Zealand Herald, Mr Wright X-Ray martyr

RONTGEN RAYS. BY HENRY DODSON. It is not generally known that New Zealand has had its X-ray martyr. Some four years ago, Mr. Wright, then electrical instructor at the Thames School of Mines, while experimenting with the X-ray apparatus, contracted rodent ulcer of the hand, which was subsequently amputated at the wrist. The malignant nature of the awful malady had, however, ceased to be local, and its far-reaching effects had so broken down the general health of the victim that some little time afterwards the poor fellow died. A strikingly interesting picture of the lamentably sad nature of the mishap is the fact that a gold ring which he was wearing at the time the mishap must have been done, so shielded the part over which it was being worn, that to the last a band of healthy flesh remained upon that finger. Now, looked at in the light of the suffering it is causing to those who have dared to sort out for the benefit of mankind one of Nature's most potent secrets, for good or ill, it is the easiest thing in the world to say: leave the thing alone! But suppose every other scientific force in medicine, surgery, chemistry, engineering, and electricity, had been, left alone because, for instance, in surgery a patient would be likely to die from loss of blood, instead of allowing the scientific surgeon to discover methods of handling with perfect safety the severed

arteries, and thus make possible the surgical operations that have saved human lives by the hundred thousand. Who can measure the beneficent, magnitude of Lister's discovery of antiseptic surgery, whereby surgeon and patient alike were saved from the frightful risk of blood poisoning?

In the safe handling of Nature's sternest and most relentless forces, scientific chemistry can easily take a place in the front rank of the legion of fearless research scientists, who are constantly making possible that triumph of mind over matter, by which progressive man may be enabled to get the best out of the brief duration of his stay upon our planet, as well as to leave the world better, and existence more tolerable, for the succeeding generations of men who follow. Without scientific chemistry the world would still be without those powerful explosives whereby mining, and all the rest of the huge schemes of the civil engineer have been made possible. Yet, because in taking it« mighty wrench at a million years of Nature's handiwork, a blast of gelignite would be likely to blow into eternity the man firing it, should mining men leave it alone or find out the safest method of handling it How much would the civilised world have had to-day of the countless benefits and comforts of modern railway travelling had heed been taken of those who raised the objection to this new system of locomotion, as being unsafe, because cows were likely to stray upon the railway lines And last, but by no means least, electricity, that mysterious form of "matter in motion," or whatever you choose to call it, which is ultimately destined to be the greatest servant of industrial man the scientific mind has yet made obedient to the human will, already has its toll of martyrs of the most self-effacing type. Truly can it be said, with more than ordinary justification, that the whole sum total of human progress is a measure of its martyred heroes.

With regard to electricity, in every branch of the science, the research man is overwhelmingly handicapped by complete lack of knowledge of the true nature of the thing. Absolutely nothing is known excepting the visible nature of the phenomena at work, so that when one stops to contemplate the immense progress that has been made, it is simply marvellous that so much should have been done with it.

Let us see how much is known, as well as how much has been accomplished —as far as can be outlined in an essentially brief review— that branch of high tension. electricity known as " Rontgen Rays."

Sir William Crookes was, I believe, the first to recognise the existence of radiations somewhat similar to those conceived by Newton with regard to light. So that the true significance of this extraordinary discovery may be comprehended in all its far-reaching immensity, it will be necessary to describe what is called a vacuum tube. Since a current of electricity can be compelled to bridge a gap between two conductors, at ordinary atmospheric pressure, it must be explained that for an extremely short gap under such conditions, a tremendously high voltage or potential difference is necessary. If, however, the peculiar apparatus taking the shape of a glass tube, into the ends of which platinum wires are sealed, and the air then exhausted by some form of air pump, the same voltage be again applied, it will be found that the spark will span a longer gap. If the tube at work be observed in a dark room, it will be noticed that a bright glow suffuses the end called the kathode; then a space, followed by one more dark space, then the remaining part of the distance between the second dark space, and what is called the anode at the other end of the gap is filled in by a luminous column somewhat similar to the phosphorescent appearance of fish when seen in salt' water by night. It was whilst watching the varying results obtained by pushing the vacuum as high as possible in the tube, that Sir William discovered "kathode rays." Other investigators before him had suspected this, but it was left to the genius of Crookes to unlock the secret, and to tell us that they were : —" Streams of negatively electrified particles projected normally from the kathode with great velocity." Those invisible rays we know by the name of Rontgen were discovered by the professor in a curiously accidental manner. Some photographic plates, well protected, were lying in the neighbourhood of

one of these highly exhausted vacuum tubes, and upon examining them he found that they had all the appearance of having been acted upon by light. This striking circumstance put him upon the trail of his wonderful discovery. Using a screen covered with some phosphorescent substance, he noted that it began to glow with extraordinary brilliance under the influence of something that came from the tube. Another fact he did not lose sight of was that certain substances obstructed the passage of this something through them, while others offered no resistance. Wood, aluminium, leather, and other substances which are opaque to ordinary light, are traversed with considerable facility, and that the greater the density of the body the greater its opacity to the rays. For instance, the flesh offered little or no resistance, while the bones of a human body would prevent the passage of the rays. In this way, if the hand were held between the tube and the screen, the bones became distinctly visible as a shadow "upon the latter.

Here was a far-reaching discovery of immense importance to the physician and the surgeon, but since Rontgen rays vary in kind, some may be curative whilst others may have a seriously opposite effect. Professor Thomsen tells us :—" With a highly exhausted tube and a large induction coil, it is possible to get appreciable effects from rays which have passed through sheets of iron or brass several millimetres thick. The penetrating power of the rays thus varies with the pressure in the tube; as the pressure in the tube gradually diminishes when the discharge is kept running through the tube, the type of discharge proceeding from the tube is continually changing. Not only do the different bulbs emit different kinds of rays, but the same bulb may emit, at the same time, rays of different kinds. The property by which it is most convenient to identify a ray is the absorption it suffers when it passes through a certain thickness of aluminium and tinfoil." It is here where the rays that are curative or destructive is decided, so that it is advisable for physicians and operators of the apparatus to supply themselves with some form of "radiometer," such as Benoist's, for testing the penetration of the tube.

In cases of fracture X-ray apparatus is invaluable to the surgeon, not only before bandages and splints are in position, but afterwards, in order that he may feel doubly sure that the fragments of a bad fracture are perfectly replaced. Dislocations may be seen, as also may the location of a needle or a bullet be made possible in the human body. It is also claimed that the commencing symptoms of tuberculosis of the lungs can be noted by the increased opacity which the malady causes to the rays. Different kinds of stone inside the body can also be detected by the aid of the discovery of Rontgen. It is also said that deeply seated cases of lupus have yielded to Rontgen treatment, where the "Finsen" method has failed. It is curious to note that a certain kind of cancer, known as rodent ulcer, and the kind that is said to be produced by X-rays, yields to the application of the rays, so that it would appear reasonable to suppose that X-ray cancer is caused by exposure to the kind of ray that is doubtful, but whether it be the ray of "hard" or what, is known to operators is the ray that is "soft," is yet a problem for the band of fearless investigators who are at work with the query.

29 February 1928 New Zealand Herald, RISE OF THE CINEMA.

EARLY DAYS IN DOMINION. PIONEERS AND THEIR SHOWS. DIFFICULTY AND MAKESHIFT. ____
 LIME LIGHT AS ILLUMINANT. Another chapter in the history of early cinema ventures in New Zealand is written by Mr. C. E. Mackie, one of the pioneers of the industry, in a letter to the Herald. I have very naturally been interested in this subject, writes Mr. Mackie, and would have replied earlier to "J.F.M.V query but for the reason that I wished to confirm my statements, and have to this end been perusing files of the Herald in the Public Library. I am grateful to 'J.A.M.'" for expressing the opinion that I am a pioneer, and also for giving me certain data, of which I had some doubt. y&ur

correspondent " W.E.C." is sadly behind the times in his reports of the first screening. " J.A.M." seems to have been possessed of definite information, as his mention of dates proves. The claim that McMahon Bros, were the pioneers must be disputed, however, as weeks before McMahon's had arrived in New Zealand (in September, 1896), I exhibited the kinematograph in a shop opposite Tonson Garlick's, vacated by T. Prosser, bootmaker. In that exhibition, six pictures of 50ft. length were shown, the illuminant being limelight. First Show in Auckland. The first living pictures shown in a public place, at least as far as Auckland is concerned, was at Abbott's Opera House. Mr. John F. Lohr, well remembered by old-time theatre patrons, had brought the Godfrey Vaudeville Company to New Zealand, and on his way North (at Wellington, as a matter of fact), he entered into a contract with a Mr. Gow, of Wellington, and a Mr. Hausman, of Palmerston North, to show living pictures at Auckland, and a return visit was made South. The machine was imported by a Wellington firm, and neither of the partners had been to America for the outfit. A remarkable incident happened in connection with this show, and the telling of it will be appreciated by all showmen. In those days electric light was a luxury, and limelight was extensively used. Hausman and Gow rented my apparatus which was installed in the Opera House. Arriving on a Saturday morning, it gave them ample time to prepare for the show on Monday evening. A Remarkable Incident. A rehearsal was held, but, to the consternation of all concerned, the picture could not be made to fit the screen. The partners, who were both novices, and without any understanding of the correct distance a screen had to be from a machine with a given focal length of lens, set up the kinematograph in front of the dress circle of Abbott's Opera House, and the screen where it would go on the stage. The result was that the picture was projected over the entire proscenium. On Monday morning upon my entry to the Opera House, I was sent for by Mr. Lohr, who had the two partners with him, when the position was explained to me. Realising at once what the trouble was, and after taking the necessary measurements, I set out on a search for a suitable lens, and one which required some alteration was discovered in a pawnbroker's shop. When I had fitted and satisfactorily demonstrated this, the joy of the management was unbounded. I might mention that the lens sent with the machine was for very close projection. "J.A.M." mentions that the new " turn " was a great success. McMahon Bros, followed some weeks after, showing in the old City Hall. Use of Electric Light. " J.A.M." has omitted to mention a Christchurch syndicate's enterprise in sending for a very fine set of the pictures taken of the late Queen Victoria's Diamond Jubilee. These were exhibited throughout New Zealand. Mr. H. Rayward, of Baldwin and Rayward, wellknown patentee agents, was at the head of the syndicate. The first use of electric light for the projection in any theatre in New Zealand was on the occasion of screening of pictures by A. H. Whitehouse, in Abbott's Opera House. Their plant was a portable one and specially imported for the machine. I was the operator. Later at the Agricultural Show held at Potter's Paddock (now Alexandra Park), a large tent lined with a black material was used for giving exhibitions, each lasting about 15 minutes.

3 March 1928 Greymouth Evening Star, RISE OF THE CINEMA

— HISTORY IN NEW ZEALAND.

The question recently raised by a correspondent in the New Zealand Herald, as to the introduction of motion pictures into New Zealand has caused a great deal of interest. As one associated with the cinema

almost since its first introduction into New Zealand, writes "J.A.M.," may I be permitted to correct "W.E.C." in one or two particulars. The year of introduction to New Zealand was 1896, and the first machine was used in what is now a chemist's shop in Wain's Hotel Buildings in Dunedin. Messrs Charles and James Macmahon were the pioneers, and the date was toward the end of September, 1896. In October, 1896, the Charles Godfrey company was playing at the Opera House, Auckland, and

toward the end of the season (on the 13th), the “Kinematograph” was on the bill for the first time. This particular machine was an Edison, and was in the hands of Professors Hausmann and Gow, who had just arrived from America. Some 15 subjects were screened, and the new “turn” was a big success. The next exhibition of moving pictures in Auckland was under the direction of Mr J. F. Macmahon, at the City Hall, the season opening on January 27, 1897. The “Herald” of the time, in the review of the show, said, *inter alia*: “Next followed the execution of ‘Mary, Queen of Scots, whose head was seen to fall at the stroke of the axe.” There were no censors then, and what few Scotsmen there were in these parts were apparently too busy pioneering to worry about their feelings being hurt. Just about this time Mr C. E. Mackie (still resident here, I believe), opened with a kinematograph and Rontgen Rays show in a shop in Queen Street, giving exhibitions four times daily. Mr Mackie may really claim to be a pioneer, and he has been in the business almost continuously since. In February, of 1897, Edwin Geach brought over the Carl Hertz show, which included Chirgwin. The kinematograph was a big feature with this company, and the season in the Opera House was a long and successful one. Mr Geach was also manager of the Charles Godfrey Company, and is still a prominent figure in the moving picture world. A newspaper excerpt of the day states that there were “so many encores that with the use of the gas the lens became heated and cracked. It very frequently happened with the earlier shows that applause was so insistent that the operator would say: “Ladies and gentlemen, that picture will be repeated”—a procedure impossible in these days of modern and up-to-date mechanism. Some operators would frequently put a picture through backwards—a horse race for instance—and loud and long were the laughs. In March of the same year Mr. Mackie’s outfit was transferred to the City Hall, where it was a feature under the management of the late P. R. Dix. Of the various touring shows I have many recollections, some pleasant, some otherwise. Regarding the films of Queen Victoria’s funeral, as the good lady did not pass away till some time later it was obviously impossible for the pictures to be shown by Drayton in 1899. Reference to this brings to mind a gay adventurer who made quite a lot of money just after King Edward died. First in the field, he advertised films of the King’s funeral, and did well until some sharp-eyed youth discovered that a well-known figure in the procession was King Edward himself—attending the funeral of his mother. It was not until the advent, about 1905, of the late Mr T. J. West and Mr Henry Hayward that “pictures” rightly assumed their proper place as the people’s entertainment. There was quite a boom for a year or two, then a slump, but about 1912 picture palaces began to spring up all over the Dominion, most of them sponsored either by Mr Hayward or the Fullers.

The amalgamation of these firms in 1913 did much to place moving pictures on the high pedestal they occupy today, and it is to the firms mentioned that great credit is due. The history of the pictures is one long romance. Space will not permit the narration of one quarter of the ups and downs of the pioneers. They did well under exceedingly difficult conditions. There were no elaborate fool-proof mechanisms, no ornate theatres, and no super productions to assist in drawing big crowds. Yet, in spite of all they provided what were then considered good entertainments. Most of the films were English, and of the classification now known as topical or scenic. Stories were unknown, and there were no actors.

15 January 1966 Press Milner and Thompson music shop history

Trade Token Belonged To Early Music Shop

A trade token issued by an early Christchurch music shop was found recently in a collection of coins owned by Mr F. J. West, of Rees street. The token was issued in 1881 by Milner and Thompson’s

Canterbury Music Depot, which began in Market place, now Victoria square, in 1863. Later the shop was in High street.

The token is the same size and colour as a penny and is in good condition. On the obverse side is the bust of a Maori chief and the words "Advance New Zealand." On the reverse are musical instruments with a cherub above and the words "Milner and Thompson's Canterbury Music Depot and Pianoforte Warehouse."

"They Made Their Own Money." a history of early Canterbury traders and their tokens published by the Canterbury branch of the Royal Numismatic Society of New Zealand, says that Mr R. Thompson bought the business in 1874 and was in partnership with Mr J. J. Milner until 1895. Mr Thompson was sole proprietor until 1907 and his sons continued the business until 1920, when it was sold to Charles Begg and Company.

The firm was well known for its "Phantom" piano—an upright piano which could be viewed from the street, but had its controls carried down to the basement. Above, the piano notes appeared to be playing by themselves. Police were needed to clear the pavement of mystified crowds. In 1900 Mr Thompson painted an advertisement for pianos on Shag Rock. Although the City Council ordered its removal, traces of it remain today as a reminder of what may have been the first roadside advertising in Christchurch.

In another shop in Manchester street the firm's novel advertising methods caused anxiety. On Saturday, then late closing night, a pianist was stationed at the front door of the shop. Police had to clear the crowds who gathered on the footpath to hear the free music.