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WIRELESS TELEGRAPHY.

Few developments of scientific discovery have obtained such a firm grip upon the public, the professional, and the commercial mind as those of electricity. When telegraphy without wires was first made public the imagination of the people ran riot with speculations upon its possibilities; and South Australia, though so far away from the centre of operations, quickly caught on the fascination. With two such enthusiasts as Professor Bragg and Sir Charles Todd immediately and directly interested in the subject, Adelaideans had cause to feel that in any advance they would not be left far behind. Little wonder, then, that when Professor Bragg was announced to give a course of lectures to the public at the University he should be met in the library of the halls of learning by the largest crowd of earnest and intelligent people that has yet gathered since the extension system of lectures has been in vogue. With characteristic frankness of manner the lecturer started right into his subject, and explained that we could know nothing of wireless telegraphy without first mastering some knowledge of the medium employed to work it. This medium, he said, was ether, and his first lecture must necessarily be some illustration of what ether was, and what it did. He explained that ether extended throughout space and throughout all bodies, and was capable of carrying waves, like a jelly. The waves were light and heat energy all in one. By them all the heat energy of the sun was sent to us and distributed. Light was a manifestation of the wave motion, and our eyes were simply the receivers of short waves. These waves were so important to us that we actually lived upon them, and they were our means of communication. All our intentions were betrayed to those about us by sight and the use of these ether waves. They were the medium used as a universal carrier of energy and of signals—in short, the postal system of the universe. If they and the air-waves known as 'sound' were taken away, the lecturer mischievously suggested that we should have no other means of communication short of throwing things at one another. He then explained that the present wireless telegraphy was only another way of availing ourselves of the time-honoured method of signalling, the only difference being that we used long waves instead of short ones, and in the course of his lectures he would show how they were manipulated. The movements of ether waves were then demonstrated—first, as to what they were; and then as to what was necessary for their production. By a most ingenious arrangement of a mirror, a ripple of water experiment was thrown upon a lantern screen. In this water ripple was seen and explained the transference of energy, but no transference of matter. In this two things were necessary—viz., elasticity and inertia. They existed in ether, as thus illustrated, and were known as electricity and magnetism. A torsion model was then brought into requisition to illustrate this. It was Faraday who first worked out the properties of ether, and Maxwell showed that it had the necessary properties to produce wave movement, and that this speed would be of the same velocity as that of light. So the lecturer brought his audience to consider the wave motions in the ether, so that they should know what to expect and what not to expect in wireless telegraphy. An important feature of the experiments demonstrated the fact that while these waves could be intercepted by metal obstructions, they could not be made to go around corners and over obstacles. In this we had a solution of Newton's historic problem as to the waves only being made to go straight. Professor Bragg and his assistant, Mr. Rogers, went to considerable trouble in preparing experiments, and were awarded applause.

The Herald 16th Sept 1899

PROFESSOR BRAGG ON WIRELESS TELEGRAPHY.—Attention is drawn to an advertisement appearing in another column announcing that the University of Adelaide has arranged with Professor Bragg for a course of three lectures on one of the greatest marvels of modern science, "Wireless Telegraphy." The Professor has long ere this proved himself to be the possessor of a wonderful gift of teaching, and by his methods he transmits his knowledge to his pupils without apparent effort to either. He usually treats his subjects at public lectures from a supposition that his audience are in ignorance of the merest details of the matter in hand, and explains in the simplest language as well as illustrates by beautiful experiments the subject upon which he is treating. There is no doubt but that on this subject he will have large and interested audiences, who will be well repaid for their attendance.

WIRELESS TELEGRAPHY.

On Wednesday evening Professor Bragg delivered the second of his course of lectures on "Wireless telegraphy" at the University to an even larger audience than attended the opening lecture. Continuing his subject, he said the ether waves might be of all sizes—the short ones producing light, while the larger ones were employed in wireless telegraphy. Light waves could be stopped by the thinnest of vapor, but the longer ones would pass around even such large obstacles as hills, and that was why they were so useful for telegraphing purposes at times when the heliograph was useless. He explained how the large waves were produced, and said that Hertz was the first to demonstrate their value. There were some points about these waves when first discovered which might have led people to think they resulted from electric induction, but Hertz sent his waves along a room, and had them reflected again by a large sheet of metal at the other end, and he also obtained stationary waves. This point was well illustrated by the lecturer by a couple of models. Later experiment fully demonstrated their analogy to light waves. Professor Bragg showed two conductors so adjusted that oscillations took place in them at exactly the same time, and then showed that the waves were produced in the ether by means of vacuum tubes in response to the incident waves. The most wonderful apparatus, however, for detecting these waves was the coherer, which was really in use in the seventies, when Professor Hughes, the inventor of the microphone, used one for telegraphing without wires over a distance of 500 yards in Great Portland-street, London. He gave a full description of this wonderful instrument, of which he showed various types, the most humorous of which was a horse's curb bit, which makes an excellent coherer. The lecture was absorbingly interesting, and was illustrated by a number of beautiful experiments, all of which were followed with great interest.

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Mr. Robert William Chapman, M.A., B.C.E., who will leave Adelaide by Saturday's express for Sydney to catch the American mail steamer for San Francisco, was born in England, but came to Australia as a boy. His work at school was brilliant, and led him to the Melbourne University, where he became a student of Trinity College. His University career was equal to the expectations of his friends, so that he secured the most important of the scholarships open to him, and graduated in Arts and civil and mining engineering in 1886, with first-class honours in mathematics and physics. He spent between three and four years on railway construction and bridge work, under engagement with contractors under the Victorian Government, and in 1889 came to Adelaide to take an appointment at the Adelaide University as lecturer in mathematics and physics, which position he has since occupied. For a number of years Mr. Chapman has also been lecturer in applied mathematics at the Adelaide School of Mines and Industries, and during the absence of Professor Bragg, M.A., in Europe he filled the Elder chair of mathematics and physics with credit to himself and the University. Mr. Chapman is a member of the Astronomical Society of South Australia, and has done lasting and valuable original work as a mathematician, the most noteworthy being the patient calculations, in conjunction with the Harbourmaster of Port Adelaide, Captain Inglis, of the dodging tides of the coast. The recent munificent endowments of the late Sir Thomas Elder have enabled the Council of the University of Adelaide to establish in conjunction with the School of Mines, a course in mining engineering. Mr. Chapman has been selected to occupy the lecturer's chair, but before entering upon the work the Council is enabling him to visit America and Europe in order that he may fully acquaint himself with the work being done in the most noteworthy mining schools and Institutes of other places. He will also visit the chief mining centres of the United States and Europe in order to see the most modern and approved methods of mining engineering. He carries with him credentials from the Premier, the Chancellor of the University, and the President of the School of Mines and Industries, and introductions to many of the prominent officials of the places where his mission will take him.

UNIVERSITY LANDS.

Adjourned debate on the motion of Mr. PEAKE—"That, in the opinion of this House, negotiations should be opened by the Government with the Adelaide University, with a view to the surrender by the University to the Government of the lands dedicated to the University, on terms to be agreed upon."

The COMMISSIONER of CROWN LANDS said that the lands dedicated to the University comprised some 50,000 acres. In the Hundred of Wirreanda there were 15,000 acres, in the Hundreds of Gumbowie and Parsons there was an equal area, and in each of the Hundreds of Tatiara and Brownlow there were 19,000 acres. About two-thirds of the area in question was arable, but the rainfall in the Hundreds of Wirreanda and Parsons was very light. The lands were dedicated under Act 29 of 1874. The 10,000 acres in the Hundred of Tatiara was the only part worth bothering about. It might be cut up among ten or fifteen families. It was let to John Gall and the Queensland Land and Investment Company; the 15,000 acres in Wirreanda were leased to Joseph Turner, Mrs. J. A. Box, and P. Gillick; the lessee of the 10,000 acres in Craigie's Plains was James Heagie; and the 15,000 acres in the Hundred of Parnaroo were let to A. L. Gericke and others. Mr. Gall's lease expired on August 21, 1903, the Queensland Investment Company's on September 27, 1903, Mr. Turner's lease in May, 1900, and the lease of the Parnaroo country in October, 1914. The annual revenue derived from these lands was as follows:—Tatiara, £595 4s.; Wirreanda, £245 10s. 6d.; Craigie's Plains, £83 6s. 8d.; Parnaroo, £379 9s. 8d.; total, £1,333 10s. 10d. The University authorities, like the Government, had had to accept reduced rents in most cases on this country. The Government were prepared to open up negotiations with the University with a view to acquiring such of these lands as were suitable for closer settlement on fair terms. The Ministry had been endeavouring to get land for this purpose during the past two years, but up to the present they had only secured 25,188 acres. All this had been allotted with the exception of 7,725 acres at Pentonyah, which, being held under lease, had not yet been offered. Some 25,000 acres had been bought for £51,000 odd, and this land had been allotted to eighty-seven people. The Government were very anxious to get land under the Closer Settlement Act, and he regretted that they could not get it. The difference between the owner's value when assessing his land for taxation purposes and the amount he asked when the Government desired to purchase was so large that they were prevented acquiring land which was urgently needed. (Mr. Wood—"Have you many applicants?") There were as many as thirty applicants for some of the blocks. There was a great demand at the present time for land for closer settlement. Indeed, many of our best colonists were leaving South Australia week after week because they could not get land for agricultural purposes. The Government were anxious to stop this, and would leave no stone unturned to accomplish their purpose. They, therefore, asked the House to support the motion, and they would then endeavour to make arrangements with the University for the purchase of some of these lands for closer settlement.

Mr. ARCHIBALD thought that the motion meant a very great deal in principle. He was rather surprised at the Government change of front in regard to this matter. No one would charge him with being a very great friend of the Adelaide University. He favoured education by endowment rather than by Parliamentary vote. In 1893 he believed he supported a motion which was intended practically to take away from the University certain lands that were dedicated to primary education, and to put them under the control of the Commissioner of Crown Lands. But whether he supported that motion or not, he was never strongly in favour of it, and he was less favourable to it now than ever. He admitted that the authority which gave away the title to certain lands could also take away that title, but Parliament very properly had been most reluctant to interfere in matters of that sort. The position to-day was that certain lands were held by the Adelaide University. Some of those lands were suitable for closer settlement, and the Government urged that it was desirable to open up negotiations with the University with a view to their purchase. But on what conditions? (The Commissioner of Crown Lands—"Fair terms.") He took it that these lands were of some value to the University authorities, and therefore the Crown would have to give them 1s. 3d. for every shilling's worth of value. The University would not exchange with the Government unless they got some advantage. Great mistakes had been made by Parliament in the past. Parliament had acted on the bad principle that if any gentleman was willing to endow a chair at the University then the Government would give something else—practically pound for pound. Under the University Act they paid 5 per cent., and they could not do anything. It was an evil principle. (Mr. Peake—"It was with the idea of getting a fixed revenue.") It was a pernicious principle, although the more endowments they could get the better, because then they would be free from party prejudices of the hour. They had fought for years to keep up the integrity of their education system.

The SPEAKER—I would remind the hon. member that this motion does not refer to the whole education system.

Mr. ARCHIBALD was only pointing out by way of illustration that they had only two methods of dealing with their education. If the Government were anxious to get those lands the University would get the best of the deal. Some matters should be placed above party spirit, and he asked the Government to seriously consider what they were doing, although they were only going to open negotiations. Universities going to open negotiations might for a time resist the public spirit, but they would conform to that spirit within a given time, and use them in the interests of the general public. He did not object to negotiations being opened, but before anything was done the House should see that it did not allow either primary, secondary, or University education to be dependent upon whether the Treasurer of the day had money to spend on education.