free Professor Tate then illustrated several processes which the gold went through, and became amalgamated with mercury. By this mode of extracting the gold they were able to get 80 and 90 per cent. Warm water was used by the lecturer in his experiments, as he said it tended to excite the amalgamation, whereas cold water somewhat retarded it. The cost of the extraction he had been told by experts amounted to about £2 per ton. In South Australia, when they got down to water they encountered a lot of this pyrites; and all specimens of gold quartz he had seen here, if it did not contain iron pyrites, had certainly showed that it had contained it. In Victoria the yield of gold was from 10 to 20 oz., but in South Australia, through not having proper appliances, they were losing all the valuable mineral contained in the pyrites; he had experimented on some stone of this nature from Waukaringa, and found a very fair amount of gold. Another method adopted was by chlorine gas. This was a very economical way, and mines yielding but little were made payable. The Professor next touched on the origin of vein gold. In this matter very little was known, but three different causes had been propounded of the origin of this gold. The first was that, the centre of the earth being in a molten state, the deep-seated stones of gold had been forced from the interior to the surface in a molten state or vapour, and then returned into its original state. The second was that water which filtered through the bed of rocks had carried mineral matter with it, and thus deposited the gold; and the third was that it had been segregated from gold impalpably disseminated in the rocks. As far as their knowledge went there was no natural solvent of gold. The lecturer then dwelt on the origin of nuggets and alluvial gold, the latter of which was not in its original position, but was derived from the waste of auriferous veins. A remarkable fact in connection with nuggets was that they were not found in mineral veins, and they were evidently formed by the particles of alluvial gold uniting. At the conclusion of the lecture the Professor thanked the audience for their attendance, and stated that shortly a colleague of his would very likely be giving a series on "Electric-lighting," due notice of which would be given.

From the Register
September 16th 1882.

LECTURE ON MAGNETISM.—Professor Lamb on Friday evening delivered at the University the first of a series of lectures on "The Scientific Principles involved in Electric-lighting, and in the Electric Transmission of Power." The room was well filled, and the lecture was followed with an unusual amount of attention. Referring to the course of lectures that he had arranged to give, Professor Lamb said his object was to explain in an elementary manner some of the most important scientific principles lying at the basis of this subject, and in doing so he did not intend to give anything like a course of instruction in electricity, but to confine his attention to those principles which had a direct bearing on the subject. He intended to give rather a small number of experiments, but those that were given would be illustrative of the principles involved, as he was desirous of turning his back resolutely on those experiments which, though important in considering electricity as a whole, were not particularly applicable to the subject he was discussing. The present interest in electric-lighting was due mainly to the perfection that had been attained in the construction of machines for the generation of electric currents, and the action of nearly all these machines depended on magnetism, which was the subject of the first lecture. Professor Lamb then described temporary and permanent magnetism and the distribution of magnetic force in the interior of the bar, illustrating his observations with a series of experiments which effectively cleared up any difficulties his audience might have experienced in following him.

From Register Dep 23rd 1882

LECTURE ON ELECTRIC CURRENTS.—Professor Lamb delivered the second lecture of his course on "The Scientific Principles involved in Electric Lighting and in the Electric Transmission of Power" at the University on Friday evening. The attendance was very large, all the regular sitting accommodation being at a premium before the lecture commenced; but considerable annoyance was caused by persons coming in late. Professor Lamb began by intimating that he purposed dealing with electric motive force and electrical resistance—two very important ideas to get hold of if the action of electric currents in different circumstances was to be understood. In many respects he feared that the lecture would be the most unsatisfactory of the series, for the reason that electricity might to a greater or less extent be marked out into two divisions—static electricity, where they had to deal with the manifestations of electricity, such as arose when the electric state of bodies was unchanged, and which included the consideration of electric machines, Leyden jars, &c.; and electricity in motion, or where some change was continually taking place. The latter was the one most closely connected with the transmission of power. He would now have to assume the possession of some elementary knowledge of the subject, but with the remaining lectures he would endeavour to make them intelligent by themselves. He then stated that the first knowledge of electric currents was obtained by means of voltaic batteries, which, however, were found to be too troublesome as generators of electric currents for commercial purposes, described the various cells used in batteries, and showed by positive and negative electrifications and illustrations the tendency of potential electricity to descend from a higher to a lower state. In dealing with the specific resistences of various materials to the electric current, Professor Lamb illustrated the law underlying this aspect of the subject by experiments that showed its practical bearing in connection with electric-lighting, which will be more fully developed in the next lecture. Notwithstanding the difficulties inseparable from his subject Professor Lamb was eminently successful in presenting it in a readily understood form, and his efforts in this direction were repeatedly recognised by the audience.

From the Register Dep 30th 1882

LECTURE ON ELECTRIC-LIGHTING.—Professor Lamb delivered the third lecture of a course "On the scientific principles involved in electric-lighting and the electric transmission of power" at the University on Friday evening. Notwithstanding the inclemency of the weather a considerable number of persons were present, who frequently testified their appreciation of the lecturer's lucid explanations of the various phases of his subject. Having commenced with an exposition of the heating properties of the electric current and the laws regulating the development of heat, which were illustrated in various ways, Professor Lamb then proceeded to deal with incandescent and arc electric lights, the fundamental requirement in both kinds being the obtaining of a considerable degree of resistance in some part of the current, such as was afforded by the insertion of pieces of platinum, iridium, or carbon, in order to produce the requisite illumination. Professor Lamb illustrated this portion of his lecture by showing the Swan and other lamps in operation. The recent development in incandescent lighting was due to the discovery that filaments of carbon could be so constructed as to meet all requirements, scientifically and commercially, in a resisting substance for electric lamps. Arc lights were produced by the separation of the electric current, the terminals of the wires being furnished generally with carbon points. But in this class of light the positive pole was raised to a very much higher temperature than the negative, the result being that the carbon point burned away twice as quickly as the other. The compli-