ADV. 9.4.28

THE UNIVERSITY.

STUDENTS' UNION BUILDING.

A SUCCESSFUL CONVERSAZIONE.

With the three-fold object of giving the general public an opportunity of seeing what the University is doing, of helping to foster a united and corporate spirit among the undergraduates, and of raising funds for the Students' Union and war memorial buildings, a conversazione was held at the University on Saturday evening. This is the first effort of the kind attempted by the undergraduates. It has been felt in the past that there has been a lack of a feeling of united good-fellowship among the students, which it was thought could be overcome by getting them to join in an undertaking in which all departments of the University were concerned. The enthusiastic way in which the members of the various schools entered into the spirit of the display and its all-round success amply justified the undertaking; but a more lasting success is aimed at, namely, the helping on of the union building, which, when completed, will be the hub about which undergraduate life will revolve, and which will provide the central unifying influence which at present is missing. The gathering was organised by a committee consisting of Messrs. C. T. Madigan, D. R. Downey, G. Heaslip, R. N. Irwin, and C. W. Andersen (secretary). Among those present were his Excellency the Governor (Sir Alexander Hore-Ruthven) and Lady Hore-Ruthven, and the Lord Mayor and Lady Mayoress (Mr. and Mrs. Lavington Bonython). The viceregal party was received by the Chancellor of the University (Sir George Murray) and members of the staff in the Elder Hall, and conducted round the institution. All the various departments of the University were open for inspection, and the assistants in charge were only too eager to explain the working of the various apparatus or exhibits. Members of the different students' societies, wearing rosettes of the University colors, acted as stewards during the evening and were busily engaged directing visitors to various parts of the grounds or buildings. In the Elder Hall supper was served by a committee of undergraduates consisting of Misses H. Morris (convener), R. Joyce, F. Gault, P. Taylor, J. Barton, E. Watkins, J. Moncrieff, H. Adams, B. Shorney, D. Mills, D. Haslam, J. Thompson, and E. Boyce, and Mr. J. Sheppard.

Liquid Air.

In the Prince of Wales lecture room Professor A. Killen Macbeth, assisted by Mr. R. J. Best, gave a series of demonstrations with liquid air. After briefly reviewing the history of the liquefaction of gases and explaining by means of lantern slides the apparatus used in that process, the professor conducted a number of experiments to show the effect of intense cold on different objects. A flower, an egg, a rubber ball, and a piece of raw steak when immersed in liquid oxygen became frozen so hard as to be as brittle as brass, and when struck with a hammer flew into numerous small fragments. The effect of extreme cold on coal gas and on the conductivity of metals was also shown. By immersing the tube through which coal gas was passing in a bowl of liquid oxygen, the hydrocarbons in the gas were frozen, with the result that the flame became almost invisible. In the wires connecting a small electric globe to a battery was inserted a resistance coil, sufficient to prevent the flow of electricity at ordinary temperatures, but when that coil was lowered into a tube containing liquid air its conductivity was increased sufficiently to enable the current to flow and the lamp to glow. Another interesting experiment was the freezing of mercury and the making of a mercury hammer by pouring liquid air into a dish containing that metal. Sponge cake, lamb's wool, and a cigarette when saturated with liquid oxygen burnt with great vigor, thus demonstrating the inflammability of that fluid.

Electrical Discharges.

Another lecture demonstration which was largely attended was that in the physics lecture room, dealing with high tension electrical discharges, by Professor Kerr Grant, assisted by Messrs. H. Oliphant, M. Iliffe, and L. Goldsworthy, at which the effects of discharges at approximately 1,000,000 volts from a Tesla high-frequency air transformer were illustrated. After showing how an electrical current could be induced in a coil of wire by bringing it into an electrical field, the professor went on to demonstrate how that current could be increased by inserting an iron core inside the coil. The increase in the intensity of the induced current obtained by increasing the frequency of the oscillating current producing the electrical field, was also illustrated. The effect of the field on a vacuum tube was shown, as was also the fact that an electric current will pass across a vacuum when the same distance of air would prove an impassable barrier. A glass tube about 5 ft. long, when filled with air, prevented the passage of an electric current between terminals placed at each end, but as the air was exhausted by means of a vacuum pump, the passage of the current became visible by means of the characteristic purple light reaching from one end of the tube to the other. The most spectacular experiments, however, were those with the high-frequency air transformer, from which sparks 15 to 18 in. in length were produced, and which had the appearance of forked lightning. By means of a discharging rod, the spark was increased to about 2 ft. in length, and bore a marked resemblance to chain lightning.

How We Breathe.

Professor C. S. Hicks and Dr. Matters were responsible for a very interesting series of experiments in the Darling Building lecture-room, illustrating human breathing. The professor pointed out that a person's breathing was doubled when he was walking, compared with when he was at rest, and said that if the same amount of breathing took place at rest as when walking one would become unconscious and ultimately die, thus showing that the body had the power to regulate the breathing, according to the amount of air required. By means of experiments, he showed that a person breathes both in the chest and the abdomen, and also that when one swallows breathing involuntarily ceases. Professor Hicks said the stimulus to breathing was not oxygen, as most people supposed, but carbonic acid gas, and demonstrated this by making an assistant breathe and rebreathe his own air, the increased depth of breathing towards the end of the experiment being very marked. He also stated that normally, when at rest after awakening in the morning, the amount of air consumed by all persons of the same age is the same, with the exception that males require 10 per cent. more than females, but when persons are suffering from various diseases the amount of air consumed varies greatly from the normal figures.

Other Demonstrations.

Other lecturettes and demonstrations which attracted large audiences were those on "Delayed Chemical Action," by Professor T. Brailsford Robertson, assisted by Mr. H. R. Marston; "The Antarctic," by Mr. C. T. Madigan, assisted by Mr. Brock; and cinema films of aboriginal life, taken in Central Australia and North Queensland, by Dr. T. D. Campbell and Mr. N. B. Tindale, assisted by Mr. L. Bruggeman. In the Men's Union room, two dramatic performances were given by students of the faculty of arts. A one-act play, by A. A. Milne, entitled "Wurzel Flummery," was presented to crowded and appreciative audiences by Misses Mabel Jenkin and Margaret Mann, Messrs. L. D. Dixon, J. M. Barclay, and Jack Douglas. The producer was Mr. R. C. Bald, and the action took place in the morning room of a London house before the war. An exhibit which attracted considerable attention, consisted of a tent, skis, and a sledge used in Sir Douglas Mawson's trip to the Antarctic.

REG. 9.4.28

MR. CHARLES SCHILSKY.

Reported Resignation

Loss to the Conservatorium.

It was stated on Sunday that Mr. Charles Schilsky, teacher of the violin in the Elder Conservatorium, had resigned, owing to ill health. It is understood that the Council of the University is likely to accept the resignation.

Mr. Schilsky succeeded Mr. Gerald Walenn at the Conservatorium early in 1924, and is a cultured musician with a very high European reputation, as well as a solo violinist of exceptional ability. Students of the violin in Adelaide have made wonderful progress under his guidance, and Mr. Schilsky has delighted his auditors on several occasions in solo and quartet parts in connection with Conservatorium concerts. Music lovers in Adelaide will regret the step Mr. Schilsky has been obliged to take.

Distinguished Career.

Mr. Schilsky is a native of London, born of a Polish father and a French mother of artistic tendencies. He had a varied and interesting career in Europe, during which he attained thorough knowledge of the violin methods of the English, French, Belgian, and German schools. He has appeared successfully before the public as a soloist in England and on the Continent. Just prior to coming to Adelaide he was an examiner for Trinity College, London. Mr. Schilsky's first master for the violin was Benoit Hollander. Later he studied under Emile Sauret, in Berlin. Thence he went to Paris, and was first violin player in the celebrated Lamoureux Orchestra. After two years he was invited to appear as a solo violinist in Russia, and make his debut in that country in conjunction with the Moscow Philharmonic Society, in association with the Wagnerian singer, Theodore Reichmann. He remained in Russia for a year, appearing in many large cities, and subsequently removed to Warsaw. After several engagements in Poland he returned to England, and became vice-leader of the Glasgow Symphony Orchestra, under Henschel. Following came his appointment as professor of the violin in the Belfast Conservatorium. Two years later he returned to London as a member of the famous Kruse String Quartet, which appeared at concerts all over the United Kingdom, as well as on the Continent. While in London Mr. Schilsky was a teacher at the London Academy of Music, and also at the Hampstead Conservatoire, and vice-leader of the Queen's Hall Orchestra, under Sir Henry Wood. This position he resigned in order to visit the colonies as an examiner for the Trinity College of Music, a responsibility which he held with distinction for many years. During two years in America he acted as professor of the violin and leader of the string quartet at the Buffalo Conservatorium, during which time he appeared as a solo player in New York.

ADV. 11.7.28

SECRETS OF LIFE.

LECTURE BY PROFESSOR WOOLLARD.

INFLUENCE OF GLANDS ON HUMAN TYPES.

In the second of his series of three University extension lectures on the science of anatomy, Professor H. H. Woollard stated last night that analysis was infinitely more difficult than mere description, and in the study of growth and differentiation scientists were only at the beginning of the analysis problem. In his opening remarks, the professor referred to the great improvements effected in the manufacture of miroscopes, by which their magnifying and resolving powers had been enormously increased, and as a result of this scientific investigation had been facilitated.

Professor Woollard said the elements of the adult human body often showed little resemblance to cells, but when their growth was traced it was clear that they were derived from those elementary units, and that during growth their form changed and their function became specialised. The fundamental problem of all medical science was to account for the growth and differentiation of cells. Such knowledge might make manifest to man all the secrets of life, and certainly would contain the solution of the cancer problem. Cancer was an abnormal growth and differentiation of cells. The growth of the body was the story of the transformation of a tiny speck of protoplasm, about one one hundred and twenty-fifth of an inch in size, into the form with which they were familiar. The first stage of development was the formation of a large number of cells; the next, the change of the mass of cells into a vesicle consisting of three layers known as "organ-forming" layers. From them the systems of the body were blocked out, and became transformed into actual working mechanisms. Thus, along with growth, there was differentiation for the performance of special functions. Growth was greatest at the beginning, then continually fell off, and a stage of equilibrium of maturity was reached which passed into senescence and ended in death. That cycle appeared to be true in all animals, although there were certain cases in which it did not occur. Minute animals like the protozoa grew and multiplied without ever producing a corpse or new-born infant. They were immortal.

Immortality in Tissues.

Human bodies consisted of two kinds of cells—body cells, or soma, and germ cells. The soma died, but the germ cells were immortal. Tissues could be made to grow outside the body indefinitely, and a piece of chicken at the Rockefeller Institute in New York, which was more than twelve years old, had grown to be larger than a St. Bernard dog. Cells like those of cancer, if transplanted from host to host, continued to live indefinitely. Death was not inevitable in living tissues. Death was conditional. Growth could be shown to be dependent upon temperature, upon vitamines, and upon certain kinds of food. If a rat was fed on gliadin, the protein of wheat kernel, it would keep healthy, would reproduce young, and the young would continue to grow while suckled by the mother. When they were removed from the mother and put on pure gliadin diet, growth immediately ceased. This state of suspension of growth could be continued long past the usual time of reaching maturity. Growth depended upon minute traces of certain substances, a conspicuous example of which was iodine contained in the secretion of the thyroid gland. If tadpoles were given an excess of thyroid secretion they could be made to metamorphose at any time, and the period of metamorphosis was enormously shortened. In that way adult frogs no larger than flies could be obtained. When there was no thyroid secretion, metamorphosis did not occur, but giant tadpoles were produced. With continued growth and differentiation the power of regeneration was lost. Thus a tadpole could easily grow another limb, but a frog could not. Although the cause of growth was not fully understood, it appeared to be a problem in chemistry. There was also the problem of differentiation. A fertilised egg, up to the period of the formation of the three organ-forming layers, consisted of a mass of cells, outwardly much the same, but inwardly containing the development factors. The act of fertilisation localised the development factors, and they became regularly distributed amongst the cells subsequently formed. Recently it had been shown that distribution of the development factors depended upon a special organ occupying a definite place in the embryo. The remarkable effects of those cells could best be shown by transplanting them into another embryo, when they would cause a second embryo to be formed within the host. those special cells were called "organisers," and the discovery of their qualities constituted one of the greatest advances in embryology.

Baritones and Tenors.

The organiser exerted its influence at the beginning of development, but ceased with the formation of the organ-forming layers. At that stage the embryo was blocked out into the organ systems, which developed independently. After that stage was finished there followed co-ordination and functional adaptation of the parts. As an example of that, the nervous system and muscular system developed independently before birth. After birth the removal of the nerves from a muscle brought about the destruction of the muscle. One specially important co-ordinating system was the secretion of glands like the thyroid and pituitary, the balance of which determined the type of individual. Anatomists like Stockard had divided men into "linear" and "lateral" types. The "linear" man was characterised by a long head, eyes close together, high-vaulted palate, crowded teeth, thin neck, and a body either short or long, a nervous temperament well under control. He was fond of generalisations, and had a baritone voice. (Laughter.) The "lateral" type Stockard described as having a broad head, wide face, short-sighted, fond of detail, often emotional, and with a high-pitched voice. The tenor was the wide, fat man, and the baritone the long, thin man. (Laughter.) Sir Arthur Keith believed that racial differences were due to the differences between the balances of the secretions of the ductless glands, and Bolk, the Dutch anatomist, believed that the differences between man and the anthropoid apes were largely due to the differences in the time they took to reach maturity. The chimpanzee was matured in six years. The delay in reaching maturity in man Bolk believed gave him his pre-eminence, and was due to the effects of the pineal gland. It was well established that the sex glands produced chemical substances or hormones. One of them, that of the ovary, had been isolated in a concentrated form. By means of these hormones it was possible to produce the mental and physical qualities of the appropriate sex when the sex gland was absent. Moreover, it was possible to reverse the sex by changing over that gland.

Monkey Gland Operations.

The use of those glands, or their extracts, as a cure for senility was a relatively old idea, which had recently become notorious as Voronoff's "monkey gland" operation. The facts appeared to be that the grafting of the sex gland did exert its hormonic effects. It quickly underwent degeneration, however, so that the effects were temporary. It had no rejuvenating effect upon the tissues of the body, which remained in their senescent state. Such unwonted strain upon a senile body often produced sudden death. More recently Voronoff had made far-reaching claims for the economic value of sex gland grafting in cattle and sheep. Those claims had been investigated by a commission in England and pronounced not proven. Scientists of a sanguine temper, like Julian Huxley, predicted that those results heralded a biological revolution greater than had ever been seen. It would be possible soon to create any kind of man desired by giving him the proper "juice." He therefore urged all thinking men and women to make up their minds what kind of man they desired, for if they did not the doctors would be creating men in their own image. Professor Woollard reminded his audience, however, that all their experiments so far had only succeeded in bringing the deficient up to normal standard. If the normal was exceeded in one direction they fell below in others. Only those actively engaged in scientific research realised the enormous labor that might lie behind a result that could be announced in three lines. One series of experiments had entailed the counting of 20,000,000 flies. There would be progress, but it would be slow, hesitating, laborious, and difficult.