

LECTURE BY PROFESSOR CHAPMAN.

Lecturing before the members of the Astronomical Society at the Institute, North-terrace, on Wednesday evening, Professor R. W. Chapman explained the great progress made in astronomy in recent years. He said that the early nomadic races the stars were no doubt of great interest, but for a long time it was believed that the earth was flat, and that the sun went down on one side and came up on the other. When Copernicus advanced the theory of the earth's revolving round the sun and of other bodies doing similar revolutions, there were serious objections to the proposition. It was, for one thing, opposed to the Scriptures, and Copernicus's book was condemned, and men who held the theory to be true were punished, but the discovery of the telescope by Galileo helped to prove the theory to be correct. Another objection was that the earth and the other bodies could not perform these revolutions without altering the relative positions of the other stars and planets. The invention of methods for measuring the great distances accurately answered the objection with regard to the positions of the stars and planets, but it was not until 1838 that the astronomers had been able to solve the problem that had baffled them for centuries. They discovered the movements of the various bodies, and even of the double stars revolving round one another. By exact trigonometrical measurements they could ascertain the position and distance of the different stars from the earth by taking a line from the earth to the sun and from that to the star.

Later Developments.

This great achievement was followed by others. Although the exact location of only a few stars with relation to the earth had been known in 1901, when a catalogue was prepared showing that about 12 were known with more or less accuracy, they had since been able to decide the position of thousands of others. In addition to the use of the method of calculating the distances by the lines drawn at angles from the various objects the photographic plate was used, and later a more rapid and an easier system had been adopted of deciding the positions of the heavenly bodies. It was found that the stars possessed a quality by which their distances could be measured. It was the brilliance, or the magnitude, of each body, and it was ascertained that the brightness depended on the distance. Brightness also depended on the heat of the body, so that they would have to measure the temperature to arrive at the brilliance and the distance. They knew the heat caused by the heating of solid bodies and the way in which the various lights spread. They found that under certain conditions the maximum of heat moved along the spectrum to different points, and applying these methods to the stars they were able to arrive at comparatively reliable decisions as to the distances of the different bodies. In this way the astronomer in recent years had been able to penetrate into the more distant parts of the universe, and the results had been amazing. Facts hitherto unknown had been made available regarding the stars and other bodies and showing the immensity of the universe. The distances were too great to be described in miles or millions of miles, but were counted in light years, and in some instances a star was stated to be thousands of light years from the earth.

The Spiral Nebulae.

The development of astronomy with regard to the spiral nebulae had also been most interesting. These wonders had been unknown and unseen to the naked eye, but had been photographed and had been found to be systems working in themselves just in the way the solar system was working. The light from the bodies, by which the astronomers had taken the photographs of them, had taken a million years to reach the camera. The noted Cambridge master-mathematician (Sir J. H. Jeans) had recently described in various ways the relative size of the universe as it was known, by stating that if walnuts were distributed 25 yards apart and over an area of one mile, each walnut might represent a different system of group of bodies and one would represent the one system with the earth as a tiny electron in a walnut. The development of astronomy had provided a staggering picture, which could not be adequately realised. It was, however, grander and nobler than the artificial imaginary one of the days of Homer, and one of the most wonderful facts was that the light which took so many years to reach the earth from some of these bodies could last for millions of years. If light could do that, then what of life? At the instance of the Hon. J. H. Cooke, Professor Chapman was thanked for his interesting lecture, which was illustrated with lantern views.

BETTER TRAINING OF DOCTORS SUGGESTED.

Sydney, August 8. "Educate your doctors properly in obstetrics," said Dr. A. Watson Munro, a distinguished Sydney medical man, to-day, "and then you will halve the infant mortality and make the lower birth rate of to-day as effective for the population as the higher birth rate was in 1916-17. Extend the training of medical students. There are 54,000 mothers in New South Wales, yet members of the teaching staff in obstetrics at the Sydney University are paid salaries of £100 and £150 a year. A special diploma of obstetrics, with really sufficient teaching, would dot the country with doctors specially qualified. The value of the infant and maternal life lost to the Commonwealth amounts to millions of pounds. "Australian graziers are subscribing £200,000 to improve the health of Australian sheep. Why not an equal fund for Australian women?"

John Ridley Memorial.

Sir—We cannot speak too highly of John Ridley and his invention of the reaping machine, and the splendid articles by Mr. S. Parsons revives his memory. I agree that sufficient has not been done to perpetuate his memory in the land which owes so much to his invention. There are, however, two memorials to him in South Australia. One is in the form of a marble pedestal upon which is a bust of John Ridley, erected in front of the Roseworthy Agricultural College building by the old students' association during the period when I had the pleasure of being hon. secretary nearly 20 years ago. This was subscribed for by the members and a few friends. The other is a John Ridley Memorial Scholarship at the Adelaide University, and at the present time two holders of this scholarship are taking the course in agricultural science.—I am, Sir, &c., T. E. YELLAND.

Sir—I was pleased to note from Mr. Yelland's letter that the students of the Agricultural College some years ago erected a bust to the memory of Ridley. This is as it should be, but it can hardly be regarded as an expression of public sentiment. What is wanted is that there should be a memorial of Ridley's splendid gift worthy of the whole State. Surely every farmer in the community, apart from others, would gladly contribute towards this, and seeing, as Mr. Parsons has mentioned in his article, our State alone derives millions of pounds annually from Ridley's invention, it is not too much to suggest that we should not only have a very prominent and worthy public memorial, such as a fitting monument, but that valuable scholarships should also be established in the Agricultural College and University as well.—I am, Sir, &c., CHAS. C. TUCKER.

ELDER CONSERVATORIUM.

AN ORGAN RECITAL.

The last of the present series of free organ recitals was given before a large and appreciative audience by Mr. John Horner, at the Elder Conservatorium, at midday on Thursday. A programme of attractive compositions was submitted with the same attention to detail and musical effects which has marked all the performances of the season Pastoral Sonata (Rheinberger), which included Pastoral, Intermezzo, and Fugue, made a pleasing opening number. Largo from "New World" (Dvorak) was played with refinement, as was also Serenade (Widor), Epilogue (Healy Willan) brought the concert to a close. An interesting feature was contributed by a number of violin students, who performed Bach's "Art on G String" as an ensemble piece with the organ. This item was enthusiastically applauded.

University Term Ending

The second term at the University of Adelaide will end tomorrow. A number of students will go to other States to participate in various athletic matches. There will be holiday of a fortnight before the third term opens on Monday, August 27.

End of Successful Series.

On Thursday the final recital of a successful series of 10 on the Elder Conservatorium organ was given in the luncheon hour by Mr. John Horner, F.R.C.O. An overflowing attendance, and the close attention paid to each item proved that the Adelaide public keenly appreciates the best in organ music, interpreted by a master of the craft. Opening with Rheinberger's "Pastoral Sonata," in which the spaciousness and architectural quality of this composer's work, were well brought out by the recitalist, Dvorak's "Largo," from "The New World Symphony" followed. In this, the Czech genius depicts the flood of his impressions in America in one of the greatest tone poems in the world. Mr. Horner's rendering had in it the art that conceals art.

A string ensemble played Bach's "Air on G String," to the judicious organ accompaniment of the recitalist. This proved most effective and reflected credit upon the 12 violinists concerned.—Mrs. Johnson, Misses E. Solomon, E. Cockburn, P. Chappel, N. Tassie, U. Nesbit, J. Hack, M. Scollin, J. Smith, E. Cash, F. Windle, and Mr. F. Groth. It was received with emphatic plaudits.

Mr. Horner's next item was "Serenade" (Widor), in which this great Parisian organist provided a delightfully Gallic musical sweetmeat, attractively presented by the player. Healey Willan's "Epilogue" brought the audience back to serious things. This talented London organist is at his best in this composition which breathes the invincible optimism of Browning's poem to Asolando, and suggests "breaking clouds" and "breast forward" in modernist, yet convincing way. It was played clearly, sympathetically, and convincingly, and at the conclusion, Mr. Horner received a great ovation. So ended a remarkably successful series of weekly organ recitals, deeply interesting to musicians and music lovers, and attended by large audiences of business folk and students.

Interviewed by a representative of The Register, Mr. Horner expressed his appreciation of the excellent attendances, and attention that had marked every one of the recitals. He had been greatly encouraged by the size and enthusiasm of his audiences. He regretted being unable to meet many wishes for favourite items to be played, but would bear them in mind, and as far as possible, do his best to comply later.

Mr. Horner was born near Glasgow in 1899, and studied under Dr. Stanley Marchant, the present organist of St. Paul's Cathedral, London. Before coming to Adelaide last February, he was organist of Woodlands Church, Glasgow, and sub-organist of St. Mary's Cathedral, Glasgow. His high artistry and genial personality have made him hosts of friends here already. The Conservatorium organ was built by Mr. J. E. Dodd, of Adelaide, and was opened by H.R.H. the Duchess of York, in 1901. It has three manuals and pedals, and contains many stops of particularly pleasing tone. The cost was £1,600, but to build a similar instrument to-day would cost at least twice as much.

DENTAL STUDENTS' SOCIETY.

ANNUAL DINNER.

The Adelaide University Dental Students' Society held their annual dinner at the Grosvenor on Tuesday, August 7. There was a large attendance of students and graduates, who entertained as their guests their professors, lecturers, and honoraries. The usual toasts were honored.

Sir Joseph Verco, the Dean of the Faculty of Dentistry, proposed the toast of "The Dental Students' Society." He said the first dental students at the University were enrolled in March, 1920, so that the Dental School had been in existence for nearly nine years. During this period the degree of Bachelor of Dental Surgery has been granted to 27 men and women, and five of them had since secured the degree of Doctor of Dental Science. To-day 20 students were enrolled as undergraduates. He referred to the recent creation of the Australian Dental Association, with its branches in the different States of the Commonwealth, corresponding in many respects to the British Medical Association. He regarded that as a step towards the unification of the dental profession, and the increase of its influence and prestige, and recommended the students, as they graduated, to join this association and do their best to make it a power in the profession throughout the land.

Musical items were rendered, including topical verses written by the students about their various guests. The arrangements for the evening were in the hands of Mr. H. F. Sudholz, secretary of the society.

The second term of the University of Adelaide will end to-day, and no further classes will be held until August 27, when the third term will begin. A number of University students will visit other States during the vacation to participate in athletic contests.

Professor J. A. Fitzherbert, who has been appointed to the chair of classics at the Adelaide University, is expected to arrive from England on August 25.

THE NEWS

SATURDAY, AUGUST 11, 1928

GENESIS OF PETROLEUM

(By Prof. Kerr Grant, M.Sc.)

Many and various are the theories which have been advanced to account for the existence of the enormous stores of petroleum in the earth's subterranean strata. Hundreds of books and papers have been written on the topic from the various points of view of the geologist, the chemist, and the biologist.

While it cannot be said that any complete and final settlement of the problem has yet been arrived at, the trend of modern expert opinion is definitely in favor of an origin based on the accumulation in past geological periods of plant or animal remains, and against the earlier theories of inorganic origin.

Few, if any, scientific men of repute would now take seriously the dictum pronounced more than 100 years ago by the great cosmologist Humboldt:—"We cannot doubt that petroleum is the product of distillation at an immense depth, and that it takes place in the primeval rocks, where the force of all volcanic action resides."

And the much more definite and plausible theory of the French chemists Berthelot and Moissan, that the deposits of mineral hydrocarbons have resulted from the interaction of water with metallic carbides of the heavier metals, well warranted as such a supposition is on the score of laboratory experiments, has failed to find supporting evidence in the actual circumstances of oil occurrences.

Petroleum Origin

The organic theory of petroleum origin is strongly supported by the almost unavoidable presence in the oil-bearing strata of the fossilised forms of marine plants or animals, or occasionally even of wood in various stages of petrification or carbonisation. Moreover, the laboratory researches of the German chemist Engler and of others have shown that oils similar to those which constitute the natural deposits can be produced from such organic residues by the agencies of bacterial action, pressure, and temperature.

The differences which exist between the oils from different fields are, it is held, explicable on the basis of differences in the nature of the raw material, of the degree of temperature, or pressure to which in the course of time it has been subjected, and particularly to the catalysing influence or chemical activity of the rocks in which the organic matter is embedded.

The precise nature of the chemical changes undergone has remained, however, somewhat hypothetical. In particular the hydrocarbons produced by the action of bacteria on vegetable refuse are, it is well known, the lower and lighter members of the paraffin or other series—marsh gas or methane most abundantly of all—rather than the higher and heavier liquid and solid forms characteristic of oil deposits.

Rare Gas Helium

Dr. Coleridge Farr, a graduate of Adelaide University, who occupied with distinction the Chair of Physics at the Canterbury College of the University of New Zealand, has made, in a recent issue of "Nature," the highly interesting suggestion that the agency which brings about this transformation is to be sought in the alpha-radiations from radium.