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**INSTALLATION
OF COMPUTER**

A grant of \$62,000 has been authorised to meet the cost of modifications required for the installation of the B6714 computer in the Computer Centre. Reporting this to Council the Vice-Chancellor (Professor N.C. Phillips) said this work had been completed and the new computer had been installed on 6 November, but the significant date would be 31 January next year when the computer was expected to be formally handed over to the University on completion of acceptance tests.

On buildings, Professor Phillips also reported that additional grants had been made to enable the tender of J. and W. Jamieson Ltd to be accepted for the Geography-Psychology laboratory block at Ilam and that of Chas Luney to be accepted for the Geography staff building.

Further progress on the University Bookshop was also reported. Council is financing the construction of the bookshop, near the Registry and the James Hight Library, for lease to University Bookshop Ltd. Tentative plans had been approved and referred to the directors of the company, who had also approved them. The Ministry of Works would next produce sketch plans.

**Political Science
Lecturer**

Associate Professor C.D. Tarlton of the State University of New York has been appointed to a temporary senior lectureship in the Department of Political Science. Dr Tarlton is a graduate of the University of California (B.A.Hons., 1960; M.A., 1961; Ph.D., 1963) and has lectured at the University of California at Berkeley and San Diego, at the University of Victoria, British Columbia, and since 1968 at the Graduate School of Public Affairs, State University of New York.

**Testing Machine for
Mechanical Engineering**

The Department of Mechanical Engineering is at present commissioning an Instron Universal Testing Machine with load-strain control to support research work in the following fields:—

Fatigue crack propagation;
Effect of voids on the strength of cast metals;
Properties of visco-elastic plastics;

Post elastic stress analysis and the development of improved surgical implants.

The purchase of the machine was made possible by research grants from the University Grants Committee and the Golden Kiwi Scientific and Research Distribution Committee to the extent of \$50,000. This equipment is capable of applying loads of up to 250 Kilo Newtons in tension and compression, cyclic loading in both loading and strain control load, as well as testing through zero from compression to tension or vice versa.

Library Vacation Hours

During the 1972-73 vacation, the following hours of opening will be observed in each library:

MAIN LIBRARY, CITY SITE

13	November - 21 December	Monday to Friday Saturday	9 a.m. - 5.30 p.m. 9:30 a.m. - 12:30 p.m.
	December 22, 27, 28, 29 January 3 - 5, 8 - 12		2 p.m. - 6 p.m.
15	January - 24 February	Monday to Friday Saturday	9 a.m. - 5:30 p.m. 9:30 a.m. - 12:30 p.m.

ENGINEERING LIBRARY, ILAM

13	November - 21 December	Monday to Friday Saturday	8:30 a.m. - 5 p.m. 9 a.m. - 12 noon
	December 22, 27, 28, 29 January 3 - 5, 8 - 12, January - 24 February		9 a.m. - 12 noon 8:30 a.m. - 5 p.m. 9 a.m. - 12 noon

SCIENCES LIBRARY, ILAM

13	November - 21 December	Monday to Friday Saturday	8:30 a.m. - 5 p.m. 9 a.m. - 12 noon
	December 22, 27, 28, 29 January 3 - 5, 8 - 12		10 a.m. - 2 p.m.
15	January - 24 February	Monday to Friday Saturday	8:30 a.m. - 5 p.m. 9 a.m. - 12 noon

All libraries will be closed on statutory holidays and Saturdays during the Christmas-New Year recess.

JOHN JOSEPH SAUNDERS

JOHN JOSEPH SAUNDERS, M.A. (London). Born Alphington, Devon, 17 June 1910; died Christchurch, 25 November 1972. Senior Lecturer in History, 1949; Reader, 1965.

John Saunders spent the 'thirties at University College Exeter, where he was a pupil of the eminent philosopher and historian, Christopher Dawson. John was proud of his connection with that fine mind and freely recognised Dawson's influence in all he wrote. A reviewer wrote of Dawson's best-selling textbook, *The Making of Europe*: "It deserves to be widely read for its fresh and original grouping of the facts and its assimilation of much recent specialised research." As much may fairly be said of John's own work.

He published over thirty articles on subjects as varied as political thought in Islam, Edward Gibbon, the Russian Revolution, the Muslim Christ and Genghis Khan and the Communists. He also wrote four books and edited two others. His *Age of Revolution* appeared in London in 1947 and in New York two years later. His *Aspects of the Crusades* and his *History of Medieval Islam* have enjoyed the favour of second editions while his last book, *The History of the Mongol Conquests*, has been so well received that it is to be translated into Turkish and Spanish. He was working on a study of medieval Europe's discovery of Asia when he died.

His subject matter was, for an English-speaking scholar, highly original. He had a gift for synthesis and wrote with unusual clarity, in both senses of the word. His colleagues — not to mention departmental secretaries — were often struck by the beauty of his handwriting and the almost total absence of corrections.

In May 1968, he suffered a severe stroke which left him partly disabled physically but unimpaired mentally. In fact, his *Mongol Conquests* (likely to prove his best book) was written entirely after that stroke, on a theme hardly touched in English and while carrying a full teaching load.

His capacity and enthusiasm for teaching were undiminished and he was looking forward to offering a new course in 1973, on the Age of Charlemagne. It was typical of John that on his return from Study Leave in September, he should volunteer to take part in the marking of Stage I exam scripts — and then mark more than his fair share.

He had a notably equable temperament and seemed a most self-reliant man — or rather, family-reliant: for he was very close to his wife and children and it gave him great satisfaction to dedicate his last book to his first grandson, Mark. Many

students will remember his powerful voice, easily defeating even Room D. He had a splendid contempt for microphones which — in his case — was perfectly justified.

P.R. May, his colleague for many years, writes:

"He immediately established himself as a superb lecturer. It was not simply the content — always admirably organised and beautifully controlled — but Saunders's flair for the dramatic and his magnificent booming voice that so compelled attention. There was no nodding of heads or shaking of watches in such lectures, and there were times when (as a student once said to me) one wished to stand and cheer."

G.W. Rice, who wrote his M.A. thesis under John's guidance, adds:

"The range and depth of his knowledge never ceased to amaze. He had a remarkable ability to make things clear, and the questions with which

he analysed detailed evidence linger in the mind as models of the historian's craft."

It is a pleasure to record that, in the last year of his life, John became the first New Zealander to be invited to stay at the Rockefeller Center, on the shores of Lake Como, where scholars of international repute may study and write in congenial surroundings.

John deserved this recognition, for he was a modest man. His writings were well received abroad, as many reviews and personal letters amply testify, but he rarely talked about his work. Arnold Toynbee wrote to John, to tell him he had found his last book "immensely interesting and stimulating". Toynbee concluded: "Well, your book will go on working in my mind, so my gratitude will be lasting." As far as I am aware, John told none of his colleagues that he had received such a magnificent tribute from one of the foremost scholars of our age.

—G.V.O.

Ross McNabb

The sterling qualities of Ross McNabb were well known at the University of Canterbury long before he was appointed Reader in the Botany Department. He was a man who bore a quiet aura of confidence — a confidence without pretence or self-advertisement — a confidence which encouraged students to work under his supervision, knowing they had the patient guidance of a true scholar who was a master of his field of research, and a friend to be trusted.

Through the terra incognita of New Zealand mycology Ross McNabb drove a path the rest of us now follow with ease.

Educated at Whangarei Boys' High School and Southland Boys' High School, Dr McNabb studied Botany at the University of Otago, winning the Holloway Memorial Prize in Senior Botany in 1956 and completed an M.Sc. in Botany with first-class honours in 1958.

Dr McNabb's professional career in mycology began at the Plant Diseases Division D.S.I.R., Auckland in 1959. In 1960 he was awarded a National Research Fellowship and in 1961 commenced his doctoral studies at Birkbeck College, London. On returning to the Plant Diseases Division, Dr McNabb continued his mycological studies paying particular attention to mycorrhizal fungi associated with both native and introduced plants. The outstanding

contribution of Dr McNabb to our knowledge of indigenous fungi was recognised by the award in 1966 of the Hamilton Memorial Prize of the Royal Society of New Zealand.

In 1968 Dr McNabb was appointed senior lecturer in plant pathology in the Agricultural Microbiology Department at Lincoln College. There he supervised Ph.D., M.Agr.Sc., and B.Agr.Sc. honours students working on a variety of mycological and plant pathological topics including soft rot fungi in exotic timbers, diseases of willows, and effects of systematic fungicides on cereal rusts and mildews, while carrying out his own extensive research on mycorrhizal and pathogenic gill fungi.

While maintaining an impressive output of research publications, which won him world-wide recognition, Dr McNabb found time to assist in the editing of the *New Zealand Journal of Botany* and to act as Treasurer of the Lincoln College Rugby Club. At secondary school Ross McNabb had been notable both as a track athlete and as a rugby footballer.

Ross McNabb was appointed to the Botany Department only in the latter half of this year, but in that short time we saw plainly that we had gained an excellent colleague — a man of exceptional ability, a scholar, a fine teacher, a tenacious worker.

To the world of mycology, to all his students, and to his colleagues, the death of Ross McNabb at the age of 37, is a shattering loss.

—B.C.A.

Appointed to Third Chair in English

Dr K.K. Ruthven, who began teaching at Canterbury as an assistant lecturer in 1961, has been appointed to the third Chair of English. He has made an intensive study of Modernist poetry, especially that of Ezra Pound.

Born in 1938 Professor Ruthven was educated at the University of Manchester, where he graduated with first-class honours in English in 1958. A scholarship enabled him to undertake a study of Modernist poetry and he later submitted two dissertations for which he was awarded an M.A. in 1959 and a Ph.D. in 1965.

Professor Ruthven lectured at first on his own specialty, but has lectured subsequently on the Romantic period, Elizabethan poetry and prose, English comedy, Renaissance poetry and prose and other courses. In the last two years he has taken an honours course on literary theory.

Two books by Professor Ruthven have won critical acclaim. They are *A Guide to Ezra Pound's "Personae"*, published by the University of California Press and *The Conceit*, published by Methuen's. He has written several articles for journals of criticism.

Mr R.H.T. Bates, a Reader in Electrical Engineering, has been awarded a D.Sc. in engineering by the University of London for his published work on guided waves, diffraction theory, aerials and radar and sonar systems. Dr Bates has been invited to present a review paper on current electromagnetic research in New Zealand at the 1973 symposium of the International Union of Radio Science at the University of Colorado in August.

Miss S. Takeshita, who has been appointed a lecturer in Japanese, is an instructor in conversational Japanese at Sophia University, Japan. She graduated in English at Meiji-Gakuin University, Tokyo, in 1960 and undertook graduate studies at Mankato State College, Minnesota, graduating with an M.S. degree in 1963. She was a Japanese language instructor at Naganuma Language School, Tokyo, for two years and an English language instructor at Kanto Gakuin College, Kanagawa before becoming a member of Japan Overseas Technical Co-operation Volunteers in 1965 and teaching at the Teachers' College and

Technical College in Vientiane, Laos. In 1968 she was appointed a Laotian language instructor at the training institute of the Japan Overseas Technical Co-operation Agency, Tokyo.

* * *

A New Zealander who joined the Canadian Research Centre 10 years ago and worked on the development of spacecraft electronic systems has been appointed a senior lecturer in the Department of Computer Science. He is Dr M.A. Maclean, a graduate of Victoria who completed a Ph.D. in electrical engineering at the University of Manchester in 1958. In 1954 Dr Maclean joined the New Zealand Defence Science Corps of the R.N.Z.A.F. and in 1958 went on attachment to the Canadian Defence Research Telecommunications Establishment to work on the development of a special purpose digital data recorder and processor for the Prince Albert Radar Laboratory. He returned to New Zealand in 1961 to work on the development of a bistatic auroral radar experiment for the D.S.I.R. at Lauder, Central Otago. A year later he joined the Canadian Communications Research Centre and from 1967 has been head of a research and development group working on computer-aided design and interactive computer graphics. He was responsible for the semiconductor device reliability programme for the Alouette II scientific satellite and for major improvements to the frequency control and receiving systems in the Alouette II topside ionospheric sounder.

Dr Maclean, who is married with three children, plans to arrive in Christchurch in early February.

Dr D.G. Jenkins (Geology) has been invited to join Leg 29 of the Deep Sea Drilling Project presently being carried out on board the research vessel *D/V Glomar Challenger*. Dr Jenkins, who specialises in studies of fossil planktonic Foraminifera, will join the *D/V Glomar Challenger* at Lyttelton on March 1 1973, and will participate in a seven-week drilling programme in the south part of the Tasman Sea and South Pacific.

* * *

Professor Hans Bolli of Zurich, Switzerland and Dr F. Proto Decima, from the University of Padua, Italy, will visit the Geology Department from 26 - 31 December. Professor Bolli is acknowledged as a leading world authority on Mesozoic and Cenozoic planktonic Foraminifera.

* * *

Associate Professor J.M. Orbell, a New Zealander, teaching at the University of Oregon, will be a visiting lecturer in the Political Science Department next year. He graduated M.A. from Auckland in 1960 and

in 1965 was awarded a Ph.D. by the University of North Carolina, the title of his dissertation being "Protest Participation Among Black College Students." Dr Orbell has since taught at Ohio State University and Oregon, at which he was appointed an associate professor in 1969.

Two new appointments have been made to the Department of Mechanical Engineering and the appointees have recently taken up their duties. They are Dr S. Naguleswaran and Dr K. Whybrew.

Dr Naguleswaran graduated from the University of Ceylon with a B.Sc. (Eng.) Honours degree and was appointed to the staff of that University as an assistant lecturer. He then went to the University of Birmingham where his thesis on "Lateral Vibration of Systems with an Axially Moving Mass" was accepted for his Ph.D. degree. Following this, he returned to the University of Ceylon where he lectured in applied mechanics. He will lecture in strength of materials and control theory at the University.

Dr K. Whybrew graduated from the University of Nottingham, also with a B.Sc.(Eng.) Honours degree and followed this by submitting a successful Ph.D. thesis on "The Effect of Flow on the Strength of Polyester Dough Moulding Components" while working as a research assistant. He will lecture on mechanism of machines in the University.

Grants made to University

Tasman Vaccine Laboratory Ltd has made a grant of \$500 to the Chemical Engineering Department to cover the costs of employing a graduate to undertake research in proton characterisation.

The department has also received a grant of \$220 from East Coast Farmers' Fertiliser Co Ltd as a contribution to a project being undertaken by Dr A. Williamson.

The Department of Civil Engineering has received a gift of \$50 from M.G. Coulbeck Ltd., of Christchurch, in appreciation of the department's assistance with some research projects.

Two Men Guided Destinies of Physics

Physics has been taught at the University from its establishment, but it was not until 1911 that a Chair of Physics was established and it was not until 1917 that the department had its own laboratories. Its destinies were guided for much of the time by two remarkable men, Clinton Coleridge Farr, head of the department from 1911 to 1937, and his assistant, Donald Bannerman Macleod, who died in March this year. Macleod joined the department as a demonstrator in 1910, was one of the first associate professors appointed after the Second World War and retired in 1953.

From 1874 Professor Alexander William Bickerton took Chemistry and Physics in the Oddfellows Hall until the Chemical Laboratory — the "old tin shed" on the site of the present Library — was opened in 1877. After one of his periodic disputes with the Board, Bickerton was relieved of responsibility for Physics in 1901 and for two years before his final departure was in charge of Chemistry only. Dr William Percival Evans, who held a part-time lectureship in heat, light and sound, became Professor of Chemistry and Physics on Bickerton's departure and from 1906 he held the Chemistry chair only. Farr, a lecturer in electricity, magnetism and surveying, then taught in the School of Engineering, also lectured in Physics and was assistant to Professor C.H.H. Cook, the founding Professor of Mathematics. When Evans dropped Physics from his responsibilities Farr became lecturer in Physics alone.

The small room in the clock tower entrance which now houses the Macmillan Brown collection was the general Physics laboratory at the time. A small screen at one end served to provide Farr with a study. Electricity and magnetism continued to be taught in the Engineering School.

Colourful Career

Farr, a colourful character, had an equally colourful career before coming to Canterbury. Born in Adelaide in 1866 (his father was head of St Peter's College) he went to University there. Sir William Bragg was Professor of Mathematics and Physics and Farr became a close friend of the family. He recalled that he often nursed on his knee the child who was to become Professor W.H. Bragg, later Rutherford's successor as Cavendish Professor of Physics at Cambridge.

Farr took engineering at Sydney University and won a scholarship to University College, London, but was compelled by ill-health to return to Sydney. He lectured in mathematics and physics there and later at Adelaide.

In 1896 Farr suggested that a magnetic survey of southern latitudes was urgently needed and with the assistance of the Kew Observatory and the Royal Society work began two years later. Observations were made all over New Zealand in the following 10 years and it was Farr who established the Magnetic Observatory in Christchurch. It became an important link in the chain of world observatories and through it Christchurch figured prominently in assisting the scientific staffs of many famous Antarctic expeditions. It also provided a valuable training ground for men who later filled important posts in magnetic and meteorological work.

In 1907 the Canterbury branch of the New Zealand Institute organised an expedition to the sub-Antarctic islands and Farr visited the Snares, Auckland Islands and Campbell Island in the Government steamer, *Hinemoa*. It was this expedition which rescued the crew of the vessel *Dundonald*, which was wrecked on Disappointment Island some eight months previously.

The College In 1910

Macleod, who was a member of the last group to finish their degrees in Chemistry in the "old tin shed", recalled that long overdue changes were taking place in the College at this time under George Warren Russell, chairman of the Board 1907-10. "At the time a two-storeyed old wooden residence occupied the space where the west block now stands," Macleod wrote in some notes he prepared on the history of the Physics Department. "It was inhabited by Mr and Mrs Amos, the caretakers of the College together with their married daughter and her husband and family, Mr and Mrs Rowe, the caretakers to the Museum. Behind this house stood the Chemistry Laboratory. Where the Chemistry laboratories now stand were several asphalt tennis courts. Tucked in between the old Chemical Laboratory and the tennis courts another old cottage served as a dressing room for the women students."

He said the old tin shed had a fine lecture theatre, larger than any available in the College. Lacking popular entertainment the public patronised popular lectures there, especially those illustrated with lantern slides. "As I was at the time the man who worked the lantern I know that these functions were very successful and well attended. The lectures were of a high standard and sometimes notable," he said.

In 1911 Physics began to emerge from its role of junior partner to Chemistry. The Board resolved in 1908 to establish Chairs of Physics and History and Economics. Farr, then 41, was selected on Rutherford's recommendation for the Physics chair (the other went to James Hight) and from 1911

until 1937 he remained in charge of the department with Macleod as his sole assistant for most of this time.

Farr, Macleod recalled, was an unconventional lecturer, but his knowledge of his subject and the essential seriousness of his purpose kept him to his path like a magnet, but judged by the standard that lectures should be presented in textbook fashion so that the dullest could write down in his notebook ready-made material for the examination paper, Farr was disappointing. "He could not resist the temptation to make a play upon words... In his later years it was suggested about the College that an amusement tax should be charged for his lectures. This is not to suggest that discipline was lax... It must be admitted that students other than those on the roll found their way into his lectures for the sake of the general entertainment. As the years went by amusing interludes became confirmed habits, but his wit was always spontaneous and his lectures never sank to dull repetition."

He was also responsible for founding the tradition of brewing tea in departments and when the Physics building was finally erected he allowed a large attic not immediately required for teaching to be used as a College tea room. The attic became the rendezvous for students and staff seeking refreshment and relaxation. When the Students' Union, with its own tea room, was open in 1929 Farr was pleased to be relieved of the inconvenience of being invaded each afternoon by scores of students.

Cold Comfort

"No such amenities for relaxation or refreshment were thought desirable in the earlier days of the College," Macleod said. "Nor for that matter were such luxuries as heating schemes, other than a fire at the top end of a few of the lecture rooms. The staff had some heat in their private rooms and stood nearest the fire while lecturing, but as far as I can remember the students bore the rigours of winter with no artificial heat and few complaints."

With the security and status of a Professor, Farr was able to plan for the future. It was accepted, even by the Board, that a Physics Laboratory was an urgent and obvious necessity. Farr went on leave in Europe and on his return began planning the new laboratory.

In 1914 the British Association for the Advancement of Science met in Adelaide and the outbreak of war sent most delegates hurrying back to Europe. Rutherford, however, continued on to New Zealand and a highlight of his visit to Christchurch was his lecture in the old Art Gallery. He was, Macleod said, the world authority on the new Physics in which he was the major pioneer. Secrets of nature,

Department for a Quarter of a Century

undreamt of two decades earlier, had been broken into by and under the direction of his genius.

Possibly his visit had a wide influence for plans for the new laboratory went ahead in spite of the war, which reduced student activity to a minimum. Advanced students were irrevocably drafted into some form of war service and the Physics staff consisted of Farr and Macleod only. By this time the old tin shed and "a dingy and inconvenient apology for an Electricity laboratory. There was only one compensation — that the subject was now under one control and the work could be organised without outside interference. And there was the promise that the new laboratory was on the way."

War-time Building

Oddly enough more buildings were completed at the College during the First World War than at any other time. They included a hydraulics laboratory in the School of Engineering, the Library, additions to the School of Art, the Registry, a men's common room, the west block on Rolleston Avenue now occupied by the History Department, the cloisters around the north quadrangle, the Biology Department and the Physics Laboratory. "When the new buildings now under construction are completed, Canterbury College will be in a position to claim that it possesses the finest block of buildings devoted to educational purposes in the Dominion," said the *Press* in 1917. "It is not only in regard to new buildings that an improvement will be effected. The ancient and unsightly tin structure which at present stands in the centre of the block is already in course of demolition and when this is removed a fine double quadrangle will be provided with direct access from all parts of the College."

Describing the new Physics Laboratory, (now occupied by the English Department) the newspaper said it was a handsome three-storey building affording ample accommodation for all branches of physics. About half the ground floor was taken up by the general laboratory of 40ft by 30ft. Round three sides was a bench fitted with gas pipes above and water below and a feature was the fine lighting and ventilation. The lecture hall was described as a fine commodious room with tiers of seats stretching from end to end and affording seating accommodation for close on 50 students. There were eight small laboratories on the first floor and the second floor would be mainly used for storage. Access was provided to a small chamber built into the roof "which has been specially constructed for the transit instrument by which the correct noon can be obtained. This instrument, the only one of its kind in

Christchurch, has been in the possession of the College for some time, but has not previously been fitted up."

The contract price for the building, which was opened in 1917, was £5500.

Macleod recalled that the new laboratory seemed palatial at the time. "We sometimes even felt a sense of guilt of having such a residence. It seemed extravagant for our then moderate requirements. It was not until the period immediately preceding the Second World War that lack of room became a problem."

The advantage both men appreciated more than any other was the workshop in the basement. A Mr Kilworth did yeoman service in organising and equipping it, but he was an old man and failed to appear one morning. He had died at his own home when attempting a task too heavy for him. He was succeeded by Mr Stanley, whose skill and experience served the department well until after Farr's retirement. "Under the able management of Mr Stanley the workshop became an integral part of the laboratory and, with the genial connivance of Dr Farr, did good service for the rest of the College," Macleod said.

Apart from the mechanic in the workshop the Physics staff remained a two-man affair. Gradually the principle of using senior students as assistants became established and in the 'thirties Mr C.J. Banwell became a junior assistant in the staff.

Research Work

Macleod said Farr was always an enthusiast for science and was never at ease unless he had some research project he was actively pursuing. In the 'thirties he carried out laborious research on the helium content of New Zealand's natural gases. Helium was then being used to inflate airships after the disastrous explosions of hydrogen-filled airships and Farr made an extensive tour collecting samples throughout the North and South Islands by motor-cycle. Installed in the sidecar of it was his elderly sister.

"It was a bold adventure, requiring a great amount of enthusiasm and preparation and the expedition strikingly demonstrates Farr's courage and lack of conventionality. Most people would not have trusted the motor-cycle outfit to have carried them further than Kaiapoi. Yet these two set out over the then dusty and rough roads of the North Island, visiting out of the way places to collect, by primitive means, samples of gas and arranged for them to be sent down to Canterbury College for analysis."

"The samples collected were brought to the laboratory and by means of charcoal immersed in liquid air gases other than helium were frozen out and an estimate made of the actual helium content. The

result was interesting from the point of view of science but disappointing from a commercial standpoint. The sample with the highest helium content came from Hanmer Springs but the total quantity of natural gas from there still left the amount of helium unimportant," Macleod said.

Farr had undertaken considerable research before then. One of his first studies was the radioactivity of rocks. The detecting apparatus consisted of a gold leaf electroscope. The laboratory had a standard solution of radium, a gift from Rutherford. In case of accident this solution was half and then one portion half again, Macleod said.

A small portion of rock was ground fine and heated with a fusion mixture in a platinum crucible. The mixture was extracted with hydrochloric acid solution and an alkaline and acid portion prepared into separate flasks, which were set aside for a month for the radium emanation to reach its equilibrium value. The emanation and occluded gases were then boiled off and passed into the electroscope and the rate of leak observed. This was compared with the standardised rate of leak when the solution containing a known amount of radium was similarly treated. Percentages of radium of the order of one part in a million were found, with igneous rocks more active than sedimentary. The results were published in 1909 and Macleod recalled that when he became demonstrator in Physics in 1910 the den below the stairway leading up to Modern Languages was filled with flasks of boiled rock samples.

Farr also tested the local artesian waters for radioactivity and was surprised to find a very high content of radium emanation, which fell off rapidly as the waters were aerated on coming to the surface. At that time the hatcheries for replenishing the trout in Canterbury rivers were in the Botanic Gardens and the fish were hatched in water direct from wells. The mortality seemed to be greater than it should be. Farr analysed the gases in the water and discovered there was an excess of dissolved nitrogen, a deficiency of oxygen and a marked radioactivity. These abnormalities became less marked as the water was exposed to the air. He suspected that radioactivity was the cause of the high mortality rate, but admitted that the deficiency of oxygen could also be suspected.

Liquid Air

While overseas Farr purchased a liquefier for the production of liquid air, but had to await the construction of the laboratory to use it. He then bought an old compressor which Kilworth repaired, but its

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Research in Physics

capacity was too small. They imagined that on one occasion they did procure a drop or two of liquid air, but on mature consideration came to the conclusion it was wishful thinking.

However, the compressor did have an honourable career. In the early days of the Lake Coleridge power scheme breakdowns were frequent because of faulty insulators. After continued exposure to the weather they disrupted under the high voltage. Farr placed pieces of the insulators, immersed in a dye, in a small pot and subjected the liquid to high pressure with the compressor. He established that some samples were more porous than others. With the assistance of a local engineering firm Farr designed a compression chamber big enough for complete insulators and the tests he undertook resulted in the use of better materials and improved designs which reduced defects.

It was probably the most significant piece of research undertaken at the College up to that time.

The department later devised equipment for producing liquid air. Its primary use was in research, but it provided the basis of interesting and often exciting lectures by Farr and Dr Henry George Denham, who succeeded Evans as Professor of Chemistry in 1923 and who was Rector from 1941 until his sudden death two years later. "With a chemical laboratory at his back I think Denham stole some of Farr's thunder with Farr's liquid air," said Macleod. Not without a sense of rivalry both professors produced many good and amusing lectures. At times liquid air was being used extensively both in the Physics and Chemistry laboratories and it was a full day's work for one, and sometimes two, to regulate and supervise the plant when it was in action. On those days the Physics workshop sounded like an Engineering School in full blast.

The liquid air plant remained a prized possession until after Farr's retirement and it was finally acquired by Victoria.

Farr and Macleod undertook "expansating and inconclusive" research on the properties of liquid sulphur, but it extended the latter's interest into the properties of fluids and one of his papers on the relation between the surface tension and density of a fluid proved a fruitful adjunct to physical chemistry.

Farr became a College "character" in the 'twenties and 'thirties. His unconventionality, said Macleod, was often due to his being in a state of abstraction or absent-mindedness, but he was always ready for a joke. In Japan for the Pan Pacific conference of 1926 he became irritated with what he regarded as excessive Japanese

courtesy and decided to outbow his host at one function. How the contest ended is not recorded, but it went on for a considerable time. On the same trip he had difficulty with a Chinese laundryman who seemed unwilling to meet his requests. Farr obtained the results he wanted by declaiming the opening lines of *Paradise Lost*.

Response to Centennial Invitations Encouraging

Considerable progress in the completion of arrangements for the University's centennial celebrations in May next year has been reported by the chairman of the Centennial Executive Committee, Professor H.J. Hopkins.

He said that in response to the initial circular some 4500 registration forms were dispatched to graduates and staff together with the first information brochure and a pamphlet about the Centennial History. The reaction had been a little slower than expected, but nevertheless encouraging when it was recalled that in the case of the ANZAAS Conference in 1968 only one-sixth of the final enrolment had registered at the corresponding time.

To date 211 persons would attend alone and 275 would bring their spouse, giving a total attendance of 761 at this stage. The most popular functions at this stage appeared to be the Centennial concert, the Centennial Assembly and the Centennial Convocation.

Reporting these figures to Council the Vice-Chancellor (Professor N.C. Phillips) said the number of acceptances from other universities and foundations was not yet known, but the indications were that there would be a large attendance. Invitations to local and professional bodies had recently been sent out by the Registrar.

It appeared likely that between 800 and 900 persons would attend the Centennial banquet.

The University Drama Society would stage a production of Ibsen's *Peer Gynt* from 28 April to 7 May and it was hoped the Christchurch Civic Orchestra would be available for it. The play would be presented in the James Hay Theatre in the Town Hall.

Many departments had formulated plans for reunions, dinners, exhibitions, symposia, lectures conversations etc and there would be a wealth of functions in which graduates and other visitors would no doubt be highly interested.

The black-figured amphora by the Swing Painter, one of the important pieces in the Logie Collection, in the Classics Department, is illustrated in a new twelve-volume *History of the Hellenic World* that is being published in Athens by the publishing firm of John C. Bastias. The illustration showing the five men walking on stilts, is handsomely produced in colour from a photograph specially taken for the purpose by Mr D.V. Sims.

The response to the University's offer to assist in finding accommodation for visitors during the period of the Centennial had been very low and it appeared that most visitors would be staying with friends in Christchurch. This mirrored the experience of the University of Otago at its centennial.

Progress was under way with the production of a pictorial brochure for sale during the Centennial and a photographer had already started taking the required photographs.

The School of Fine Arts would be arranging an exhibition of sculpture and paintings by distinguished former members of the School. This would be staged in the Town Hall foyer during the celebrations.

A University tie had been approved and was at present being woven in bulk yardage. A compromise about the width of the tie had been reached so that it would withstand frequent changes in fashion. Supplies of the tie should be received shortly before the Centennial.

Arrangements had been made to organise creche facilities for young children during the celebrations.

Tabling the first copies of the University's centennial history, *A History of the University of Canterbury, 1873 - 1973* at a meeting of Council, the Vice-Chancellor (Professor N.C. Phillips) said that, as editor of the 530-page volume, he wished to say publicly how much he appreciated the achievement of the three authors, Messrs W.J. Gardner, E.T. Beardsley and Professor T.E. Carter, in actually getting the book written. Work began only in January and February of the previous year and it was extremely gratifying that it should be published in time for Christmas of 1972.

The book is to be distributed by Whitcombe and Tombs Ltd.

Mr G.A. Hollingworth, senior lecturer in Journalism is to resign from the end of January, 1974, and will return to London. Council accepted his resignation with regret.

RADIO SCIENCE FEATURED IN ENGINEERING JOURNAL

Dr R.H.T. Bates, editor of the *Canterbury Engineering Journal*, is the principal contributor to the latest issue (No. 3) of the journal, which is devoted to seven reviews of specialist fields in radio science. The first six reviews are by those of Dr Bates's students who have already obtained their doctorates.

Dr Alan Jamieson, now in the Radio Section of the New Zealand Post Office, compares the many known methods for determining antenna radiation patterns from near field measurements. He and Dr Bates have published three papers in this area in British journals (*Electronics Letters* and *Proc. IEE*).

Dr Geoff Burrell, also in the Radio Section of the New Zealand Post Office, discusses the use of very short pulse (nanosecond or less) techniques for antenna measurements. While at Canterbury he published two papers with Dr Bates, one in a book which has just been released by Presses Academique Europeenes and the other in *Transactions IEE* (New York). Since he joined the Post Office in the middle of this year he had a paper accepted by *Proc. IREE* (Australia) and he has co-operated with Dr Jamieson to such effect that they have just submitted a paper to IEE on a very successful antenna measurement apparatus. They have also been invited to describe some of their systems work in the *Journal of the Asian Electronics Union*.

Dr John Hunter, now in the Electrical Engineering Department of the University of Manitoba, collects all the recent work on edge diffraction, in so far as it affects the Geometrical Theory of Diffraction. He has published three papers on the Geometrical Theory of Diffraction with Dr Bates, in the *International Journal of Electronics* (U.K.) and the *Journal of Engineering Mathematics* (The Netherlands). While in Canada, he has presented papers at several conferences and has had two accepted by *Transactions IEE* and the *Canadian Journal of Physics*. He is becoming almost prolific, with two further interesting pieces of work in preparation.

Dr Loy Ng, now with the Ministry of Communications in Malaysia, lists all the known methods of solving the hollow waveguide problem and he gives a table of all shapes which are treated in the literature. He has published four papers on guided wave theory with Dr Bates, in *Alta Frequenza* (Italy), *Proc. IEE, International Journal of Numerical Methods in Engineering* (U.K. and U.S.A.) and *Transactions IEE*.

Dr Chin Wong has just returned to Malaysia, to the Ministry of Information. He discusses all the ways in which Waterman's extended boundary condition has been

applied in electromagnetism and acoustics. His own work is based on P.C. Waterman's papers and on Dr Bates' Null Field method (*Proc. IEE and Transactions IEE*).

Dr Peter Napier, now at the National Radio Astronomy Laboratory of the United States in Charlottesville, Virginia, discusses how the function theoretic properties of Fourier transforms bear on the processing of practical radio astronomical data. He has published both on his own and together with Dr Bates some dozen papers in the *Monthly Notices, Royal Astronomical Society, Proc. IREE* (Australia), *Proc. IEE, Transactions IEE*, the *International Journal of Engineering Science* (U.K. and U.S.A.), *Astronomy and Astrophysics* (The Netherlands) and several conference publications. He has been invited to two select conferences.

Dr Bates introduces a possible generalized approach to holographic theory. This is based on certain of his theoretical results, published in the *Monthly Notices, Royal Astronomical Society* and the *International Journal of Engineering Science*. He has extended this work in conjunction with Dr Napier.

The Status of "Reader"

There might be a case for reverting to the title "associate professor" instead of "reader", according to Mr W. Rosenberg (Economics) in a report on study leave this year which took him to China, North Korea, Russia and Eastern European countries to study the economics of socialism.

He said the title of "reader" was unknown in all the countries in which he travelled and he found it difficult to describe his status. "I gave individuals and institutions my card showing the title 'reader', which invariably provoked questions," he said. Finally he gave up correcting them if he was described as a professor.

Mr Rosenberg believes he is only the second New Zealander to visit North Korea, which he described as a more dynamic and disciplined country than any other he had seen, and was the first visiting "professor" from a capitalist country to Albania, whose development also impressed him. He found a warm reception in both China and Albania, partly because New Zealand's name was almost universally and favourably known there. The reason for this was that New Zealand had the only Western Communist Party which declared its adherence to the Chinese, as opposed to the Soviet, line.

Lecturer as Student

Mr P.W. Watson, a senior lecturer in electrical engineering, was awarded the Diploma of Imperial College and an M.Sc. with distinction in engineering from the University of London during his study leave. Mr Watson made a deep study of power systems in particular the interaction of power electronic equipment and rotating machines and high voltage phenomena.

He said a return to student days presented many interesting views of lectures and lecturing, of student life, its administration and course needs and of academic research and its relation to industrial needs.

"Although some stories of student unrest were heard and high iron gates appeared at Queen Mary College during my stay, post-graduates within the laboratory and usually within the Hall appeared level-headed," he said.

"Particularly was this so with two of the Ph.D. students within the Power Systems Laboratory who with a committee and the co-operation of the College authorities during the previous long vacation took over the running of Imperial College's Linstead Hall. They advertised its availability for vacation accommodation, handled its running and finances and returned the profit to the University for the purpose of financing further Halls of Residence.

"One might contrast this with the surprising number of errors and irritations provided by the administration — notification two weeks before my departure of the increased length of course, notification, with only seven days to pay, of an increase in fees; the need to provide stamps to the Registry for the return of one's course results; an eight months' wait for the initial results (although both examiners saw the thesis within one month of my departure); although it was laid down in the Regulations that all students were required to take a medical examination, the notification of the appointment required an acknowledgement to be returned that admitted to expulsion for failure to turn up for the examination."

Mr Watson said in his conclusions that power system control and simulation required a background in control theory, electronics, physics and the dynamics of hydraulic machines and heat engines if student time was to be utilised effectively. To provide this an extension of undergraduate electro-mechanical energy conversion to include at least hydraulic and pneumatic converters was needed. There was a great need for better system identification and this could be obtained initially from micro-machine studies and finally with the co-operation of industry.

Many Applicants for Positions in Britain

Every advertisement for a lecturer in mathematics in Britain seemed to fetch about 120 applicants, said Professor G.M. Petersen (Mathematics) in a report to Council on his study leave in Britain and Europe earlier this year.

Professor Petersen said the heads of several mathematics departments in Britain all told him the same story. This seemed to fit in with the picture of science departments in general and it would most likely be some time before there was any improvement in the situation. It would also seem that the situation was the same over the rest of Europe, or at least rapidly developing in that direction.

In Britain, Germany and the Netherlands appropriate ministries had begun programmes which would cut the overall cost of the universities usually by sacrificing staff-student ratios or the quality of the staff. Some of the steps already taken in Germany had caused considerable concern in the academic world.

"I did have a very interesting conversation with one of the lecturers in mathematics at the Open University," Professor Petersen said. "It was his feeling that the T.V. lectures generated enthusiasm and kept the course going but that the weekly tutoring and the extensive reading list were the devices which actually transmitted knowledge. One of my former students is a tutor for this institution and had some enthusiastic reports of the results. However the Open University is by no means an inexpensive alternative to undergraduate teaching as was once suggested in the British House of Parliament.

"One piece of academic machinery I observed at Swansea and which also can be found at other universities is perhaps worth describing. At Swansea there is a separate academic committee whose only function is to consider promotions within academic staff. Such a committee has the advantage of being able to consider applications over a long period of time and without being interrupted by other business. For this reason it is able to give a mature and sound opinion. In addition, the committee is so constituted as to have the power of consulting sources outside the university during its deliberations. This too, is a help towards reaching decisions which represent the greatest equity. I would like to see a further investigation by the Professional Board of such committees as they exist in British universities and the possible adoption of some such form for promotion in this University.

"Another interesting development at Swansea since my time is that staff are now appointed by a committee consisting of members of staff and members of Council with powers to act," he said. "The members of staff are selected for this committee on an *ad hoc* basis. In short, these committees very much resemble our own committees for the appointment of professors. In most cases offers are sent off on the same day that the committee meets. I am told that this development has found favour in other British Universities."

The Value of Study Leave

Shorter but more frequent visits could be more valuable to some members of the staff than what was permitted by present study leave regulations, said Dr E.D. Jones (French) in a report on his leave, spent in France.

"To know a language, to appreciate a culture, to understand a literature and a thought, one must live with the people of that language and civilisation in as many and varied situations as possible. To teach this language and literature requires deeper and more constant contact, particularly in view of the situation in New Zealand where we have such limited opportunities to hear and speak foreign languages because of our physical isolation and our relative imperiousness to civilisations other than the English. Radio and television programmes, newspapers and magazines, theatre opera and cinema, in French, are such rare occurrences or arrive so late in New Zealand that one's first weeks on study leave are spent browsing through bookshops, reading and buying the books that take so long to order and receive back home, turning over the pages advertising artistic exhibitions and cultural activities, scanning the columns of the theatre and cinema, strolling up the Boul' Mich' or along the Boulevard Saint-Germain and thus feeling part of the Parisian and French atmosphere.

"This too rare opportunity to catch up on language and cultural changes, to 'belong' as far as possible to a different way of life, to immerse oneself in a society and a civilisation in its day-to-day routine and rhythm is essential to a teacher who wishes to impart to his students a feeling and enthusiasm for life and its variety. It is these so-called intangibles and imponderables that enable a teacher to bring a civilisation to life for his pupils."

From Leave Reports

Student strikes are like spring showers: they are unpredictable and seemingly inevitable so you just put up with them, — Dr E.D. Jones (French) after study leave in Paris.

Professor G.M. Petersen was able during study leave in London to purchase certain Roman coins so that he now has a portrait of all save five of the 60 emperors between Augustus and Constantine. He has issued an invitation to any person interested to view the collection.

Dr Jones said the opportunity to learn things from within was taken to the fullest: theatre, cinema, exhibitions, cultural and social activities, lectures, visits to monuments, home visits, discussion evenings, sports outings, weekends away with Parisian friends, close reading of newspapers and magazines, following of political activities on the radio and in the press — in order to gain a feeling for the France of the 1970's. Perhaps a fitting, and symbolic, climax to this period of a "return to the sources" was the opportunity, during the last weekend of July, to climb the Mont Blanc and thus stand on the roof of France and Europe.

"The purpose of study leave is also to broaden, deepen and bring up to date current teaching and research efforts and interests and to embark on new directions," he said. "Over the years spent at Canterbury my teaching has been in the general fields of language and literature with specialized teaching and research involvement in the French regional novel and in French literary criticism. Time was spent advancing study in these two fields and above all the opportunity was taken to undertake — and this was the new field — study in general linguistics with particular emphasis given to its application to language teaching and to literary criticism and the teaching of literature."

Three members of the Department of Accountancy attended the third International Conference of Accounting Education in Sydney under the sponsorship of the Australasian Association of University Teachers of Accounting. They were Professor F. Devonport, Dr R.W. Hopkins and Mr G.M. McNally. The hosts were the three Sydney metropolitan universities. Previous international conferences had been held at the University of Illinois in 1962 and in London in 1967.