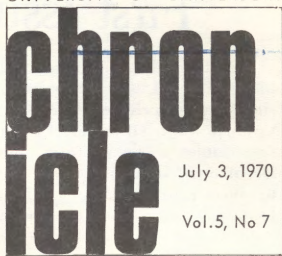


- 7 JUL 1970

UNIVERSITY OF CANTERBURY



# Educational Research Unit Begins Work

The Educational Research and Advisory Unit, approved by Council last year, is now established.

Miss Sally Hunter, who was awarded her Ph.D. in chemistry on Monday, has been appointed Educational Research Officer. She will work under the direction of the unit and will be its executive secretary.

The unit consists of the Pro-Rector (Professor J. Vaughan), the Professor of Education (Professor P.J. Lawrence), the Liaison Officer (Mr E.R. Hounsell) and the Research Officer (Dr T.G. Emery).

The unit held its first meeting last month when Miss Hunter took up her appointment.

Requests for assistance in matters of educational research should be channelled through the unit for authorisation and allocation of priorities. In the initial phase of the unit's development preference will be given to matters concerned with the gathering, collation and analysis of educational data.

Through its chairman, the unit will report to the Educational Policy Committee, which in turn is responsible to the Professorial Board.

Miss Hunter, who attended Christchurch Girls' High School and graduated B.Sc.

(Hons) from the University, has been allocated office accommodation with the Liaison Officer at 34 Gloucester Street.

## Education Year Functions

The Vice-Chancellor (Professor N.C. Phillips) will inaugurate the University's International Education Year programme with an address on "The Role of the University in Professional Education" in the University Hall on Wednesday next, July 8. Tickets are available from the Department of Extension Studies.

Faculties are also arranging special functions to mark I.E.Y., which was called by the United Nations General Assembly and Unesco to foster an awareness within member nations of the achievements, changes, needs and future trends in education at all levels. As part of New Zealand's contribution to a world-wide programme of activities, the Department of Education will conduct a National Education Week from 19-25 July. It will seek to develop a fuller appreciation of community responsibility for education by encouraging community co-operation and participation.

The Vice-Chancellor's address will be followed a week later by the first faculty function when Mr J.H. Ingram, general manager of New Zealand Steel Ltd., Auckland, will speak on "Engineering as a Training for Management" in Room E12 of the School of Engineering on Thursday, July 16, at 8.15pm. At the Science Faculty function in Room S2 at 8.15pm on Thursday, July 30, the Pro-Vice-Chancellor, Professor A. Crowther, will speak on "Science Education and the National Interest", after which heads of the Science Departments will report on current developments and there will be an opportunity for general discussion.

Professor R.V. Mattessich, visiting

Erskine Fellow in Accountancy, will lecture on "Administrative Studies as a Stronghold of the Liberal Arts" when the Faculty of Commerce function is held in the Senior Common Room, city, on Monday, July 20.

Similar functions will be held by the Law, Arts and Music, and Fine Arts Faculties next month.

## GIFTS MADE TO UNIVERSITY

"This is a particularly generous gesture," said the Vice-Chancellor (Professor N.C. Phillips) when reporting to Council that Misses C.B. Evans and F.M. Evans, daughters of the late Professor W.P. Evans, had contributed \$5600 over the last four years towards the capital of the Nelson Science Scholarship, founded by their father. The gift, he said, would enable the emolument of the scholarship to be increased.

The Vice-Chancellor also reported a gift of \$1000 from the Trans-Antarctic Association for the Zoology Department. The money is to be used for a boat for the Cape Bird station in the Antarctic. Construction of a trimaran is planned.

The Regional Planning Authority has made a grant of \$500 for research on air pollution in Christchurch. A masterate student in Chemical Engineering, Miss V. Brown, will undertake an appropriate project, which is to be completed in March next year.

Allen, Hanbury and Evans (N.Z.) Ltd has made a grant of \$250 to help pay for data processing expenses and secretarial help for research being undertaken by the Student Health Service into the medical, social and psychological aspects of sexual behaviour.

A pedestrian crossing is to be placed on University Drive between the path leading to the Science buildings and the bridge to the Students' Union.

## GRANTS FOR BLIND AID

Professor L. Kay, Head of the Department of Electrical Engineering, has returned from overseas with more than \$200,000 in grants for the development of his binaural aid for the blind and for the training of blind persons in the use of the aid.

The ultrasonic spectacles will be made in the first instance in New Zealand for distribution overseas, the Vice-Chancellor told Council when reporting on the success of Professor Kay's mission. This would not only benefit blind persons in New Zealand and overseas but New Zealand's export earnings would benefit.

Professor Kay said that 200 pairs of the spectacles would be manufactured in Christchurch and would be sent overseas next year to Australia, the United States and Britain.



# First Issue on Inangahua Quake

The Inangahua earthquake of May 24, 1968, was of particular significance to civil engineers and Council approved a special grant to enable a team from the Department of Civil Engineering to investigate the damage. Its findings have now been published in the first issue of the *Canterbury Engineering Journal*, edited by Mr R.H.T. Bates and published by the School of Engineering.

The team, which visited the quake area for a week in August, 1968, comprised Mr R. Shepherd, Dr A.H. Bryant, Dr A.J. Carr, Mr T.A.H. Dodd, Mr D.R. Gordon, Dr P.J. Moss, and Dr A.J. Sutherland, and was assisted by senior undergraduate students and technical staff.

The quake, of magnitude 7 (moderately severe by world standards), caused two deaths and severe damage to buildings, roads and railways and bridges as well as initiating many slips, slumps and rock falls throughout the Buller area. It cost the Railways Department \$474,516 in repairs, the National Roads Board \$515,000, the Education Department \$121,000, the Electricity Department \$77,332, and the Internal Affairs Department (civil defence costs) \$24,156. In addition the Earthquake and War Damage Commission paid out \$2.5 million on 10,500 claims.

In the conclusions of its 86-page illustrated report, the Canterbury team said that probably the greatest weakness of the timber buildings in the Inangahua area was in their foundations. These usually consisted of an array of free-standing piles with little or no lateral bracing and these toppled under the lateral loading due to the earthquake, shifting the building to one side, the uneven support causing severe damage to the floor and the frame, particularly at joints between sections of the buildings and around chimneys, which were usually located on large blocks of concrete and hence resisted any lateral movement. Collapsing masonry chimneys also cause a considerable amount of damage, particularly to tile roofs, with subsequent damage to interior walls and ceilings by rainwater.

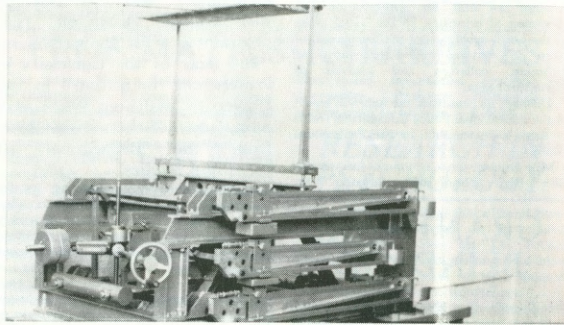
The report said the average New Zealand type of timber-framed house, provided it had a light-weight roof, an exterior sheathing compatible with the building, sufficient clearance around rigid components such as reinforced masonry chimneys, and was supported on adequate and well-tied foundations, could withstand quite large earthquake accelerations. "It seems, however, quite illogical to use brittle and rigid unreinforced masonry veneers and chimneys in a structure with a very flexible supporting frame. The masonry

components, in particular chimneys, besides sustaining severe damage to themselves, were responsible for a considerable amount of damage to the timber frame of the structure," the report said.

"The most vulnerable masonry structures were brick and pumice block chimneys. The collapse of these accounted for much of the damage that occurred, as well as for its distribution over large areas of the West Coast and as far away as Christchurch. It was observed that in spite of past and present damage to masonry chimneys no effort has yet been made to produce earthquake-resistant chimneys. Many of the chimneys rebuilt in Westport after the 1962 earthquake were damaged again in this earthquake. In most cases, they were subsequently rebuilt in the same manner as before. Neither unreinforced pumice block nor so-called 'reinforced' brick chimneys

provided a chimney that was any more earthquake-resistant than unreinforced brick. Generally no records were kept of damaged chimneys, no permits were required for rebuilding and no inspections were undertaken to ensure that even minimum standards of construction were maintained during rebuilding."

The team concluded that much material of value to those concerned with reducing the hazards resulting from earthquakes could be obtained by reconnaissance teams, providing that members of these teams were not concerned with remedial work and that they had no duties other than to study the effects of the earthquake and report on their findings. The greatest benefit would probably be gained by experienced observers concentrating on fundamental investigations of specific aspects of damage as soon as possible after the main shock.



*Designed and built in the Department of Mechanical Engineering, this wind tunnel balance cost \$600 compared with Estg3750 for a similar imported instrument. The balance has recently been installed in the low-speed wind tunnel in the department and is shown here with a model of a wing mounted in a test configuration, before its installation.*

*The balance was designed and calibrated by Mr A.J.G. Papesch, a lecturer in the department, and built by Mr A.E. Taylor, senior technician in the workshop. It was based on a study and photographs of a similar instrument at the University of Auckland which cost \$700 to build some 20 years ago.*

*The new instrument includes a number of special features. Flexible strips are used for pivot points in place of knife edges, giving no friction under balanced conditions. Spirit levels are incorporated for setting levels.*

*The three-component balance measures lift force, drag force and the pitching moment of a model placed in the 4ft by 3ft working section of the wind tunnel. It is capable of measuring lift and drag up to 35 kilograms and moment to 420 kilograms/centimetres. Readability is down to 10 grams and the balance is accurate to plus or minus 0.5 per cent of the reading taken above one kilogram. It took nearly a year to design, build, calibrate and install the instrument.*

# Changes This Month On University Council

Four changes took place on the University Council at the end of June. Mr W.G. Quirk and Miss R.F.C. Tyndall (Court of Convocation representatives), Mr E.C. Robinson (co-opted member) and Professor T.E. Carter (Professorial Board) retired.

The new Court of Convocation representatives are Miss J.M. Herbison, vice-principal, Primary Division, Christchurch Teachers' College, and Mr N.B. Ullrich, a Christchurch accountant and former president of the Students' Association. Professor A.M. Kennedy is the new Professorial Board representative. The Rt. Rev. A.K. Warren has been reappointed to Council for a three-year term by the Governor-General.

The Chancellor, Mr T.H. McCombs, in paying tribute to those retiring from Council, said they had given more than 20 years' combined service to the University. Miss Tyndall, whose life had been devoted to education as a teacher, lecturer, inspector and headmistress, had served for three terms and had excelled in committee work as a member of the Academic Committee and the Counselling and Health and Chaplaincy Committees of Council. In addition she represented the University on the Tutorial Classes Committee and on the Hillmorton High School Board.

Mr McCombs said the contributions made in the management of the University's finances by Messrs Quirk and Robinson had been invaluable. Mr Robinson, who was appointed in 1954, and Mr Quirk, elected in 1965, had assisted the University in other ways. Mr Quirk was treasurer of the successful Combined Churches' Appeal for halls of residence at Ilam and Mr Robinson represented the University on the Burnside High School Board. Professor Carter had been an effective representative of the Professorial Board.

Council placed on record its appreciation of the services of those retiring.

Miss Herbison, a graduate of the University, taught at Southland and Avonside Girls' High Schools and was Dean of Women at the Christchurch Teachers' College from 1961 to 1968. She received a Fulbright award in 1961 and studied at the University of Northern Iowa. A member of the Academic Board and Student Accommodation Committee of the Teachers' College Council, Miss Herbison is also a member of the Federation of University Women, the University

Chaplaincy Committee, the Board of Governors of Rangiora School, the Rutherford Hall Board and the Advisory Council for Educational Planning of the National Development Council and is president of the Canterbury Institute for Educational Research.

Mr Ullrich, a former treasurer and president of the Students' Association, played a notable part in the establishment of the University of Canterbury Association and the University Club. He was elected chairman of the Executive Committee when the Association was established in 1964 and on his retirement two years ago was elected a life member in recognition of his services. He is a member of the University's Student Union Planning Committee, the Gymnasium Planning Committee and represents the University Association on the Centennial Planning Committee. At present Mr Ullrich is in Edinburgh to help present the Christchurch case for the 1974 Commonwealth Games.

# ILAM: THE FULL STORY

A transposition of several lines marred the short history of Ilam on Page 1 of the last *Chronicle* (Vol. 5, no 6, June 19). The incorrect paragraph should read as follows:

Ilam then passed into the hands of Patrick Campbell, who had intended as a young man to go into the Indian cotton trade. Instead, he came to New Zealand via America in 1866 with the celebrated William ("Ready Money") Robinson, owner of the great Cheviot Hills sheep-run in North Canterbury. Robinson and Campbell were associated in many racing successes, the latter being a leading figure in the Canterbury Jockey Club. He was a staunch Scot, founding the Canterbury Scottish Rifle Volunteers, and holding the office of President of the Caledonian Society for 15 years. Before riding to hounds was established he ran paper-chases on horseback. He wished to marry Emily, Robinson's youngest daughter, but for whatever reason, "Ready Money" refused his consent and the marriage did not take place until after his death in 1889.

The error is regretted.

# Big Gift For Library

Twelve hundred books, pamphlets and journals, mainly of New Zealand interest and including many rare and valuable items, have been presented to the University Library by Miss Janet E. Storry on behalf of herself and her brother, the late Leonard Storry, formerly of Hagley Avenue, Christchurch.

The gift includes a number of New Zealand items the Library has been unable to acquire and many useful duplicates of out-of-print books which are in demand. It also includes complete sets of the *Transactions* of the New Zealand Institute, now the Royal Society of New Zealand, the *New Zealand Alpine Journal* and the *Canterbury Mountaineer and Art in New Zealand* and its

various successors. A suitable bookplate is to be included in each item. Council expressed its gratitude to Miss Storry.

# HISTORIANS' BOOKS

Mr J.J. Saunders, a reader in the History Department, has written a book, *Mongol Conquests and Their Place in World History*, to be published by Routledge and Kegan Paul, London. He is also contributing articles to the *Encyclopaedia Americana* on the Crusades and various Christian and Muslim personalities who took part in them. An article by Mr Saunders on "Genghis Khan and the Communists" appears in the June issue of *History Today*.

# Sale to D.S.I.R.

The University has now completed the sale to the Department of Scientific and Industrial Research of two properties it owned in Creyke Road. Branches of the department will eventually be assembled in a building to be constructed on the site.

Reporting this to Council, the Vice-Chancellor said this was in accord with the policy of Council of encouraging closer liaison between the University and Government agencies involved in research.

Professor G.W.O. Woodward has written a book, *Home Rule and Revolution: Ireland, 1868-1923* in the Heinemann British History Topics Series.

Professor W.D. McIntyre and Mr W.J. Gardner have edited *Speeches and Documents on New Zealand History* for the Clarendon Press, Oxford. It is hoped that the volume will be available early in 1971.—G.V.O.



## Why Aggression?

# Dr Bigelow at Unesco Conference

The theory put forward by Dr R.S. Bigelow (Zoology) in his recent book *The Dawn Warriors*, will be incorporated in a report on human aggression being prepared by the United Nations Educational, Scientific and Cultural Organisation. Dr Bigelow presented one of nine formal papers to a conference on human aggression called by Unesco in Paris in May. Entitled "Relevance of Ethology to Human Aggressiveness", the paper was mainly a direction of attention to the theory proposed in the book: that man's co-operation for waging war played a major part in his evolution.

Dr Bigelow said on his return that the theory was favourably received and would be incorporated with the other ideas proposed during the discussions.

The aim of the Conference was to promote a meaningful dialogue between social and biological sciences, with the ultimate goal of contributing toward a climate favourable for international peace and order. Dr Bigelow said. The immediate purpose was not to devise a neat package of proposals for Unesco distribution, but rather to improve interdisciplinary collaboration, and to continue the Paris discussions by mail during future months, or perhaps years.

Twenty persons took part in the discussions, including David Hamburg, Chairman of the Psychiatry Department at the Stanford University School of Medicine in California; Sherwood Washburn, Professor of Anthropology at the University of California at Berkeley; Jose Delgado, Professor of Medicine at Yale Medical School; Robert Hinde of the Department of Animal Behaviour at Cambridge; Jane Van Lawick-Goodall, well-known expert on chimpanzee behaviour; Lionel Tiger, of Rutgers University, New Jersey; and others from Mexico, Canada, France, Iraq, U.S.S.R., Hungary, Nigeria, Indonesia, India and Vietnam. The fields of psychology, anthropology, sociology, political science, law, ethology and zoology were represented.

"It is impossible to summarize the results of five days of concentrated discussion adequately in a few words, but I was most impressed with the success we achieved in actually promoting a social-biological dialogue," Dr Bigelow said. "Unesco authorities assured us that our success in this regard was unusual. Social scientists often fail to recognize the relevance of biology to human problems, and biologists frequently over-estimate the role of presumably blind 'biological urges'.

"This difficulty was resolved by unanimous agreement that scientific evidence does not support the existence of blind, irrepresible 'spontaneous instincts'—as proposed by Sigmund Freud and popularised by Konrad Lorenz, Robert Ardrey and others. We all agreed that man is indeed an animal whose evolution has

produced a nervous and endocrine system which tends to direct his behaviour into distinctively human directions. But we disagreed with the Lorenzian contention that an 'aggression-instinct' arises spontaneously inside us, rather like steam in a boiler, without any external motivation whatsoever, to drive us blindly into violence and war. Proponents of this doctrine grossly underestimate the role of learning in mammalian, and particularly in human, behaviour.

"Learning plays an absolutely vital role in the physical development of our nervous and endocrine systems. The effects of severe social deprivation during infancy (in dogs, monkeys and man) render afflicted animals permanently unable to learn normal social behaviour. Even what might be called their 'instinctive' behaviour is grossly distorted. Lone female monkeys reared in a featureless environment, for example, do not display normal maternal behaviour."

### A Male Problem?

Dr Bigelow said the role of testosterone (the male sex hormone) on behavioural development was discussed at some length. Female foetuses, exposed during very early stages of development to unusual concentrations of testosterone, grew into females who displayed unmistakably male-type behaviour later in life. This led to a discussion of the striking differences between male and female behaviour, and to the consideration of the possibility that war and aggression may not be a 'human' so much as a 'male' problem.

"Exciting results of research on the effects of electrodes implanted in various parts of the brain were also discussed," he said. "Some of these involved the turning 'on' and 'off' of such complex behavioural syndromes as aggressive, submissive, maternal and sexual behaviour. The electrical stimulations do not, however, release blind 'spontaneous instincts'. The resulting aggressive, maternal and other behaviour had already been learned; stimulated animals reacted according to their previous experience.

"Striking similarities between human and chimpanzee behaviour were described. Male chimps, for example, bite, punch and kick each others' testicles, throw opponents to the ground and jump on them—whereas female chimps pull hair and scratch with their fingernails. In current experiments, chimpanzees are learning to communicate with humans in sign-language.

"In view of the possibility that warfare played a major role in human evolution, through demanding co-operation in response to inter-group competition, it is likely that our propensities for both competition and co-operation are intimately related in a biological and structural, as well as a cultural sense," Dr Bigelow said. "Much aggressive behaviour, in both human and non-human animals, does not proceed beyond the level of threats and the ability to achieve an intelligent balance between threat and submission, advance and retreat, is very likely due to structural relationships within the nervous and endocrine systems. This possibility will be considered during future research on brain stimulation, hormonal balances, ethological interactions, and in sociological studies of human and educational systems and international relationships. One of our major sociological problems will be how to encourage competition on fair and equal terms (for example, between negroes and white in America) without permitting such competition to reach the level of violent aggression.

"We concluded that human aggressive customs can be changed, but not easily. Both our biological and social heritages contribute toward our aggressiveness, and the problem will be solved only through emphasis on intelligent developmental influences during early life. Children should, and can, be taught alternative means of coping with problems. But, unfortunately, an average of one killing every half-hour is portrayed during prime time on the three major American T.V. networks. Violent incidents occur every eight minutes, and violence is presented as a most effective means of solving social problems.

"Human aggressive reactions are provoked most often by threats to self-esteem (personal or national), and by threats to really close personal relationships (membership and status in families, clubs, nations, etc.). In order to control our aggressiveness more effectively we must discover ways to improve existing methods of teaching children to:

- (1) develop self-esteem without violent behaviour,
- (2) develop enduring relationships,
- (3) develop an image of the future with a sense of purpose, and the conception of a single world in which all mankind is striving toward the same, broadly-desirable goals. Such teaching must, of course, become world-wide.

"We have inherited biological equipment adequate for coping with these problems. We are not enslaved by blind, irrepresible 'aggression-instincts'. But we have so much to learn—and (more important) so much to un-learn—that we cannot afford to be complacent about our future prospects," Dr Bigelow said.

Papers presented at the Conference are being revised, and all twenty participants will contribute papers to an issue of *The International Social Sciences Journal* for publication next year.

## Darwin, Einstein

# Academic Impact of Computers Assessed

The academic impact of computers was substantial—to be compared with that of the theories of Copernicus and Darwin—perhaps greater than Einstein's theory of relativity and indeed the greatest academic challenge of this era, said the Director of the Computer Centre, Mr B.A.M. Moon, in a report on his study leave last year, during which he gained an M.Sc. in computer science with distinction from the University of London.

Mr Moon said it would be a natural reaction in some quarters to dispute his assertion, but the signs that it was valid were increasing. It was to be hoped that the consequent upheaval would be less than that created by Copernicus and Darwin. Nevertheless the adjustment required by universities to accommodate the intellectual impact of the computer was considerable. For example, the community of interest computer use created tended to cut across traditional faculty boundaries and some tangible recognition of this, of which the setting-up of informal users' groups was a start, could be expected to become necessary.

"Faced with this situation it would be wrong to develop an attitude in the University towards the computer of either a Frankenstein monster or a cuckoo in the nest," said Mr Moon. "The universities played a substantial part in the design and development of the earlier computers. Though this role in the area of hardware has now largely passed to the computer manufacturers, the same is not true of software where the greatest developments have been university-initiated. This history of development of good software is now repeatedly showing that it is a place in which the quality, not the quantity, of the effort applied matters most and so it is a natural one for a substantial and continuing university contribution.

"Another feature of the study of computers is the wide range of other disciplines with which it has a significant interface. This usually requires a two-way information flow. For example, to study the impact of the computer upon society, there ought to be some understanding amongst social scientists of the computer itself. On the other hand for more effective

man-machine communication and interaction the computer scientist must understand something of the social sciences. The variety of its inter-disciplinary links is another reason why the study of computers must find a proper place in the universities since only within a university can it be in contact with a sufficient number of them. It becomes evident that the setting up of a department of computer science will demand much more than an obligation to get on with its own affairs—it presents a number of peculiar challenges which do not usually face a new department *ab initio*" Mr Moon said.

### Aims of Leave

Mr Moon spent most of his leave at the Institute of Computer Science, University of London, believing that an intensive period of study and work at the institute would best meet the aims of his leave—to bring himself abreast of current theoretical developments in computation and their place in the university scene; to gain practical experience of large computer systems possessing sophisticated, but efficient software support; and to acquaint himself with the present and planned facilities in university computer centres and the state of the art in their management.

The M.Sc. course he took in computer science comprised a full year of formal study and project work. His thesis was on "Some Investigations of the Semantics of Programming Languages". His investigations were sufficiently encouraging to suggest that more work along such lines would be worth-while. A useful by-product was the discovery of a simplified approach to the teaching of list-processing concepts which gave a powerful general method for many non-numerical computer applications.

Mr Moon did not compare computer facilities in New Zealand universities with those overseas in his report—recent leave reports by colleagues had done so clearly enough, he said. "The genuine need in our universities for more computer power and versatility is accepted nationally, and substantial moves are afoot to provide it. Suffice it to say here that this seems to be an area in which the rich get richer and that there is no sign yet that the nature and level of university computer use is reaching saturation, so we must continue to make positive and substantial plans for computer development in the foreseeable future," he said.

# Rights for Club Visitors to Sydney

The University Club now has a reciprocal membership agreement with an Australian Club. It is the University of New South Wales Graduates Club Ltd., 243 Commonwealth Street, Sydney.

Members of the University Club who plan to visit Sydney may have honorary membership of the Graduates Club. No subscription or entrance fee is required and visitors will enjoy all the privileges of the Club, including the right to introduce visitors.

Members of the Sydney Club gain entrance by inserting a magnetically-coded card into a slot beside the front door. Members of affiliated clubs will gain access by using the front door intercom. To the receptionist, who can also operate the door from her desk.

The Sydney Graduates Club was established in 1968 and has some 1600 members in two groups—graduates of Australian and overseas universities, as ordinary members, and persons who have distinguished themselves in some way in their calling. They may be invited to join as associate members, but are not able to take part in the running of the club.

Members of the University Club travelling to Sydney will require a card, signed by the secretary, for identification purposes. These are available from Mr E.T. Beardley, University of Canterbury, (Phone 65-819, Ext. 768).

The University Club now has reciprocal membership arrangements with six other clubs: the Oxford and Cambridge Club, London; the University Club, Dublin; the Ulster Club, Belfast; the Northern Club, Edinburgh; the University Club, Los Angeles; and the Auckland University Club.

## OPEN NIGHTS IN PHYSICS

The Physics Department is to repeat a successful experiment it made three years ago and hold three Open Nights in the department. The dates set are Tuesday, Wednesday and Thursday, September 8, 9 and 10. The department will be open to the public on each night.

In addition to displaying equipment and work at present being undertaken, the department plans to invite displays from other organisations to show the applications of physics.

Hundreds of visitors inspected the department when the first open nights were held in September, 1967.



# New Professor in Mathematics

A New Zealand-born mathematician whose work is world famous has been appointed a Professor of Mathematics at the University. He is Professor R.P. Kerr, who is at present Professor of Mathematics in the University of Texas, Austin.

Professor Kerr, who graduated M.Sc. with first-class honours in mathematics from Canterbury in 1954, is the author of the "Kerr Solution", a rigorous solution of Einstein's equations which gives the exterior gravitational pull of a rotating body. The solution has been described as the most significant advance in general relativity theory since Schwarzschild obtained the gravitational pull of a non-rotating spherical mass in 1916.

For almost 50 years after Einstein put forward his general theory of relativity, exact solutions of vacuum equations which could claim to be realistic were confined to Schwarzschild's solution. Professor Kerr's solution, published in 1963, enabled an exact analysis to be applied in the case of a spinning body. To date no mathematician has been able to construct an interior solution to match Professor Kerr's exterior solution.

The Kerr solution is expected to be of considerable importance in astrophysics because it is now believed that strong gravitational fields may play an important role through the phenomenon of gravitational collapse. In addition the solution lends itself to a detailed mathematical analysis, as other mathematicians have since demonstrated, for general solutions of Einstein's equations.

Born in 1934, Professor Kerr received his early education at the Knappdale school, near Gore, and Otago Boys' High School before enrolling at St. Andrew's College, Christchurch, of which he was dux in 1950. He was a senior scholar at the University in 1954 and won the Cook Memorial Prize in mathematics. He also won a boxing "blue".

Awarded a Sims Empire Scholarship, Professor Kerr undertook post-graduate work at Cambridge and took a Ph.D. degree there in 1960. He did post-doctoral work in the Physics Department of the University of Syracuse and then joined a group working on problems of relativity at the



PROFESSOR KERR

Aeronautical Research Laboratory, Dayton, Ohio. In 1962 he accepted an appointment as a lecturer at the University of Texas. He was appointed an associate professor in 1963 and a professor in 1967.

Professor Kerr is a son of Mr and Mrs P.M. Kerr, of Christchurch. He married Miss Joyce Anning, also of Christchurch, in 1955. They have two children.

Dr C.J. Burrows (Botany) and Mr F.W. Fahy (Mechanical Engineering) will attend the ANZAAS Congress in Port Moresby in August.

Mr B. Wearing, a lecturer in the History Department, has been invited by the NZBC to record four 15-minute programmes on Latin America. He is currently acting as Head of the History and Political Science Department at the Inter-American University, Puerto Rico, while on year's exchange with Professor I.P. Pflaum, who is lecturing in American Studies and Political Science at Canterbury.

Mr L.F. Hampton (Accountancy) is to attend the Australasian Association of University Teachers of Accounting conferences in Adelaide in August and will also visit universities in Australia.

Professor W.D. McIntyre (History) will represent the New Zealand Institute of International Affairs at a conference on the Pacific Basin to be held at the University of Chile, Santiago, from 27 September to 3 October. He has been invited to contribute a paper on "The Changing Role of the U.S. in the Pacific".

Professor D.A. Kidd, Dr R.W. Fisher, Dr L. Lusis, Mr R.P. Bond, Mr A.K. Lojkine and Mr J.D. Goodliffe will attend the AULLA Congress which is to be held in Melbourne next month.

Mr J.E. Cookson (History) will be awarded a doctorate in philosophy for his thesis on "Lord Liverpool's Administration: 1815-22" by the University of St Andrews this month. Mr Cookson, an M.A. graduate of Canterbury, studied at St Andrews from 1965 to 1968 as a Commonwealth Scholar.

Professor A.M. Kennedy, Dr R.B. Keeley and Dr J.B. Stott, all of the Chemical Engineering Department, will attend the CHEMECA conference being held in Melbourne and Sydney next month.

Canterbury representatives at the convention of the Royal Australian Chemical Institute convention in Canberra in August will be Professor B.R. Penfold, Dr J.M. Coxon, and Dr J.G. Fergusson, all of the Chemistry Department.

Mr A. Chan (Political Science) is to attend the Australasian Political Science Association conference in Canberra; Dr C.C. Kissling (Geography) is to attend the Australian and New Zealand American Studies Association conference in Melbourne; and Dr R.N. Hughes (Psychology) is to attend the annual conference of the Australian Psychological Association in Hobart. All these conferences will be held next month.

Mr G. Maslakov, a temporary assistant lecturer in the Classics Department, has been appointed a lecturer.

Mr R.F.J. Cole, of the Chemistry Department, Royal Holloway College, Egham, United Kingdom, has been appointed visiting lecturer in chemistry.

Mr W. Rosenberg (Economics) is to be acting head of the department during the absence overseas of Professor A.D. Brownlie in September and October.

Mr D.W. Bain is to replace Mr W.G. Quirk on a special committee conferring on relations with the Christchurch Technical Institute.

# Transportation Studies

## More University Attention Proposed

Greater attention should be paid to the study and research of transportation subjects, said Mr A. Williman (Civil Engineering), in a study leave report. Mr Williman spent last year studying highway and traffic engineering, its practice, teaching and research, mainly with the traffic studies group of the Civil Engineering Department, University College, London.

Mr Williman also said there should be greater collaboration between the departments involved with these subjects. Substantial co-operation had existed for several years between some members of the Civil Engineering and Geography Departments. What was now needed was that other departments and persons should contribute to this work. Co-operation in the form of sharing lectures, lecturers and material resources as well as joint work upon investigations and researches, offered the chance of improving and extending the teaching and research upon transportation topics, at modest cost.

"Many opportunities exist for sharing the human and material resources of different university departments," he said. "One of the needs of the University is for a transportation 'pep' group to seek for ways of exploiting these opportunities."

Mr Williman said it was probably not too early for New Zealand to contemplate the establishment of a university traffic or transportation institute. At present the country had neither a university institute to give postgraduate teaching in transportation subjects nor any government laboratories concentrating upon transportation researches. There could be no doubt that there was ample need for such an organisation: local problems abounded in relation to all forms of transport and must, in large part, be solved by local investigations made by local investigators. It was a function of a university to produce both investigations and trained investigators.

### N.Z.'s Needs

Mr Williman said it had been most interesting to see overseas highways research against the background of New Zealand needs. Currently more than 90% of passenger-miles and more than 40% of ton-miles of goods haulage in New Zealand were made by road traffic. About \$100 million was spent annually on New Zealand roads for construction, maintenance or repair and, in addition, urban development and renewal posed serious planning and traffic problems.

To a greater extent than in other branches of engineering, highways offered local problems which differed from those of other countries or localities, he said. Frost and snow were obviously important road problems, in some localities, but equally important were the moisture content of subsoils and the summer temperatures of pavements and these might be affected by less obvious climatic factors. For reasons of economy highways were always built to the greatest possible extent of local materials and this obviously introduced local problems. Maximum legal axle loads were of critical importance and they too illustrated the importance of local factors. Thus New Zealand had only 234 million people to pay for its 57,000 miles of highways yet heavy loads of timber, wool, milk, or livestock might originate on practically any part of the road system. Many roads carried infrequent traffic but a high proportion of very punishing loads.

Another distinctive feature of New Zealand's highways arose from its low population density. There were only a few localities with sufficient population to justify an effective system of public transport and there was a correspondingly greater need for efficient private motor

travel. This was as true for the daily trip to work as it was of leisure visits to seaside, mountain or countryside. Even the road accident problem differed significantly in New Zealand from that of the U.K., for example, and might respond to different remedies.

"These points establish, it is hoped, that there is an special need here of both trained highway engineers and of local research to confirm, modify or counter opinions formed by workers overseas," Mr Williman said. "They illustrate also how many-sided are highway and transport problems for they concern national resources, systems, finance and human factors as well as the more tangible matters such as land, material and construction methods. It is apparent that studies of transportation subjects are multi-disciplinary. This is a feature of the larger overseas institutions where one may, for example, find highway engineers, traffic engineers, statisticians, geographers, town-planners, economists and other workers together in one institution or sharing courses, lectures or physical resources. Institutions interested in road accidents may go even further and add doctors, psychologists and mechanical engineers to the team."

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# MINISTER REPLIES TO COUNCIL

Mr George Gair, Parliamentary Under-Secretary to the Minister of Education, will visit the University at the end of the month for informal discussions.

Reporting this to Council, the Vice-Chancellor (Professor N.C. Phillips) said he did not think any useful purpose would be served by formally debating with Mr Gair a letter he sent to Council replying to a motion of censure Council passed at its May meeting.

"Your Council has placed me in a situation where I must reply quite frankly, because the public is entitled to assume the widely-publicised observations of a university council are deliberate and responsible, and are made with full regard for the implications and the consequences," Mr Gair said in his letter.

"In the first place, I made no statement on the role of university councils. Were I to do so, I would have devoted a substantial portion of my speech to the subject. I did, however, make the observation that university councils would be wise to note a growing public impatience with certain student behaviour and also to remember who paid for university education and the fact that there is continuing competition for public funds for a wide range of worthy causes. Council members will be aware that the running, maintenance and growth in the university sector of education will cost the taxpayer something like \$250 million in the next five years. I was concerned—as those who have read the transcript of my speech will have observed—to place education and education's needs before the public in a positive sense. I was concerned also to identify some of the evident weaknesses in education's present standing in the eyes of

the community so that they might be remedied or at least better understood. I consider it my duty as a Member of Parliament, and as a member of Government with responsibilities in education, to do so. And I will continue to speak frankly, and I trust fairly, on matters of public interest and concern.

"May I repeat that portion of my speech which relates to this:

'Another liability which it seems we must carry at times in our endeavours to improve both the quantity and quality of education comes from the few—and again, I repeat, the

few—who dull the image of the university student. Whether it is clamour for legalised "pot" or participation in unruly protests, it may be treated by some as youthful high jinks, but to the great majority who made up the thousands of tired taxpayers it is too much, it is an abuse of a privilege other generations have not shared. It is worth reminding the minority of students who seem to speak and act without regard for the consequences to the standing of education, and especially the university, in the eyes of the community, that higher education, paid for by the taxpayer, is not a natural right, but a community-financed privilege. Studentship is but a phase in life, a preparation for a far more important learning and living phase beyond the ivory towers. Those who do not propose to work sensibly during their student years should take notice of a growing mood among taxpayers that they have had enough, that those who abuse a privilege should get out and make room for others. University councils would do well to note this growing trend of public impatience and remember that they live by a flow of public funds which can be slowed or stopped, or diverted to other causes which serve the taxpayer better.'

"I invite members of Council to read and ponder this extract from my speech which has been misconstrued in some quarters. Can they find in this any attack upon the University or on freedom of speech in the universities?

"The last portion of the above quotation makes the same point as the Rev. D.R. Wilson used in attacking my comments. I quote from the *Christchurch Press* of 26 May: 'As a council we are aware that any

## Newsletter On Education

The Education Department is dependent on the schools in and around Christchurch for opportunities to carry on research. On numerous occasions headmasters and teachers have allowed staff and students into their schools and classrooms and have put up with intrusions into their time and work.

As a way of acknowledging this debt, the Department has commenced publication of a newsletter aimed at communicating to teachers the results of the research they have made possible. It is hoped that this newsletter will keep teachers informed about the work of the department and enable them to make use of the results.

There have been three issues of the newsletter and the circulation has grown rapidly with requests coming from headmasters throughout New Zealand.

Government has only so much to come and go on, that it will decide its own priorities and dispense money accordingly. We may disagree how much but we do not dispute its right.'

"I note now the four points your Council wishes to draw to my attention:

"That you are 'aware of the need for public support for the university in all it seeks to do'. I am delighted to hear this," Mr Gair said. "The motion you passed censuring me would seem to contrast strangely with this appreciation.

"That you 'uphold unequivocally the freedom of all students and staff to demonstrate or protest their beliefs, within the law'. With this I agree entirely. If members of your Council look carefully at the transcript of my speech in the House they will note I referred specifically to 'unruly'—which I hardly need inform members is synonymous with lawless.

"That you 'stress that students who are academically below standard or who seek to abuse the university as an institution are liable to suspension at all times.' I am pleased to note this. I hope Council makes this point clear to the public, and I hope this is not a dead letter but an aspect of university administration which is acted upon when necessary. I would be most interested to hear from Council how many suspensions, and in what circumstances, have been made in the past 10 years.

"You 'strongly protest' at what you claim is an 'attempt to use the behaviour of a tiny minority as a threat to curb funds needs for university development'. Council has misread my message. Let me hasten to remind members that I was most careful to refer to 'the few' who were responsible for dulling the image of the university. My hope—appreciated I am pleased to note by some members of your Council—was that university administrations throughout New Zealand would appreciate the damage being done to the university's standing by 'the few' and do something about it, even if only to make it abundantly clear to the public that university administrations did not support such behaviour and were prepared to act if necessary. Or does point three of Council's letter of 25 May mean nothing?

"I have been surprised—and frankly a little disappointed—to note the hypersensitivity with which certain elements of university management in this country have reacted recently to well-meant criticism—both from within and without the universities," he added. "And in these over-sensitive responses to criticism there have been frequent references to 'freedom of speech' and the 'right to lawful protests'. Taxpayers and parliamentarians may surely claim this freedom of speech and this right to lawful protest also," he said.