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Environmental Sciences**Joint Centre With
Lincoln Established**

A Centre for Environmental Sciences has been established jointly by the University and Lincoln College. It will both promote research up to the Ph.D. level and offer a two-year course leading to the degree of M.Sc. in resource management.

The course, which will be broadly concerned with the conservation and improvement of the human environment, will begin next year. Applications for the position of Director of the Centre are being sought in New Zealand and overseas.

The course will be multi-disciplinary. The prerequisite for entry will be a bachelor's degree of acceptable relevance and standard; and previous experience may be taken into account.

Announcing the establishment of the centre in a joint statement, the Vice-Chancellor (Professor N.C. Phillips) and the Principal of Lincoln College (Sir Malcolm Burns) said there was a clear and urgent need in New Zealand to ensure that the natural, rural and urban environments were developed and husbanded in a wise and informed way, bearing in mind long-term as well as short-term goals.

"Because of the concentration of interests in man and environment in Canterbury, with the applied Faculties of Agriculture, Engineering and Forestry, and with strengths in ecology, social sciences, landscape architecture, urban and regional planning, range management, resource economics and the application of computer techniques, we believe that the two institutions together are in a unique position to take a lead in the development of interdisciplinary approaches to teaching and research in environmental sciences," they said.

There would be an increasing demand for graduates trained in the broad principles of resource management among Govern-

ment departments, local authorities, regional bodies and some industries, they said. The new course would train graduates to understand the many-sided problems of resource management and would equip them with knowledge and skills to enable them to contribute to resolving those problems.

The Director of the Centre will have the status of a professor and will have a seat on both the Canterbury and Lincoln Professorial Boards. His location will depend on his own special field of interest. The Centre will be administered by a Joint Board of Studies.

Regulations and prescriptions for the new degree have been approved. The course will consist of seven papers, three of them compulsory — man and the environment, principles of resource management and case studies in resource management. There will also be four papers normally taken from appropriate advanced courses at both institutions. Students will have to submit a report on a project approved by the Joint Board of Studies.

The paper on man and the environment will include studies on human nature, population processes, human institutional forms and processes, concepts of welfare and utility, social and cultural change and man in the ecosystem. For the paper on the principles of resource management the topics will include the ecological basis of resource management, an introduction to the practical ethics of resource use, temporal, spatial and cultural considerations in the allocation of resources and the political, legal, fiscal and administrative aspects of resource management, with special reference to New Zealand.

The third compulsory paper will deal with the analysis of specific resource and environmental problems in a multi-disciplinary research workshop.

Mr R.J. Bowen, an articulated solicitor in Britain, has been appointed an assistant lecturer in the Faculty of Law.

**Club
Open
Again**

The opening date for the new premises of the University Club has been set for Friday, 24 November, at 5 p.m. All members have been invited to visit the new Club, on the second floor of Hallenstein's Building. Light refreshments will be available free of charge at the opening.

The Club will be open from the following Monday with its usual services — morning and afternoon teas and luncheons from noon to 2 p.m. The bar will close at 7.30 p.m., except on Fridays, when it will remain open to 10 p.m.

The Club's annual Christmas Party will be held on Saturday 16 December and tickets will be available at the opening.

The managing-steward of the Club is Mr Ralph Jones, who retired from the Royal New Zealand Air Force in 1963 after 24 years' service. He served in Japan and Fiji and was secretary-treasurer and president of Air Force messes at both bases, and at Wigram and Hobsonville.

**Refresher Course
for Teachers**

This year the Chemistry Department, in collaboration with the New Zealand Department of Education, has provided a refresher course for teachers. The lectures were held at 8 a.m. each Wednesday throughout the three terms so that some 30 teachers and Teachers' College lecturers could attend with little interruption of their duties.

The course was designed to bring the teachers up to date with recent developments in chemistry, and in the teaching of the subject at the Stage II-III level. At most of the lectures, summaries were provided so that note taking could be kept at a minimum, and attention concentrated on the lectures and demonstrations.

Planning at Canterbury 'Sound'

The Director of the Computer Centre (Mr B.A. Moon) is pleased that a large computer network was not adopted for New Zealand universities after visiting the United States to undertake investigations and training in preparation for the installation at the University of the Burroughs B6714 computer system.

Installation of the B6714 in the Computer Centre has already begun.

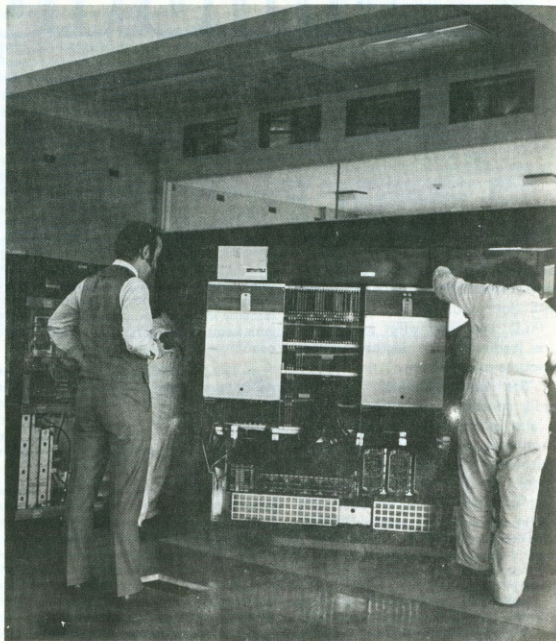
Mr Moon said in a report on his leave to Council that there was a good deal of common agreement in the antipathy expressed towards large computer networks. It was shared by both those who were or might be at their foci and also those on the periphery.

"In system development I was assured that our planning here so far is sound and at about the right level of complexity," Mr Moon said. Certainly some institutions have substantially more teletypes and other low speed terminals, but they are usually supported by a great deal of central hardware and are not always effectively utilised. Few universities currently employ as many high speed data communication lines as we now envisage here. Likewise, real-time graphics is only just emerging from the experimental stage so that the universities are only now installing graphics systems as general facilities. In total it is probably fair to say that developments at Canterbury following installation of the B6714 will produce a range of facilities which compares well with that at most U.S. campuses."

Mr Moon visited the University of Delaware and the University of California, San Diego, both of which have substantial computer centres based on the same kind of equipment Canterbury is now installing. He said it was evident that potentially the B6714 would permit a wider range of computing activities than had been possible before but that limitations in the initial configuration to be delivered in Canterbury would impose restrictions in some respects.

"In some areas, notably the processing of large numbers of small undergraduate programmes and for tasks involving large amounts of arithmetic, the improvements it offers are perhaps rather less than we should have liked," he said. Hardware and software reliability might not reach the standards we have been accustomed to expect from the 360/44, but no doubt will be subject to improvements. However early teething troubles with the B6714, which were considerable, now seem to have been largely overcome and it appears to be a suitable sort of machine for educational purposes."

Mr Moon attended a meeting of



Part of the B6714 system being placed in position at the Computer Centre on 6 November.

directors of computer centres at Rochester, New York, and though it entailed receiving a second battering from Hurricane Agnes it was well worth-while to obtain some first-hand knowledge of the flavour of computing operations at some well-known United States universities and the manner in which they faced problems in the management of an explosively-developing technology and rapid growth in demand. "I learned, for example, that the average time of holding an appointment as director of a university computer centre there is somewhat less than three years and on some occasions all the holders of senior computer centre positions have changed within this time," he said. "While this duration of office may compare favourably with that of some United States university presidents it is perhaps indicative of the stressful and demanding nature of a centre director's job.

"There is a good deal of variation between universities in the position of the director within the university structure and within universities from time to time. This appears to demonstrate some genuine difficulty in determining the position of a director that acknowledges adequately the responsibilities which he must bear and also his relationship to other sections of the university. Lack of suitable solutions contributes, no doubt, to the high turnover rate experienced."

Mr Moon said that on the subject of advanced planning it was admitted in some cases that the total horizon was not more than two years ahead. This was sometimes accounted for by a lack of knowledge of the money that would be available, but nevertheless contrasted sharply with Canterbury's present situation, in which a planning period of more than seven years ahead must be considered.

Income of \$8,355,000 Estimated for 1973

The University estimates for 1973 show a projected income of \$8,355,269 and if all staffing positions were filled expenditure would amount to \$8,437,908. Present indications suggest that the amount likely to be spent on salaries will not reach the provision in the estimates (\$5,747,306) because of positions remaining unfilled.

The Registrar (Mr G.G. Turbott) said in a report to Council, which approved the estimates, that the

INCOME (Main Items)	1972	1973
	\$	\$
Government grant	6,586,910	7,262,582
Tuition fees	817,212	825,437
Extension studies fees	36,000	36,000
Rentals from endowment lands	40,000	39,000
EXPENDITURE (Main Items)		
Salaries	5,075,546	5,747,306
Research Fund	65,000	75,000
Re-Equipment Fund	60,000	65,000
Working Equipment	374,730	422,700
Extension Studies salaries	83,360	92,536
other	48,940	39,764
Cleaning and caretaking	210,000	230,000
Expenses of staff appointment	110,000	120,000
Upkeep of Grounds	65,000	75,000
Heating and lighting	195,000	220,000
Library	250,000	305,000
Maintenance	250,000	300,000
Study Leave	78,000	86,000
Telephones Postages	75,000	85,000
Travelling, Staff Conferences	32,000	35,000

"This budget is for the fourth year of the present quinquennium; the significant increases recorded under

projected deficit of \$82,639 would be reduced by the reduction in salary costs arising out of unfilled positions although a changing pattern of employment, remarked on last year was evident in most disciplines; this had resulted in reduced staff turnover and in fewer positions remaining unfilled.

The following figures taken from the estimates show the more significant items (the 1972 figures are included for comparison).

most items of expenditure are in part a reflection of inflation," Mr Turbott said.

A New Te Kura Ngahere

One of the achievements of students in the old School of Forestry at Canterbury College was to produce a magazine about the school. It was called *Te Kura Ngahere*, meaning the sacred or scientific law pertaining to the forest.

This year the Forestry Society at the school has produced a new *Te Kura Ngahere*, nearly 40 years after the appearance of the last issue of the old magazine. One of the principal contributors to the new magazine is Mr Frank Hutchinson, the first editor of the original magazine, and subsequently a lecturer in the old school.

The magazine has been revived for

two reasons, according to the editor, Mr W.G. Wooff. "The first is a matter of sentiment," he says. "The second is the provision of a means of communication between the school and the forestry industry. I hope that through this magazine those in the industry will gain some idea as to the interests of the students and the work of the school."

Articles by members of the staff of the school, abstracts of honours dissertations, a discussion of the West Coast beach utilisation scheme and a section on the activities of the Forestry Society, the successor of the old school's Forestry Club, are included in the magazine.

N.Z. Transport Studies Centre Advocated

Considering the importance of transport in the New Zealand economy and the paucity of graduates in the field, Dr C.C. Kissling (Geography) hopes a place may be found eventually in a New Zealand university for a multi-disciplinary Transport Studies Centre.

Dr Kissling spent much of his recent study leave investigating urban public transportation in North American and Britain, including 90 days at North-Western University on a fellowship from the American Council of Learned Societies. He said the New Zealand centre be proposed could be similar to the one at North-Western but it should at least have the aim of producing graduates qualified in the field of transportation studies.

"One particular innovation in transport of considerable interest to me is the introduction of demand-responsive public transit systems in a number of American and Canadian cities," he said. "Rather than spell out the details of such systems, a number of which I was able to look over in person, I have appended a paper I wrote on the subject for the journal *Traffic Engineering and Control*, following discussions which took place at the Transportation Engineering 1972 Conference at the Imperial College of Science and Technology, London. I feel that such systems warrant further examination as a possible means of handling the travel and parking problems of this University at its Ilam site in the future.

"My time in the U.K. enabled comparisons to be made with the ways in which public authorities are tackling the urban and rural transportation problem and the plight of city centres. In many U.K. cities pedestrianisation of central city streets is helping to breathe new life into the city centre generally, especially when revamped public transportation is co-ordinated with such efforts. Mr M.L. Gadd, Traffic Engineer with the Christchurch City Council, was on leave at the same time as I was in the U.K. We are hopeful that some of our joint efforts there may help stimulate further combined research back here in Christchurch. Certainly our similar experiences in the U.K. and on the Continent have suggested possibilities of combining the academic and practical approaches to urban transport problems.

Mr D.W. Bain has been reappointed a Council representative on the Lincoln College Council.

Canterbury Collegiate Union Began

Although the University will celebrate its centennial in May next year, higher education in Canterbury actually began 100 years ago this year when the Canterbury Collegiate Union, the forerunner of Canterbury College, began classes in Christchurch.

The Union was the outcome of Canterbury's determination to establish a system of higher education in what was believed to be a somewhat superior province and also to prevent Otago University, founded in 1869, from becoming the University of New Zealand. The fight was led by Henry John Tancred, the first Chancellor of the University of New Zealand, who had arrived in Canterbury a year after its foundation after seeing active service in the Austrian armies in Hungary and Italy. He held offices in three colonial ministries, had long been a member of the Provincial Council and was active in all educational movements.

Canterbury in the 'sixties had none of Otago's great wealth, won from its gold-fields, and the prospects of establishing a centre of higher education in Christchurch seemed remote. But an economical and effective scheme was devised. The device was a union of the Canterbury Museum and Christ's College: the Canterbury Collegiate Union. It took place formally at a conference at Christ's College on 14 August, 1871.

Influence of Tancred

How the union came about remains something of a mystery, but probably Tancred was the major force behind it, although he has not been credited with it. Indeed H.F. von Haast, in his *Life and Times of Sir Julius Von Haast* (Dr Julius von Haast was Director of the Museum) says Haast and Bishop Harper — "so tradition says — put their heads together and arranged for conferences between the two bodies." Cox's *Men of Mark in New Zealand* says Haast, together with Bishop Harper, founded the Canterbury Collegiate Union. And Charles Christopher Bowen, the first President of the Union, said in a Diploma Day speech at Canterbury College in 1884: "It will in future redound to the credit of Christ's College and the Museum — I see them here today side by side (Bishop Harper and Haast) that setting aside all questions of self-interest they united to provide, under great difficulties, the lectures necessary to obtain affiliation to the then infant University of New Zealand. This action led

to the establishment of the College on its present basis."

Whoever was the originator of the Union, there was no doubt that it greatly strengthened the hand of the University of New Zealand, established in 1870, in its negotiations with Otago. The governing Board of the Union comprised six members of the Museum and six of Christ's College as well as the Superintendent of the Province, William Rolleston, the Provincial Secretary, W.A. Kennaway, and the Speaker of the Provincial Council. The Speaker was Tancred; he was also Chancellor of the University, which then had its headquarters in Christchurch.

"It is evident that we have here one of the local teaching institutions so much desired for the university system by Tancred — what might, in fact, be described, if unkindly so, as an interlocked company," says J.C. Beaglehole in *The University of New Zealand*.

The Union certainly extended a ready sympathy to Tancred. "The Governors of the Collegiate Union desire to express their regret at not having been able to make definite arrangements at an earlier period owing to the uncertainty hanging over the plans of the University," Bowen wrote to Tancred in August 1871. "As you have already been made aware the great object of the Union has been to bring into active co-operation with the University the available teaching power in the Province and the Governors of the Union will hasten to extend their efforts as soon as they are satisfied that the present plans of the University will be placed on a permanent footing. They will join with you in hoping that the Governor will not be advised to refuse his assent to renewed regulations to the same effect as those now in operation and they are therefore willing to take action at once if the Council sees its way to grant affiliation in the terms suggested in this letter. I need scarcely say how much the present proposals of the University will tend, in this Province at any rate, towards the promotion of Education in its higher branches."

The terms suggested were an annual grant by the University of £500, in return for which lectures were to be offered in classics, mathematics, physical science and general history, with hopes of an extension to astronomy, chemistry and English language and literature. There was no dispute about this, though the University could provide only £300 (the Provincial Council made a grant of £350) and the Union was affiliated to the University in April, 1872.

Lecturers Appointed

In the previous month the Union had appointed its lecturers. They were the Rev. W.C. Harris (Classics), Dr von Haast

(Geology), Dr Llewellyn Powell (Botany and Zoology), Tancred (History) and C.C. Corfe (Mathematics). Mr Harris, headmaster of Christ's College, who was on leave from the colony, was replaced by Mr E. Worthy. In the following year a lecturer in jurisprudence, Dr T.S. Foster, was appointed and the Rev C.W. Turrell also took later classes in French and German.

They were to lecture for two hours a week for three terms — Lent (February to May with 14 days' vacation at Easter), Trinity (June to August) and Michaelmas (October to November) at a salary of £100 plus class fees. Tancred, who held the rather grandly-titled position of Hulsean Chichele Professor of History at Christ's College, agreed to teach without salary while Haast, whose lectures did not actually begin until 15 October, was criticised in the Provincial Council for accepting £100 for his 1872 lectures in addition to his salary of £600.

The Union's Board of Governors consisted of influential men. In addition to Rolleston and Tancred there was Bowen, a Canterbury pilgrim of 1850. Private secretary to Godley, he soon won notice and office in provincial politics — chairman of the Board of Education and Resident Magistrate in Christchurch. He became a Minister of the Crown in 1874 and piloted the 1877 Education Bill through Parliament.

Among the Board members, were the Very Rev Henry Jacobs, fellow of Queen's College, Oxford, Watts-Russell Professor of Divinity at Christ's College, Dean of Christchurch and sub-warden of the College; W.J.W. Hamilton, who had been secretary to both Governors Grey and Fitzroy and who was then a governor of Christ's College; Haast, who had been appointed Provincial Geologist in 1861 and who was the founder of the Canterbury Museum; Dr A.C. Barker, the Christchurch surgeon whose collection of sketches and photographs of early Canterbury was to become priceless; Richard J.S. Harman, another Canterbury pilgrim who was prominent in business and provincial politics; Henry Richard Webb, who remained a member of the Board of Governors of Canterbury College until his death in 1901; John Davies Enys, a pastoralist and member of the Provincial Council; Thomas Henry Potts, an amateur naturalist and member of the Provincial Council; William Donald, a Lyttelton surgeon; and the Rev Charles Fraser, the first minister of St Andrew's Church, the first Presbyterian Church in Christchurch.

Despite its grants the Union's resources were slender. There was one lecture room at the Museum and three at Christ's College. The Board itself met in the rooms of the Philosophical Institute, in the Public Library. To strengthen its hand the Board sought the transfer of the reserves of 9000 acres for classical education to the Univers-

Teaching a Century Ago

ity of New Zealand, but these reserves remained in the hands of the Provincial Government until they were ultimately vested in Canterbury College a few years later.

The Board established a committee on lectureships, which confirmed the appointments made and resolved "that while the Governors abstain from prescribing the details of any course of lectures ... they are of opinion that much of the advantage to be derived from lectures will be lost if a considerable amount of pains be not bestowed by the lecturers in guiding the private studies of their students."

It adopted a timetable providing for evening lectures with one at noon on Saturdays. A few lectures were subsequently given during the day. The fees were 10s. 6d. per term per course of two hours a week. University, as distinct from general students, were required to matriculate and to attend at least three full courses each term. The Union bought the textbooks and resold them to the students. Mr R. Mainwaring was appointed Registrar.

"Notable Episode"

The Board decided to begin lectures on Monday 22 July, 1872, and Tancred, as Chancellor of the University, was invited to deliver the inaugural address. The occasion was given considerable prominence in the *Lyttelton Times*, which began its long report with these words:

"For some time past progressive measures tending towards the establishment of a collegiate union affiliated to the New Zealand University have been periodically recorded in this journal and the feeling of deep interest which manifested itself on all sides in connection with the work showed that the province was fully alive to its importance and anxious to promote its advancement in every possible way. It is needless to say therefore that the last step in the initiatory stage being now passed, congratulations can be general and sincere. Yesterday, as being one that on which the ceremony of inauguration took place, will in fact occupy a distinctive position of no mean order in our local annals, forming as it does one of the most notable episodes in our history to which future generations will refer as the landmarks of time."

In a room bedecked with flags and "a very fair sprinkling of ladies" Bowen opened the inauguration proceedings. Canterbury, he said, did not pretend to establish a University or a college complete from head to foot, but was endeavouring to begin tentatively.

And Tancred, in his address, said that neither the Museum nor Christ's College was so rich in resources as to be able to afford the waste of power which isolation, antagonism or jealousy occasioned. On the other hand they were not so poor as to be

unable to supply by means of co-operation that amount of education and learning which was required for a liberal education. Tancred hoped that the Christchurch High School would also affiliate, but it remained aloof.

In his address Tancred was at pains to spell out his ideas on the policy of the University. Charged with the duty of giving an impulse and a direction to higher education throughout the whole country, the University could not, without depriving many parts of the advantages to which they were entitled, devote all its means to the establishment at any one spot of one great seat of learning. It should establish several seats, not organising an independent school but building on institutions already existing. A central seat might attract no students; and because of the grouping of the population round several different points forming the centres of several different communities no institution which was to be of general benefit ought to be limited in its operation to any one particular spot.

In the second place, the influence of a university should be felt among all classes. Power and social position were not, in New Zealand, exclusive privileges of any particular set and since those who today might be at the bottom of the ladder might tomorrow be at the top institutions must be framed so as to exclude no class. If all resources were to be directed towards the creation of only one seat of learning the university would be offering advantages to a select few — those on the spot and the comparatively rich who could afford travelling and residential expenses. The object of the University was in direct opposition to this. It was to foster a love for the highest learning wherever a large community had been formed, to seek out and encourage talent wherever it was to be found and to give facilities for obtaining an education of the highest class to those whose means might not allow them to take advantage of a distant institution.

The two main principles to which the University must give effect were first to encourage and assist institutions likely to develop into efficient university colleges in the chief centres of population and second to discover among the youth of every class the most promising and to help them by scholarships and prizes to develop their abilities to the utmost. An affiliated institution would have the exclusive privilege of educating the university scholars and a claim to share in the Government grant to the University of £1500. It must satisfy certain requirements as to equipment and teaching. It was to meet these requirements that the Canterbury Collegiate Union had been formed.

Eighty-three Students

During the first (Trinity) term 83 students enrolled for the Union's lectures —

22 in Classics, 12 in mathematics, 37 in physical science and 43 in modern languages. The students included five junior University scholars — W.H. Attack, later manager of the New Zealand Press Association, A.W. Dillon Bell who became a civil engineer in Auckland, E.H. Bell, subsequently head of Christ's College, Henry Cotterill, a well-known Christchurch lawyer in later years, and Mortimer Davie, who was to become a well-known civil engineer in Christchurch.

Board members sat as students too. Among them was the Chancellor and Mrs Tancred, Mr and Mrs Worthy, Archdeacon Wilcock, Dean Jacobs and Mrs Jacobs and Mrs Haast, William Pember Reeves, John Deans, William Montgomery, G.T. Booth, C.C. Bowen and Miss Grierson (Mrs A.J. Merton) were, among others, students in the classes who were to make a name for themselves in Canterbury and New Zealand history. It is interesting to note that women were admitted as students without question.

The Union finished the year with a credit balance of £131.16s.5d. Hight and Candy, in their *History of Canterbury College* say that prominent among the items of expenditure was the cost of candles, candlesticks and brackets to light the classrooms. Lecturers were reappointed for 1873, Dr Foster taking up his duties and the Rev Charles Fraser being appointed to lecture on English language and literature in a room at the Christchurch High School. In April the Union accepted an offer by the Museum of a series of lectures in geology by von Haast, subsidised to £100 by the Provincial Government.

Bowen, who had been re-elected president, reported to the Board in January, 1873, on the success of the experiment. "Not only will many who could not leave their homes to attend distant schools or colleges find the advantages of education brought to their very doors, but those who avail themselves energetically of those advantages will in time have their attainments recognised by degrees which will command respect as conferred by a central university representing the whole colony," he said. As Beaglehole says, there was to be no trifling in Canterbury with the idea of academic independence.

But in spite of its initial success the Union had no intention of perpetuating itself. In November of the previous year it had petitioned the Provincial Council to make permanent provision for university education in Canterbury. The petition called attention to the gradual improvement in the standard of education in the province the need for a university curriculum, the presence of a substantial student body and sufficient teaching power to justify the

Work of Collegiate Union

attempt to establish a permanent and systematic institution. It asked for the setting apart of liberal reserves, provision for preliminary expenses and the constitution of a governing body.

College Ordinance

The petition was headed. At the 39th session of the Provincial Council, on 2 May, 1873, Rolleston said an ordinance would be submitted providing for the establishment of a College — Canterbury College. The ordinance and consequential resolutions were passed and from June, 1873, there were two bodies authorised to administer superior higher education in Canterbury. The Union was anxious to give way to the new College it had promoted, but it realised that it must continue its work until the College could appoint staff, affiliate with the University of New Zealand and legally assume the direction of the courses of study prescribed for the University degrees. More classes were established and they were inspected by the Rev J.C. Andrew on behalf of the University. The Board was even able to pay a salary of £50 to the Registrar, now F. de C. Malet, who was to become first Registrar of the College.

The Union expressed the hope that Canterbury College would be able to take over its teaching after the first (Lent) term of 1874, but in the meantime it arranged for the first annual examinations. The papers and the candidates' answers were laid before the Board at the end of the year and were later submitted to the University. Those who were awarded first prizes were: W.H. Attack, in classics (morning class); W.J. Knowles classics (evening class); Henry Cotterill (four firsts) in mathematics (University scholars' class), physiology, zoology and French; T.S. Foster, mathematics (evening class); Miss E. Brittan (afterwards Mrs T.S. Foster) in botany; J.R. Thornton, in mineralogy and lithology; A. Dawson, in geology; Miss M. Cotterill, in German; G.T. Booth, in English language and literature; and J.C. Lea, in jurisprudence.

Dissolution of Union

Early in 1874 the Union affirmed its intention of dissolving on the affiliation of Canterbury College to the University and its last meeting was held on 19 May, say Hight and Candy. A formal resolution of dissolution was passed, the records and other property of the Union were handed over to the Board of Governors of Canterbury College with a request that the surplus funds, amounting to £109.2s.6d., be spent in purchasing standard classical works for the Public Library, a direction that drew from the governors of the College an acknowledgement of the "sound discretion" exercised by the Union.

"The work done by the Union was of the greatest importance for it proved not only to the people of Canterbury but to those members of the General Assembly who held that the time had not yet come to establish university institutions in New Zealand that there was a real demand for the training that only education of the university type could provide and there is no doubt that the petition of the Union of November, 1872, praying for the establishment of a university college was a powerful aid to those, like Rolleston, who were anxious to make immediate provision for such a necessary factor in the intellectual life of the province," say Hight and Candy. "After all, the soundest justification of aims and achievement of the Union is the complete success that attended the College which it pioneered."

Three Mixed Halls at Ilam Next Year

The three University halls of residence at Ilam are to become mixed halls next year. This was decided by Council on the recommendation of the Academic Committee after proposals had been put forward by the chairman of the wardens of the halls.

The Vice-Chancellor (Professor N.C. Phillips) said the proposals put forward represented a departure from the planning of halls as originally envisaged. Early this year it had been decided that West Hall, built as a women's hall, would be a mixed hall. That was a matter of expediency. Now the wardens were recommending that all three halls be mixed as a matter of principle. The reason for this was that standards and morale in the mixed hall were high and the educational function of the hall had been realised.

In the West Hall there would be 25 senior women on the third floor and it was proposed that in the North and South Halls there be 26 women, some of them first-year students, on the third floor.

"The implication is that the three halls will really be run as a single hall with three buildings," the Vice-Chancellor said.

Another departure from the original plan was that whereas it had been decided that women should have single rooms it now appeared that some first-year women students were prepared to give up their single rooms because they thought it unfair that some senior men should be required to share rooms.

Professor Phillips said the decision

Honour for Professor

Professor W.R. Philipson, Head of the Department of Botany, has been elected a Corresponding Member of the Botanical Society of America. The Society has a limit of fifty corresponding members throughout the world and previously the only New Zealand botanist to have been so honoured was Dr L. Cockayne.

Professor Philipson is a recognised authority on the structure and classification of the Pacific members of the Araliaceae and on the primary and secondary vascular tissues of angiosperms in general. The Society's citation also mentioned his important contributions to interpretive morphology, floristics, developmental anatomy and systematics. He has produced five books for general readership.

would mean that if the University decided to dispose of Helen Connon Hall when the Arts Faculty moved to Ilam there would be no women's University hall, apart from Bishop Julius Hall. If the University wished to retain the name it would have to be applied to a mixed hall, though he could see nothing wrong with this.

Professor Phillips said the time for applications for admission to halls for next year had passed. It was not possible to give completely accurate figures because there were occasional cancellations while the numbers of students planning to stay on could be affected by the results of examinations. However, there were more than two applications for each place in the halls and there would be no problem in filling all places in 1973. Accordingly the Ministry of Foreign Affairs had been requested to allow the University to retain Warwick House as a hall for at least another year.

The probable number of places available in the halls next year was 313 and the number of applications was 656 plus requests for 23 places for Islands Education Scholarship and Colombo Plan students.

Public Orator at Centennial

Professor D.W. McIntyre (History) will be Public Orator at the University's Centennial Convocation for the conferring of seven honorary degrees on Saturday, 5 May next year. The ceremony will be held in the Town Hall auditorium.

Advantages and Disadvantages of M.I.T.

Dr D.G. Elms (Civil Engineering) found life at the Massachusetts Institute of Technology on study leave stimulating and exciting.

M.I.T., he said in his report, had a number of advantages over Canterbury. "It has magnificent (though expensive) computer facilities, students and staff are of a uniformly high calibre, and it has a physical proximity to many other centres of research and teaching. Also attractive are the openness of policy discussions: for example, full information on both Institute and Departmental budgets was made available to staff at a departmental meeting.

"Nevertheless, Canterbury also has its advantages," he said. Quite apart from its pleasant surroundings, it has the major advantage that the staff are not under continual financial pressure to raise research funds. At M.I.T., a non-tenured staff member is expected to find 40% of his salary from external research funds. Still more money is required for the support of graduate students. In fact, the M.I.T. Civil Engineering Department has to reduce its permanent staff by one this year owing to shortage of money. Again, Canterbury has extensive structural laboratory and testing facilities whereas M.I.T. has none: this makes it, to my mind, an ill-balanced department. Here again the problem is mainly one of the financial structure of the Institute."

Dr Elms worked in computer-aided building design, probabilistic methods and systems engineering, for which M.I.T. was an important centre.

There was a great deal of interest in computer-aided building design both in the United States and in Britain. The stage was being reached in both countries in which relatively sophisticated computer programs were being accepted and used by the building design professions. The programs still tended to be limited in their scope and to apply in piecemeal fashion to specific parts of the overall design process, but the research needed to be carried out before more comprehensive computer systems could be developed had now become clearer. A good deal of work had already been done at M.I.T. in the Departments of Architecture and of Civil Engineering. In the former, research was primarily aimed at improving the initial stages of building design by developing various computer-based graphics aids for architects: sketch recognition and optimal spatial layouts were two important projects.

"I worked in the Structures Division of the Civil Engineering Department, where research work was concerned with the optimum layout of apartment buildings, with the general problem of developing a computer model of a building, with cost

models (a particularly difficult problem because of the complex relationships between the owner of a building, the designers, the prime contractor and the subcontractors), with building reliability, with extensions to existing structural design problems and with new ways of constructing buildings. My own work aimed at developing a specification for a cohesive and comprehensive computer-aided building design system and for the research needed to implement it, with a view to helping co-ordinate the rather disparate research efforts in the Structures Division. The results of this work have been published as an M.I.T. Research Report," Dr Elms said.

"There is also a considerable amount of advanced computer-aided building design work being carried out in Britain, ranging from the automatic production of drawings, specifications, and bills of quantities (such as the Department of Environment's 'CEDAR' pilot project and some of the work in the Department of Building Science at Liverpool) to aids for the initial design of buildings. Some of the more interesting research programs are a computer-graphics based scheme for the complete design of two storey houses developed at Edinburgh for the Scottish Housing Authority, a program at the University of Strathclyde for the appraisal of alternative tentative building designs, and a very elegant method for the relative costing of alternative structural designs developed by the Department of the Environment. Their computer program merely simulates the actions of a contractor in pricing a bid, and the accepted bid, of course, gives the actual cost of a building.

"Probabilities are fundamental to Civil

Engineering. Both the strength of a building and the loads that are imposed upon it are always probabilistic rather than deterministic. This is most obvious in the case of earthquake loads. Neither the intensity nor the position of a major earthquake can be predicted exactly, but a statement can certainly be made on the probability of occurrence at a given place in a given time interval. Until recently civil engineers have seldom explicitly taken probabilities into account, preferring instead to rely on the less rational expedient of using fixed safety factors. However, there is now a growing interest in probabilistic methods of design and analysis, and I was fortunate to be able to work at M.I.T. with C.A. Cornell, one of the foremost exponents of this approach. I attended several excellent courses and seminars on the subject, which I was able to supplement by fairly extensive reading. I was particularly glad to be able to do this as I had recognised for some time that my lack of knowledge in the area was a disadvantage while I tried to expand my research and teaching at Canterbury in the direction of systems engineering."

Social Service

Dr Elms spent much of his leisure time in Boston working with a social service organisation, Project Place, centred in the South End, a predominantly black area. The work of Project Place varied, but the aspects he was associated with included a 24-hour emergency telephone service offering crisis intervention, counselling and information, together with some face-to-face counselling and limited "crash-pad" facilities. A van and driver stood by at all times to go to threatened suicides, drug overdose cases and other emergencies. The Project Place community comprised about 100 full-time and volunteer workers of very varied backgrounds, ranging from street people to students and shop assistants. There were also some young doctors, lawyers and ministers. "As the average age was about 23 and the emphasis was decidedly counter-cultural I had some difficulty at first in fitting in. However, eventually I became one of the community and worked with them to learn about inner city problems at first hand. This changed my point of view and increased my understanding in many ways, particularly with regard to current attitudes, aims and problems of younger adults.

"Some of the most interesting work involved drug problems, where it soon became apparent that a distinction had to be made between the physical and psychological problems on the one hand, and the sociological implications on the other — a distinction well brought out by the findings of the presidential commission on marijuana. This particular drug is a good illustration of the point, for while its physical and psychological effects are usually trivial (though I personally disapproved of its use, albeit for probably unorthodox reasons), its sociological consequences are not, and it is seen by many counter-cultural users as a political statement against an establishment whose values they choose to reject. Towards the end of my stay I received the impression that the drug problem is fortunately on the wane, particularly in high schools where because of peer-group pressure the problem has been particularly vicious," he said.

More Grants for University

The Ministry of Agriculture and Fisheries has made grants to two research workers. One grant of \$700 is for an investigation of the New Zealand fur seal during an expedition to the Auckland Islands this summer. The second grant, of \$900, is for an investigation of Hooker's sea lion during the same expedition.

The Canterbury Savings Bank has made a further gift of \$200 for research in economics.

Value of Hybrid Computer at Ilam

Although the hybrid computing system in the Department of Electrical Engineering was the only one in New Zealand, in the light of his experience in Britain he could not recommend any attempt to convert it into a semi-commercial bureau, and Dr J.K. Bargh (Electrical Engineering) in a report on study leave last year, part of which was spent in industry with Electronic Associates Ltd., and part at Sussex University.

Dr Bargh said there was a lack of appreciation of the power of hybrid systems among many engineers in New Zealand and that to run such a bureau it would have to be provided with at least four full-time staff members. While these limitations could be overcome in time, rapidly changing computer technology was likely to render the present generation of hybrid computers obsolete within the next five years. "On the other hand our system will continue to be an extremely powerful and useful research tool over this period, even after the introduction of the new Burroughs system," he said.

Dr Bargh found 1971 to be a very interesting year in which to be in the United Kingdom. Not only did it include the period of the decimal currency changeover and the Common Market debate, but it was also a period of considerable industrial unrest. The combined effects of a business recession, aggravated by the Rolls-Royce crash, together with a period of rampant inflation, resulted in several prolonged strikes. Notable were the postal strike, which lasted nine weeks, and the Ford strike which lasted ten. The miners' strike had also begun before he left in January.

Dr Bargh said Electronic Associates Ltd., a subsidiary of the American computer manufacturing company, Electronic Associates Inc., which supplied the EAI 590 Hybrid Computer installed in the Department of Electrical Engineering in 1968, had its plants in an industrial estate at Burgess Hill in Sussex, some 10 miles north of Brighton. "When I joined the company in January 1971 there were approximately 300 employees and four separate units; manufacturing, engineering design and sales, administration and the Computation Centre. By the end of the year the staff had been reduced to under 200, the Computation Centre closed and the administrative and engineering sections housed in one plant. This action was partly the result of the U.K. recession, which hit the computer firms particularly hard, and partly the result of a general shakeup resulting from the appointment of a new company president in the United States.

"My object in going to the Computation Centre was both to observe the functioning of a commercial hybrid computer laboratory and to broaden my experience in the application of hybrid computer techniques. I was mainly employed on sales support exercises which involved me in a range of topics. However I was able to spend some time working on two of the large-scale simulations in progress, and I also helped the Education and Training Group with the running of two of their courses. An incidental, although valuable, feature of this period was that I gained access to software not normally provided to customers."

Sussex, he said, was organised on a schools basis and in theory academic boundaries in the conventional sense did not exist. Sussex had also benefited from the appointment of a group of young and very able foundation professors. Nine schools operated in African and Asian Studies, Applied Sciences, Biological Sciences, Cultural and Community Studies, English & American Studies, European Studies, Mathematical and Physical Sciences, Molecular Sciences and Social Sciences.

The School of Applied Sciences, to which he was attached with the status of visiting fellow, had five groups: Control & Systems Engineering, Electronics, Materials Science, Mechanical Engineering and Operational Research. The academic staff com-

prised five professors, five readers, 27 lecturers and 12 research fellows, and there were some 350 undergraduates in 1971-72. "I was interested to note that only two students out of a graduating class of 101 in Applied Sciences obtained a first-class honours degree in 1971 (compared with nearly 6% for the university as a whole); 14% gained a II-I honours degree, 39% a II-II degree, 24% a III degree and 22% a pass degree. Even so I was assured that all but one or two had secured positions by the end of 1971, in spite of the glut of graduates in the U.K.," he said.

Student participation in university government had been a feature of Sussex since its inception and the students had representatives on all major bodies, including 13 out of 139 members of the Senate and two out of 35 members of the Council. The student body seemed to feature frequently in the national news, but only something less than 10% appeared to be active.

The University had four halls of residence in the University Park, but these could only accommodate 25% of the students. The majority of the remainder lived in guest houses or flats in Brighton or Hove. This meant that parking spaces for cars were at a premium and students and staff were charged for parking, albeit a fairly nominal sum. Extensions to the library had recently been completed and a large amount of seating was available. However the range of text books and periodicals relating to electrical engineering was not anywhere near as comprehensive as in the Engineering Library at Canterbury.

"The University runs an ICL 1904A digital computer under the George 3 operating system. Although 16 teletypes are linked to the system, they are all located in close physical proximity to the main computer and were not used extensively. Computer users in Applied Sciences not only had access to this main university machine but also to two other mini computers inside the School. This situation appeared to be fairly typical of the U.K. scene, because all five of the Departments of Electrical Engineering I visited had at least one computer of their own, as well as access to one or more large systems," he said.

"I found that the general facilities available in the School of Applied Sciences at Sussex were not significantly better than those in the Engineering School at Canterbury. For example I was rather surprised to find that their undergraduate Control Laboratories were equipped with almost identical instrumentation to ours, even though there had been no collaboration. The major difference was in technical assistance," he said. "Their technician to academic staff ratio is double ours."

TENDER FOR GEOGRAPHY

The Government has authorised the expenditure of \$630,000 to enable the tender of J. and W. Jamieson Construction Ltd to be accepted for the construction of the Geography staff block at Ilam.

The tenderer offered two alternative tenders relating to variations in the method of piling. These are to be examined by the Ministry of Works and if either is acceptable an appropriate adjustment will be made to the contract price. "This is the third to last of the Arts Faculty buildings for which approval is required," the Vice-Chancellor (Professor N.C. Phillips) told Council. "I sincerely hope that we will get approval for the remaining two buildings, Modern Languages and History, before the year is up. The completion of the Arts Faculty buildings in two stages will involve problems, but completion in three stages would make for greater difficulties."