1902.

NEW ZEALAND.

EDUCATION:

THE UNIVERSITY OF OTAGO.

("THE UNIVERSITY OF OTAGO ORDINANCE, 1869.")

[In continuation of E.-7, 1901.]

Presented to both Houses of the General Assembly by Command of His Excellency.

Visitor.—His Excellency the Governor.

Council.

Appointed by His Excellency the Governor in Council—His Honour Mr. Justice Williams, M.A., LL.M. (Chancellor); E. B. Cargill (Vice-Chancellor); R. Burns, F.R.C.S., Edin.; T. M. Hocken, M.R.C.S.; G. G. Russell; J. Allen, B.A., M.H.R.; D. Stewart.

Elected by graduates—D. White, M.A.; Rev. A. Cameron, B.A.; T. K. Sidey, B.A.

Elected by the professors—Professor G. S. Sale, M.A.; Professor J. Shand, M.A., LL.D.

Professors.

Classics, G. S. Sale, M.A.; Natural Philosophy, J. Shand, M.A., LL.D.; Chemistry, J. G. Black, M.A., D.Sc.; Anatomy and Physiology, J. H. Scott, M.D., M.R.C.S.; Mining and Mine and Land Surveying and Director of the School of Mines, James Park, F.G.S.; Biology (also Curator of the University Museum), W. B. Benham, D.Sc. Lond.; Mental and Moral Philosophy, Rev. W. Salmond, M.A., D.D.; Mathematics (also Lecturer on Political Economy), F. B. de M. Gibbons, M.A.; English Language and Literature, T. Gilray, M.A.

Lecturers.

French, Geo. E. Thompson. M.A.; German, G. P. Howell, M.A.; Practice of Medicine, D. Colquhoun, M.D., M.R.C.P., M.R.C.S.; Medical Jurisprudence and Public Health, F. Ogston, M.D., C.M.; Midwifery and Diseases of Women, F. C. Batchelor, M.D., M.R.C.S., L.R.C.P.; Materia Medica, E. E. Blomfield, M.D.; Pathology, W. S. Roberts, M.R.C.S.; Ophthalmology, H. L. Ferguson. M.A., M.D., &c.; Surgery, L. E. Barnett, M.B., C.M., F.R.C.S.; Mental Diseases, F. T. King, M.B., C.M., B.Sc.; Clinical Medicine and Clinical Surgery, the Honorary Medical and Surgical Staff of the Dunedin Hospital; Metallurgy and Assaying, D. B. Waters, A.O.S.M.; Geology and Mineralogy, P. Marshall, D.Sc.

Registrar—A. Hamilton.

The CHANCELLOR OF THE UNIVERSITY OF OTAGO to His Excellency the GOVERNOR.

YOUR EXCELLENCY,— University of Otago, Dunedin, 1902.

In compliance with the provisions of "The University of Otago Ordinance, 1869," I have the honour to forward to Your Excellency the following report of the proceedings of the University of Otago for the year ending 31st March, 1902:—

The attendance at the classes for the past twelve months is as follows:—

	Matriculated.	Not Matriculated.	Total.
Males	160	26	186
Females	50	1	51
Total			237

The degrees obtained by the students at the examination held by the New Zealand University are as follows: Master of Arts, 13; Doctor of Science, 1; Bachelor of Arts, 17; Bachelor of Science, 2; LL.B., 3; M.B. and Ch.M., 9; and one senior scholarship.

Council.—Mr. Henry Clark resigned on account of ill health, and Mr. Daniel Stewart was nominated by the Government in his stead. The members of the Council nominated to the High School Board of Governors were Professor J. Shand and Mr. T. K. Sidey, M.H.R.

Staff.—There have been several important changes in the teaching staff this year. It was found that Dr. Milne's state of health would not allow of his delivering his course of lectures, and Mr. W. Riddell was appointed for the session. The Rev. Dr. Watt, D.D., was appointed Lecturer on Hebrew, to enable students of theology to take this subject for the B.A. degree; and, as the result of the reports on the teaching in the Arts course and on the financial position of the University, it was found necessary to terminate the appointments of Dr. W. D. Milne, Lecturer on Jurisprudence, and Mr. A. R. Barclay, M.H.R., Lecturer on Constitutional History and Law, and to abstain for the

present from teaching these subjects at the University. Fresh applications were called for for the position of Lecturer in French, and Mr. George E. Thompson, M.A., was appointed. In place of Dr. John Macdonald, whose resignation as Lecturer on Materia Medica was reported last year, Dr. E. E. Blomfield, M.D. (Lond.), was appointed for a term of three years.

Local Scholarships.—Several scholarships were awarded—namely, the Sir Walter Scott, tenable for three years, the Macandrew, and the Stuart. On the recommendation of the Professorial Board it was decided to award an annual prize from the Macgregor Prize Fund, and regulations submitted by the Board were approved and will be printed in the University Calendar.

Medical School.—A valuable supplementary report on the working of the Medical School was received from the Dean, Dr. Scott, and the Council had a meeting with the members of both Houses of Parliament and with the Hospital Trustees, to try and arrange for a representation of the Council on the Board of Hospital Trustees. A proposal brought before Parliament failed to pass, and matters in this particular are the same as before. The Trustees of the Hospital have, however, seen their way to make several concessions on the lines desired by the Council. They have also completed the erection of a new and convenient *post-mortem* room, and appointed an assistant physician and surgeon. The Trustees have also assured the Council "that they have done in the past, and will continue to do, all in their power to advance the interests of the Medical School realising as they do that the existence of a flourishing Medical School is of great importance to the City of Dunedin and of especial importance to the Hospital."

A special meeting of Council was held on the 17th June, when the report appended hereto was presented.

Committee on College Classes.—In August the Rev. A. Cameron moved, "That, with the view of increasing the effectiveness of the University, a Committee of the Council be appointed to take evidence bearing on the work of the various classes other than those in the Medical School, and to report to a future meeting of the Council." After a number of sittings the Committee reported as follows:—

The Committee appointed by the Council at its last meeting to take evidence bearing on the work of the University classes have the honour to submit the following interim report:—

An examination of the University register shows that the attendance at classes is about stationary. For the past eight years the total number of students in attendance has been: 1894, 211; 1895, 226; 1896, 234; 1897, 257; 1898, 269; 1899, 241; 1900, 257; 1901, 227. Thus, for this year the total students in the University are fewer than in any year since 1895, and only one more than in that year. The following table shows the distribution of the students in the various faculties:—

	Mining.	Medicine.	Arts and Law.	Total.
1894	21	...	...	211
1895	27	65	134	226
1896	38	77	119	234
1897	50	83	124	257
1898	47	80	142	269
1899	48	80	113	241
1900	46	73	138	257
1901	38	71	118	227

Confining our attention for the present to the arts and law classes, we find here evidence of a disappointing absence of that steady increase in the attendance at the University which we might well expect in a young and prosperous community.

The Committee believe this is in large measure due to the gradual and marked falling-off in the attendance of teachers at the University classes.

In 1887, out of a total University roll of 167 students, 68 were teachers. In 1892 there were over 60 teachers in the class-lists; but since that year there has been a steady decrease in the number of teachers taking advantage of the University classes. This year there are not more than 25, including pupil-teachers, Training College students, and teachers engaged in public-school work.

Until within recent years the Training College has always sent a large number of its students to the University, but here the falling-off is very conspicuous. In 1892, of Normal School students 21 kept terms at the University. Three years ago only 1 of the pupil-teachers on the roll of the Normal School kept terms, and last year 5 attended the University.

This is a very unsatisfactory state of affairs, and one which the Committee think ought to be looked to at once, in the interests both of the University and the teaching profession.

The Committee find that there are several very substantial reasons for this falling-off, which we summarise under the following heads:—

1. The period of training at the Normal School has been reduced from two years to one. This has prevented many from attending University classes, as they saw no hope of continuing University work with a view to keeping terms after leaving the Training College.

2. Since the reduction in the vote in aid of training colleges the amount of the bursary given to students has been wholly insufficient to provide for maintenance and also for the payment of University class fees.

3. In recent years the Normal students have been required to give more time than formerly to practical and technical subjects, and this has made it more difficult for them to undertake University classes and at the same time carry on their duties at the Training College efficiently.

In view of the foregoing facts, it is evident that a very considerable break has been made in the connection between the Training College and the University. This is all the more unsatisfactory, as the tendency of educational reform in other countries runs altogether in the direction of securing greater university privileges to teachers and a wider recognition of their course of training.

For many years at the Scottish universities provision has been made for instruction in subjects of professional interest to teachers; and at one of the most recent English universities—the Victoria University—lectures are given on the art and science of education. Under the South Australian Education Department all Training School students are required to attend lectures at the Adelaide University on mental science. Following in the same direction, the Royal Commission on Education, in a report recently presented to Parliament, has made some very important recommendations with regard to the training and education of teachers.

They point out (1) that some of the literary work done at the training colleges might with advantage be done at the university colleges; and (2) that lectures on the history and principles and methods of education should be recognised as a part of the university curriculum. They say: "More advanced instruction in theory might well be left to lecturers on the science of education in connection with university colleges."

The Committee find a very general expression of opinion among educational experts in favour of these proposals. It has been pointed out that the university colleges make no provision for instruction in subjects bearing directly on a teacher's professional work, as is done in the case of medical, mining, or law students.

Your Committee are of opinion that in the interests of the University and the teaching profession something should be done to improve the present state of affairs. To give effect to the suggestions contained in the report, and to remove the disadvantages under which teachers and Normal School students are working at present, the Committee submit the following recommendations for consideration:—

1. It is advisable to bring University work more into line with the teachers' professional training; and to give effect to this the University Council should frame and adopt regulations recognising lectures on the history, science, and art of teaching as a part of the University curriculum, and accept attendance at such lectures as qualifying for the keeping of terms as provided in the University regulations.

2. That the Senate of the University of New Zealand be asked to amend its statutes so as to include the history, science, and art of teaching in the list of subjects of examination for the B.A. degree.

3. That the Minister of Education be respectfully requested to take such steps as he may think fit to provide for a more liberal course of training for teachers, by means of an efficient relationship between normal schools and university colleges on the lines laid down by the Royal Commission in their report to Parliament.

4. In the event of any reorganization of the plan of study for training teachers, provision should be made whereby trainees may get the benefit of a university course of study, special importance being attached to attendance at classes in English language and literature, mental science, and in the principles and methods of education.

5. Your Committee view with alarm the recommendations of the Commission on Education *re* classification of teachers—namely, that only two grades of certificates of competency to manage and teach a school be granted; and that no official recognition be granted for literary qualifications higher than the present C certificate. We recommend the Council to urge upon the Minister of Education the desirableness of continuing the recognition of University degrees in the classification of teachers.

The recommendations of the Committee were approved by the Council, No. 1 to be given effect to if the Senate of the New Zealand University made padagogy a subject for degree work. This it did not do.

School of Mines.—The new Director of the School of Mines, Professor James Park, F.G.S., having commenced work, the Mining School Committee had several meetings with him and the teaching staff of the school as to the working of the improved syllabus drawn up last year, and they reported as follows:—

Your Committee having met with the teaching staff of the School of Mines and a deputation of students attending the same, has pleasure in submitting the following report to the Council:—

The high character of the work done in the mining classes is generally recognised, and is demonstrated by the success which has followed the students trained in this institution. Many of them hold important appointments in this and other countries. But it is generally felt that the time has now come for the school to aim at bringing the teaching of all the classes into line with the B.Sc. requirements of the University of New Zealand, that our students may be in a position to complete their mining studies at the University by graduating in science. On this point the students speak strongly, and the teachers recognise the desirableness of meeting their wish, and in the amended course of study proposed by Professor Park this is to some extent aimed at. This amended scheme of study has been considered by your Committee, and, with a few slight amendments suggested by Mr. Waters, has been approved of. Professor Park also suggested that mechanical drawing be taught in the School of Mines. In making this suggestion he adds: "This suggestion has no reference to freehand and model drawing. The requirements of a mining engineering course are quite different from those of the workshop mechanic. Our students must be taught to prepare working-drawings of machine-parts, battery-foundations, mill-frames, stamper-batteries, head-gear, poppet-legs, ore-bins, trestling, fluming, leaching-plant, furnaces, and other requisites and appliances used in modern mining, as well as the making of tracings and blue prints, drawings, &c., in a workmanlike manner."

The attention of your Committee was also called to the present requirements in regard to biology. Students in the Mining School have been required to give ten hours per week to lectures and laboratory in this subject, which enters but little into the mining students' course of study. This has been recognised by Dr. Benham and by the staff of the Mining School, and in the amended

scheme of study this subject is omitted. In a valuable communication laid before the Committee Mr. Waters raises the question of the amendment of the statutes of the New Zealand University as regards the metallurgical course for the B.Sc. degree. This is a difficult but all-important question, and must be seriously faced, and at once. As in every other department of the University the want of money is sorely felt in the Mining School. Professor Park asks for a workshop for the students. Mr. Waters pleads for more room, more bench accommodation, and water and gas fixings. He also requires a smaller cyanide-plant, a small chlorination leaching-plant (which may be used for teaching purposes), also a small roasting-furnace. He estimates that for £50 the immediate needs of his department could be met. Mr. Waters further recommends that the Council should sell the present stamper-battery and cyanide-plant and replace them with a battery and plant more suited to our needs. After considering all the suggestions made your Committee resolved to make the following recommendations to the Council:—

(1) That the plan of study as amended be adopted; (2) that special classes in practical drawing be held at the University as recommended by Professor Park, and that an extra fee be charged for the same; (3) that so far as possible the subjects of instruction in the School of Mines be taught up to the B.Sc. standard; (4) that a Committee be appointed to confer with the teaching staff of the School of Mines as to the amendments required in the statutes of the New Zealand University for the B.Sc. degree, and to prepare an amended scheme and forward the same to the Senate at its meeting in Dunedin in February next; (5) that a seat on the Professorial Board be given to Dr. Marshall; (6) that the sum of £50 be voted to the School of Mines to be expended under the direction of the Mining Committee; (7) that all orders for supplies and requisites for the School of Mines be submitted to the Director, who shall present them to the Council.

The recommendations were adopted by the Council.

Finance.—In the annual report of last year attention was drawn to the extremely unsatisfactory position of the University finances. The Council appointed one or two additional members to the Financial Committee, and requested the Committee to go fully into the subject. The following is a copy of their report:—

Your Committee were instructed to go into the financial position of the University and to report thereon. We have examined the balance-sheets for the last eight years, and we find, after making allowance for items fairly chargeable to capital, that the ordinary expenditure has exceeded the receipts by £1,214 3s. 1d., or on the average £151 15s. 4d. per annum. Particulars of the receipts and expenditure for each year are appended to this report. We submit an estimate of receipts and expenditure (not including any receipts and expenditure on account of capital) for the year ending 31st March, 1902, which shows a probable deficiency of £41 14s. 4d. This would have been larger but for an extra vote of £250 made by Parliament on account of the School of Mines.

We estimate the ordinary receipts for the year ending 31st March, 1903, to be £9,281 2s. 4d., and the ordinary expenditure to be £9,429 16s. 5d., leaving a deficiency of £148 14s. 1d.

We find that the overdraft at the bank is at this date (14th December, 1901) approximately £700, and that the General Account owes to special funds (particulars of which are attached) the sum of £522 10s. 9d. These two amounts total £1,222 10s. 9d., approximating closely to the deficiency for the eight years previously referred to—viz., £1,214 3s. 1d.

We recommend (1) that immediate steps be taken to bring the expenditure within the receipts. Having examined carefully the present expenditure, and having noted what has been done in the past in reducing salaries, &c., we have to report that we do not see how any further reductions in salaries, &c., can be made of any moment. Also, that the Council is now bound to face this unfortunate position—namely, having to dispense with one or more of its faculties.

We therefore recommend that (*a*) a saving of £25 per annum be made in the salary of the Lecturer on French; (*b*) a saving of £25 per annum in the cost of laboratory materials and apparatus; (*c*) a saving of £100 per annum by doing away with the two lectureships in the Law School. If this is not sufficient, then the Council will have to consider seriously the question of closing the Mining School as soon as our engagements with the teaching staff and students will permit.

We also recommend that the Council should ask the City Council to remit the water-rates on he Museum, or make an annual vote equivalent to the amount paid. This may be urged on the ground that the Museum is a public city institution, upon which the University Council has had to expend up to the present date over £500 of University money over and above the revenue derived from the Museum endowment. Also that the city and suburban members of the Legislative Council and of the House of Representatives be invited to meet the Council, and that they be urged to ask the Government to place on the estimates next year a sum of £1,200 to meet the deficiency in revenue shown above. Also that some absolutely necessary repairs to the spouting, downpipes, pointing, steps, fencing, and painting be undertaken at once to prevent further damage to the buildings. We think that it would be well to have a report on the drains either from the House Committee or from some expert. The open water-channel round the building has been neglected, and should at once be cleaned and kept clean. The reductions we have recommended, if adopted, we estimate will just make the receipts and expenditure balance, leaving nothing for development. Previous reports to the Council have shown how urgently further revenue is needed —more especially in extending the teaching and laboratory accommodation for the Medical School. In fact, for some years past nearly all the faculties have been starved owing to want of means.

The report was accompanied by a table showing the items of receipts and expenditure for the last eight years, a statement of estimated revenue and expenditure for 1902, and a memorandum of special funds in General Account.

Acting on the recommmendations of this report, the Council terminated the appointments of the lecturers in the Law School.

The inquiries into the repairs necessary to the University building showed that certain repairs were urgent, and the House Committee arranged for the necessary repairs to the roof, gutters, and water-tables, the painting of the outside woodwork of the front of the University and the walls of the entrance-hall.

The cost of these repairs will be about £60. It is also found that a large sum is urgently needed for the painting of the exterior woodwork at the University buildings and the Professors' houses. No outside painting has been done for twelve years. The estimated cost of this would be about £120.

It may be stated that, in the opinion of those qualified to judge, the rentals to be derived from the University endowments at their next letting are not likely to be greater than at present, possibly less, so that there is no relief to be looked for from that source.

The Council has made every effort to economize, but they find that the position of their finances is now such that they will have to approach Parliament and ask for a grant of not less than £1,500 to discharge their present indebtedness, and an annual sum of not less than £200 to bring their income up to the average level of their expenditure.

If, in addition to this, the requirements of the Medical School in buildings, laboratories, and additional teachers are to be provided for, a very much larger sum, both capital and annual, will be necessary.

If this is refused the Council will be unable to carry out the absolutely necessary work which is required to carry on the already established faculties of the University.

JOSHUA STRANGE WILLIAMS, Chancellor.

APPENDIX.

REPORT ON THE MEDICAL SCHOOL.

The Committee appointed to inquire into the condition of the Medical School, having examined the Dean of the Faculty, University and Hospital staff, the Chairman of the Hospital Board, the examiners, and as many past students as could be reached by letter, have the honour to report that,—

1. The school has been in existence since 1876, and has for the last eighteen years given a complete qualifying course. It has proved a great benefit to all who have been students, but more especially to those who were unable to proceed to the Old Country, and had to complete their course here. Appended to this report will be found particulars of all who have passed through the school, and their present position and location. The most important point to be noticed is that fifty-six students have qualified in New Zealand, that ninety more hold British qualifications, and that there are now 105 medical practitioners in this country who have received their education either completely or partially at this school.

2. The students who leave at the end of the first year's course seem to be increasing; in other words, the number of those who remain for senior anatomy and senior physiology is decreasing. We cannot discover a satisfactory explanation for this. All the evidence tends to prove that anatomy is excellently taught. As to physiology, the systematic teaching is good, but the whole subject has grown so rapidly that it is next to impossible for one professor to do as Professor Scott does—teach physiology and anatomy as well. The general reasons given for the exodus of students are—desire for wider experience; prejudice in favour of a Home degree; greater effectiveness of clinical teaching at Home; an impression that it is more difficult to pass here. We are of opinion that the standard of examination here is somewhat higher than at Home, but in view of the prejudice against a colonial degree it would be unwise to lower our standard. The great advantage a Home student possesses is in the better facilities he has in preparing for examination, and we are confident that great improvement can be effected by adopting a system of tutorial instruction such as is prevalent at Home.

We consider the chief defects in the school are:—

(a.) IN THE CLINICAL TEACHING.

Most of the clinical teaching is of necessity done at the Hospital, and, as this institution is under the management of a Board of Trustees, the Council of the University has no control over the material for teaching, and but little over the teachers themselves. There should be a minimum of 100 beds. The average for the year ending the 31st March, 1901, has been 103·9, but the number has been down as low as 88. To increase the number of beds it would be necessary either to enlarge the hospital district, to relax the conditions attending entrance to the Hospital, or to have a ward for infectious diseases, or a maternity home or some other addition of this kind. Other valuable material—the outdoor patients—is not used as it might be for clinical instruction, as this department of the Hospital is under the control of the house surgeons, and the staff have little or nothing to do with the out-patient work. The clinical teaching at the Hospital is in the hands of gentlemen who are appointed annually by the Hospital Trustees, and the University Council has no voice (except by way of recommendation) in their selection. Of late years, it is true, there has been no friction over these appointments, but it is quite conceivable that a time might come when the Hospital Trustees might omit from the honorary Hospital staff the Lecturer on Surgery, the Lecturer on Medicine, or the Lecturer on Pathology. This state of things is very unsatisfactory. In clinical medicine there are three honorary physicians, two of whom are at present the Lecturer on Medicine and the Lecturer on Pathology at the University. In

clinical surgery there are three honorary surgeons, one of whom is the Lecturer on Surgery at the University. One half of the Hospital fees paid by students is divided amongst the clinical staff, the other half going to the Hospital Trustees. These fees amounted for the year ending the 31st March, 1901, to £283. The members of the clinical staff are all engaged in private practice, and in consequence the time they can devote to their teaching at the Hospital is limited. We are of opinion that the clinical teaching needs organizing to make it more effective.

(b.) Necessity for a Professor of Physiology.

The second great defect lies in the fact that anatomy and physiology are combined under one professor. We have examined the calendars of other schools, and find that both in Australia and at Home these two subjects are taught by separate professors; and, from evidence given by the Dean of the Faculty and others, we are convinced that the subject of physiology has made such great strides since the establishment of the Chair of Anatomy and Physiology that it is essential to the future success of the school to have a Professor of Physiology appointed, who should be provided with proper laboratory and appliances for the modern teaching of this subject.

(c.) Other Defects.

The course of study as fixed by the examinations differs from that which obtains elsewhere. We append to this report a statement comparing various schools, and draw attention to the following:—

Chemistry.—The examination in this subject in nearly all schools but ours takes place at the end of the first year. With us the examination in inorganic chemistry takes place after the first year, but in organic chemistry after the third year.

Anatomy with us is taken after the third year, physiology after the fourth. In all other schools they are both taken after the third year.

Mental Diseases.—At present the students have to take a fortnight's course at Seacliff. The Dean of the Faculty is of opinion that it would be better to have, in addition, a regular course of lectures during the session.

Medical Jurisprudence.—The lecturer complains that he has no opportunity for practical work; that he gets no *post-mortem* examinations; and that there is no public morgue.

Pathology.—The Lecturer on Pathology believes this subject is wrongly placed in the curriculum: that physiology should be learnt first, and pathology taught in the third medical year and come in the final examination. He also thinks there should be lengthened courses—that there should be a six-months course of lectures and a three-months course of practical instruction—and that if the examination were altered he could take the practical course during the summer session.

Bacteriology is at present taught imperfectly on account of the short time devoted to pathology; if an additional three months were given to that subject, and a proper laboratory provided, a thorough course in bacteriology could be given.

Materia Medica and Therapeutics.—It is reported to us that the three-months course is quite inadequate, and that at least a hundred lectures should be given.

Midwifery and Gynæcology.—There does not appear to be sufficient opportunity for practical teaching. There is no maternity home at the Hospital, and what homes there are are scattered and not available.

Anæsthetics.—There is no specially appointed anæsthetist at the Hospital whose duty it is to see that the students get practical instruction in administering anæsthetics, and at present all the instruction a student gets is what he can gather from seeing some one else do the work.

Diseases of Children.—No special lectures are delivered on this subject; and a graduate of our school finds himself hampered at the start of his professional career from want of knowledge and experience in perhaps the first case he has to attend.

Surgery.—It is reported to us that a student in his final year has to duplicate the introductory lectures on the principles of surgery, this taking up two or three months which might with better effect be devoted to lectures on diseases of children.

Examinations.—Reference has already been made to the difference existing here in the periods of examination in various subjects as compared with other centres. We believe there is too much crowding of subjects in the final year: that there is too great a strain on students in the final examination. If a student fails in the final examination he has to wait a year before coming up again: we consider this a hardship. At the present time the regulations of the New Zealand University provide that, if a student fails in one subject out of three in the first or second professional examination, he can count the two and come up again for the one in six months. In the final examination he must pass in all subjects at once.

Recommendations.

1. *Hospital.*—The training obtainable in the Hospital is so essential to the success of the Medical School that we believe this hospital district should be specially treated, and the two bodies controlling the University and the Hospital more closely united; and to effect this we recommend that the Council should ask the Board of Hospital Trustees to join with them in applying to the Government to pass a Bill providing that the Council and the Board of Trustees should meet as one body to appoint the honorary staff of the Hospital.

2. *Clinical Teaching.*—In order to organize the clinical teaching, and provide for the better nstruction of students, we recommend that there be, as at present, three full surgeons and three ull physicians; that an assistant surgeon and an assistant physician should be appointed in addition; and that they should have charge of the out-patient department, and take the place of any surgeon or physician who is absent.

3. *Clinical Tutors.*—We also recommend the appointment by the Council of two clinical tutors—one surgical and one medical. These should receive a small salary—say, £50 a year each and the fees of the tutorial class. There is no reason why these tutors should not be the assistant surgeon and physician.

4. *General Recommendations.*—We recommend that a letter be written to the Trustees asking them to reserve the old operating-theatre as a lecture-room.

We consider that the whole of the fees paid by the students for hospital training should be handed over to the hospital teaching staff.

We recommend that the foregoing appointments, and all honorary appointments in the hospital connected with the Medical School, should be for a term of two or three years.

We recommend a conference with the Hospital Trustees on the following subjects: An increase in the number of beds; the establishment of a ward for infectious diseases, and a maternity home; the building of a morgue.

We recommend the purchase by the Council of further apparatus for the teaching of surgery.

5. *Professor of Physiology.*—We recommend that a Professor of Physiology should be appointed, and that he be equipped with lecture-room, laboratory, and appliances. We estimate the salary for a Professor of Physiology to be £600 a year and half the fees. We recommend that he should not be allowed private practice. The cost of lecture-room, private room, two other rooms, laboratory, and laboratory appliances we roughly estimate at £2,000, if built in wood.

We recommend that the Lecturer on Ophthalmology be paid a salary of £50 a year, and that the Lecturer on Mental Diseases receive the same amount, if satisfactory arrangements are made for a course of lectures at the University.

Course of Study and Examination.—We believe that some alteration is required in the course of instruction and the times of examination, to bring them more into line with other universities; and we recommend that the Dean should be asked to prepare a scheme, bearing in mind the remarks we have made in this report with regard to chemistry, physiology and anatomy, mental diseases, pathology, materia medica and therapeutics, anæsthetics, diseases of children, and the duplication of the principles of surgery in the final year.

We recommend that an anæsthetist should be appointed to the Hospital, who should also supervise the practical instruction of students, and that each student should obtain a certificate setting forth that he had received practical instruction in the administration of anæsthetics.

We recommend that special instruction be given on diseases of the throat and ear and on diseases of children.

We recommend the Council to approach the Government with a request that a Bacteriologist should be appointed for the colony, and that he be located at the Medical School, Dunedin, and equipped with an up-to-date laboratory and appliances, and that he should give instruction on this subject to the students and graduates of the school.

We recommend the Council to approach the Government with a request that the Lecturer on Medical Jurisprudence and Public Health should be appointed Health Officer for the district, and that all *post-mortem* examinations ordered by the Coroner should be made by him.

We recommend, in accordance with the suggestions of the Professor of Physics, that students be excused attendance on that part of the lectures which treats of dynamo machines and electric lighting, and that the note on page 116 of the New Zealand University Calendar, 1901–2, with respect to physics, be amended accordingly.

We recommend that, in accordance with the suggestion of the Professor of Biology, the students be excused attendance at the lectures on classification, occupying about two hours per week of the last twelve or thirteen weeks of the session, and that the New Zealand University be asked to amend the statute by excluding, on page 116 of the Calendar of 1901–2, paragraph III., A.

We are of opinion that it would be an advantage if the examination in organic chemistry could be taken earlier, and that the chemistry course should, if possible, be shortened, as the hours seem much longer here than elsewhere.

We recommend the Council to ask the New Zealand University to amend the method of examination—(1) by allowing a student who fails in the final examination to come up again after an interval of six months; (2) by permitting a student who fails in one or more subjects of the final examination to count those in which he has passed.

We recommend that the Senate of the New Zealand University be asked to institute one or more medical scholarships for medical students.

We summarise the Increased Expenditure involved in the proposals of this report:—

	£	
Laboratory buildings and appliances (physiology) ...	2,000	
Further apparatus for teaching surgery	15	
Professor of Physiology	600	per annum.
Lecturer on Pathology (additional for lengthened course) ...	25	"
Lecturer on Ophthalmology	50	"
Lecturer on Mental Diseases	50	"
Medical Tutor	50	"
Surgical Tutor	50	"
Medical library	20	"

We know that the recommendations made involve expenditure quite beyond the means at the disposal of the Council; but, feeling strongly that this most important technical school serves to supply the wants not of the district only, but of the whole colony, we believe it would be only right that the Government should be asked to assist to make it more complete, and thus more efficient. We therefore recommend the Council to place the position before the Government, and that they be asked to supply the financial aid necessary.

We draw attention to the fact that the Council expended in the erection of buildings for the Medical School no less than £14,000, and that £15,000 has been borrowed, upon which the Council has to pay interest.

To further the object in view we believe it would be wise to enlist the support of the members representing Dunedin and surrounding districts, and recommend the Council to ask for a conference with these members.

The following are the reports referred to:—

(1.)

GENTLEMEN,— University of Otago, 28th June, 1898.

My last year's report concluded with a short paragraph in which I drew your attention to the fact that, while the school is growing in numbers, little or nothing is being done to secure a corresponding growth in efficiency, and warned you that, if the present state of matters were allowed to continue, it would soon be impossible to meet the requirements of modern teaching. You asked me to give you for your own private information a detailed statement of what are, in my opinion, the defects of the school. Before doing so I consulted my colleagues on the teaching staff, and the opinions that follow are not mine alone, but are held by all the teachers in the school. I must ask you to believe that the standard of excellence we all have in view is not that of any of the older European schools, but that of a young colonial school honestly trying, in accordance with modern ideas, to fit its students for the duties of general practice. That the pecuniary circumstances of the University make it useless for us to suggest the cure for much that is amiss is greatly to be regretted; but that is no reason for shutting our eyes completely to unpleasant facts.

1. *Teaching Staff.*—This requires strengthening. It is needless to do more than note the fact that in all schools of good standing the Professors of Physics, Biology, Chemistry, Anatomy, Physiology, and Pathology are assisted by one or more demonstrators. Such a wholesale addition to the teaching staff is not possible here, nor is it so very necessary, as the classes are not large. It is certainly sometimes difficult for one unaided man to carry on his work in the practical way that is now required, but so long as the classes are moderate in size the difficulties are not insuperable, provided that each of these subjects has its own special teacher. That is not so with us, however, and the subjects that are duplicated are unfortunately anatomy and physiology, perhaps the heaviest and certainly the most important, of the studies on which a scientific knowledge of medicine and surgery is based. When the school was founded nearly a quarter of a century ago, this combination of anatomy and physiology in one chair was not unsuited to the conditions then existing. But it is to be regretted that this arrangement has been allowed to continue unchanged to the present time, when the school is giving a five-years course qualifying for degrees in medicine. I cannot say positively that there is no other school in the whole world where this combination is still to be found; it may exist in one or two as a relic of the past; but I can assert without any hesitation that in none but this is one man expected to give complete courses, both theoretical and practical, in both subjects without assistance. As a matter of fact, the task is an impossible one: the hours of daylight are too few; and one or other subject must suffer. Here it is physiology that suffers most.

The teaching at the Hospital is also still to some extent unsatisfactory, because the outpatient department is left entirely to the house-surgeons. Much valuable teaching is in all schools carried on in this department by the assistant physicians and surgeons, men qualifying themselves for posts on the important staff of the Hospital.

There are no assistant physicians or surgeons attached to the Dunedin Hospital, and, though the good that would accrue to the Hospital and to the school from their appointment has been pointed out to the Trustees of that institution, they decline to make any change.

2. *Subjects Taught.*—No special instruction is given in diseases of the throat and ear. Courses in these subjects are included in the prospectuses of most modern schools.

Ophthalmology is taught, but the lecturer receives no salary; and the same remark applies to the teaching of mental diseases. This is not at all a desirable arrangement.

3. *Teaching Accommodation.*—Laboratory accommodation generally is somewhat deficient, but perhaps the physical laboratory is the most defective in this respect. The want of an additional class-room is also felt, as classes in physiology and surgery have to be held in the same room during consecutive hours, an arrangement which makes the proper setting-out of apparatus impossible. The small size of the rooms in which the Anatomical Museum is lodged is also a great drawback. It is not possible to display the specimens so as to make them thoroughly useful to students. It is at the Hospital, however, that the want of room is most seriously felt, and where, in consequence, teaching is most seriously interfered with. Much money has no doubt been spent in adding to the Hospital during the last few years, but provision for the accommodation and teaching of students is still in many respects unsatisfactory.

The room in which the *post-mortem* examinations are made is still what it was before a Medical School was thought of. It is a little shed, 12 ft. by 8 ft., with the narrow floor-space still further diminished by the necessary table, sink, and shelving. In this fifty or sixty students are expected to learn the very important lessons in pathology there taught. Of course not a fourth of them can get inside the room when a *post-mortem* examination is being made, and still fewer can see what is going on at the table. As a consequence, and through no fault of the teacher, this very necessary part of the course on pathology is to most students an utter sham. Time and again the Trustees of the Hospital have been begged to build a suitable room, but they will do nothing, in spite of the fact that they receive more than £100 a year in students' fees. Proper waiting-rooms for students, and a room in which the necessary writing-up of case-books can be done, are also much required. The present students'-room is quite unsuited for its purpose.

4. *Teaching Appliances.*—That money is continually required for the purchase of new instruments is not, I think, sufficiently recognised by the Council.

5. *Library.*—There is no Medical Library in connection with the school, unless the two or three dozen books bought more than twenty years ago can be called by that name.

Under these five heads I have endeavoured to give you the information asked for as to the defects of the school. Some of these are more serious than others, but all detract from its value as a teaching institution, and we cannot long maintain the fairly creditable position we now hold unless we set our house in order.

I am, &c.,

The Council of the University of Otago. JOHN H. SCOTT.

(2.)

GENTLEMEN,— University of Otago, 1st May, 1901.

I have little to add to what I wrote in 1898 as to the condition and prospects of the Medical School. I then, at your request, pointed out what I regarded as its main defects, and warned you as to what would inevitably occur if these were not remedied. Little or nothing was done, however, and if the school was old-fashioned and out of date three years ago, it is certainly not less so now. Indeed the matter is becoming very serious, and I must ask you, if you really wish to have a Medical School in Dunedin, to take steps to put it on a more satisfactory basis. I regret to say that the public are beginning to recognise that the school is not what it pretends to be, and some of the classes show a marked shrinking. The number of students attending anatomy in 1898 was 43, in 1899 it fell to 35, in 1900 to 30, while the class this session only numbers 22. The surgery class shows a similar state of affairs. This is very unsatisfactory. It is not that fewer young people are choosing medicine as a profession. It is, I believe, because parents are not satisfied with the local school, and prefer sending their sons and daughters to more generously treated institutions in England.

It is true that at the Hospital improvements have been made. Two new wards have been opened, and the accommodation for students has been improved. A new *post-mortem* room has also been built, and has been ready for use for several months, but it is kept closed, and the school has in no way benefited by its existence; while, in spite of the increased size of the Hospital, the number of patients treated remains as small as ever. The weekly returns frequently show that not more than between eighty and ninety beds are occupied. So long as this state of affairs continues the school cannot flourish.

I am, &c.,

The Council of the University of Otago. JOHN H. SCOTT.

(3.)

Supplementary Report of the Dean to the Special Committee on the Medical School.

The total number of students, both past and present, is 321.

Fifty-six have gone through the whole of their course in this country, and have taken the medical degree of the New Zealand University (bachelors of medicine, fifty-two; doctors of medicine, four).

Ninety, after a partial course here, have gone to Great Britain to complete their studies, and have taken some British qualification.

Since the completion of the school fifty-seven students have gone to England, after taking one year here; seventy-four after two years; and fifteen after three or more years. Total, 146.

The number of those who have gone Home for further study after taking their degree here is sixteen, and these have, with three exceptions, taken one or more British qualifications during their stay there.

Of the fifty-six graduates of the New Zealand University forty-seven are now practising their profession in this country. Two are settled in practice in England. Two are studying in London. Three are in Australia. One is a medical missionary in India, and one is dead.

Of the ninety holders of British qualifications fifty-eight have returned to New Zeafand, so that there are now in the country 105 medical practitioners who received their education either completely or partially at this School.

The number of undergraduates attending the School at present is seventy-three.

The number of our old students now in Great Britain, and still in the undergraduate stage, is fifty-two.

The number of those who since the foundation of the School have, owing to death or other cause, given up the study of medicine before graduation, is thirty-six.

REPORT OF THE DIRECTOR OF THE OTAGO UNIVERSITY SCHOOL OF MINES.

SIR,— 10th May, 1902.

I have the honour to report that during the session of 1901 the school showed the satisfactory attendance of thirty-eight registered students, and one casual student for one special subject only—namely, practical assaying. The thirty-eight students attended with the intention of going through one or more of the courses of study prescribed in the calendar for the several divisions of the school. Of that number eleven entered for their first year, leaving twenty-seven in their second or third year.

In past years students have not strictly followed the curriculum prescribed in the calendar, and for this reason the year of attendance does not always coincide with the academic year of a student's course. And failure to pass a satisfactory examination in a subject at the end of the session may throw a student out of the prescribed course, and in some cases necessitate attendance in the same class for another year.

Of students who entered for their third or final year, four completed their studies with success, and, having presented satisfactory certificates of time spent in practical work, were awarded the

diplomas and certificates to which they were entitled. These students were as follows:—Leslie Maurice Jolly: Diploma of Associate in Mining, and certificate of metallurgical chemist and assayer; Thomas Otto Bishop: Diploma of Associate in Mining, diploma of Associate in Metallurgy, certificate of metallurgical chemist and assayer, certificate of mine and land surveyor; Harold Tyndall de Renzy Harman: Diploma of Associate in Mining, and certificate of metallurgical chemist and assayer; Frederick Thomas Seelye: Diploma of Associate in Mining.

Diplomas and certificates were issued during the year to nine students who had already passed the prescribed course on production of certificates relating to practical work, in accordance with the regulations of the Mining School. The names of these students were as follows:—Herbert Edmund Allen: Diploma of Associate in Mining; Edward Arthur De Latour: Diploma of Associate in Mining; George Herbert Royse: Diploma of Associate in Mining and certificate of metallurgical chemist and assayer; Colin Campbell: Diploma of Associate in Metallurgy; George Aubrey Gow: Diploma of Associate in Mining, diploma of Associate in Metallurgy, and certificate as metallurgical chemist and assayer; Sydney Parker Street: Diploma of Associate in Mining; James Baillie Macdonald: Diploma of Associate in Mining; George Watt Thompson: Diploma of Associate in Metallurgy; William Graham Royse: Diploma of Associate in Metallurgy; Gerhard Adolphus Chapman: Ulrich diploma of Associate in Metallurgy.

The attendance in the different classes and the results of the annual examinations in the subjects of instruction in the Mining School are shown in the following tabulated statement:—

Table I.

Subject.	Attendance.	Results of Examinations.			
		First Class.	Second Class.	Third Class.	Failed.
General geology	8	1	3	3	1
Mining geology	6	1	1	3	1
Mineralogy	8	...	4	3	1
Petrography	7	1	1	5	...
General metallurgy	11	2	3	2	3
Special metallurgy	13	1	4	5	3
Assaying (first course)	16	6	6	3	1
Assaying (second course)	10	3	2	3	...
Blowpipe analysis	12	2	8	2	...
Mining (first course)	11	8	3	...	...
Mining (second course)	4	2	2	...	...
Applied mechanics (first course) ..	9	4	3	1	1
Mine and land surveying (first course) ..	12	10	1	1	...
Mine and land surveying (second course)	6	2	3	1	...

The teachers were: General and mining geology, mineralogy, and petrography, Dr. Marshall; general and special metallurgy, assaying, and blowpipe analysis, Mr. D. B. Waters; mining, applied mechanics, mine and land surveying, the Director.

In addition to these classes, students in their first, second, or third year, according to their standing, had to attend the University classes in mathematics, theoretical mechanics, theoretical physics, practical physics, theoretical and practical chemistry; and two students, with the intention of qualifying for the diploma of associate in geology, attended the classes in biology and palæontology. No failures were recorded in the University classes, with the exception of three in mathematics and three in theoretical chemistry. The results of the examinations in these subjects are shown in the following table:—

Table II.

Subject.	Attendance.	Results of Examinations.			
		First Class.	Second Class.	Third Class.	Failed.
Mathematics	9	1	...	5	3
Theoretical mechanics	10	1	4	5	...
Theoretical physics	9	2	3	4	...
Practical physics	5	1	4	...	...
Theoretical chemistry	14	3	1	7	3
Practical chemistry	10	2	5	3	...
Biology	2	2	...	...	...
Palæontology	2	1	1	...	...

The teachers were: Mathematics, Professor Gibbons; theoretical mechanics, theoretical and practical physics, Professor Shand; theoretical and practical chemistry, Professor Black; biology and palæontology, Professor Benham.

Students in the different divisions, according to their standing, had also to attend the drawing classes at the School of Art, the Director of which reported satisfactory progress in the case of every one.

The examination results are shown in the accompanying tabulated statement:—

Table III.

Subject.	Attendance.	Results of examinations.			
		First Class.	Second Class.	Third Class.	Failed.
Solid geometry	7	2	2	3	...
Machine-drawing	6	5	1	...	...
Model-drawing	8	5	1	2	...
Practical, plane, and solid geometry ...	6	2	2	2	...

The teachers were: Solid geometry, model-drawing, and practical, plane, and solid geometry, Mr. D. Hutton; machine-drawing, Mr. W. Peck.

The work done for the public in the valuation of ores, bullion, &c., by assay by Mr. D. B. Waters, lecturer and instructor in assaying, was as follows: Charged for at fixed rates, 52; not charged for, 5: total, 57. In this period the Director examined and reported on three collections of rocks and fossils—two from Southland in connection with the probabilities of coal being discovered, and one from Hokianga relating to a copper-discovery.

Staff.—Up till the year 1900 the teaching staff of the Mining School consisted of five members, including the Director and Lecturer in Metallurgy, and three outside lecturers—namely, a Lecturer in Geology, a Lecturer in Applied Mechanics, and a Lecturer and Instructor in Mine and Land Surveying. The regrettable death of the late Professor Ulrich led the Council of the University to reorganize the staff on a new basis. The outside lecturers were dispensed with, and instead of these a Lecturer in Geology and Mineralogy was added to the permanent staff. This new appointment led to a rearrangement of the subjects of instruction, as indicated in Table I. This arrangement will be adhered to in the present year, except in the case of mining geology, which will be taught in future by the Director as the first chapter in the mining course.

Regulations of School.—At the end of last session I prepared a revision of the regulations of the school. The new matter related principally to the issue of diplomas and the course of study in the different divisions, and, after lengthy consideration and some amendment, was finally approved and recommended to the Council by the Professorial Board. The new regulations, and a synopsis of the instruction in each class, are embodied in a separate publication recently issued from the Government Printing Office by the courtesy of the Hon. James McGowan, M.H.R., Minister of Mines.

Examination Papers.—In response to a request from the Director in July, the Hon. the Minister of Mines agreed to the printing of the annual examination papers by the Mines Department, and in fulfilment of that promise printed papers were placed in the hands of the students at the October examinations, an innovation which was much appreciated both by the staff and the students.

Students' Library.—In July, the students organized a social entertainment at the school to raise funds for the purchase of books for their library. The proceeds of the social realised some £10, which, with the sum of £12 obtained from a similar entertainment in 1900, were spent in the purchase of standard books of reference on mining and metallurgical subjects. The self-reliance of the students in this matter deserves much commendation, and for such a praiseworthy object the Council of the University might be reasonably requested to subsidise any small sum collected in this way.

In August the Hon. the Minister of Mines presented the library with a set of the back numbers of the "Annual Reports of the New Zealand Mines Department," and promised to send copies of all publications of this Department in the future. Donations of technical works were also received from Mr. A. Hamilton and the Director.

Donations to the School.—Valuable gifts of serviceable and up-to-date machinery and mining plant were received from a number of mining companies in the Auckland goldfields, notably the May Queen, Kuranui-Caledonia, Moanataiari, Big Pump, and Waihi Companies. The machinery proved of great value for class demonstration. It included a hoisting-cage with safety appliances (new model); two 3½ in. Ingersoll-Sargeant air rock-drills, with fittings; one rock-drill column and arm; two tripod-stands; one rock-boring auger; sets of steel drills for single and double hand drilling; set of drills for air-drill; samples of cruciform, hexagonal, and octagonal drill-steel; set of tools for charging blast-holes, including scraper, tamping bars, prickers, and "gun"; single and double hand striking-hammers; driving and sinking picks; shovels; examples of fire-bars; steel-wire and flat hemp ropes; two mine-trucks; one 12 in. pump-bucket valve; one cheese clack, &c.

From the Waihi Gold and Silver Mining Company (Limited) were also thankfully received 2 cwt. of cyanide tailings; from Woodstock Gold-mining Company (Limited), 1 cwt. of argentiferous gold-ore; from New Zealand Jubilee Gold-mining Company (Limited), ½ cwt. of cupriferous gold-ore; and from Monowai Gold-mining Company (Limited), 1 cwt. of complex sulphide ore. These ore-samples proved a valuable addition to the material available for the experimental work undertaken by the advanced students in metallurgy and assaying.

The geological collections were supplemented during the year by a collection of Trias fossils from Nelson, presented by the Director; and a typical series of rock-specimens representing the Maitai formation of New Zealand, together with sundry other rocks and minerals, from the same source.

The Trias fossils will form the nucleus of a collection of New Zealand type fossils, which is much needed for the instruction of students in the geological division.

In addition to the above donations, I have to acknowledge the receipt of a collection of West Australian rocks and gold ores from Mr. Max von Bernewitz, of Kalgoorlie, and a collection of Victorian rocks and minerals from Mr. O. G. Adams, Director of the Stawell School of Mines.

Graduates of Mining School.—The *Australian Mining Standard* of a recent date supplied the following interesting information relating to the present positions occupied by a number of old students of the school in different parts of Australia: D. A. M'Leod, Director of the Charters Towers (Q.) School of Mines; O. G. Adams, Director of the School of Mines, Stawell (V.); A. C. Boydell, Lecturer on Assaying, Metallurgy, Mineralogy, Chemistry, and Petrography, Bendigo (V.) School of Mines; Thos. Esdaile, Lecturer on Assaying, Metallurgy, and Chemistry at the South Australian School of Mines; A. Purdie, Director Government Technical School, Perth (W.A.); P. J. M'Leod, University and Technical School, Hobart; and W. H. Baker, formerly of the Karangahake School of Mines, Director of the Launceston (T.) School of Mines; F. B. Stephens, formerly Director of the Stawell (V.) School of Mines, but now manager of the Cassilis Gold-mining Company, Gippsland (V.); and Murray Russell, Government Inspector of Mines, Queensland.

In addition to these, the following old students of the school hold responsible positions in New Zealand: F. B. Allen,* Director of Thames School of Mines; Percy Morgan, Director of Waihi School of Mines; D. V. Allen, Director of Coromandel School of Mines; F. T. Seelye, Lecturer Waihi School of Mines; and A. Montgomerie, Superintending Engineer Kauri Gold Estates (Limited), Auckland goldfields.

It is also a pleasure to record that Mr. D. B. Waters, our Lecturer in assaying and metallurgy, and Dr. P. Marshall, Lecturer in Geology and Mineralogy, are old students of the Otago Mining School. It is further gratifying to note that J. Malcolm Maclaren, an old student, secured the 1851 Exhibition Research Scholarship for 1901. Mr. Maclaren is at present investigating the gold-veins of Great Britain and Ireland, and has been favoured with permission to conduct his laboratory research work in the Davy-Faraday Laboratory of the Royal Institution in London.

Besides these, many students of the Otago Mining School fill positions as assayers, metallurgical chemists, cyanide managers and operators, mill-managers, mine-managers, and mining-engineers in New Zealand, the different States of the Australian Commonwealth, in America, and South Africa, and Newfoundland.

Progress of Mining.—The unexampled progress of gold-mining in all parts of the world during the past decade can be traced directly to the introduction and successful operation of the cyanide process of gold-extraction. Many mines that were formerly closed down, or working at a loss, are now paying regular dividends, and piles of tailings, at one time regarded as useless sands, are yielding a profitable return through the application of this process.

The cyanide process depends on a series of highly complex chemical reactions, and for this reason is probably the most difficult and technical of present-day metallurgical processes. Its successful introduction in the Australian colonies and New Zealand, often under the most adverse conditions, is a splendid tribute to the value of the training imparted in our mining schools. The process may truly be said to have revolutionised the art of gold-mining, which now occupies a foremost position among the established industries of the world. In the past twelve years it has already added over £50,000,000 to the wealth of the British and American peoples; and its possibilities in the future seem almost without limitation, and it came most opportunely. It is almost certain that had the process been invented twenty years ago its introduction had been well nigh impossible through the lack of men possessing the high technological skill required for its successful operation. But it so happened that it came when the mining schools were fairly established and in full swing. The schools were called on to supply the men to work the process. In a sense they were placed on their trial, and for the first time since their establishment were required to justify their existence. This period was an anxious and critical time in the history of our New Zealand mining schools, and writing now, ten years after, it is gratifying to record that the reliable and successful work of our students, who were thus suddenly called upon to take the place of the old-time millman and battery-manager, dispelled for all time any lingering doubts of the value of a technical mining education.

Since filling all the available positions at the New Zealand mines, the overflow of our certificated students has found its way to responsible positions in connection with the process in all parts of the world wherever gold-mining is conducted on scientific principles.

If the colonies are to stem the tide of foreign competition greater facilities must be provided for the acquirement of a technical training in the higher branches of applied science. It is not so much in the manual occupations that we feel the stress of foreign competition as in the domain of mining, metallurgy, engineering, chemistry, electricity, and manufacturing industries.

Mining has already afforded a wide field for hundreds of our more intelligent youth, who have discovered not only a remunerative source of employment for themselves, but one in the pursuit of which they contribute largely to the wealth of the nation. Hitherto mining is the only industry in New Zealand in connection with which any serious attempt has been made to introduce technical education. That the results have already more than justified the expenditure is clearly shown in the more systematic development of our mines, and the yearly increasing value of our mineral productions. There is therefore no need to go to Germany or America to discover that money spent on technical education is money well invested on behalf of the community.

* Since appointed Director of School of Mines, Western Australia.

Conclusion.—I wish, in concluding my report, to record my appreciation of the zeal and attention my colleagues—Mr. Waters and Dr. Marshall—have displayed in conducting the work of their several departments, and for the willing help and co-operation accorded me in all matters relating to the welfare of the Mining School. JAS. PARK, F.G.S., Director.

The Chancellor of the University of Otago.

REPORT OF THE CURATOR OF THE UNIVERSITY MUSEUM.

The work in the Museum during the past year (1901–2) has been of an unobtrusive character, as no conspicuous or very important additions have been made to the collection. Nevertheless, a considerable number of small specimens have been added, and a still greater number have been remounted and relabelled; while many old ones have been replaced by better examples.

During the summer I overhauled the reserve collection of New Zealand fossils stored in the cellar, as they had become much disarranged. Each fossil has now been placed in a small cardboard tray, with its name and locality attached. The trays have been arranged according to localities, and each drawer of trays has been roughly catalogued. I intended to have made up an exhibit of our fossils arranged in stratigraphical order, but find that our collection is not sufficiently extensive to allow me to carry out my plan. But it appears to me that there ought to be, either in the Museum or at the School of Mines, a collection both of New Zealand fossils and a representative collection of European fossils, illustrative of the recognised geological periods. Such a collection is essential for the study of palæontological geology. At present, however, lack of room and lack of specimens prevent the realisation of this scheme.

During the past year I obtained from Maketuela, one of the New Hebrides group, a number of ethnological objects, amongst them two examples of ceremonial skulls, plastered and painted. These I have placed, together with cognate objects, such as masks, in a case by themselves.

A coloured picture of the recently-discovered giraffe-like beast from the forests of Central Africa has been placed in the Museum.

To our collection of New Zealand invertebrate, preserved in alcohol, exhibited in the first gallery, about twenty new specimens hitherto unrepresented have been added; while about twenty-five specimens of one kind and another have been added to the foreign collections.

Formerly many of the small alcoholic specimens were exhibited in stoppered bottles; these have now been remounted in cylindrical jars with flat glass tops. Specimens preserved in alcohol naturally require continual attention; they are liable to deteriorate in time, owing to bleaching or to evaporation of the alcohol. Such specimens have been replaced by better ones or remounted. About fifty such remounts have been carried out in the foreign collection, and about twenty-five in the New Zealand collection.

Several skeletons, both of mammals and of birds, have been taken to pieces, cleaned, and remounted in a manner superior to that formerly adopted, and the plan commenced in 1900 of mounting loose skulls and other parts of skeletons on black boards has been continued, and is practically completed. This not only exhibits the specimens to a better effect, but renders removal to the lecture-room safer and more convenient.

The old dug-out canoe, hitherto lying in the open air, has been conveyed to the cellar.

During the summer the cellar and various store-rooms have been cleared of much of the lumber of old packing-cases, &c.—the accumulation of years; the rooms have been rearranged and cleaned out. The specimens preserved in alcohol in the store-room, many of which have been hitherto preserved in corked bottles—allowing much evaporation of alcohol—have been transferred to stoppered bottles, which prevent this loss to a much greater degree. The stoppers have been greased and the specimens labelled.

Our reserve stock of birds' skins has been overhauled and catalogued; hitherto we have had nothing beyond the memory of the taxidermist and Curator upon which to rely as to the existence of duplicates, or the lack of them, for purposes of exchange.

A commencement has been made in the cataloguing of reserve birds and fishes of New Zealand, preserved in alcohol.

Finally, the usual number of repairs to skeletons and other objects used in class-work has been carried out. The taxidermist has cleaned and tidied every case in the Museum, renewing where necessary the naphthaline. D. B. BENHAM, Curator.

Balance-sheet of the University of Otago for the Year ending 31st March, 1902.

Receipts.	£ s. d.	£ s. d.	*Expenditure.*	£ s. d.	£ s. d.
Balance, 31st March, 1901		1,341 14 11	Salaries	7,543 15 0	
Burwood and Mararoa	1,300 0 0		Less salaries professors and lecturers School of Mines £1,600		
Barewood	900 0 0		Less salary of Curator of Museum £250		
Benmore	3,000 0 0			1,850 0 0	
Forest Hill	25 0 0				5,493 15 0
Pebbly Hills	20 0 0		Apparatus, &c.—		
79c, Barewood	25 9 3		Chemical laboratory		138 15 11
Professors' houses	240 0 0		Physics laboratory		37 16 7
Leith Street houses	38 12 6		Biological laboratory		15 1 10
Castle Street house	62 6 0		Medical School		105 4 11
Castle Street rent	12 0 0		Fees—Professors and lecturers		1,935 14 6
		5,623 7 9	Repairs and alterations		30 19 0
Church Board of Property		1,800 0 0	Special repairs		76 19 4
Fees	2,626 3 9		Library		58 6 8
Less transferred, School of Mines Account	309 15 0		Insurance	51 16 8	
		2,316 8 9	Less proportion charged to School of Mines	10 0 0	
Interest on debentures	180 0 0				41 16 8
Less transferred, School of Mines Account	107 2 2		Water, fuel, and light		199 6 3
		72 17 10	Printing, advertising, and stationery	110 13 10	
Incidental receipts		16 9 1	Less proportion charged to School of Mines Account	20 0 0	
Goldfields revenue		13 9 11			90 13 10
Barewood Timber Account		6 7 0	Incidentals		53 12 4
Analyst's fee		25 0 0	Expenses, Leith Street houses		5 2 0
Interest on hot-water supply		9 0 0	" Castle Street house		7 0 0
Refund		0 3 11	Bank charges, interest, &c.		18 19 6
			Law-costs		58 19 6
			Surveying Castle Street block		12 17 0
			Fee returned		0 11 11
			Special grants—		
			Hospital		50 0 0
			Janitor		10 0 0
			Library Assistant		9 9 0
			Interest on loan		724 10 0
			Transferred to School of Mines Account		1,257 5 8
			Transferred to Museum Account		103 12 0
			Balance 31st March, 1902		677 10 8
		£11,224 19 2			£11,224 19 2

School of Mines Account.

Receipts—	£ s. d.	Expenditure—	£ s. d.
Government subsidy	500 0 0	Salaries—	
Extra grant	250 0 0	Director and lecturers	1,200 0 0
Fees from Mining School Classes	309 15 0	Proportion of salaries of professors	400 0 0
From General Account	1,257 5 8	Assistant	73 10 0
		Demonstrator	10 10 0
		Proportion of general expenses	20 0 0
		Proportion of insurance premiums	10 0 0
		Chemicals, water, fuel, light, and repairs	353 0 8
		Credit balance, Bank of New Zealand, 31st March, 1902	250 0 0
	£2,317 0 8		£2,317 0 8

Museum Account.

Receipts—	£ s. d.	Expenditure—	£ s. d.
Rent of Museum Reserve	550 0 0	Salary of Director	250 0 0
Sale of specimen	29 17 5	Attendants and maintenance	418 9 5
From General Account	103 12 0	Payment (last) on account of moa's egg	15 0 0
	£683 9 5		£683 9 5

Richardson Scholarship Account.

	£ s. d.	Expenditure—	£ s. d.	£ s. d.
Balance, 31st March, 1901	832 9 3	Holder		25 0 0
Interest on debentures	30 16 0	Bank charge		0 10 0
		Balance, 31st March, 1902—		
		Debentures, £600 and £169 14s. 5d.	769 14 5	
		In Bank of New Zealand, current account	65 2 4	
		In Bank of New Zealand, general account	15 8 6	
			850 5 3	
		Less £12 10s. due to general account	12 10 0	
				837 15 3
	£863 5 3			£863 5 3

Sir Walter Scott Scholarship Account.

	£ s. d.		£ s. d.
Balance, 31st March, 1901	296 3 5	Expenditure—	
Interest on debentures	11 8 0	Holder	15 0 0
		Bank charge	0 10 0
		Interest on overdraft	0 2 6
		Balance, 31st March, 1902—	
		Debentures	285 0 0
		In Bank of New Zealand, current account	1 4 11
		In general account, Bank of New Zealand	5 14 0
	£307 11 5		£307 11 5

Taieri Scholarship Account.

	£ s. d.		£ s. d.
Balance, 31st March, 1901	286 0 8	Expenditure—	
Interest on debentures	10 14 0	Bank charge	0 10 0
		Balance, 31st March, 1902—	
		Debentures, £68 18s. 11d. and £198 13s. 3d.	267 12 2
		In Bank of New Zealand, current account	23 5 3
		In Bank of New Zealand, general account	5 7 3
	£296 14 8		£296 14 8

Macandrew Scholarship Account.

	£ s. d.		£ s. d.
Balance, 31st March, 1901	788 6 8	Expenditure—	
Interest on debentures	28 0 2	Holder	20 0 0
		Bank charge	0 10 0
		Balance, 31st March, 1902—	
		Debentures, £36 15s. 7d. and £663 10s. 2d...	700 5 9
		In Bank of New Zealand, current account	81 10 11
		In Bank of New Zealand, general account	14 0 2
	£816 6 10		£816 6 10

Women's Scholarship Account.

	£ s. d.		£ s. d.
Balance, 31st March, 1901	582 2 5	Expenditure—	
Interest on debentures	22 4 0	Bank charge	0 10 0
		Balance, 31st March, 1902—	
		Debentures, £288 15s. and £266 0s. 2d.	554 15 2
		In Bank of New Zealand, current account	37 18 9
		In Bank of New Zealand, general account	11 2 6
	£604 6 5		£604 6 5

Macgregor Prize Fund Account.

	£ s. d.		£ s. d.
Balance, 31st March, 1901	122 18 4	Expenditure—	
Interest on debentures	4 0 0	Bank charge	0 10 0
		Balance, 31st March, 1902—	
		Debentures	100 4 1
		In Bank of New Zealand, current account	24 4 3
		In Bank of New Zealand, general account	2 0 0
	£126 18 4		£126 18 4

Stuart Prize Fund Account.

	£ s. d.		£ s. d.
Balance, 31st March, 1901	103 3 4	Expenditure—	
Interest on deposit	3 0 0	Holder	3 0 0
		Balance, 31st March, 1902—	
		In Dunedin Savings Bank	103 3 4
	£106 3 4		£106 3 4

Ulrich Memorial Prize Fund Account.

	£ s. d.		£ s. d.
Subscriptions to 31st March, 1901	71 3 0	Balance, 31st March, 1902	117 13 0
Subscriptions to 31st March, 1902	46 10 0		
	£117 13 0		£117 13 0

Parker Prize Fund Account.

	£ s. d.		£ s. d.
Balance, 31st March, 1901	49 12 0	Balance, 31st March, 1902	49 12 0

Sir George Grey Scholarship.

	£ s. d.		£ s. d.
From Treasury	50 0 0	By Holder	50 0 0

Interest Account.—No. 3 Loan: Building Purposes, £15,000, at 4½ per cent., and £1,000 for Reclamation Purposes.

	£ s. d.		£ s. d.
From General Account	724 10 0	Interest paid on £16,000	724 10 0
Credit balances—		Debit balances—	
General account	677 10 8	General Account, Bank of New Zealand, 31st March, 1902	614 12 3
Richardson Scholarship Account ..	837 15 3	School of Mines Account	250 0 0
Sir Walter Scott Scholarship Account ..	291 18 11	Richardson Scholarship Account ..	65 2 4
Taieri Scholarship Account	296 4 8	Sir Walter Scott Scholarship Account ..	1 4 11
Women's Scholarship Account	603 16 5	Macandrew Scholarship Account ..	81 10 11
Macandrew Scholarship Account ..	795 16 10	Women's Scholarship Account.. ..	37 18 9
Macgregor Prize Fund Account ..	126 8 4	Macgregor Prize Fund Account ..	24 4 3
Stuart Prize Fund Account	103 3 4	Stuart Prize Fund Account, Dunedin Savings Bank	103 3 4
Ulrich Memorial Prize Account ..	117 13 0	Taieri Scholarship Account	23 5 3
Parker's Prize Fund Account	49 12 0		674 18 0
School of Mines Account	250 0 0	Debentures—	384 5 11
		General Account	297 1 3
			100 0 0
			366 3 3
		Richardson Scholarship Account, £600 and £169 14s. 5d.	769 14 5
		Women's Scholarship Account, £288 15s. and £266 0s. 2d.	554 15 2
		Macandrew Scholarship Account, £663 10s. 2d. and £36 15s. 7d.	700 5 9
		Taieri Scholarship Account, £198 13s. 3d. and £68 18s. 11d.	267 12 2
		Macgregor Prize Fund Account ..	100 4 1
		Sir Walter Scott Scholarship Account	285 0 0
		Cash in hand..	0 3 11
			5,701 5 11
		Less outstanding cheques	1,551 6 6
	£4,149 19 5		£4,149 19 5

A. Hamilton, Registrar, University of Otago, Dunedin.

Examined and found correct,

J. K. Warburton,
Controller and Auditor-General.

Approximate Cost of Paper.—Preparation, not given; printing (1,380 copies), £10 6s

By Authority: John Mackay, Government Printer, Wellington.—1902.

Price 6d.]