

## SESSION II.

1912.

## NEW ZEALAND.

## UNIVERSITY COLLEGES OF NEW ZEALAND

(REPORT BY INSPECTOR-GENERAL OF SCHOOLS ON), AS RECOMMENDED BY THE EDUCATION COMMITTEE IN THEIR REPORT TO THE HOUSE OF 25TH OCTOBER, 1911 (I.-13A).

*Laid on the Table of the House of Representatives by Leave.*

## THE HON. THE MINISTER OF EDUCATION.

The two questions in regard to which I was directed by the Minister of Education, on the request of the Education Committee, to make inquiry and report were stated as follows in the report of the Committee (see I.-13A, 1911, page ii) :—

- I. “(c.) The financial position and requirements of each college should be inquired into, each college being considered on its merits, and provision made accordingly. (The Committee think that this inquiry might be conducted by the Inspector-General of Schools).”
- II. “(a.) The library equipment of the colleges should be strengthened, especially in the interests of research.  
“(b.) The Inspector-General should be asked to report on this matter. (In preparing his report the Inspector-General should consider whether a system of interexchange of books between the libraries could be given effect to.)”

I have the honour to report accordingly.

In the course of the inquiry I visited each college several times. Recognizing that, although I had no power to call for evidence, it was desirable, if not essential, that I should obtain the views of all concerned, I consulted the several College Councils and Professorial Boards. I have given full consideration to the representations made to me and to the facts I have gathered; in some cases I have followed the recommendations that were made, in other cases I was led to a somewhat different conclusion: in short, the responsibility for the recommendations contained in this report rests with me. In regard to a large number of the questions involved I recognize, of course, that there is room for much difference of opinion.

I have to thank all concerned, the Councils and the Professorial Boards, especially the Chairmen of these bodies, and the Registrars and other officers of the colleges, for the great assistance they so courteously gave me in the course of the inquiry.

G. HOGBEN,  
Inspector-General of Schools.

Education Department, 17th October, 1912.

REPORT.

I SHALL treat both questions as one, the second being really involved in the first.

The requirements of the colleges are of two kinds :—

- A. Those involving an increase in the annual expenditure, and therefore in the annual income provided—that is, recurring needs.
- B. Those involving capital expenditure, which are non-recurring.

A.

The recurring items may be grouped under the following heads :—

- 1. Staffing.
- 2. Libraries.
- 3. Laboratories.
- 4. Scholarships.
- 5. Administration and Miscellaneous.

I propose to discuss each of these in turn.

1. STAFFING.

Table A (below) shows the present teaching staffs at the four University Colleges for all the subjects in the degree courses of the University of New Zealand : for comparison, the teaching staffs for the corresponding subjects in the Universities of Sydney, Melbourne, and Adelaide are also given. In Table B are set out the number of students taking the full degree and diploma courses in each of the colleges during the present year. (In the case of Auckland the return was obtained too early in the year for the numbers in arts and science to be compiled with accuracy, and the figures for 1911 are accordingly inserted : in commerce and law the figures are those for 1912).

TABLE A.—PRESENT TEACHING STAFFS OF THE UNIVERSITY COLLEGES.

(P, Professors ; L, Assistant professors, lecturers, chief demonstrators ; D, Assistant lecturers, demonstrators, &c.)

Subject.	Auckland University College.	Victoria College.	Canterbury College.	Otago University.	Sydney University.	Melbourne University.	Adelaide University.
Arts, science, and com- merce—	P L D	P L D	P L D	P L D	P L D	P L D	P L D
Latin .. ..	1 1 ..	1 1 ..	1 ½ ..	1 1 1	1 1 ..	1 2 ..	1 1 ..
Greek .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 2 ..	1 1 ..
Hebrew .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
French .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
German .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
English .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
History .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Economics .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Mental science .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Mathematics .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 2 ..	1 2 ..	1 1 ..
Physics .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 1	1 2 ..	1 1 ..
Chemistry .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	2 1 8	1 2 ..	1 1 ..
Biology .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	2 1 2	2 3 ..	1 2 ..
Geology .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 2 5	1 1 ..	1 2 ..
Physiology (included in medicine)	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Military science .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 4 ..	1 4 ..	1 4 ..
Commerce .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 4 2	1 4 ..	1 4 ..
Law .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 4 ..	1 4 ..	1 4 ..
Total arts, science, com- merce, and law	6 7 ..	10 4 8	8 8 2	7 8 5	15 23 18	10 19 1	7 14 1
Education .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Home science .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Architecture .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Engineering .. ..	1 3 ..	1 3 ..	1 4 4	1 1 1	1 6 3	1 6 ..	1 1 ..
Mining .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Metallurgy .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Medicine and surgery* .. ..	1 1 ..	1 1 ..	1 1 ..	8 5 5	3 25 25	3 13 7	1 19 ..
Dentistry .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Veterinary science .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 4 ..	1 5 ..	1 5 ..
Agriculture .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 5 ..	1 5 ..	1 5 ..
Music .. ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..
Total .. ..	8 11 ..	10 5 8	9 14 6	20 14 12	22 71 47	16 50 8	9 36 1

\* Excluding clinical staff of hospital. † There is a staff of a Director and four lecturers at the Canterbury Agricultural College.  
‡ Excluding staff of Conservatorium.

TABLE B.—DEGREE COURSES AND NUMBER OF STUDENTS, 1912.

Subject.	Auckland University College.	Victoria College (1912).	Canterbury College (1912).	Otago University (1912).
Arts .. .. .	*75 (1911)	211	117	221
Science .. .. .	*11 (1911)	27	8	26
Law .. .. .	54 (1912)	164	15	40
Commerce .. .. .	135 (1912)	61	17	42
Music .. .. .	(a)	..	2	..
Medicine .. .. .	..	3	2	121
Dentistry .. .. .	..	..	..	10
Engineering .. .. .	1	1	19	2
Mining .. .. .	1 (b)	..	..	13
Agriculture .. .. .	2	1	(c)	..
Home science .. .. .	..	..	..	27 (d)
	279	468	180	502
Graduates .. .. .	†	9†	†	25
Undergraduates .. .. .	†	468	†	371
Not matriculated .. .. .	†	69†	†	106
	279	546	180	502
Total arts, science, law and commerce (excluding education and home science)	275	463	157	329

\* Taken too early in academical year, 1912, for returns to be classified according to courses.

† Separate figures not obtainable.

† Not included in the 468 students shown above.

(a) There are 173 students attending lectures, but not for a degree or diploma : there is nothing to show what the standard is.

(b) There are 30 students altogether taking lectures, about 27 or 28 taking single subjects only.

(c) There are 42 students at the Canterbury Agricultural College, of whom 3 are taking the degree course.

(d) There are 2 others not taking the degree or diploma course.

In the University of Sydney there were, in 1910, 850 students taking degree courses, 86 of whom were evening students, and 40 to 50 post-graduate students ; there were also 268 taking single subjects.

Table C gives further details of the number of students in the several subjects of the arts, science, law, and commerce courses, as furnished in this inquiry by the four colleges.

Table D shows in summarized form, for two of the affiliated colleges of the University of Wales, and for three of the modern English Universities, the teaching staffs in the different courses.

In Table E are given the numbers of students in the same colleges and universities. These tables—D and E—are compiled from the Blue-book for 1910-11, published for the English Board of Education, 1912, and from the respective calendars.

TABLE C.—THE NUMBER OF STUDENTS TAKING THE SEVERAL SUBJECTS OF THE ARTS, SCIENCE, LAW, AND COMMERCE COURSES IN EACH COLLEGE (1912).

Subject.	Auckland University College.	Victoria College.	Canterbury College.	Otago University.	Total.
Latin .. .. .	126	166	121	99	512
Greek .. .. .	3	5	4	20	32
Hebrew .. .. .	..	..	..	..	..
French .. .. .	41	61	36	44	182
German .. .. .	4	12	1	2	19
English .. .. .	197	173	146	118	634
History .. .. .	14	13	42	13	82
Economics .. .. .	44	31	51	30	156
Mental science .. .. .	63	115	47	78	303
Education .. .. .	86	60	62	61	269
Pure mathematics .. .. .	45	41	51	58	195
Applied mathematics .. .. .	11	18	15	23	67
Physics .. .. .	33	33	37	74	177
Chemistry .. .. .	36	34	26	59	155
Biology .. .. .	95	30	51	31	207
Geology .. .. .	15	12	17	29	73
Commerce .. .. .	135	61	17	42	255
Law .. .. .	114	164	40	40	358

This list includes not only degree and diploma students, but those taking one or two subjects only.

TABLE D.—STAFFING IN THE FACULTIES OF ARTS, SCIENCE, COMMERCE, AND LAW (EXCLUDING EDUCATION AND MUSIC).

Institution and Subject.	Whole-time Professors.	Part-time Professors.	Whole-time Lecturers.	Part-time Lecturers.
Bangor (North Wales) University College—				
Arts and science .. .. .	10	..	10	3
Commerce (a) .. .. .	..	..	..	..
Law (a) .. .. .	..	..	..	..
Cardiff (South Wales) University College—				
Arts and Science .. .. .	13	..	14	3
Commerce (a) .. .. .	..	..	..	..
Law (a) .. .. .	..	..	..	..

TABLE D.—STAFFING IN THE FACULTIES OF ARTS, SCIENCE, COMMERCE, AND LAW (EXCLUDING EDUCATION AND MUSIC).—*continued.*

Institution and Subject.					Whole-time Professors.	Part-time Professors.	Whole-time Lecturers.	Part-time Lecturers.
University of Birmingham—								
Arts and science	..	..	..	..	13	1	26	4
Commerce (b)	..	..	..	..	2	1	..	1
Law (b)	..	..	..	..	..	..	..	..
University of Leeds—								
Arts and science	..	..	..	..	14	1	24	1
Commerce (c)	..	..	..	..	1	..	1	1
Law (c)	..	..	..	..	1	..	..	2
Victoria University, Manchester—								
Arts and science	..	..	..	..	17	3	38	17
Commerce (d)	..	..	..	..	1	..	1	7
Law (d)	..	..	..	..	1	1	..	7

(a.) There are no professors or lecturers in law or commerce.

(b.) No teaching is provided in law; two professors, one part-time professor, and one part-time lecturer in commerce.

(c.) One professor in law and one in commerce, one whole-time and two part-time lecturers in law, one part-time lecturer in commerce.

(d.) One whole-time and one part-time professor, and seven part-time lecturers in law. One professor and one lecturer (whole-time) and seven part-time lecturers in commerce.

No account is taken of professors of subjects not taught in the University Colleges of New Zealand, as of Oriental languages, Welsh, theology; nor of professors of Greek, Hebrew, or German where there are separate chairs in these subjects, the number of students in each of these subjects in New Zealand being very small.

TABLE E.—NUMBER OF STUDENTS TAKING DEGREE OR DIPLOMA OR POSTGRADUATE COURSES IN ARTS, SCIENCE, LAW AND COMMERCE (INCLUDING FINE ART, MUSIC, AND EDUCATION) IN CERTAIN BRITISH UNIVERSITY COLLEGES AND UNIVERSITIES.

Institution.		Full-time Students.					Part-time Students.	Grand Total.
		Degree.	Diploma.	Post-graduate.	Others.	Total.		
Bangor (North Wales) University College	..	218	..	11	11	240	56	296
Cardiff (South Wales) University College	..	319	17	24	6	366	136	502
University of Birmingham	..	221	173	15	19	428	83	511
University of Leeds	..	152	4	5	5	166	128	294
Victoria University, Manchester	..	341	48	47	5	441	159	600

## REMARKS ON THE PRESENT STAFFING (SEE TABLE A).

## SUBJECTS.

*Classics.*

*Latin.*—Latin is practically compulsory for the B.A. degree, as very few students take Greek and those who do probably take Latin also. In Auckland University College and Victoria College the staffing seems to be sufficient for the present numbers. In Canterbury College the assistant should be a full-time assistant: now he gives half his time to English and half to Latin. In the University of Otago Latin is taken by a lecturer and an assistant lecturer. Considering the importance of the subject and the number of students, there should be a professor and a lecturer at each college.

*Greek.*—There are about thirty students in the four colleges taken together. The subject is taken in Otago by an assistant lecturer, in the other three centres by the Professor of Latin: the latter arrangement seems to be sufficient.

*Modern Languages.*

In Otago there is a lecturer in French and an assistant lecturer in German; in the other three colleges there is a professor who takes both languages—in Victoria College and Canterbury College the professor has an assistant. Modern languages occupy an important position in an arts course: the number of students in French and the number of classes required would justify a professor and a lecturer in each college.

Apparently there are not more than twenty students of German of all years in all four University Colleges.

*English.*

This is, as it should be, the most popular subject in all four colleges. Except in Canterbury, where the professor's assistant divides his time between Latin and English, the present arrangement of a professor and a lecturer seems to be tolerably satisfactory.

It might be desirable at a future time to divide the chair of English into two (English literature and English language and philology), but other demands seem to be more immediately urgent.

*History.*

In Canterbury College there is a professorship, the holder of which takes also economics and has charge of the course in commerce, several other subjects of which he actually teaches. In Victoria College there is a lecturer in history and economics. In Auckland University College one lecturer,

who has also a professional occupation outside the college, is made responsible for history, economics, mental science, currency and banking, and economic geography, and he has the control of the School of Commerce: this is fair neither to himself nor to the students. In Otago no provision is made for the teaching of history other than constitutional history.

#### *Economics.*

In Otago a lecturer takes this subject together with accountancy law: the arrangements in the other colleges are noted under the head of "History." Whether they are regarded from the point of view of politics, sociology, and commerce, or from that of a general human interest consequently as elements of a humanist training and culture, history and economics appear to be subjects of sufficient importance to deserve two separate chairs in a University College: it will be noted that in the University of Sydney there are distinct chairs of history and economics. Perhaps, however, the arrangement made in Melbourne of having one professorial chair and one lectureship is the best that can be made at present at any New Zealand University College, and I recommend that accordingly.

#### *Mental Science.*

Mental science and philosophy, together with logic and ethics: The wide extent of the subjects grouped under this head, the extensive reading that a teacher must do to keep abreast of his work, and the new developments of the subjects (in experimental psychology and so forth) render it desirable that if this branch of study is taken at all in a University College it should be the sole concern of a professor, who should have the assistance of a junior lecturer or laboratory demonstrator. Those who direct the changes necessary from time to time in educational systems and methods should certainly not be ignorant of the leading principles of psychology, logic, and ethics: hence it is difficult to see how mental science could be omitted from the programme of any University College.

#### *Mathematics.*

The importance of the subject may be taken for granted: although it is no longer compulsory for the B.A. degree, yet it is still required in the ordinary science course; and, though the number of advanced mathematical students in any community is from the nature of things small, yet the maintenance of higher teaching in the subject is necessary for its own sake and for the advancement of our knowledge in physics. The ramifications of mathematics in the higher branches are so many that, despite the comparatively small number of advanced students, it hardly seems possible to make a smaller satisfactory provision than that obtaining in Victoria and Canterbury Colleges—namely, that of a professor and an assistant: in each of the other two colleges there is a professor, but no assistant.

#### *Physics.*

At present physics and chemistry in Auckland are under the charge of one professor, who has a demonstrator and assistant. In the other colleges there are separate professors of physics and chemistry, each of whom has one assistant, senior or junior. In Otago both subjects up to the Intermediate standard are required for medical students.

The ideal arrangement for each of these subjects would no doubt be, as has been suggested—One professor; one chief demonstrator, who should also take some of the junior lectures; one lecture-assistant, to prepare the experiments for the lectures of the professor, and perform other duties; junior demonstrators (ex-students or senior students), as required; one mechanic, to make and prepare apparatus (he would probably save his salary by the saving of the expenditure that would otherwise be entailed for purchases and repairs); one cleaner and caretaker. The last two might also do similar work for the Professor of Chemistry.

Looking, however, to the number of students and the limited resources at our disposal, we ought probably at present to content ourselves with one professor, one chief demonstrator and lecturer, and one junior demonstrator, together with a mechanic; one cleaner might, perhaps, suffice for all the science departments.

#### *Biology*

(Including general biology, botany, and zoology; the cognate subjects of physiology and anatomy are for the purpose of this list included in the medical course).

In each of the four colleges there is a Professor of Biology, who takes both the botany and zoology. In Auckland the Professor of Biology also lectures on geology, and is consequently overweighted. In Auckland and Canterbury the professor has an assistant or demonstrator; in Victoria College he has both an assistant and a demonstrator; and in Otago (where biology is a compulsory subject for the Medical Intermediate Examination) the professor does his work unaided. It is seldom that one person has an equally good knowledge of both botany and zoology; hence, if the professor's special province is the former, there should be a lecturer whose strength lies in his knowledge of zoology, and *vice versa*—otherwise the advanced students in one branch or the other must suffer. For a similar reason there should be at least two demonstrators (senior or junior) one for each branch. With the actual number of students we must probably at present content ourselves with junior demonstrators: the ideal would be to have at least one senior demonstrator and junior demonstrator as required in each branch.

#### *Geology.*

This subject, so important in a new country whose mineral resources are only partly known, and where so many scientific problems call for solution, is comparatively neglected in New Zealand. There

is a Chair of Geology in Otago, and a lecturership in Canterbury and Victoria Colleges; in Auckland, as has been stated above, it is associated with botany and zoology. There should be at least one lecturer at a substantial salary in each college. As soon as the numbers warrant it, there should be a demonstrator in mineralogy and petrology who might also assist in the geological field-work.

#### *Education.*

The lectures in education are given in each case by the Principal of the Training College, who in Otago has received the rank of professor. If an advanced or honours course were recognized by the University there should be not less than two lecturers in each college, or a lecturer and a professor.

#### *Military Science.*

This is one of the optional subjects for the B.A. and B.Sc., but at present no instruction therein is given in any of the New Zealand colleges or in Melbourne or Adelaide. The University of Sydney has a Director of Military Science and four lecturers.

#### *Home Science.*

This department is found at present only in the University of Otago, and the staff consists of one professor and one lecturer. There should also be a chief demonstrator of the practical work in cookery, and other applied branches of the science, and, as the number of students increases, junior demonstrators for the science laboratories.

#### *Architecture.*

The University has just established a degree in architecture, the course for which contains many subjects that are identical or nearly so with corresponding subjects in the engineering courses. Accordingly, if a course in architecture were provided at the Canterbury College School of Engineering, the additional requirements would probably be met by the appointment of two senior lecturers under the control of the Professor of Engineering. If a department of architecture were established in any other college, the minimum staff required would probably be one Professor of Architecture (in charge), two senior lecturers and one or two junior lecturers.

#### *Engineering.*

There are some classes in engineering subjects (mechanical, electrical, and civil engineering) at Auckland University College: the staff consists of two qualified lecturers, but both staff and equipment are too small for a school of engineering. The staff of the engineering department of Canterbury College includes one professor, four senior lecturers or chief demonstrators, and four other demonstrators or assistants. Considering the comparatively small number of students (less than thirty taking the degree and diploma courses) it does not seem advisable to increase this staff at present, unless architecture is added to the courses already taken: in that case the additions suggested above should be made.

#### *Mining and Metallurgy.*

Excluding the professor of geology, who is classed for the purpose of this list among the staff of the science department, there are two professors and one assistant. There are thirteen or fourteen students. Probably a staff of one professor of mining (in charge), one senior lecturer on metallurgy and assaying, and one assistant would be sufficient.

#### *Medicine and Surgery.*

Otago University: There are eighteen persons on the staff, most of whom are medical men engaged in the practice of their profession in Dunedin: eight of the staff are classified as professors. It is suggested that the staff should be increased by three, and that some of the salaries should be higher than they are. Both suggestions appear to be reasonable, and if they were adopted this important school of medicine might be considered to be appropriately staffed by three full-time professors (including a Professor of Physiology), twelve part-time professors, assistant professors, and senior lecturers, and six junior lecturers and assistants.

#### *Dentistry.*

The present staff at the Otago Dental School consists of a professor, an instructor in mechanical dentistry, and visiting anaesthetists. The present arrangement as to the latter is not considered satisfactory, and it is proposed to appoint one regular anaesthetist—which seems to be reasonable. With the growth of the school other lecturers and demonstrators would be required: one of these might occupy a position similar to that of a house surgeon in an ordinary hospital—that is, a suitable man might be found to take the position at a moderate salary for the sake of the experience. Other lecturers, if required, might be engaged on similar terms to those on which medical men in practice are engaged in the Medical School.

#### GENERAL, SPECIAL, AND PROFESSIONAL COURSES.

It is necessary now to arrive at some conclusion as to what courses of study should be provided at each of the four affiliated institutions of the University.

It has been said that it was a mistake to establish four University Colleges in New Zealand; that one central University should have been set up, as in Sydney for New South Wales, and in Melbourne for Victoria. To say this is, in my opinion, to overlook the difference between the geographical conditions of the Dominion and those of the two Australian States referred to. If there were only one University College in New Zealand, the people of the city and district in which it was situated would

have far greater opportunities for university education than those in other places, unless bursaries and scholarships were provided sufficient in number and amount to meet the cost of board and travelling of those who have to live away from home to pursue their studies. (In the case of those engaged in other occupations during the day, some of whom have relatives dependent on them, the amounts would have to be substantially increased in order to put them in as good a position as they are in now.) If we assume that two-thirds of the present number of degree diploma students (about 1,500 in all) are living at home, we should have, if there were only one college, probably five-sixths, instead of one-third, of the whole number of students who could not attend the University without leaving home, or, say, 750 more students for whom board and travelling-expenses would have to be provided. But if the necessary allowances were made to these 750 students, they could hardly be refused to the other 500 who were living away from home—that is, they would have to be paid to about 1,250 students. At £50 each per annum this would amount to £62,500, or, say, £60,000 a year—more than the whole cost of the four colleges now—and we should still have to provide in addition the cost of staffing, maintaining, and administering the central University College at a cost, say, of £40,000 to £50,000. At the same time we should leave totally unprovided for the whole body of part-time students, and to a large extent confine the immediate influence of the University and its institutions to one city out of four.

Even if we raised the standard of admission to the University so considerably that we reduced the number of students to one-half, we should still have to provide £25,000 to £30,000 more than we have to provide now for the boarding-expenses of students. That this is not desirable is shown by a comparison of the proportion per 10,000 of the population receiving university education in New Zealand and elsewhere: *e.g.*, in Switzerland and in Wuerttemberg (Germany) 28·4 per 10,000 are in institutions of university rank; in New Zealand, 18.

The same argument in a modified form applies to any single course or faculty; and if we find that the usual fees for any course of study will furnish the necessary funds for carrying it on, then the argument for teaching that course at four University Colleges, and not at one only, will be overwhelmingly strong. This will be found presently to be specially relevant to the courses in commerce and in law. I assume, without further discussion, that it is necessary to provide at each of the University Colleges for arts, science, and education.

The special or professional courses now provided at one or more of the colleges are as follows: Commerce, law, engineering, mining, medicine, and dentistry. The year's attendances required of candidates for degrees in agriculture may be taken at any University College, provided that the other two years' terms are kept at the Canterbury Agricultural Collège. Veterinary science and architecture have degrees allotted to them, and programmes of work have been drawn up by the Senate, but as yet the teaching is not provided at any college. I propose to examine the requirements in each of these special or professional courses, and the provision made for the necessary teaching.

#### PROFESSIONAL SCHOOLS OR FACULTIES.

##### *Law.*

The total number of law students proper is 260; and the salaries of Law Professors and lecturers in the four colleges (exclusive of the lecturers in the special law subjects of the commerce course) amount to £2,280, which averages a little less than £9 per student. Annual fees of £10 10s. per student would cover the cost both of the tuition and of the renewal of the law libraries; an annual fee of £12 12s. would further allow the staffs to be strengthened as indicated in the table.

##### *Commerce.*

The total number of students in commerce is about 270 in the four colleges. The salaries at present paid to the special lecturers in commerce (exclusive of salaries paid for subjects also included in the arts course) amount to £820, or about £3 per student. Even if the improved staffing suggested in table were adopted, the total amount of salaries would not exceed, say, £2,600. The New Zealand Society of Accountants contributes, say, £100 to each college, or £400 in all; this, with the statutory subsidy thereon, amounts to £800. If the fees were £10 10s. per annum, the total fees would amount to £2,835, or, allowing for students in single subjects, say, to £2,400, give a total income of the commerce departments of £3,200, which leaves some margin for libraries and for a payment of a share of the cost of the arts subjects included in the commerce course.

##### *Home Science.*

As soon as the value of the home science course is fully recognized, I estimate that the fees, together with the capitation and grants payable upon the classes as "college classes" under the manual and technical education sections of the Education Act, will maintain the classes. All that would be necessary to secure their financial success in any University College would be the money found, say, by local contributions and the statutory subsidy thereon, to meet the initial cost and to make the classes solvent during the first few years of working until they have got their full complement of students. The salaries of the special teachers in the Home Science School in Dunedin, if the proposal contained in Table H is adopted, will amount to, say, £1,000, and the total cost, say, to about £1,200 per annum. The fees charged at the school amount to £36 (nearly) for the three-years course, and the capitation payable by the Government to about the same sum; the total of fees and capitation thus gives on the average £24 a year per student, which with the other Government grants payable for material, &c., would probably pay for the salaries and maintenance of the Department if there were fifty full-time students. The cost of additional salaries for the other demonstrators required, if the number of students increased, would easily be met by the fees of the additional students.

Although it can hardly be hoped that fifty will take the full course in the near future, yet no doubt an increasing number will do so; and the women students of the training colleges, who are all in general expected to take a course in home science, will help to make the department self-supporting.

#### *School of Engineering.*

The annual cost of maintenance of the Canterbury College Engineering School is, the average for the last three years being taken, about £3,800. This is exclusive of non-recurring items and of interest upon the initial cost of the buildings, equipment, and apparatus: if these were included the total cost would be somewhat over £5,000 a year. Hence it is to my mind altogether out of the question to consider the establishment in New Zealand of another Engineering School of University rank; nor can I persuade myself that real benefit would be derived either by students or by the community if there were established in any other part of the Dominion an imperfectly equipped and inadequately staffed school.

#### *Otago School of Mines.*

The average annual cost for salaries and other items of maintenance is somewhat over £1,300; the number of students is fourteen, so that the average annual cost per student is about £93. The course varies from two to four years; for a degree four years are required.

To get some idea of the cost elsewhere we take as a basis of comparison the Mining School at the University of Birmingham, where the cost is very full and much advanced work is done. The number of degree students is forty-seven, and there are two professors and four lecturers and demonstrators, so that with our scale of salaries the cost would be about £51 per student per annum. The tuition fees average £33 17s. per annum.

If the school were only now about to be established it would probably be more economical of effort and money either if it were established in connexion with an engineering school, as in some other universities, or if there were associated with a University College some local school of mines in the same way as for the purposes of the degree in agriculture an agricultural college is associated with a University College.

The School of Mines in Auckland has practically ceased to exist as a school of mines, and I do not think any attempt should be made to rehabilitate it.

#### *Medicine.*

The annual cost of the Medical School in the University of Otago is about £4,600, of which £3,950 is for salaries. (I have not charged to the school any part of the salaries of the staff in the departments of arts and science, as these would still have to be paid even if there were no medical school). There are 121 students, so that the extra expenditure entailed by the Medical School is about £38 per student per annum, which comparison with the cost elsewhere shows to be decidedly low. If the staff were increased, and some addition made to some of the salaries, as suggested elsewhere in this report, probably another £800 or £900 at least would be required, that is, with the present number of students. (Efficiency would be still more assured if the total salaries could be brought up to, say, £5,400 per annum.) The cost of additional students would be fully met by the fees paid by them.

It may be taken as obvious that there should be only one medical school in the Dominion until the population is at least double what it is.

#### *Agriculture.*

The training of experts—Directors of Agriculture, Inspectors of the Agricultural Department, and chief instructors of farmers and of teachers for rural schools and high schools—is so important for this country that the provision for higher agricultural education in New Zealand calls, in my opinion, for very careful and full consideration, both as to the objects sought to be attained and as to the best means of attaining them. At the present time, however useful in its own province may be the work that the Canterbury Agricultural College is doing, it cannot be seriously considered that it is giving, except to a very small proportion of its students the higher education that the agricultural experts of the Dominion ought to receive.

As, however, I think that separate provision ought to be made for higher agricultural education, I do not propose to discuss the question in this report. (I note that the bequest of the late Sir John Logan Campbell will enable a Chair of Agriculture to be established in connexion with Auckland University College, involving comparatively small expenditure out of the Dominion Treasury.)

#### STAFF REQUIRED.

The staff necessary for the teaching of a subject in a University depends, *inter alia*, upon the number of students taking the subject, and the number of classes required for the different parts and different stages of the course; upon the nature of the subject and the style of teaching it, and upon whether there are both day and evening lectures in the subject.

The maximum number of students that may be taken in a class varies according to the nature of the subject: for instance, it is commonly considered that a literature class may without risk to the efficiency of the work be twice or three times as large as a science class. To a certain extent this may be true; but if the work in the former were to take to any great extent the form of mere dictation of notes to students, as it does in some parts of the world, and even, it has been said, occasionally in New Zealand, then, although one man could address a number of students limited only by the range of his voice, yet he would hardly be doing the proper work of a professor. Moreover, there are the exercises and essays of the students to supervise, correct, or criticize. Hence, if for no other reason, it is necessary to have lecturers in such subjects as English, Latin, and French. The complexity introduced into the problem by the number of classes required for the different parts and different stages of the subject may be illustrated by two examples: in Latin, for instance, there may be at the same time



in any one college students who are taking the first year's work for the ordinary degree, the second year's work for the same, senior scholarship work and honours work; and at each stage the set authors, composition, and sight translation must at least be provided for, and several of the classes will meet two or three times a week. In mathematics the same divisions of the subject occur, with the addition of the mathematics of the second and third stages for the engineering—not to mention the fact that the honours programme in mathematics contains a large number of different subjects for which room must be found. This fact also is not to be forgotten—that any alteration of the University programme may affect the staffing required in the teaching colleges.

If we assume that we have the staffing necessary to secure efficiency with the present numbers in the arts and science courses, say, at the University of Otago and Victoria College (which now have the largest enrolment), then the question arises, What additional staff would be required for a larger number of students, and what would be its cost? Could the latter be met by the fees of the additional students? In the University of Otago the fees for any course in Latin, English, French, or mathematics are £3 3s. The present numbers taking those subjects are 99, 118, 44, and 58 respectively, while the number taking the arts course is 221. The staff suggested as the type is in the case of each of these subjects one professor and one teacher, and it is safe to say that the additional fees paid if the number of students were doubled would provide the salaries of the necessary additional lecturers in any of these subjects, and leave something over for the slightly increased cost of administration and maintenance. The addition to the fees would not, however, provide the necessary addition to the buildings.

In physics, chemistry, and biology the fees are the same as in the literary subjects, with the addition of laboratory fees of £3 3s., £3 3s., and £4 4s. respectively. These again would provide the salaries of the additional lecturers and junior demonstrators, and the additional cost of administration, maintenance, and material, but not the additional class-room and laboratory accommodation.

In Victoria College the ordinary class fees for such subjects as those named above are only £1 11s. 6d. (half of those in Otago); the laboratory fees are £3 3s., together with a fee for material in the case of biology of 5s. On this scale, the additional fees would scarcely suffice to provide the salaries of the additional staff required. The remedy would be to raise the scale of fees in Victoria College to that in the University of Otago.

The argument that the raising of fees would keep out deserving students could be met by providing bursaries (equal to the full cost of tuition) for all those who had proved beyond reasonable doubt their fitness for University education. It would be much better to give subsidies to the College in this form, which does not thus risk an injury to its efficiency by the admission of unsuitable students, than to give it an additional grant to enable it to charge fees low enough to encourage the entry of all and sundry. The suggestion made above that the cost of the additional staff required would be met by the additional fees would not, however, give as generous a staff in the arts and science faculties as we find in the Universities of Birmingham and Leeds. To reach that standard the fees should be £21 or £22 per annum for the arts and science course, which are probably too high to be considered.

#### DAY AND EVENING CLASSES.

I have no intention of discussing the question of day or evening work. I merely assume that, as at present, the regulations of the University will permit the work to be done either in day or in evening classes. It is only fair to admit that the standard of work should be set by the day students; and, if this be so, those who are occupied during the day and are thereby prevented from attending any other than evening classes should be allowed to take a smaller group of subjects at one time, and so consequently to spread their degree work over a greater number of years. This would not, however, do away with the whole or partial duplication of the staff that would be entailed by the carrying-on of both day and evening classes in the one college. I could hardly, therefore, make any other assumption for the purpose of the present inquiry than that the present arrangements as to day and evening classes are to be continued.

Table F shows the total salaries of the teaching staffs in all faculties of the four University Colleges (omitting the amount paid by the Education Department for the lectures in education). Fees paid to professors are included in the salaries.

TABLE F.—TOTAL SALARIES AT RATES PAID, 1912.  
(Adjustment being made for changes on staff, &c.)

Institution.	Arts and Science.	Com- merce.	Law.	Home Science.	Engineering and Mining.	Medicine and Dentistry.	Music.	Total.
	£	£	£	£	£	£	£	£
Auckland .. ..	6,400	250	200	..	1,550(a)	..	150	8,550
Victoria College .. ..	6,700	250	1,500	..	..	..	..	8,450
Canterbury College .. ..	7,100	150	450	..	2,900	..	220	10,820
Otago .. ..	7,040(b)	170	130	750	1,150	{ 3,950 810* }	..	14,000
	27,240	820	2,280	750	5,600	4,760	370	41,820(c)

\* Dentistry.

(a.) Includes salary for professorship in mining (vacant).

(b.) The salary of the Professor of Geology is charged half to arts and half to mining. The salary of the Professor of Physiology is charged to medicine. The salaries of the Professors of Physics, Chemistry, and Biology—subjects taken by medical students as well as by students in arts and science—are charged entirely to arts and science, as little increase of the staff has been made on account of the medical students.

(c.) Does not include pensions paid to emeritus professors.

In Table G are given the average salaries now paid to the teaching staff of each college. The salaries of professors range from £1,031 (including fees) to £500, the average being £709 per annum ; the salaries of all other members of the staffs—lecturers, assistant lecturers, and demonstrators, range from £50 to £464 per annum (including fees), and the average for all, except the medical lecturers, is £203.

TABLE G.—AVERAGE SALARIES PAID.

	Auckland University College.	Victoria College.	Canterbury College.	Otago University.	All Colleges.	Number of Persons.
	£	£	£	£	£	£
Professors (whole time) .. .. .	718	680	706	731	709	37
Lecturers (full time) .. .. .	359	300	333	294	318	14
Professors or lecturers (part time) not medical..	247	218	206	224	221	22
Ditto medical .. .. .	..	..	..	134	134	11
Senior demonstrators .. .. .	..	..	..	..	226	5
Assistant lecturers and demonstrators ..	..	..	..	..	70	16
Average of all except professors and the part- time medical staff .. .. .	..	..	..	..	203	57

The salaries of the twenty-four professors in the University of Birmingham range from £300 to £1,000 per annum, and the average is £646 ; the annual salaries of lecturers and other members of the teaching staff (fifty-five in number) range from £100 to £400, and the average is £189.

In the first three columns of Table H are shown my suggestions as to the type of staffing that it is desirable to have in each of the four affiliated institutions in the departments of arts, science, commerce, and law, and in the special professional schools which should each be carried on, it is suggested, in one college only. In the remaining columns of the same table are set out adjustments for the several colleges of this typical arrangement that it seems feasible to carry out at once ; these should, in my opinion, be regarded as a minimum to be provided in the near future. If these adjusted schemes were adopted, then, as elsewhere indicated, the fees (arranged on an appropriate scale) should suffice to provide in nearly every case for the additional demonstrators and assistant lecturers required. But I do not desire by these suggestions to imply that all the colleges should be organized or staffed on a uniform plan ; every college should have full liberty, as at present, to evolve its own programme, although I do think that the University should have some voice in the establishment of new Chairs, and perhaps some power to say whether the occupant of any particular Chair should be recognized as a qualified member of any academic body that might be set up to advise the Senate.

TABLE H.—SUGGESTED SCHEMES OF STAFFS AT THE FOUR UNIVERSITY COLLEGES.

(P, Professors ; L, Assistant professors, lecturers, chief demonstrators ; D, Assistant lecturers, demonstrators, &c.)

Subject.	Suggested Type.	Minimum suggested for each College.											
		Auckland.			Victoria.			Canterbury.			Otago.		
	P L D	P L D	P L D	P L D	P L D	P L D	P L D	P L D	P L D	P L D	P L D	P L D	
Latin and Greek .. .. .	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	
French and German .. .. .	1 1 ..	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	
English .. .. .	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	
History, economics .. .. .	1 1 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	
Mental science .. .. .	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	1 .. 1	
Mathematics .. .. .	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	1 1 ..	
Physics .. .. .	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	
Chemistry .. .. .	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	
Biology .. .. .	1 1 2	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	1 1 1	
Geology .. .. .	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	
Commerce .. .. .	.. 3 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	.. 2 ..	
Law .. .. .	1 2 1	.. 2 1	2 .. 1	2 .. 1	2 .. 1	2 .. 1	2 .. 1	2 .. 1	2 .. 1	2 .. 1	2 .. 1	2 .. 1	
Total arts, science, commerce, and law	10 14 6	8 13 6	10 11 6	9 12 5	9 12 5	9 12 5	9 12 5	9 12 5	9 12 5	9 12 5	9 12 5	9 12 5	
Education .. .. .	.. 2 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	.. 1 ..	
Home science .. .. .	1 1 1	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	
Architecture .. .. .	.. 2 ..	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	
Engineering .. .. .	1 4 4	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	1 4 4	.. .. .	.. .. .	.. .. .	.. .. .	
Mining .. .. .	1 1 1	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	
Medicine .. .. .	3 12 6	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	
Dentistry .. .. .	1 1 1	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	
Agriculture .. .. .	1 2 1	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	
Veterinary science .. .. .	1 2 2	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	
Music .. .. .	.. 1 ..	.. 1 ..	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	.. 1 ..	.. .. .	.. .. .	.. .. .	.. .. .	
Total (excluding architecture, agriculture, and veterinary science)	17 36 19	8 15 6	10 12 6	10 18 9	15 28 14	15 28 14	15 28 14	15 28 14	15 28 14	15 28 14	15 28 14	15 28 14	

Taking the salaries of professors at the very moderate average of £700, those of lecturers at £300, and of assistant lecturers and demonstrators at £150, we arrive at a total for the suggested type or general scheme of staffs in the departments of arts, science, commerce, and law, of £12,100. The

adjusted schemes for the same departments of the several colleges, suggested above as the minimum necessary for efficiency, would give as the total salaries of the staffs for arts, science, commerce, and law—

	£
Auckland University College .. .. .	10,400
Victoria College .. .. .	11,200
Canterbury College.. .. .	10,650
Otago University .. .. .	10,650
Total .. .. .	£42,900

or, on an average, we may say that the colleges, with their present number of students, might be very reasonably staffed as to the courses in arts, science, commerce, and law, at a total annual cost of £44,000, or £11,000 per college per annum.

The total salaries now paid to the teaching staffs in arts, science, commerce, and law are as follows :—

	£
Auckland University College .. .. .	5,730
Victoria College .. .. .	8,700
Canterbury College.. .. .	8,190
Otago University .. .. .	7,680
Total .. .. .	£30,300

If the sum of £1,550 (the total amount of salaries allotted to the Auckland School of Mines) were given to the four departments just named, the amount available for these departments in Auckland would be £7,280, and the total for the four colleges would be £31,850, or nearly £32,000, or an average of £8,000. In other words, the colleges require about £3,000 more each to give them the staffs that I have indicated as the desirable minimum for their present numbers, or, say, £4,100 each to give them the ideal staffing. But the first scale would give them sufficient staffing for increased numbers, and the second scale (the ideal) would give them, with the addition of some junior lecturers and demonstrators, the staffing necessary probably for double their present numbers. Herein consists the real difficulty: the minimum staff for efficient teaching of the several subjects would be practically sufficient for a much larger number of students. Additional endowments, the revenue of which would be likely to increase with the progress of the Dominion, would allow of the gradual improvement of the staffing, and when the standard of £11,000 per college was reached, a properly adjusted scale of fees would give for increased numbers the necessary increase of revenue.

We have now to consider the amount required for the staffing of the special or professional schools of education, home science, engineering, mining, medicine, dentistry, which are now in operation, and also of those which may have to be provided for in the near future—architecture, veterinary science, and agriculture.

In education the provision should be made, I suggest, in connection with the vote for the training of teachers. An additional £300 per annum in each of the four centres would be sufficient: the senior lecturer (in charge) might probably have the rank of a professor: total, £1,200. In home science, now maintained principally by voluntary contributions and the subsidy thereon, provision should, I think, be made for the full amount of £1,000. The voluntary contributions might very well be devoted to buildings and equipment, and to providing additional bursaries. Other localities in the Dominion might provide bursaries or exhibitions to meet the expenses of students from their own districts who desired to take a home-science course in Dunedin. Total, £1,000. The salaries required for the School of Engineering might be set down at about the present figure, £3,000, and those for the Mining School at £1,000. The expenditure on salaries in the Dental School is now £810. I would allot to it £1,100. If faculties were established in architecture and veterinary science, I estimate the minimum expenditure on the salaries of the staffs at £800 and £1,800 respectively.

We thus arrive at the following estimate (Table I) for the cost of the total minimum staffing consistent, in my opinion, with a reasonable degree of efficiency (education is excluded as otherwise provided for):—

TABLE I.—TOTAL COST OF STAFFS AS RECOMMENDED.

	Auckland.	Victoria.	Canterbury.	Otago.	Total.
	£	£	£	£	£
Arts, science, commerce, and law .. .. .	11,000	11,000	11,000	11,000	44,000
Home science .. .. .	..	..	..	1,000	1,000
Engineering .. .. .	..	..	3,000	..	3,000
Mining .. .. .	..	..	..	1,000	1,000
Medicine .. .. .	..	..	..	4,900	4,900
Dentistry .. .. .	..	..	..	1,100	1,100
Totals .. .. .	11,000	11,000	14,000	19,000	55,000

## 2. LIBRARIES.

Sufficient evidence was given last year before the Education Committee of the House to demonstrate the supreme importance of ample and up-to-date libraries as part of the equipment of every University College. It is important that these libraries should be easily accessible at all times to students and to the teaching staffs. At present at two of the colleges the existing libraries can hardly be said

to comply with this condition: to secure its fulfilment there should be suitable accommodation for students in the library of the college, with an ample supply of tables for their use. It would probably add still further to the usefulness of the library if in communication with it there were study-rooms, at one end for the men, at the other end for the women.

I consider, further, that there should be a permanent librarian in charge: he should be a graduate of wide reading, and might be a retired schoolmaster or other professional man, who would be content with a moderate salary.

I have looked at all the four college libraries, and have had an analysis of their contents made; this appears in the appendix hereto. I may remark that a certain proportion of the books in the libraries might be considered as comparatively useless, being obsolete books without even an historical value, or mere elementary and inferior text-books, or otherwise unsuitable. I estimate the proportion of useless books as varying in the several colleges libraries from 8 or 10 per cent. to 30 per cent.

Some departments of knowledge are very inadequately represented, and generally there is an insufficient supply of the standard literary, scientific, and philosophical journals required for freshness of work and soundness of research.

I do not think the suggestion for exchange of books a feasible one if it is intended to apply generally. The students pass through the colleges comparatively rapidly, and if a book required for reference by a student is not available when he needs it its nominal appearance in the library catalogue is of very little use to him. But the usual courtesy that is already exercised by scientific societies and institutes towards any worker in a special branch of advanced research would, I imagine, obtain also in regard to temporary loans of rare or expensive books and periodicals by one college to another. It should be understood also that for this purpose the libraries of the several branches of the New Zealand Institute are practically available in like manner, as are also other libraries, whether connected with the colleges or not—e.g., the General Assembly Library in Wellington, the Hocken Library in Dunedin, the libraries of the law societies for law students, and various public libraries.

I do not consider it necessary that every college library should contain the books or journals in any branch of study that would probably be required only very occasionally, or that such books and journals should be obtained by the college library if they are already available in an outside library. There should therefore be a consultation among all the libraries concerned before any of the books or journals in question are ordered by any of them.

At two of the colleges the suggestion was made that the minimum immediate expenditure required to make each of the libraries adequate for its purpose was £500, and that £250 per annum would be required to keep it up to date. After careful examination of the books that could be purchased for the sums named, I do not think the estimate is by any means excessive. I think that both the capital and annual amounts required might be contributed to the colleges by the University of New Zealand, either out of its own funds or out of the fund that I shall propose presently should be placed at its disposal for the benefit of the four colleges.

3. LABORATORIES.  
RECURRING EXPENSES.

It is somewhat difficult to separate the items of capital or non-recurring expenditure for laboratories and laboratory accessories from the items of recurring expenditure—that is, for renewals, repairs, and materials—but I am convinced that for the four colleges the following figures, based on the accounts of expenditure for the last two years, are not far from the truth:—

TABLE J.—AVERAGE EXPENDITURE PER ANNUM ON THE LABORATORIES OF THE FOUR COLLEGES.  
(The salaries of mechanics and laboratory assistants other than demonstrators are included.)

Expenditure.					Arts and Science.	Mines.*	Engineering.	Medical.	Dental.
					£	£	£	£	£
Recurring ..	..	..	..	..	1,190	90	335	140	180
Non-recurring ..	..	..	..	..	800	700	200	180	130

\* At two colleges.

Allowing for the employment of mechanics and laboratory assistants where they are not now employed, and also for the saving in purchase of apparatus their employment would effect, and observing that during the last two years two or three of the laboratories have to a large extent made a fresh start, we may fairly consider that the following sums will be sufficient to meet the annual needs (for new apparatus, renewals, and materials) of the several colleges for the laboratories connected with the courses provided thereat.

	£
Arts and science .. .. .	550
Engineering .. .. .	450
Mines and home science .. .. .	200
Medicine, dentistry .. .. .	650

In other words, the amounts required for the several colleges would be—

	£
Auckland University College .. .. .	550
Victoria College .. .. .	550
Canterbury College .. .. .	1,000
Otago University .. .. .	1,400

£3,500

## 4. SCHOLARSHIPS, BURSARIES, AND PRIZES.

Last year only Canterbury College spent anything under this head out of general funds. It may be desirable to spend a small sum at each college to provide scholarships or exhibitions to meet deserving cases that cannot be brought within the rules of a general scholarship or bursary scheme, but under the present arrangements, speaking generally, all University scholarships and bursaries are open without restriction to the whole Dominion, the funds being provided by the Government directly and by the University out of its statutory grant and the accumulations of the latter. The only improvement I can suggest, apart from the adoption of the "accrediting" system (a question outside my order of reference) is an increase in the number of boarding-allowances for country students who show themselves well qualified for University education; but this would not be a matter affecting the finances of the four colleges—it would be brought about by the amendment of the Bursary Regulations, and the money would be found, I presume, by Government.

## 5. ADMINISTRATION EXPENSES.

Including—

- (a.) Cost of administration of reserves and endowments;
- (b.) Upkeep of buildings and grounds, including insurance;
- (c.) Office and other expenses (including salaries of clerical staff and librarian);
- (d.) Miscellaneous.

(a.) It would add to the clearness of the annual accounts of receipts and expenditure forwarded to the Minister of Education by the several colleges if the receipts from reserves and endowments and the expenditure thereon were shown in a separate account and the balance transferred to the general Account or to the several special accounts to which it belonged: the benefit of an endowment is the net income derived from it, and that is what is required to be known. For instance, the accounts of Canterbury College (which are otherwise fairly clear) show six items in two different accounts, amounting to £182, chargeable to expenditure on reserves. On inquiry I find that the item "salaries" (£9,409) in the College Maintenance Account includes the salary of the Inspector of Reserves, £200; and other items (*e.g.*, travelling-expenses of members of Board) may or may not include expenditure properly chargeable to the reserves. Obviously, the total expenditure so chargeable is nearly £400; it should be possible to find this out from the accounts themselves.

(b.) I would suggest also that the annual accounts distinguish clearly between expenditure on buildings and equipment (including additions to buildings that increase the amount of accommodation and equipment not provided before) and expenditure on the replacement, maintenance, and repair of buildings and equipment. This distinction is not always clearly made.

Items under the heading (c) and (d) are not easy to separate, but the difficulty arises from the character of the items themselves.

We are on surer ground if we take all the items (a), (b), (c), (d) together; they amounted to about £7,500 in 1911 for the four colleges taken together. For 1910 they were a little less.

In one of the colleges the Registrar does not give his whole time to the college, but is engaged in other professional work; in two other colleges the office staffs probably need some strengthening; certainly in all four cases, as I have already stated, a librarian should be added. We may, for these reasons, add £1,000 to the present expenditure, and allowing for the existence of special schools (the caretakers of which have already been charged to laboratories) we might estimate the amounts required for administration as follows:—

	£
Auckland .. .. .	2,000
Wellington .. .. .	2,000
Canterbury .. .. .	2,200
Otago .. .. .	2,300

## PRESENT TOTAL ANNUAL EXPENDITURE.

The expenditure of the four colleges in 1911 is shown in the following table (K):—

TABLE K.—EXPENDITURE (EXCLUSIVE OF SPECIAL TRUSTS).

University College.	Administration.	Salaries.	Sites, Buildings, &c.	Equipment and Apparatus.	Materials and Renewals.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Auckland .. .. .	1,176 16 7	8,399 4 0	373 11 8	699 15 6	242 16 1
Victoria (to 31st March, 1912) ..	977 7 6	8,438 1 9	..	299 13 1	267 13 4
Canterbury .. .. .	1,239 11 2	10,761 8 8	1,531 12 1	1,013 6 5	120 5 9
Otago (to 31st March, 1912) ..	818 9 5	14,316 3 10	1,307 0 4	465 16 7	334 14 6
Total of four University Colleges ..	4,212 4 8	41,914 18 3	3,212 4 1	2,478 11 7	965 9 8
Canterbury Agricultural College ..	291 6 6	1,786 14 6	368 15 0	19 2 2	1,124 13 3

TABLE K.—EXPENDITURE (EXCLUSIVE OF SPECIAL TRUSTS)—continued.

University College.	Expenses on Endowments.	Interest.	Libraries.	Scholarships.	Miscellaneous.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Auckland .. .. .	5 17 11	1 7 0	153 0 10	..	164 18 2	11,217 7 9
Victoria (to 31st March, 1912) ..	..	..	307 13 3	..	301 13 1	10,592 2 0
Canterbury .. .. .	192 12 8	411 5 2	69 4 10	265 2 2	709 1 7	16,313 10 6
Otago (to 31st March, 1912) ..	143 10 8	552 3 11	56 11 9	..	1,726 5 11	19,720 16 11
Total of four University Colleges	342 1 3	964 16 1	586 10 8	265 2 2	2,901 18 9	57,843 17 2
Canterbury Agricultural College ..	..	..	32 0 5	..	4,994 18 0	8,617 9 10

which appears in a slightly modified form in the Annual Report on Higher Education (E.-7, 1912); in the present table students' fees paid to professors have been taken from the heading of "Miscellaneous" and added to "Salaries." This statement includes both recurring and non-recurring items. Of the total expenditure, £5,150 appears to have been non-recurring; the total of the recurring items was therefore about £52,700.

We shall probably not be far wrong if we put down the total of recurring items of expenditure for the four colleges during this year (1912) as £53,000 :—

	£
Salaries of staffs .. .. .	42,500
Administration .. .. .	7,000
Libraries and laboratories .. .. .	2,500
Interest, &c. .. .. .	1,000
Total .. .. .	£53,000

PROPOSED TOTAL ANNUAL EXPENDITURE.

Omitting such items as interest, which one would be glad to see disappear from the college accounts, it will easily be gathered from what has been said under the various heads that the proposals made in this report involve the following annual expenditure :—

TABLE L.

	Auckland University College.	Victoria College.	Canterbury College.	Otago University.	Total.
	£	£	£	£	£
Salaries of staffs .. .. .	11,000	11,000	14,000	19,000	55,000
Libraries .. .. .	250	250	250	250	1,000
Laboratories, upkeep of .. .. .	550	550	1,000	1,400	3,500
Administration .. .. .	2,000	2,000	2,200	2,300	8,500
Totals .. .. .	13,800	13,800	17,450	22,950	68,000

TABLE M.—PRESENT REVENUES OF THE COLLEGES (RECURRING).

	Auckland Uni- versity College.	Victoria College.	Canterbury College.	Otago University.	Total.
<i>Year 1910. (Taken from I.-13A, 1911, as corrected.)</i>					
	£	£	£	£	£
Statutory .. .. .	4,000	4,000	..	..	8,000
Special .. .. .	2,000	2,000	2,000	2,000	8,000
Addition to statutory, &c. ..	1,200	1,500	..	500	3,200
Manual and technical capitation ..	24	..	261	..	285
Total from Government .. .. .	7,224	7,500	2,261	2,500	19,485
Endowments and interest .. .. .	659	162	9,811	7,833	18,465
Fees .. .. .	2,253	1,955	3,142	5,601	12,951
Miscellaneous .. .. .	22	10	88	2,453	2,573
Totals .. .. .	10,158	9,627	15,302	18,387	53,474
<i>Year 1911. (From Returns furnished by the Colleges, Items being rearranged.)</i>					
	£	£	£	£	£
Statutory .. .. .	4,000	4,000	..	..	8,000
Special .. .. .	2,000	2,000	2,000	2,000	8,000
Addition to statutory .. .. .	1,200	1,500	..	750	3,450
Manual and technical .. .. .	66	..	502	..	568
Total from Government .. .. .	7,266	7,500	2,502	2,750	20,018
Endowments and interest .. .. .	743	114	9,258	6,547	16,662
Fees .. .. .	2,364	2,221	3,064	5,616	13,265
Miscellaneous .. .. .	176	11	103	2,702	2,992
Totals .. .. .	10,549	9,846	14,927	17,615	52,937
Mean of 1910-11 .. .. .	10,354	9,737	15,114	18,001	53,206

Approximately, making allowance for uncertain items, we may set down the assured present annual income of the several colleges as follows :—

	£
Auckland University College .. .. .	10,200
Victoria College .. .. .	9,700
Canterbury College .. .. .	15,000
Otago University .. .. .	17,800
Total .. .. .	<u>£52,700</u>

Comparing these revenues with the expenditure entailed by the proposals I have made to meet the needs of the university colleges, we see that there is the deficiency of revenue as follows :—

	£
Auckland University College .. .. .	3,600
Victoria College .. .. .	4,100
Canterbury College .. .. .	2,450
Otago University .. .. .	5,150

#### PROPOSALS FOR MEETING THE DEFICIENCY.

(1.) *Fees*.—I see no reason why the fees for the arts, science, commerce, and law courses should not be the same or nearly the same in all the colleges, and also high enough to ensure that the additional costs of staffs and administration for an increase in the number of students would be met by the increased receipts from students' fees.

The fees vary a great deal now in the several colleges. Taking the fees paid by the Government on behalf of the holders of Senior National Scholarships and bursaries as an approximate indication of the fees payable by students taking degree courses in arts, science, commerce, and law, we find the average fees paid by such students to be :—

	£	s.	d.
Auckland University College .. .. .	12	10	5
Victoria College .. .. .	5	15	10
Canterbury College .. .. .	14	18	3
Otago University .. .. .	14	11	6

If the fees at Victoria College and Auckland University College were brought up to the same scale as obtain, say, in the University of Otago, the amount of fees, assuming the number of students to remain the same, would be increased by about £3,360 and £385 respectively. Allowing for the falling-off of casual students if the fees were increased, it might probably be estimated that the revenues of the two colleges in question would be increased by £2,500 and £200 respectively. I have already suggested that any hardship to poor deserving students might be avoided by the award of bursaries. The change, if a change were made, should be made gradually—that is, the higher scale should apply only to students who have not yet entered the colleges. The raising of the fees for a degree course somewhat less than in the manner indicated to an average fee of £12 10s. would give Victoria College an increased amount of nearly £2,800, or, making all allowances, of, say, £2,500.

The smallness of the total receipts from fees at Auckland is partly due to the comparatively small number of students there. Its revenue would, with the improved finance suggested below, come up to the standard if the number of students were to increase up to the average attendance at the colleges.

(2.) *Statutory, Special, and Other Grants*.—These now amount in the case of Auckland to £7,200, of which £4,000 is statutory; similarly, Victoria College received £7,500, of which £4,000 is statutory. I would give each of them a statutory grant of £7,000, instead of the present statutory and annual grants. In the case of Canterbury College, the statutory grant of £2,000 should replace the annual grant of the same amount. The deficiency in the revenue of the University of Otago as compared with its requirements is due to the heavy cost of the professional schools; it should, in my opinion, have on this account a statutory grant of £5,500 instead of the present annual grants amounting to £2,750.

(3.) I have already expressed the desirability of giving the colleges additional endowments, the revenue of which would be likely to increase with the progress of the Dominion. The national endowments appear to me to furnish such conditions, and I know of no better use to which they could be put. The proportion of the revenue from these endowments that is devoted to purposes of education amounts at present to £45,000 per annum. It was suggested in a Land Bill introduced, but not passed, two or three years ago that 20 per cent. of this portion of the national endowment revenue should be allocated to university education. I suggest that it would be a wise thing to set aside one-quarter or even one-third (at present £11,500 or £15,000) for university education. Out of this I would suggest that £2,500 be given to each of the four colleges—£10,000 in all—and that the remainder should be paid to the University of New Zealand in trust for the following purposes, as might be required from time to time, namely,—

- (a.) To meet, if necessary, in whole or in part, the cost of staffing of any new faculties or Chairs or lectureships that might be established in any of the colleges with the approval of the Senate;
- (b.) To meet the cost of buildings required in consequence of the establishment of such new faculties or Chairs or in consequence of the increase of students, either by grants or by loans repayable over a term of years; and
- (c.) For grants in aid of college libraries.

(Perhaps it might be advisable to pay over the whole national endowment revenue allocated to higher education to the University of New Zealand in trust as above. The Senate would then be in a position to enforce the due payment of loans.)

It will be seen that as soon as the number of students at Auckland University College had reached the average its finances would enable it to make the suggested improvements in staffing, and meanwhile it could make many of the improvements at once.

Victoria College would be in as good a position if it raised its fees. The financial position of the other two affiliated institutions would also be sound.

The higher-education reserves in Taranaki now furnish the funds for the Taranaki Scholarships, which, however, absorb only a small portion of the revenue. The unspent balance of revenue last year was £663, which was added to the accumulations of previous years; the total accumulated balance is now over £10,000, the interest on which is sufficient to meet the amount required for scholarships. It is not likely that a University College can be established in Taranaki within the next quarter of a century. Meanwhile the work of affording higher education for Taranaki is being carried out by Victoria College (though a few Taranaki students go to Auckland). It would be, in my opinion, a very just thing for Victoria College to receive £500 a year from these reserves until such time as a University College was established in Taranaki. This would not absorb all the revenue, so that the fund would still go on increasing. It must be remembered that every extra student throws an additional burden upon the teaching college, and scholarships, although they assist the student, do not help the college.

I have now only to deal with the capital expenditure required at the four colleges.

## B.

### CAPITAL EXPENDITURE REQUIRED.

#### AUCKLAND UNIVERSITY COLLEGE.

There is no room for doubt that this college is in urgent need of new buildings. The present buildings, which were originally the Provincial Council Chamber, are dilapidated; the lecture-rooms are too few in number and too small, and the overcrowding gives rise in many cases to insanitary conditions. With the present number of students the total unsuitability of the buildings for a University College, always well known to those engaged in the work, has become patent to the most casual observer. The laboratories are insufficient, and cannot be improved except by an expenditure that would not be warranted in the case of such old buildings. The College is almost entirely wanting in the accommodation of all kinds, for the staff and students, which such an institution should possess. In short, at present, the College is a credit neither to the University nor to the City of Auckland. The site is centrally and conveniently situated, but is far too small. It is greatly to be regretted that the question of a new site still remains in suspense. The large number of students of arts, law, commerce, engaged during the day who attend the College renders it desirable that the site chosen should be central, and the nearness of the Training College (from which a considerable proportion of the students come) to the present University College is an argument in favour of the same contention. The area of the site chosen should be sufficient to provide for future expansion.

If a site were provided near the present site, the building of the new College could take place gradually—part of the old buildings being still used while the work was in progress. It is difficult to estimate the total cost of a new College, which has been variously set down at £50,000 to £100,000: probably it could not be less than £60,000, and the sum required to complete the building, if really adequate in view of probably future needs, might be £75,000. If, however, £50,000 could be provided during the next five years, and £25,000 during the five years following, a thoroughly good and suitable building could be erected, sufficient to meet the probable needs of the University district for the next fifty years. The building should, of course, be planned with a view to the final form it would assume, and the parts added from time to time so as to be immediately available, and yet not open to criticism from an architectural point of view. I might add that some parts of the present building show such signs of age that they cannot possibly last much longer.

The College has no funds out of which it could meet any portion of the cost of new buildings. Perhaps, if the Government were to find the cost of what is absolutely essential, some help might be forthcoming from the generosity of private citizens—which in other ways has already benefited both the city and the University College. The College has other needs, but in my opinion it would be a waste of money to patch up or add to the present buildings, and I do not recommend any grants for such a purpose: all the requirements brought under my notice would be met in the most suitable way by rebuilding, not otherwise. (If the present attempt to carry on part of an engineering course at the College were relinquished, the temporary School of Mines could be used for a time as a science laboratory.)

#### VICTORIA COLLEGE.

The number of students and the number of subjects taught at the college have both increased during the last few years, and there is urgent need for additional lecture-rooms, for a biological museum, for the fitting-up of a biological laboratory, and for increased accommodation both for students and books in the library. The first of these needs could be met, but only partially, by fitting up for use the top floor of the present building, which is estimated to cost £500: but the other requirements and others almost as urgent, such as additional rooms for professors and for students' studies, &c., would be most satisfactorily met by the completion of the north end of the present arts building, which would probably cost £6,000 or £7,000. Perhaps £7,000 for buildings, &c., would be enough to provide for all



present wants for some time to come. If the wealthy citizens of Wellington do not imitate those of Birmingham, Montreal, Toronto, Sydney, and other British communities and recognize by their gifts the value of a University College in their midst, the Government is the only source from which the money could come, and Government perforce, on account of other calls upon it, must give the absolute minimum necessary for efficiency: the private citizen's generosity is not so limited.

#### CANTERBURY COLLEGE.

Some additional lecture-rooms (say one large and two small) are required in the arts and science departments; the present physical laboratory should be replaced by a more suitable structure: a room properly built and equipped for the library is urgently needed; additional lecture-rooms, laboratory, and equipment are required in the School of Engineering; and more accommodation for the proper comfort of professors and students. The heating and lighting are at present unsatisfactory; the former will entail a considerable outlay, not exactly estimated; the latter is not easy to correct. The question of the provision of additional lecture-rooms, of library and physical laboratory cannot be considered apart from the question of the overlapping, which is very marked in Christchurch as regards the institutions other than those of University rank. In my opinion the existence of a School of Art and a Technical College as two distinct institutions in a city of the size of Christchurch, or indeed of a city three or four times as large, is wasteful of both effort and money. The School of Art is situated on part of the College site, and is built (most of it) in the same style as the College. If by mutual agreement (and that is the only way in which it could come to pass) an amalgamation could be effected between the School of Art and the Technical College, the additional accommodation for the University College could be provided gradually by the absorption of the present School of Art, with some new buildings to be added from time to time. The College is in a good financial position, and with perhaps a little assistance from Government (not exceeding pound for pound) could do what is required.

#### OTAGO UNIVERSITY.

The increase of students, especially in medicine, calls urgently for increased accommodation. Most urgent needs are for more laboratory room for the work in anatomy, practical physiology, and histology, and practical chemistry; for a large pathological museum, and for increased accommodation for materia medica. In the near future permanent accommodation of a suitable character should be found for the department of home science, and the facilities for the teaching of the several branches of physics and for the practical work in biology should be improved. The College has found the cost of installing a new system of drainage a severe strain on its resources.

Extra space required for the arts department and for a students' hall and other rooms is being provided by voluntary contributions with a Government subsidy of £2 for £1. There remain to be satisfied the wants recited above.

The requirements for practical work in anatomy and chemistry could be best met by the extension 45 ft. northwards of the wing now devoted to these subjects. The accommodation for each should be doubled—the present chemical laboratory, which is not suitable for a main laboratory, could be used for advanced work. The requirements for physiology, bacteriology, pathology, &c., could be satisfied by a slight modification of the top floor of the present building and by a suitable extension southwards, with due regard to architectural considerations. The cost of these two extensions with the necessary fittings I estimate at £10,750, or, say, £11,000.

The cost of the additions required for the efficient teaching of biology proposed to be made in the form of a laboratory, lecture-room, and the usual small rooms attached, I estimate at about £1,800. I have made no estimate of the cost of the provision that may be required for physics and home science, as it depends to some extent upon the rearrangement of the rooms in the faculty of arts, when the building now in progress is completed.

The calls upon the funds of the Otago University already exhaust its power to contribute to new works, and the debt of £10,000, the amount of debentures still outstanding, forms a serious handicap to the institution, and it would be of immense benefit if it could be liquidated. I suggest that some proportion, say £1,000 per annum, of the additional revenue I have recommended in the former part of my report be devoted to the repayment of the debentures until they are all redeemed.

The amounts named above for additions may seem large, but it appears to me that the truest economy is to endeavour to secure the conditions that will give the medical school the highest efficiency possible under the circumstances. £4,000 a year for the next four years, or even £3,000 a year for the next five years, might meet all reasonable requirements.

Taking into consideration the requirements of all four colleges calling for expenditure of capital, the total amount that should be provided can hardly be set down as less than £70,000, or £14,000 a year for the next five years. All the needs for capital expenditure, except the cost of the new buildings for Auckland, could be met out of the balance available from the share of the national endowment revenue proposed to be allocated to higher education, thus leaving, say, £10,000 a year for five years to be provided by Government.

#### SUMMARY OF PRINCIPAL RECOMMENDATIONS.

1. In lieu of all present statutory, specialization, and other grants (except subsidies) to give statutory grants as follows:—

	£
Auckland University College .. .. .	7,000
Victoria College .. .. .	7,000
Canterbury College .. .. .	2,000
University of Otago .. .. .	5,500

2. To set aside a part (one-third or one-quarter) of the revenue from the national endowments now allocated to education, for the purposes of higher education—say, one-third of £45,000—that is, £15,000.

3. To give out of the revenue so set aside, to each University College, £2,500; and to the University of New Zealand in trust for the colleges, £5,000.

4. To give subsidies, as in the case of secondary and technical schools, on voluntary contributions and bequests available for approved purposes of higher education, with a limit as to the maximum subsidy payable on any gift or bequest.

17th October, 1912.

G. HOBGEN.

## APPENDIX: LIBRARIES.

### BOOKS IN THE LIBRARY OF EACH UNIVERSITY COLLEGE.

Subject—Class and Subclass.	Auckland University College.		Victoria College.		Canterbury College.		Otago College.	
	Total of Subclass.	Total of Class.	Total of Subclass.	Total of Class.	Total of Subclass.	Total of Class.	Total of Subclass.	Total of Class.
Greek—								
Texts .. .. .	179		215		150		264	
Translations .. .. .	103		16		32		1	
Grammar and philology .. .. .	43		26		18		12	
Reference .. .. .	44		20		19		3	
Miscellaneous (including criticism) .. .. .	86	455	79	356	38	257	19	299
Latin—								
Texts .. .. .	347		235		141		199	
Translations .. .. .	56		8		10		11	
Grammar and philology .. .. .	48		22		14		11	
Reference .. .. .	31		18		14		34	
Miscellaneous (including criticism) .. .. .	31	513	57	340	17	196	17	272
French—								
Texts .. .. .	325		378		359		213	
Translations .. .. .			13		4			
Grammar and philology .. .. .	8		51		37		10	
Reference .. .. .	13		26		30		10	
Miscellaneous (including criticism) .. .. .	46	392	288	756	72	502	15	248
German—								
Texts .. .. .	193		379		258		92	
Translations .. .. .	1		11		4			
Grammar and philology .. .. .	4		24		38		1	
Reference .. .. .	17		34		26		1	
Miscellaneous (including criticism) .. .. .	9	224	43	491	17	343	6	100
Hebrew (nil).								
English—								
Texts .. .. .	982		877		330		849	
Grammar and philology .. .. .	89		66		40		50	
History and criticism .. .. .	283		187		79		399	
Reference .. .. .	76		44		23		18	
Miscellaneous .. .. .	13	1,443	50	1,224	77	549	41	1,357
History, historical biography, &c.—								
History of England (including Empire)	253		165		67		123	
General .. .. .	296		264		158		121	
Constitutional .. .. .	2		28		33		20	
Miscellaneous (including politics) .. .. .	5	556	86	543	59	317	12	276
Economics—								
Texts .. .. .	5		58		46		24	
Miscellaneous .. .. .	1		208		15		1	
Historical, political, and sociological .. .. .	47	53	69	335	20	81	150	175
Mental Science—								
Logic .. .. .	17		38		8		14	
Psychology .. .. .	15		105		13		25	
Ethics .. .. .	11		38		11		24	
Philosophy .. .. .	46		183		27		138	
Miscellaneous .. .. .	4	93	42	406	2	61	75	276
Education—								
Principles .. .. .	22		53		1			
History .. .. .	13		48					
Miscellaneous .. .. .	1	36	104	205		1		
Physiology—								
Human .. .. .			3		7			
General .. .. .	35		20		3		23	
Miscellaneous .. .. .	5	40	3	26	2	12	5	28
Law—								
Law proper .. .. .	43		1,232		40			
Jurisprudence .. .. .	2	45	26	1,258	26	66		
Commerce—								
Geography .. .. .			6		4			
Statistics .. .. .					17			
Currency and banking .. .. .			23		3			
Book-keeping .. .. .					2			

APPENDIX: LIBRARIES.—*continued.*

## BOOKS IN THE LIBRARY OF EACH UNIVERSITY COLLEGE.

Subject—Class and Subclass.	Auckland University College.		Victoria College.		Canterbury College.		Otago College.	
	Total of Subclass.	Total of Class.	Total of Subclass.	Total of Class.	Total of Subclass.	Total of Class.	Total of Subclass.	Total of Class.
Commerce—								
Auditing .. .. .	..	..	..	..	1	..	..	..
Miscellaneous .. .. .	..	..	..	29	7	34	..	..
Music .. .. .	63	63	..	..	5	5	..	..
Domestic science (nil).	..	..	..	..	..	..	..	..
Medicine .. .. .	..	..	12	12	1	1	430	430*
Military science (nil).	..	..	..	..	..	..	..	..
Veterinary science .. .. .	..	..	1	1	..	..	..	..
Theology—								
Religion—Christian and comparative	273	..	13	..	37	..	..	..
Unclassified .. .. .	7	280	7	20	35	72	..	..
Journalism (nil).	..	..	..	..	..	..	..	..
Mathematics—								
Pure—Elementary .. .. .	105	..	75	..	32	..	18	..
Pure—Advanced .. .. .	98	..	143	..	109	..	84	..
Applied—Elementary .. .. .	28	..	71	..	45	..	8	..
Applied—Advanced .. .. .	136	..	65	..	35	..	120	..
Miscellaneous .. .. .	18	385	87	441	106	327	38	268
Physics—								
Heat .. .. .	24	..	16	..	10	..	17	..
Sound .. .. .	14	..	9	..	2	..	8	..
Light .. .. .	22	..	30	..	9	..	20	..
Electricity .. .. .	65	..	130	..	24	..	43	..
Miscellaneous .. .. .	60	185	182†	367	48	93	56	144
Chemistry—								
Inorganic—Elementary .. .. .	52	..	41	..	27	..	..	..
Inorganic—Advanced .. .. .	73	..	133	..	26	..	7	..
Organic—Elementary .. .. .	2	..	8	..	4	..	..	..
Organic—Advanced .. .. .	26	..	32	..	9	..	1	..
Reference .. .. .	133	..	7	..	..	..	9	..
Miscellaneous .. .. .	11	297	150	371	35	101	92	109‡
Botany—								
General .. .. .	82	..	50	..	57	..	180	..
Miscellaneous .. .. .	..	82	52	102	8	65	40	220§
Zoology—								
General .. .. .	110	..	196	..	27	..	500	..
Miscellaneous .. .. .	24	134	167	363	9	36	100	600
Mining .. .. .	..	..	..	..	..	..	100	100
Dental .. .. .	..	..	..	..	..	..	94	94
Biology—								
General .. .. .	23	..	116	..	24	..	..	..
Miscellaneous .. .. .	..	23	25	141	15	39	..	..
Geology—								
Physical .. .. .	73	..	145	..	39	..	49	..
Mineralogy and petrology .. .. .	11	..	19	..	8	..	24	..
Palæontology .. .. .	29	..	11	..	17	..	14	..
Miscellaneous .. .. .	22	135	60	235	32	96	35	122
Proceedings of learned societies .. .. .	..	..	..	..	699	699	..	..
General Miscellaneous—								
Agriculture .. .. .	..	..	63	63	..	..	..	..
Italian literature .. .. .	4	..	..	..	62	..	..	..
Spanish literature .. .. .	2	..	..	..	..	..	..	..
Encyclopedia Britannica .. .. .	35	..	64	..	29	..	35	..
General reference .. .. .	11	..	98	..	20	..	43	..
General literature .. .. .	8	..	64	..	19	..	..	..
General miscellaneous .. .. .	41	101	459	685	295	425	..	78
Grand total .. .. .	5,535	5,535	8,770	8,770	4,378	4,378	5,196	5,196

\* Of the medical books, including physiology, about 400 were published before 1892; 46 between 1892 and 1902; and 15 since.

† Periodicals.

‡ Most of these published about 1870; these the Professor looks upon as useless, and consequently has classed them as miscellaneous.

§ Many of these are old and out of date, but others are quite recent.

|| Including 377 general science.

Auckland Library (list above) contains 650 volumes belong to the "Pond" collection.

## AUCKLAND UNIVERSITY COLLEGE.

## LIST OF PERIODICALS.

Classical Review.  
 Classical Quarterly.  
 American Journal of Philology.  
 Modern Philology.  
 Modern Language Review.  
 Journal of Education.

Bookman.  
 Nature.  
 Popular Astronomy.  
 Journal of Chemical Society.  
 Annals of Botany.  
 Cassier's Magazine.

AUCKLAND UNIVERSITY COLLEGE—*continued*.

## LIST OF PERIODICALS.

Builder.	La Revue Bleue.
Engineer.	Je Sais Tout.
Engineering News.	L'Illustration.
Power.	Die Woche.
Oxford English Dictionary.	Challenger Report.
Thesaurus Linguae Latinae.	New Zealand Transactions.
Revue des Deux Mondes.	

## VICTORIA COLLEGE, WELLINGTON.

## LIST OF ADDITIONAL VOLUMES BELONGING TO THE VICTORIA COLLEGE LIBRARY NOT, OR NOT YET, INCLUDED IN IT.

Classical Professor's room	..	..	..	..	..	..	101
Law Professor's room	..	..	..	..	..	..	3
Modern Language Professor's room	..	..	..	..	..	..	54
Biological laboratory	..	..	..	..	..	..	89
Chemical laboratory	..	..	..	..	..	..	169
Physics laboratory	..	..	..	..	..	..	242
Geological laboratory	..	..	..	..	..	..	238
Total	..	..	..	..	..	..	896

Besides a quantity of unbound material (chiefly papers from the late Sir James Hector's bequest) in the biological and geological laboratories.

## LIST OF PERIODICALS.

American Journal of Philology.	Journal of Geology.
American Journal of Mathematics.	Journal of Philology.
American Journal of Psychology.	Messenger of Mathematics.
Athenæum.	Mathematical Gazette.
Archiv. fur dei Gesamte Psychologie.	Mendel Journal.
Astrophysical Journal.	Modern Language Review.
Annals and Magazines of Natural History.	Modern Language Notes.
Année Psychologique.	Memoirs British Astronomical Association.
British Journal of Psychology.	New Phytologist.
Bulletin of American Museum Natural History.	Nature.
Classical Philology.	Notes and Queries.
Classical Quarterly.	Neues Jahrbuch fur Mineralogie, Geologie, und Palaontologie.
Classical Review.	Pedagogical Seminary.
Chemical News.	Physikalische Zeitschrift.
Comptes Rendus.	Philosophical Magazine.
Centralblatt fur Mineralogie.	Philosophical Review.
Economic Journal.	Quarterly Journal Mathematics.
Economic Geology.	Quarterly Journal Microscopical Science.
Educational Review.	Quarterly Journal Geological Society.
Eugenics Review.	Revue des Deux Mondes.
Geological Magazine.	Science Progress.
Harvard Law Review.	Scientia.
Journal of Chemical Industry.	Teachers' College Record.
Journal Philos., Psychol. and Science Methods.	Zoologisches Zentralblatt.
Journal of British Astronomical Association.	Zeitschrift fur Physikalische Chemie.
Journal of Geography.	

## CANTERBURY UNIVERSITY COLLEGE.

## LIST OF PERIODICALS.

Thesaurus Linguae Latinae.	Scientific Proceedings of Royal Dublin Society.
Journal of Hellenic Studies (34 bound vols.).	New Zealand Geological Survey Bulletins.
Journal of Philology (38 bound vols.).	Messenger of Mathematics.
Modern Language Review.	Cambridge Tracts of Mathematics and Mathematical Physics.
English Historical Review.	Quarterly Review of Mathematics.
Journal of Royal Statistical Society.	Mathematical Gazette.
Economic Journal.	Romania.
University of Toronto Studies.	

## UNIVERSITY OF OTAGO, DUNEDIN.

## LIST OF PERIODICALS, PROCEEDINGS OF MUSEUMS AND OF SCIENTIFIC SOCIETIES, ETC., IN MUSEUM LIBRARY (CONTRIBUTED TO BY THE OTAGO INSTITUTE).

- American Naturalist.  
 Annales de Palæontologie.  
 Annales des Sciences naturelles : Botanique (from 1834 to date).  
 Annales des Sciences naturelles : Zoologique : (from 1834 to date).  
 Annales dei Museo de la Plata (recent).  
 Annals of the Natal Government Museum (Vol. i to date).  
 Annals of Queensland Museum.  
 Annales dei Museo publico de Buenos Aires.  
 Annals and Magazine of Natural History (from 1838 to date).  
 Annals of Botany (to date).  
 Australasian Association for the Advancement of Science : Reports.  
 Australian Museum : Memoirs, Records, &c.  
 Canada : Transactions of the Royal Society.  
 Ceylon : Spolia Zeylanica.  
 Canterbury Museum, N.Z. : Records.  
 Geological Magazine.  
 Ibis.  
 Indian Museum : Memoirs and Records.  
 Jahrbuch fur Wissenschaftliche Botanik (discontinued).  
 Journal of Botany (discontinued).  
 Journal of Experimental Zoology.  
 Journal of the Federated Malay States Museum.  
 Journal of Science (and its descendants).  
 Linnean Society (London)—  
   Zoology : Transactions (Vol. i to date).  
   Zoology : Journal (to date).  
   Botany : Transactions and Journal.  
 Linnean Society of New South Wales.  
 Microscopical Journal Transactions, 1-13.  
 Mittheilungen Zool. Statione von Neapel, 1-19.  
 Monthly Microscopical Journal, 1-18.  
 Museum Association : Proceedings, 1890-1900.  
 Museum Journal (1901 to date).  
 Natural Science (extinct).  
 New Zealand Institute : Transactions.  
 New Zealand Journal of Science.  
 New Zealand : Reports of various Government Departments—Mining, Lands and Survey, Agriculture, &c.  
 Philosophical Society of New South Wales (1862-69).  
 Polynesian Society's Journal.  
 Quarterly Journal of Microscopical Science.  
 Ray Society : Folios and octavos (complete).  
 Royal College of Science, Tokyo : Transactions, 1-8.  
 Geographical Journal (1902-1911).  
 Royal Microscopical Society's Journal.  
 Royal Society of New South Wales : Transactions.  
 Royal Society of South Australia : Transactions.  
 Royal Society of Tasmania : Transactions.  
 Royal Society of Victoria : Proceedings and Transactions.  
 Science Progress (first series, 1-7, and current series to date).  
 Turin, Edletino dei Musei di Zoologica, &c. (to date).  
 Tuft's College (a few parts).  
 Tokyo Zoological Society : Annotationes Zoological (early vols.).  
 University of California : Publications in Zoology.  
 United States of America—  
   Reports of National Museum.  
   Reports of Smithsonian Institution.  
   Reports of Bureau of Ethnology.  
   Reports of American Museum Natural History.  
   Reports of Fisheries Bureau (early vols.).  
   Reports of Agricultural Department.  
 Zoological Record.  
 Zoological Society of London : Proceedings.  
 Zoological Society of London : Transactions.  
 Zoologische Jahres bericht (30 vols.).  
 And some other periodicals imperfect.

## LIST OF JOURNALS RECEIVED BY THE LIBRARY OF THE UNIVERSITY OF OTAGO.

- American Journal of Science.  
 Annales des Mines.  
 Annales de Chimie et de Physique.  
 Annalen der Physik.  
 Archæologica, or Miscellaneous Tracts Relating to Ancient Times.  
 British Association Reports.  
 Classical Review.  
 Comptes Rendus des seances de l'Académie des Sciences.  
 Economic Geology.  
 The Gentleman's Magazine.  
 Hermes.  
 Journal of Chemical Society.  
 The Journal of Philology.  
 London Philosophical Magazine.  
 Messenger of Mathematics.  
 Mind.  
 The Mining Magazine.  
 Nature.  
 Nautical Almanac.  
 Palæontographical Society Publications.  
 Philosophical Transactions of the Royal Society.  
 Proceedings of the Royal Society.  
 Quarterly Journal of the Geological Society.  
 Royal Historical Society.  
 School Journal.  
 Selden Society Publications.  
 Transactions and Proceedings of the New Zealand Institute.  
 Transactions, American Institute.  
 United Empire.  
 University of New Zealand.  
 Royal Historical Society's Publications.  
 Philology, Journal of.  
 Hermes, Zeitschrift fur Classische Philologie.  
 Mineralogical Magazine.  
 Journal of Experimental Zoology.  
 Nature.  
 Archiv. fur (Anat. u) Physiologie.  
 Archiv. fur Experiment Pathologie und Pharmakologie.  
 Archiv. fur pathologischen Anatomie.  
 Archives of Neurology and Psychiatry.  
 American Journal of Obstetrics and Diseases of Women and Children.  
 American Journal of Physiology.  
 American Journal of Psychology.  
 American Journal of Anatomy.  
 Anatomischer Anzeiger.  
 Annals of Ophthalmology.  
 Annals of Otology, Rhinology, and Laryngology.

LIST OF JOURNALS RECEIVED BY THE LIBRARY OF THE UNIVERSITY OF OTAGO—*continued*.

Anatomical Record.	Skandinav. Archiv. fur Physiologie.
Annals of Surgery.	Transactions of the Clinical Society of London.
Annales de l'Institut Pasteur.	Surgery, Gynæcology, and Obstetrics.
Biometrika.	Transactions of the Pathological Society of London.
Biochemical Journal.	Transactions of the American Surgical Association.
Brain.	Transactions of the Royal Academy of Medicine in Ireland.
Bulletins et Memoires.	The Journal of the Anthropological Institute of Great Britain and Ireland.
Ergebnisse der Physiologie.	The Journal of Anatomy and Physiology (Normal and Pathological).
Johns Hopkins Reports.	Quarterly Journal of Experimental Physiology.
Journal of Obstetrics and Gynæcology of the British Empire.	Zeitschrift fur physiol : Chemie.
Journal of Pathology and Bacteriology.	
Medico - chirurgical Transactions.	

## MEDICAL JOURNALS NOT CURRENT.

The American Journal of the Medical Sciences.	The Medical News.
Annual of the University Medical Sciences.	The Medico-chirurgical Review.
The Australian Medical Journal.	Medical Times.
Anthropological Review.	Medico-chirurgical Transactions.
Archiv. fur Anatomie (und Physiologie) Anatom.	Memoirs read before the Anthropological Society of London.
Atti del XI Congresso Medico Internazionale, 1894.	The New Zealand Medical Journal.
A Biennial Retrospect of Medicine and Surgery (5 vols.).	The Obstetrical Journal.
Braithwaite's Retrospect of Medicine.	The Practitioner.
British Medical Journal.	Records of the Egyptian Government School of Medicine.
Bulletin of the New York Academy of Medicine.	Royal College of Physicians ed. Laboratory Reports.
The Dublin Journal of Medical Science.	Transactions of the College of Physicians, Ireland.
The Dublin Medical Journal of Medical and Chemical Science.	Transactions of the Ethnological Society of London.
Edinburgh Medical Journal.	Transactions of the Intercolonial Medical Congress of Australasia.
Half-yearly Abstracts of the Medical Sciences.	Transactions of the College of Physicians, London.
Glasgow Hospital Reports.	Transactions of the New York Academy of Medicine.
Hospital Reports (various).	Transactions of the Royal Academy of Medicine in Ireland.
The International Journal of the Medical Sciences.	A Year-book of Medicine and Surgery.
Journal of the Ethnological Society.	War Department, Washington ; Surgeon-General's Circulars.
Journal of Mental Science.	The Wellcome Research Laboratories.
The Lancet.	
The London Medical and Surgical Journal.	
The London Medical Gazette.	
The London Medical Record.	

*Approximate Cost of Paper.*—Preparation, not given; printing (3,000 copies), £24 51s. 6d.

By Authority : JOHN MACKAY, Government Printer, Wellington.—1912.

Price 9d.