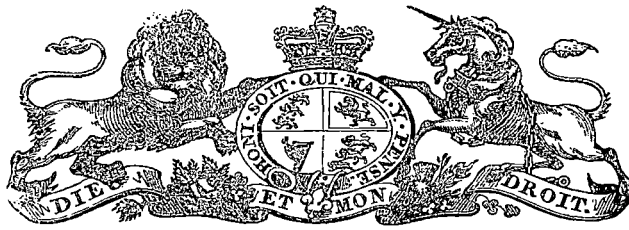


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PARLIAMENT OF TASMANIA.

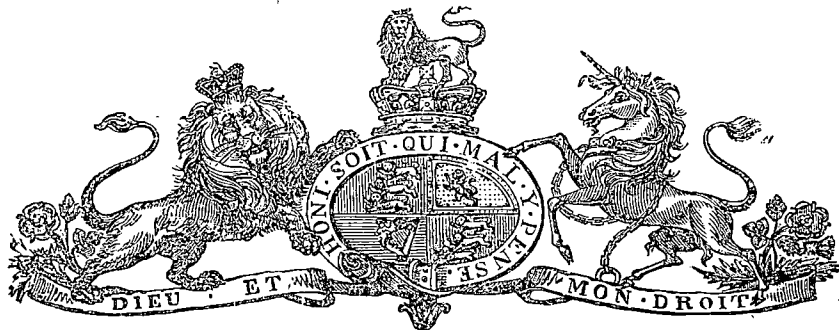
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TECHNICAL SCHOOLS, TASMANIA :

REPORT OF INSPECTION BY FRED. A. CAMPBELL, ESQ., C.E.

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Presented to both Houses of Parliament by His Excellency's Command.



## TECHNICAL SCHOOLS, TASMANIA.

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### REPORT OF INSPECTION

BY

FRED. A. CAMPBELL, Esq., C.E.,

*Director of Working Men's College, Melbourne.*

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*To the Honorable B. STAFFORD BIRD, Minister of Education, Tasmania.*

SIR,

IN accordance with your request, I have the honor to report that I visited the Government Technical Schools at Hobart, Launceston, New Norfolk, Devonport, Latrobe, and the Class at Longford, inspected the buildings, fittings, apparatus, the methods of instruction, the work of the students, and made myself acquainted with the general system of management. I was unable to visit the Classes at the Forth, Dunorlan, and Sheffield and Westbury, but that at Longford may be taken as a type of those not seen. Detailed memoranda relating to the Schools inspected are appended.

1. In looking at the work of the schools as a whole, I find that almost all that is done outside of Hobart and Launceston, as well as part of the work done at these places, is Secondary School work, that is, it is adapted to give a general, not a special training; for example, Elementary Drawing and Science, Arithmetic, Writing, &c. are the work of Secondary or High Schools, but the application of these and other subjects to any special branch of industry constitutes the work of the Technical School. I do not intend to detract from the value of Secondary School work,—the elementary knowledge must be attained somewhere to fit the students for the more advanced work; and in connection with many large Technical Institutions this fact is recognised by the establishment of a Technical High School. I am of opinion, however, that in Tasmania a good deal of this work might be carried on just as efficiently and more economically by means of the Primary School system. Some further remarks upon this point will be found in that portion of the Report dealing with the connection of the Primary and the Technical Schools.

2. As to the work carried on in the schools of a technical nature, I would, in the first place, make a few observations of a somewhat general character bearing on the subject. Technical Education is intended to prepare the student for earning a livelihood by giving special knowledge or aptitude calculated to be of use in the various trades or occupations. A prospective carpenter will study those branches likely to make him a good carpenter, and which are provided with that view; the same with a farmer or a miner. In preparing a scheme, then, of Technical Education for any place, it is evidently of the first importance to consider in what way the youth of both sexes will have to earn their livelihood, so as to be in a position to arrange for such subjects as are likely to be of use to them. In Tasmania the staple industries are those connected with mining, and stock, agriculture, and horticulture, with manufactures to a certain extent in the chief towns. Following the method suggested, classes in connection with these industries are those which should be established and supported in the various centres according to the character of the district in which they may be placed. As an example:—Fruitgrowing is now a large and important industry in certain localities, and is capable, no doubt, of further

development; yet I do not find any class whatever connected with this work on the syllabus of any of the Technical Schools. Lectures on insect pests have, I understand, been delivered, but unconnected with any of the schools. Nor do I find any instruction in agricultural matters; and at the present time I do not think there is in the island any place where a student could obtain practical information on metals and mining, with facilities for the necessary laboratory work. The detailed Report regarding the various schools will indicate the nature both of general management and class work now existing, from which it will appear that, while some really good work is being done both in Hobart and Launceston, the country schools are not doing much to justify either Government grants, or the name which they bear. In addition to this there is an utter want of uniformity of system, both in management and teaching work, which calls for reform. This matter is considered in the recommendations attached.

3. The connection of the Primary Schools and the University with the Technical Schools is a subject of considerable importance. While there should be links of connection between them, I am strongly of opinion that the sphere of each is so distinct that each department should be under separate management.

The Primary Schools should not attempt anything in the way of technical education, although they could probably do more than they do at present in the way of preparation, and the present organisation of buildings and teachers might be made available for some of the Secondary School work now done under the name of technical instruction. As part of the Primary School curriculum the Kindergarten might be encouraged, and the teaching of Freehand Drawing in school hours by the State School teachers, who should be encouraged to qualify themselves by extra payment for this kind of instruction.

The University, on the other hand, is more distinct in its sphere from the Technical School than is the Primary School, although a certain amount of work done by both, such as that in Elementary Science, might be similar. It would be a mistake, however, on this account to make a University Council the Governing or Examining Body of a Technical School system. A University diploma in carpentry, or other purely technical subject, would be out of place, and convey the idea that the holder was merely a theorist. A Government Technical certificate, on the other hand, would carry a very different meaning and weight. Technical Schools are sometimes affiliated to Universities, as in the case of the Ballarat School of Mines and the Melbourne University, but this is on account rather of the School doing University work, than the University supervising technical work. As a matter of fact the University does not interfere in either the teaching or examining work of the School. The Statute referring to the affiliation is attached.

The only connection between the two which is, in my opinion, desirable, is the establishment of exhibitions to enable the most able and deserving of the students who are anxious to pursue the higher branches of study to do so.

4. In regard to the steps to be taken to improve the system now existing, I would not recommend that any sudden changes of a radical kind be made either in the management or the teaching. I would suggest, however, that, by means of the establishment of a central office and permanent Secretary, amendments be introduced in such a way that by the commencement of next year there shall be a uniform system of management applicable to every school in the island. As to the teaching work, I would recommend that by means of a standard of examinations and text-books prescribed for the various subjects taught, the present work might be sifted, the capabilities of the Instructors ascertained, and the efficiency of the schools greatly increased.

Appendices as follows are attached to this Report:—

- A. Report as to the various Schools.
- B. Recommendations as to system of management.
- C. Recommendations as to standard of examinations and text-books.

I have the honor to be,

Sir,

Your obedient Servant,

FRED. A. CAMPBELL.

Melbourne, 5th May, 1892.

*STATUTE for the Affiliation of the School of Mines and Industries, Ballarat, as amended and adopted by the Senate of the University of Melbourne.*

WHEREAS the land described in the Schedule hereto has been granted by the Crown by a certain deed of grant dated the Seventh day of July, A.D. 1884, to SIR WILLIAM JOHN CLARKE, RIVETT HENRY BLAND, and JOHN WARRINGTON ROGERS, to be held by them as Trustees subject to certain conditions, provisions, and declarations set forth in such grant, among which is a condition that the said lands and buildings thereupon shall be used and maintained as and for an Educational Establishment, known as the School of Mines and Industries, Ballarat: And whereas by the eighth section of the Act of Incorporation of the University of Melbourne it is made lawful for the said University to make any Statutes for the affiliation to or connection with the same of any College or Educational Establishment to which the governing body may consent, provided that no such Statute shall affect the religious observances or regulations enforced in such College or Educational Establishment, and the Trustees and governing body of the Educational Establishment first above mentioned are desirous that the same be affiliated to the said University: NOW THEREFORE it is hereby provided as follows:—

(1.) The Educational Establishment hereinbefore mentioned shall be an Educational Establishment of the University of Melbourne, and as such during the existence of the affiliation with the University shall be known and distinguished as the School of Mines and Industries, Ballarat, in the University of Melbourne.

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APPENDIX A.

HOBART SCHOOL.

*Buildings.*—Most of the rooms of this building are unsuited to the requirements of a Technical School, being small and badly arranged, those proposed to be devoted to Chemistry excepted. The art rooms are insufficiently lighted for day work, if such work is intended.

*Apparatus.—Art Classes.*—Only fairly well supplied with examples; a complete graduated series of casts is required. The arrangement of seats, desks, and lights is not very satisfactory, but the rooms are rather small to enable the students to work to the best advantage.

*Mechanics.*—No apparatus.

*Engineering or Machine Drawing.*—Very little in the way of apparatus or models. The Instructor states that he can get portions of machinery from shops, or can take the students to the shops. Some models would, I think, be of service permanently in the class-room.

*Chemistry, &c.*—Not yet fitted up.

*Veterinary Science.*—Well supplied with requirements for a small number of students.

*Class Work.—Art Classes.*—Freehand Drawing chiefly from the round. The students' work is good considering the limited time they have to devote to the work, as also is it in Geometry and Perspective. The courses of study might be altered with advantage, and the number of nights per week to each subject. Geometry and Perspective appear to have more attention paid to them than their importance warrants. Freehand and Modelling not sufficient. The two latter should have two nights per week each. One year instead of two ought to be sufficient for Perspective, and two years instead of four for Geometry, including Projection. With such an efficient Instructor as the school possesses, this department might easily be made more efficient as a technical branch of the school than it is at present.

*Mathematics.*—Arithmetic should be taught either in this or the department of Commercial Economy; it does not appear to be necessary to include it in both. Mensuration ought to be included.

*Mechanics* does not appear to be taught. This subject is a very important one, and students should be encouraged to take it up by making the lectures and work as interesting as possible.

*Commercial Economy* appears to be efficiently taught, as far as I could judge.

*Machine Construction and Drawing.*—The Instructor is a practical man, and the class are doing useful work. Geometry appears to be taught both in this and the Art Department; one class for the subject should serve all purposes.

*Chemistry and Mineralogy.*—These classes were not in operation at the time of my visit. From what I saw of the Instructor, Mr. Ward, and the arrangements for the future class rooms, I should think that this is likely to be a highly efficient Department of the School.

*Enrolments.*—Average for 1891—

Art .....	29
Mathematics .....	15
Machine Construction .....	15
Book-keeping .....	12
Shorthand .....	33
Mineralogy .....	16
	<hr/>
	120
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Record of enrolments for separate branches of a subject does not appear to have been kept, such as Mechanics, Perspective, &c., these being included under Mathematics and Art respectively.

*Terms.*—The College year is divided into three terms, without vacations between, extending from 1st of February to 26th of November,—about 41 weeks.

*Fees.*—10s. 6d. per term per subject; no reductions in any case. The fees are paid to the Secretary, who enters them, issues a receipt, and hands them over to the various Instructors.

*Salaries.*—

	£	
Mr. Fryer, Art .....	200	5 nights.
Mr. Howell, Mathematics .....	137	4 „
Mr. Middleton, Machine Construction .....	75	2 „
Mr. Russell, Shorthand .....	50	2 „
Mr. Echlin, Book-keeping.....	75	2 „
Mr. Ward, Mineralogy and Chemistry .....	100	2 „

All fees from Students go to the Instructors.

*Annual Cost of School.*—There being no complete set of books containing expenditure of the School, the annual cost could only be ascertained approximately. It appears to be about £850 sterling.

*Examinations.*—The following were all the results obtainable for 1891 :—

	Presented.	Passed.	Failed.
Freehand, 2nd grade .....	17	15	2
Model Drawing .....	17	17	0
Geometry .....	16	16	0
Modelling .....	4	4	0

Copies of papers were furnished. The results in the Art department are good, but there is a great lack of system in arranging these examinations.

#### IN CONNECTION WITH HOBART.

*New Norfolk.*—Mr. Proctor, South Kensington College.

Mr. Proctor appears to be an enthusiastic teacher, and efficient so far as he has taken his students.

Freehand Drawing is taught mainly, with a little Book-keeping and Mechanical Drawing.

Classes meet twice a week.

Room fairly good for present requirements.

Average enrolment, about 30.

Students present on the occasion of my visit were young; about half girls.

Something might be made out of this School. In Art work some Models are required, and an extension of the teaching should be made suited to the requirements of the District.

The examinations show satisfactory results in Elementary Freehand Drawing.

#### LAUNCESTON SCHOOL.

*Buildings.*—The rooms on the whole are suited to present requirements. It might be advisable to retain the rooms in the upper flat of this building for further extension. At present they are unoccupied, and might be made suitable for the art classes as well as other purposes at a comparatively small cost.

*Apparatus, &c.*—Art class fairly well supplied, but the stock of casts might be improved by such additions as would complete a graduated series. The seats and desks are totally inadequate, and properly designed ones should be provided at once. In the engineering class the instructor keeps the students well provided with examples, and I do not see that anything more is required here. The electrical and mineralogical classes are inefficiently supplied. Apparatus should be procured to enable the lecturers to demonstrate practically up to an advanced stage, and to enable the students to do some experimental work themselves.

*Classwork.*—*Art.*—Some good work has been done in this Department in freehand drawing, and the instructor appears to be competent to carry out this and geometric drawing. The examples of students' work are mostly from the flat.

*Mechanical Drawing.*—This class is doing very good work indeed. The instructor is both efficient and assiduous, and, from his official position and his practical knowledge, commands respect as an instructor in his subject.

*Mathematics.*—These classes appear to do good work. I had no means, however, of judging minutely as to the efficiency of the classes. The roll shows the attendance last year to have been good.

*Electricity.*—No class in operation during my visit. Last year the attendance was good, and if this work could be carried on as a course in applied electricity or electrical engineering, giving the students facilities for experimenting, it ought to be very valuable.

*Chemistry and Mineralogy.*—This ought to be a valuable technical class, but I had no means of judging of the style of the instruction. The lecture-room is a good one, but a laboratory and furnace-room should be added so as to enable the students to have practical work. This need only be on a small scale at first, providing for future extension. I am doubtful whether the present instructor has qualifications for conducting a class in practical chemistry.

*Enrolments.*—Average for 1891 :—

Machine Construction .....	14
Mathematics .....	30
Art .....	30
Electricity .....	22
Chemistry and Mineralogy .....	20
Total.....	116

No record is kept of the attendance of various branches of the above subjects,—Mathematics, for example, includes Book-keeping, Writing, Arithmetic, &c.

*Terms.*—Three terms in the year, February 29 to December 2nd, about 38 weeks.

*Fees.*—Seven and sixpence per term per subject; no reductions for juniors. The fees are collected by the Instructors, and are supposed to be entered in the roll-books, but this has not been done in every case.

*Salaries.*—The Salaries paid are as under :—

Mr. Bogle, Machine Class.....	10s. per lesson.	
Mr. Ockleton, Mathematics.....	10s. „	
Mr. Pousty, Electricity.....	10s. „	
Mr. Carins, Chemistry.....	£80 per annum.	Two nights per week.
Mr. Charpentier, Art.....	£200 per annum.	Five nights per week.

All fees go to the Instructors.

*Annual cost of School.*—Approximately £650 sterling.

*Examinations.*—No examinations were held at the close of 1891 on account of the Exhibition.

#### LATROBE SCHOOL.

*Building.*—Rented 10s. per week. Not suitable for the requirements of a Technical School, although sufficient for the nature of the instruction now given and the numbers at present attending.

*Fees.*—7s. 6d. per quarter Art and Mineralogy; 2s. 6d. per quarter Chemistry; State School teachers free.

*Enrolments.*—Art classes average about 12. Mineralogy average about 12.

*Examinations.*—None have been held yet.

*Cost of School per annum.*—About £210.

*Classwork.—Chemistry.* Mr. Carins, Cert. South Kensington, Science. Class consists of children; is held in the afternoon. Work consists of very elementary lectures on Chemistry, with a few simple experiments. One hour once a week. Textbook, Roscoe's Primer. Such work might be done in the State Schools.

*Mineralogy.* Mr. Carins.—Did not see this; students are older; lecture, with experiments; textbook, Dana; no apparatus or room for practical work. Could not ascertain that any real valuable practical work was being done; understood it was mostly attended by shop employees; two hours once a week.

I should not consider this class of much value as at present. It is doubtful if there is sufficient demand, however, for a class in Practical Chemistry, Assaying, &c.

*Art Classes.* Mr. Raikes.—The students are mostly young, and a large proportion of them girls. Chiefly Freehand Drawing, a little geometrical. Work examined fairly good of its kind, but hardly beyond the elementary stage. Cannot be called technical; should be done in the State Schools.

#### IN CONNECTION WITH LATROBE.

*Forth.*—Art Class only. Mr. Raikes.

Enrolments—Average about 12.

The average attendance is good, showing an interest in the work.

Students mostly girls. Two State School teachers.

*Sheffield.*—Art Class only. Mr. Raikes.

Enrolments—Average about 8.

Held on Saturdays: usually some teachers attend.

*Dunorlan.*—Art Class only. Mr. Raikes.

This is mainly attended by children.

NOTE.—Did not visit any of these Classes.

*Devonport.* Mr. Schuetz.

This School was opened in April, 1891.

*Building.*—Is sufficient for present requirements, but in event of future development would recommend utilising top rooms at Post Office, if available.

*Fees.*—12s. per quarter, or 4s. per month. The fees appear to be fixed and collected by the Instructor.

*Examinations.*—None held yet.

*Cost of School per annum.*—No means of ascertaining this, but probably about £120 or £130 sterling.

*Classwork.*—The work done is Freehand Drawing, Geometrical and Mechanical Drawing, Perspective, Writing, Arithmetic, &c.—all taught by the same Instructor, at the same time: this is rendered possible by the small number attending.

Enrolments for 1891, average about 16.

Some of the work done was good, but was almost entirely the work of two students.

NOTE.—The State School Teacher here teaches Drawing, and holds a South Kensington Certificate.

*Longford.* Mr. Charpentier.

Art Class only. Held in the State School after school hours.

No fees charged. State School children and one or two Pupil Teachers only. Elementary Freehand and Geometrical Drawing. Once a week. Freehand Drawing is also taught by the Head Master of the State School for half an hour two or three times a week, within school hours. The Drawing they do with him is just about as useful as that they do with Mr. Charpentier. I see no reason why the latter should conduct classes in this school for the pupils.

*Westbury.*—I did not visit this school, but the instruction is on the same lines and by the same teacher as at Longford.

## APPENDIX B.

## RECOMMENDATIONS.

THAT the Technical Education Branch—

1. Shall be separated from the Primary Education Department, but shall be under the control of the Minister of Education.

2. That the chief executive officer and permanent head shall be a Director or Superintendent, who shall act as adviser to the Minister, and generally exercise the functions of similar officers in other departments. He should visit periodically all the schools in the Colony and report upon them. He should be a good business man, accustomed to organise, having force of character, and ability to lecture upon subjects connected with and included in the scheme of Technical Education; he also should be acquainted with the latest developments in the methods and apparatus connected therewith.

NOTE.—This appointment might remain in abeyance in the meantime. An opportunity of securing a suitable man might present itself by-and-by, if it could be arranged that his income should be augmented by lecturing work for the University. As things are at present there is not sufficient work for a really good highly paid man in connection with the Technical Schools alone.

3. That a General Secretary be appointed to act as the Director's clerical assistant, to take charge of all the routine office work, correspondence, and accounts connected with the branch.

NOTE.—This appointment I would recommend should be made now, so as to proceed with the organisation of the existing schools.

4. An Accountant may be required as the department enlarges, but is not necessary now.

The Schools should consist of Central and Branch Schools; all those in sparsely populated districts, within accessible distance from the towns, being branch schools, managed in conjunction with, and by the Managing Body of the Central School.

Each Central School should be under the control of a local Committee, who would, subject to the approval of the Minister, make appointments or cancel the same, arrange new classes, expend money within the limit of the grant provided, and generally arrange and carry on the work of the school and its branches in accordance with such regulations as the Minister may from time to time formulate.

All fees paid by students should be received by the Treasurer of the School, and duly entered in a book kept for that purpose. (See Note *re* Fees.)

All salaries to Instructors should be paid in accordance with the basis determined on by the Minister, and should not include fees from students. (See Note *re* Salaries.)

Previous to the commencement of each financial year each Committee should furnish to the Minister a detailed estimate of the expenditure for the maintenance of school and branches for the coming year. Any special grants required for buildings or new fittings should be the subject of a special application.

All Committees should be required to keep (through their officers) the following books, which will be supplied to them from the Department:—

1. Roll Books.
2. Block Receipt Books for fees.
3. Rough Cash Book for fees.
4. Tabulated Cash Book, for all the receipts and expenditure of the schools.
5. Statistical Register, giving all information as to attendances and classes.

Entry forms also would be supplied for students to fill up and hand to Treasurer when paying fees.

Each Committee should be required to furnish to the Department the following Returns:—

1. Copy of Statistical Register, *at end of each term.*  
N.B.—This may be done by carbon sheets, a copy being taken as the book is being written.
2. Detailed Balance-sheet, audited and signed by Chairman of Committee.
3. General Summary of Statistics, showing progress of school for year.
4. Results of Examinations.

The last three at end of each year.

N.B.—The forms required would be supplied by the Department.

*Fees.*—That all fees be paid by the students to the Treasurer of the school, and not to the Instructor. That the fee per term be fixed at 10s. for each elementary subject, or for lectures; but a higher fee be fixed for those classes involving considerable outlay for apparatus or material, such as laboratory work in Chemistry, &c. That apprentices under 18 years of age be admitted at half the ordinary fee.

*Terms.*—That the school year be divided into three terms, of about 13 weeks each. I do not know that there is much to choose between the division into three or four terms per year. Sydney has three, the Working Men's College four; so, as both Hobart and Launceston have three at present, this might remain.

*Railway Tickets.*—That the Railway Department be asked to issue tickets at reduced rates to students attending classes. In Victoria the following rates are charged:—25 miles, 1s.; 45 miles, 1s. 6d.; 60 miles, 2s.

*Salaries to Instructors.*—A uniform basis of payment to Instructors should be fixed. At the present time there appears to be no system whatever. For example—Mr. Middleton, Instructor in Machine Drawing and Construction at Hobart, receives £75 and fees per annum for two nights' classwork per week, while Mr. Bogle, for the same kind of work, receives 10s. per lesson and fees, a little more than half that received by Mr. Middleton. The salary should be fixed at so much per lesson, varying according to the nature of the instruction and qualifications of the teacher. As a guide, I may quote what is paid at the

Working Men's College—Arithmetic, Geometry, Algebra, English, Writing, &c., all 10s. per lesson; Drawing—geometrical, architectural, mechanical, about 12s. per lesson, the more advanced classes in these subjects up to 16s. per lesson; Applied Mechanics, Applied Electricity, Solid Geometry, Botany, Geology, Physiology, Elocution, Building Construction, Cookery, Physics, Harmony, Dress-cutting, 16s. per lesson; Electrical Engineering, Tailors' Cutting, Telegraphy, Graining, Surveying, Lithography, Sign-writing, £1 per lesson. In addition to this, there are on the staff employed under special arrangement for both day and evening duty, the Instructors in Carpentry, Plumbing, and Freehand Drawing. The Instructors at the Working Men's College do not get the fees.

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### APPENDIX C.

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#### STANDARDS OF EXAMINATION, COURSES, AND TEXT-BOOKS.

The objects to be attained in connection with this matter are—(a) the raising and maintenance of the teaching work on efficient lines; (b) rendering the certificates of the various schools of equal value, or making it possible to issue one certificate for all the schools; (c) enabling the students to complete a course commenced at one school at any other school.

It is evident that the value of the two latter advantages would be greatly enhanced if the courses and examinations were similar to those in the adjacent colonies, and I would therefore recommend that they be arranged on the lines of those adopted by the leading Technical Colleges of Australia.

In the event of the appointment of an expert as Director, this is the subject which would require his early attention; but if it is decided not to make the appointment at present I would offer the following suggestions relating to the matter:—

*Literary and Commercial Subjects.*—Although not “technical,” these subjects are taught in most Technical Schools, and with advantage; and if they are taught it is just as well that they should be taught under the same conditions as the other subjects. I think, however, that it would be sufficient if the teachers and examiners now engaged in this kind of work in the Technical Schools in Tasmania were to arrange the lines of study, the text-books, and standard of the different grades of examination, either in conference or by letter.

*Art and Applied Art Subjects.*—The Art Inspectors of Victoria and South Australia have arranged a scheme for uniformity in these subjects, which will probably be adopted soon in all the schools of these colonies, and possibly also in New South Wales. I would strongly recommend Tasmania to join and adopt the scheme also. It is still under consideration, but will, I believe, be completed very shortly.

*Science, Technical, and Trade Subjects.*—In respect to these subjects I do not think a better plan could be adopted than to follow the arrangements as laid down by either the Working Men's College or the Sydney Technical College; both have been carefully thought out, and they do not differ much. Some modifications might be necessary to suit the ideas of the local instructors, but all teachers should be able to teach up to and beyond such standards,—if not, they should be replaced by those who could.

When the courses and text-books are fixed, the apparatus and models necessary for working on the new lines would have to be obtained, and the arrangements made for carrying out the examinations. These might in some cases be carried out by local examiners, and for the others it might be possible to arrange for examiners in Sydney or Melbourne Technical Colleges to prepare the papers, that is when the courses were running parallel with those in the colleges to which the examiners belong.