TOWARDS SYSTEMATIC TECHNICAL EDUCATION IN AUSTRALIA

A History of Technical Education in Australia, 1833-1939

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PREFACE

No simple definition of what constitutes technical education is possible. Indeed, Dr. P.F. Venables has recorded that in 1887 Professor T.H. Huxley declared that, "It passes the wit of man so far as I know to give a legal definition of technical education."[1] The task of so defining the term in the present day and age would be no less difficult.

However, it would seem appropriate, especially in the light of the inherent difficulties involved, that some attempt be made to clarify the concept under discussion. Therefore, for the purpose of this study, technical education is regarded as that form of education which has been included in the administrative conception of technical education in Australia.

Notwithstanding the adoption of this social interpretation of technical education as a basis upon which to approach the study, it will be necessary to move outside the administrative framework often, not only because of the interdependence of primary, secondary, technical and university education with consequent related developments, but also due to the fact that educational history is social history and must therefore take account of the forces shaping the element of society being studied.

1 P.F. Venables, Technical Education, London: G. Bell and Sons, Ltd., 1955.

C O N T E N T S

A B S T R A C T

Technical education in Australia is often regarded as having its basic roots in the 'sixties of last century. This is an oversimplified version of the story.

The origins of technical education in Australia may be traced directly to the same source as those in Great Britain, where it was called into existence by the Industrial Revolution when the introduction of machinery and mass methods struck a blow at apprenticeship and there was a rapid rise in science applicable to industry. In response to the need for imparting to the worker the newly discovered principles of science underlying workshop practice, the Mechanics' Institute Movement sprang to life in Great Britain.

Being a British outpost, Australia soon followed the lead from "home". Thus the fundamental philosophy, that recruits to industry should receive, during the evening, instruction in the theory or science underlying their trade, while the workshop "on the job" would provide the necessary practical training, was transported to the Colonies at the Antipodes. As early as 1833, the Sydney Mechanics' School of Arts was established and the movement spread throughout the land. Although this movement, for a number of reasons, failed in the attempt to bring systematic technical instruction to the mechanic or artisan, it left a deep imprint and set the pattern for future provision throughout Australia.

By the 'sixties of last century, with the combined influence of developments in Great Britain and the changing economy in Australia, a general impetus was given to the provision of facilities for

imparting the science underlying an occupation. Victoria and New South Wales, both more advanced industrially than the other States, led the way with ad hoc arrangements, whereby British precedent, in character and method, was followed as though a law of nature.

Although private enterprise and local effort continued to characterise this second phase of the movement towards systematic technical education, these were supplemented more and more by State participation. At the same time, there was an increasing awareness of the need for not only adequate primary education as a pre-requisite for higher technical training, but also a co-ordination of the two. Indeed, when, in 1889, the Department of Public Instruction in New South Wales extended its domain from theprimary and secondary sphere and assumed full responsibility for technical training in the State, it was declared that systematic technical education had been provided. However, there was little to support such a claim at this time either for New South Wales or the rest of Australia.

During the nineteenth century a foundation was laid upon which technical systems could be built in Australia, but the pillars --- the technical schools, the primary schools and the few secondary schools --- stood in isolation. Many bricks and much mortar were required to shape the patchwork into a composite whole. The second half of the nineteenth century saw many flames kindled but the bonfire did not eventuate.

With the turn of the century came developments that were destined to affect all phases of national education. Many factors combined to

usher in a new era in education throughout Australia, and the claims of technical education loomed largely as both a springboard for action and a moulding influence in the re-organisation of the whole educational framework. Full recognition of the importance of technical education for industrial efficiency and realisation of the deficiencies in national provision, along with action to solve the problem, stood to affect remarkably the development and nature of both primary and secondary education.

Powerful influences were at work both internally and externally. In Australia, educational, political and economic forces co-operated to prepare fertile ground for the seeds of reform that were being scattered once again from abroad --- particularly Great Britain --- while personalities began to shape constructive policies.

The claims of technical education highlighted the necessity for a new approach and philosophy in the fields of primary and secondary education. Any re-organisation would therefore need careful and detailed planning. It was clear that all could not be achieved in a short time and much would depend upon the administration responsible for the re-organisation.

However, by the 'twenties of the present century systematic technical education had come to Australia and reformers descended to the plains. Notwithstanding the importance of reforms during the first two decades of the twentieth century which brought co-ordinated technical training as an integral part of the educational framework, the characteristic features of technical education in Australia were

largely determined by antecedent developments. The prevailing philosophy of the Mechanics' Institute Movement had left its indelible mark.

CHAPTER I

THE ORIGINS OF TECHNICAL EDUCATION IN AUSTRALIA

I A Recent Development or Need

Envisaged in the modern sense, technical education was non-existent until the beginning of the nineteenth century. It was called into existence by the Industrial Revolution. Since the birth of industrial pursuits man has employed technical training of a kind in order to ensure a supply of skilled artisans and a perpetuation of the methods and techniques, devised slowly and patiently, for constructing things. However, this handing down of traditional methods, this training on an individual basis, does not constitute "technical education" which, as a term and a practice, had its origins in the Industrial Revolution.

In Great Britain, for centuries, the apprenticeship system had served its purpose. Such a system of individual training was adequate in an economy where skilled occupations were handicrafts, demanding for their proper exercise long practice and systematic instruction. However, with the introduction of machinery and mass production this system became outmoded and declined. A number of factors of an economic and social character directly

contributed to this collapse of apprenticeship. "Its disappearance is usually attributed to the technological changes whereby old crafts had been replaced by machinery and skills subdivided."[1] The type of character of the skill required by the artisan began to change from manual dexterity to the ability to adjust and control the operations of a machine driven by power.

Another factor contributing to the decline was the development of contract and increasingly keen competition exerting pressure on prices and profit margin. It is this factor which goes far to explain the failure of the employers to accept responsibility for and of the workmen to teach the apprentice.

> Under this new system, masters no longer cared to be bothered to take apprentices to teach them their trade, but sought only for the skilled workmen close to hand . . . . . It is obvious to me that the apprenticeship system has broken down under the method of work by 'competitive contract', with the division and subdivision of labour under capitalistic employers who have failed to take proper precautions for the production of industrial skill . . . . .[2]

Moreover, the very fact that recruits to industry at the beginning of the nineteenth century had begun very often to work in factory groups, rather than as individuals in isolated workshops presented conditions working in opposition to the

1 Stephen F. Cotgrove, Technical Education and Social Change, London: George Allen & Unwin Ltd., 1958, p.21.

2 Evidence of G. Shipton, Secretary of the Amalgamated Society of House Decorators and Painters, and of the London Trades Council and Trades Guild of Learning, at Royal Commission on Technical Instruction, England, 1884, Minute 3858 - quoted by Stephen F. Cotgrove, Ibid. p.22.

apprenticeship system.

Another factor affecting the training of artisans was the development of science, particularly chemistry. A growing interest in the study of science was manifest much earlier than the eighteenth century but the distinctive feature of science in that century was the interest in its practical applications[1] and a recognition of the importance of a wide dissemination of "useful knowledge" as science was conceived --- to be studied as a vocational subject.[2] Thus industry was, by the end of the eighteenth century, to some extent dependent on the application of knowledge gained outside the workshop --- in the laboratories of the scientists. This knowledge therefore was essential to the technician of the industrial age. As A. Abbott says: "There was arising rapidly a body of knowledge which formed the very basis of some of the new industrial processes, although it could neither be gained in the workshop nor conveniently imparted there."[3]

With apprenticeship falling into decay on the one hand and the rapid rise to power of science applicable to industry on the other, there existed fertile ground for the sowing of the seeds of a scheme of training which was different in both method and

1 Nicholas Hans, New Trends in Education in the Eighteenth Century, London: Routledge and Kegan Paul Ltd., 1951, p.13.

2 ibid., p.212

3 A. Abbott, Education for Industry and Commerce in England, London: Oxford University Press, 1933, p.9.

content from that of apprenticeship. "It involved the gathering together in schools of groups of young workers of homogeneous needs, and teaching them the newly discovered principles underlying workshop practice."[1] Thus technical education began in England.

It began with the establishment of the London Mechanics' Institute, 1824, which in turn was modelled on the Edinburgh School of Arts, 1821. These were the first stepping stones along the path of system in England.

The original aims of these institutions were twofold:-

a) Cultivation of knowledge --- reading, writing, arithmetic.

b) Scientific principles underlying industry.

The following expresses the aims of the founders of the Edinburgh Schools of Arts in 1821:-

> . . . to afford to workmen instruction in the various branches of science which are of practical application in their several trades, so that they may better comprehend the reason for each individual operation that passes through their hands and have more certain rules to follow than the mere imitation of what they have seen done by another. It is not intended to teach the trade of the carpenter, the mason, the dyer, or any other particular business; but there is no trade which does not depend more or less on scientific principles, and to teach what these are and to point out their practical application will form the business of this establishment.[2]

1 ibid., p.10

2 Dobbs, "Education and Social Movements", p.173, Quoted by A. Abbott, ibid., p.13.

Dr. Birkbeck was motivated in his task of establishment of the London Mechanics' Institution by similar aims:

> I have become convinced that much pleasure would be communicated to the mechanic in the exercise of his art . . . . . by a few systematic ideas upon which at his leisure he might meditate. It must be acknowledged too, that greater satisfaction in the execution of machinery must be experienced when the uses to which it may be applied and the principles upon which it operates are well understood than where the manual part alone is known, the artist remaining ignorant of everything besides. [1]

It was the success of the London Mechanics' Institution which began the movement for institutions in many parts of the country.

> Their chief, although not their sole aim was to make their members efficient industrially; they aimed at 'useful knowledge' in full sympathy with the prevailing philosophy of which their middle-class promoters were the leading exponents. [2]

> The courses at the institutions were limited to instruction in the scientific principles underlying a craft and did not include instruction in the craft itself. [3]

1 Hole, "Mechanics' Institutes", 1853, p.15, quoted by A. Abbott, ibid., p.11

2 J.W. Adamson, English Education 1789-1902, p.155, quoted by Stephen F. Cotgrove, op. cit., p.13.

3 Stephen F. Cotgrove, ibid., p.13.

II The Conception of Technical Education

From these statements of the aims of the mechanics' institutes (and from the lectures and courses given) the prevailing conception of the new technical education may be gleaned. The promotors of these institutes were in full agreement as to the need for the education of the artisan in science and also the separation of theory from practice. This was made quite clear in the foregoing statement of the aims of the Edinburgh School of Arts. The various branches of science would be taught but not the actual practice of the manual or mechanical operations. Technical education was thus identified with the natural sciences --- a conception that persisted throughout the nineteenth century.

> What is of profound importance is the fact that . . . . the teaching of the scientific principles underlying a craft in the mechanics' institutes and the separation of theory from practice became an established tradition which set the pattern for later provision and persisted in its influence over technical education throughout the century. [1]

The history of technical education in England shows that the conception of the relative task to be carried out by the technical institute (teaching the scientific theory) and the workshop (teaching the mechanical or practical skill), established in the mechanics' institutes has never been completely abandoned. It "Has been almost as generally accepted as if it were a law of nature." [2]

1 Stephen F. Cotgrove, ibid., pp. 13-14

2 A. Abbott, op. cit., p.20

The definition of "technical education" given in the English Technical Instruction Act of 1889 expressed the same view as that adopted by the founders of the Edinburgh School of Arts in 1821:

> The expression 'Technical Instruction' shall mean instruction in the principles of science and art applicable to industries and in the application of special branches of science and art to specific industries and employments. It shall not include the practice of any trade or industry or employment, ...[1]

This view is indicative of an attitude or conception of technical education which was altogether contrary to that adopted in Europe.

A concomitant of this English conception of technical education, which was born in the mechanics' institutes and nurtured throughout the nineteenth century, was the part-time character of such training. With the relative functions of school and workshop so clearly defined it followed that instruction would be confined to the evenings after the day's labours in workshop or factory had been completed. This again became an established tradition which distinguished the English approach to recruits to industry from that of Europe and later America.

1 ibid., p.20

III Australia a British Outpost

What has this British approach to education of the workers to do with Technical Education in Australia?

The answer to this question is an emphatic "everything". Indeed, the origins of technical education in Australia may be traced directly to the same source as those of Great Britian --- to the mechanics' institute movement of the second quarter of the nineteenth century. The growth and decline of these institutes in Great Britain saw a parallel phenomenon throughout Australia.

This is not surprising when we look at the origins of Australian society and culture.

Up until the middle of last century the Australian colonies were controlled by the British Colonial Office. Furthermore, even after self-government came, Australia was for so long a mere "outpost" of England. Even the great influx of population that came with the discovery of gold and resultant 'rushes' did not alter significantly the preponderance of British blood in the Colonies. The 1861 census returns of Victoria and New South Wales (those affected by influx) give a picture of the percentages of population classified in terms of birthplace.[1]

1 G. V. Portus, "The Gold Discoveries, 1850-1860", The Cambridge History of the British Empire, ed. J. Holland Rose et al, Cambridge University Press, 1933, vol. 7, Pt. 1, Australia, p.264.

Birthplace	Victoria	New South Wales
Australia	29.2	47.0
British Empire (outside Australia)	61.4	46.2
Foreign Countries	8.6	6.6
Unspecified	0.8	0.2
All Countries	100.0	100.0

With few exceptions then, the people who came to this land in the nineteenth century were, as Professor Hancock puts it, "transplanted British",[1] and, in general, the social system and cultural conditions of 'home' were transported with them. Indeed, Professor Hancock maintains that during the nineteenth century, pride of race counted for more than love of country among Australians. "Defining themselves as 'independent Australian Britons' they believed each word essential and exact, but laid most stress upon the last."[2]

Little wonder then that the UNESCO report on Compulsory Education states that: "At all times educational development in Australia has been very strongly influenced by British traditions and practice".[3]

1 W.K. Hancock, Australia, London: Ernest Benn Ltd., 1930, p.51

2 Ibid., p.66.

3 UNESCO, Compulsory Education in Australia, New York: UNESCO, International Documents Service, Columbia University Press, 1951, p.15.

CHAPTER II

THE RISE OF THE MECHANICS' INSTITUTE MOVEMENT IN AUSTRALIA

I Establishment of Sydney Mechanics' School of Arts

Being a mere adjunct of Great Britain, it is not surprising that the rapid spread of institutions for mechanics at 'home' should be felt in the Colonies at the Antipodes.

The earliest record of such an influence in Australia is seen in the establishment of the Hobart Town Mechanics' Institute in 1827.[1] However, it seems quite clear that the aims and accomplishments of the movement in Australia may best be exemplified in the inauguration and progress of the institution in the parent colony of New South Wales.

Although the establishment of a mechanics' institute in Sydney had been discussed previously[2] the first concrete move in this direction was made by Governor Bourke when he wrote to the Rev. Henry Carmichael seeking his advice and co-operation for the implementation of such a scheme.

1 George Nadel, Australia's Colonial Culture, Melbourne: F.W. Cheshire, 1957, p.125

2 Henry Carmichael, "Introductory Discourse Delivered at the Opening of the Sydney Mechanics' School of Arts, April 23, 1833", The New South Wales Magazine, Vol. 1, No. 2 September, 1833, p.66.

> I wish to have some conversation with you upon the possibility of establishing a Mechanics' Institute in Sydney. I mentioned it before to one or two persons who seemed to think it impracticable; still I am not disposed to give up the project and wish you would turn the matter in your thoughts and let me know what you think of it.[1]

Carmichael, a Presbyterian clergyman and schoolteacher, far from thinking the proposal "impracticable", was a willing party to such a scheme. He obliged the Governor forthwith by meeting him, and soon putting into operation the matter so discussed --- a scheme for a "Mechanics' Institute and Benefit Society, ... for the dissemination of knowledge and for mutal instruction",[2] as proposed aboard the immigrant ship "Stirling Castle".

Thus the close connection between such a scheme and the 'movement' in Great Britain may readily be seen in that it was proposed by British immigrants on the voyage to Sydney ---- a number of Scottish mechanics selected by Dr. Lang to build the Australian College and Carmichael[3] --- and revived by Governor Bourke.

After organising a number of preliminary meetings at Lang's Australian College, Carmichael called a provisional committee together and at a general public meeting on 22nd March, 1833, two hundred citizens of Sydney assented to "The Laws of the Sydney Mechanics' School of Arts" recommended by the committee.[4]

1 Bourke to Carmichael: Sydney Mechanics' School of Arts, Minute Book, Vol. 1, 1st March, 1833 - 4th February, 1839, App. Fol. 2.

2 Henry Carmichael, Introductory Lecture Delivered at the Opening of the Twelfth Session of the Sydney Mechanics' School of Arts, 3rd June, 1844, Sydney: Kemp and Fairfax, 1844, p.3.

3 ibid.

4 Sydney Mechanics' School of Arts, Minute Book, Vol. 1, 1st March, 1833 - 4th February, 1839, p.13.

II Goals of the Founders

From the beginning it was made clear that the institution was designed principally for mechanics or artisans and that science was the basis of the curriculum. The object of the Sydney institution was stated in the constitution viz., "the diffusion of scientific and other useful knowledge as extensively as possible throughout the Colony of New South Wales." [1]

> "The chief means" for implementing this objective was to be through "an Association of persons friendly to the progress of scientific knowledge among professional and practical Mechanics . . . . . a Library containing books of scientific and other useful knowledge . . . . . apparatus and models fitted for illustrating the principles of Physical and Mechanical Philosophy." Lectures and classes for mutual instruction were to be arranged.[2]

However, a more comprehensive picture of the aims of mechanics' institutes in the colony was provided by the chief administrator of the Sydney Mechanics' School of Arts during its first five years of existence, the Vice-President, Henry Carmichael. In his "Introductory Discourse" delivered at the official opening of the institution, 23rd April, 1833, he reiterated the object stated in the "Laws" above, but made it quite clear that the principal aim of such institutions was theoretical, not practical or manual. The objective was to instruct mechanics in the theory underlying, or basic to, the practical pursuit in which they were engaged. They were to be taught the science not the art of their trade.[3]

1 The Laws of the Sydney Mechanics' School of Arts, Sydney: Stephens and Stokes, 1833, p.3.

2 ibid.

3 Henry Carmichael, op. cit., p.71, "Introductory Discourse", April 23, 1833.

Apart from this basic aim the colonial institutions were to be regarded as agencies for moral reform in a society beset by vice and general degradation.[1] Furthermore, they were to supply adult educational facilities for those with deficiencies in their elementary education "which have resulted unavoidably, either from want of means in the Mother Country, or from want of both stimulus and opportunities in the Colony."[2]

However, although an attempt was to be made to adapt the institutes to the intrinsic needs of colonial society, the fundamental principles of the British movement were to be the guiding force.

1 Henry Carmichael, ibid., No. 3, p.157.

2 Henry Carmichael, ibid., No. 2, p.75.

III The Spread of the Mechanics' Institutes Throughout Australia

The movement for mechanics' institutes soon spread and by the middle of the century each colony had one in its main centre of population.

Hobart, as we have seen, had a mechanics' institute as early as 1827. In September 1835, the South Australian Literary and Scientific Association was formed in London, before the first colonists left for Australia, and their collections of books which began to arrive in that Colony in 1836 became the nucleus of the South Australian Subscription Library and Mechanics' Institute formed in 1848.[1] The others were:- Melbourne 1839; Brisbane, 1849; Perth, 1851.

From these main centres the movement mushroomed as seen in the spread throughout New South Wales. The Newcastle Mechanics' Institute was established in 1835; Maitland, 1839; and during the 'fifties Goulburn, Mudgee, Windsor, Braidwood, East Maitland and Armidale became participants in the movement.[2] Their objectives were the same as their progenitors in Great Britain. The movement had made rapid progress and, "Its models were invariably the institutes already existing in the colony, and thus by copying Sydney the rural institutes copied Glasgow, London or Edinburgh."[3]

1 B. S. Roach, "The First Century of Our Institutions", One Hundred Years of Education, being a Record of the Development of the Educational System of South Australia, 1836-1936, Adelaide: Printers Trade School, 1936, pp. 28-29.

2 George Nadel, loc. cit.

3 ibid., p.126.

Indeed the pattern was the same throughout Australia. Usually, a number of educated men grouped together, "sometimes at the instigation of a person with experience of the movement in the Mother Country;"[1] then followed the drawing up of a constitution containing the aims of the consequent reading and lecture facilities of the institution.

For example, on 4th October, 1839, the master builders of the Union Benefit Society resolved, "That a Mechanics' Institution be formed in Melbourne for the promotion of science in the rising colony, particularly amongst the young, as well as the operative classes, ..."[2] The decision bore fruit when in November of that year, a committee was elected to draw up a constitution for the Melbourne Mechanics' Institute.[3]

1 ibid. p. 125.

2 "The History of the Mechanics' Institute", by "Old Chum", Melbourne Truth, Newspaper Cuttings, Early Melbourne, vol. 30, p.11 (Mitchell Library, Sydney)

3 ibid.

CHAPTER III

THE FAILURE OF THE MECHANICS' INSTITUTES TO PROVIDE A SYSTEM OF TECHNICAL EDUCATION IN AUSTRALIA

I Failure to Attract Artisans in Both Sydney and Melbourne

From the very beginning the prime objectives of the movement were frustrated and they ultimately failed in their proposed basic purpose --- the education of the artisan in the scientific principles underlying a trade or occupation.

In Sydney for example, the institute failed to attract the artisans from the beginning. After the scheme had been in operation for three years the Committee expressed regret, "that so few of that class, viz., the mechanics of Sydney, for whose benefit this Institution was mainly founded, should be entered among its members."[1]

In Melbourne the picture was duplicated. Here also, the lack of participation by mechanics was made conspicuous by their absence from the elected controlling body. The composition of the Committee of the Melbourne Mechanics' Institute elected by the members for 1841, stamped it as essentially upper middle-class.

1 Third Annual Report of the Sydney Mechanics' Institution, 1835, Sydney: Henry Bull, 1836, p.14.

> The 'trades' element was rather considerably eliminated from this committee, as only Messrs. Anderson, Caulfield, Beaver, Mayne, Pews and Strade could in any sense be set down as representatives of the mechanic and artisan class.[1]

Nevertheless, without this backing and control by the higher classes of society it seems certain that the institution in Melbourne would have made little or no progress whatsoever even as an abode of cultural as distinct from technical activities.

> 'The committee, however, included much of the spirit of the day, and the influence and social position of the majority of its members helped an undertaking of no ordinary difficulty, and which would in other hands have gone down in the surf of financial troubles which soon burst upon the province and kept it in tribulation for some years.'[2]

Notwithstanding this, the dearth of mechanics' representatives in such an elected body seems clearly indicative of the defection even during the very early years of the operative classes for whom the institution was mainly founded.

Thus the membership lists gave the movement a middle-class orientation from the beginning, in keeping with the rapidly proceeding trend in Great Britain. Here as early as 1832 the influx of solicitors' clerks, law copyists and shopkeepers was very noticeable.[3] Indeed, the displacement of the working class was so rapid that in 1835 Lord Henry Brougham, a champion of mechanics' institutes when speaking in Liverpool referred to "the industrious portion of the middle classes, to whose use Mechanics' Institutes are more especially devoted."[4]

1 "The History of the Mechanics' Institute", by "Old Chum", op. cit., p.12.

2. Quoted in "The History of the Mechanics' Institute", by "Old Chum", ibid.

3. J. W. Adamson, A Short History of Education, Cambridge: University Press, 1919, p.264.

4 ibid.

What is important to realise is that the institutes in Australia, although founded with the same objectives as those expounded by the original founders at home, did not pass through the same phase of working-class support as their kindred institutions across the seas. The Mechanics' Institutes of Edinburgh, Glasgow and London, for example, certainly did find artisan support in the early stages of the movement. However, before the middle of the century, "the institutes had largely ceased to attract the mechanics for whom they were intended; courses in science gave place to single lectures, discussion and literary classes . . . ." [1] In other words, the institutes which were founded in Australia in the 1830's approximated more closely to the description of what those in Great Britain had evolved into by the middle of the century --- "literary and philosophical institutes attended by a predominantly middle-class clientele." [2]

II Difficulties with Lectures and Classes

In Sydney, single lectures were the order of the day from the start; the only animated means by which the objective --- education of the mechanic in the theory or science underlying his trade --- was carried out. *

1 Stephen F. Cotgrove, op. cit., p.13.

2 ibid. p.13.

* The lectures for 1835; 1838; 1840; 1845; 1850; 1860; 1864, are appended to Thesis, pp. 353-356.

From an analysis of these lectures we see a rapid decline, after the 'thirties, in the number devoted to scientific or technical subjects. The rise in the number of lectures during the 'fifties was offset by a joint rise in the number obviously included for entertainment. The lectures of the 'sixties show no relation whatsoever to the manufacturing arts, the development of which was the paramount object specified by Carmichael. Again, the lectures bore little relationship to Colonial industry or the occupations of skilled tradesmen from the very early years of the movement. The number of lectures devoted to agriculture or pastoral pursuits are negligible. The bulk was devoted to the natural sciences, engineering, mechanics, and cultural topics. In other words the lectures were a stereotype of those delivered in Great Britain.

Notwithstanding the lack of support from the working class, there seems little doubt that the curriculum of the institute was such that mechanics would derive little benefit from attendace at the lectures which were not based on Colonial industry nor applicable to artisans deficient in elementary education. It seems unreasonable to expect anything but failure in the absence of popular education at the primary level. Indeed, "the success of Birkbeck's original lecture-course in Glasgow was founded on the sound elementary education which the Scottish workman had received in his parish school." [1]

1 J. W. Adamson, loc. cit.

As we have seen, it was planned to cater for these "deficiencies in early education", in the institute itself by the formation of classes. Indeed, there were to be technical classes as well, being a necessary corollary of the objective of training skilled workmen in the principles underlying the more mundane occupations such as building construction.[1] However, all attempts to implement this scheme were frustrated.

Although the original founders of the institution had as one of their objectives the establishment of classes for mechanics, no progress at all was made until 1846. In this year a sub-committee was appointed to investigate the matter and after numerous meetings found it was unable to establish more than one class. "Your Committee used every effort in their power to bring various Classes into active operation, but the only one they were enabled to establish was a French Class, to which however, only eleven members had subscribed their names."[2] Such a class would hardly benefit Colonial industry or help artisans to appreciate the theory underlying their trades nor give them the fundamentals of a deficient early education.

The following year saw further failure and the Committee referred, "not without some feelings of regret, to the ill success which has attended their efforts for the formation of classes for

1 Henry Carmichael, "Introductory Discourse Delivered at the Opening of the Sydney Mechanics' School of Arts, April, 23, 1833, " op. cit., No. 3, pp. 155-157.

2 Fourteenth Annual Report of The Sydney Mechanics' School of Arts, for the year 1846, Sydney: Thomas Trood, 1847, p.13.

instruction in various branches of Literature, Science, and Art."[1] Even the French class had "unhappily dwindled down to a solitary visit."[2]

The almost complete lack of support from the artisans is apparent from the attitude of members to classes as expressed in the Report for 1848 viz. "The peculiarities of our local population are against the formation of the numerously attended Elementary Classes attached to most similar institutions in Great Britain."[3]

It seems clear that any support that was forthcoming for the formation of instructional groups was from the middle-class who looked for tuition in cultural subjects of a secondary nature: "the only Classes wanted or likely to be successful, are those giving something beyond the mere necessities of ordinary education."[4]

Thus we find a very steady expansion of classes --- interrupted by the discovery of gold --- of a cultural as distinct from a technical character. Over the next ten years classes fluctuated and although attendance was poor the Annual Report for 1859 listed classes in Greek, Latin, French, Mathematics, Drawing (non-mechanical), English Grammar and Composition, Vocal Music and Debating.[5]

1 Fifteenth Annual Report of The Sydney Mechanics' School of Arts for the year 1847, Sydney: D. Wall, 1848, p.12.

2 ibid., p.13.

3 Sixteenth Annual Report of The Sydney Mechanics' School of Arts, for the year 1848, Sydney: T. Trood, 1849, p.11.

4 ibid.

5 Twenty-seventh Annual Report of The Sydney Mechanics' School of Arts for the year 1859, Sydney: W. H. Buzacott, 1860, p.7.

During the 'sixties a very gradual change in the class situation became evident. In 1863 the report from the art class showed a very fluctuating attendance but stated that, "The studies carried on have comprised Mechanical and Architectural Drawing", as well as the normal figure and landscape work.[1] Then in 1865, "a class conducted by Mr. Self, for the study of Mechanical Drawing", was established.[2] Although the average attendance was only four,[3] this effort represented the inauguration of the first class of a purely technical character in Australia. During the next decade classes in Geology(1869), Minerology (1869), Chemistry (1871) and Shorthand (1868) were added to the previously established cultural classes. However, only very limited success accompanied each of these ventures. Numbers fluctuated and classes were often abandoned due to poor attendance. It is therefore inconceivable to regard these classes which continued to operate intermittently throughout the 'seventies as successful in the attempt to bring technical education to the mechanic or artisan. They did bring to a very limited number some of the science underlying industry, but their influence on operatives and apprentices in the various trades and by now the growing manufactuaries must be regarded as negligible.

Indeed, the need for a more systematic scheme for the education

1 Thirtieth Annual Report of the Sydney Mechanics' School of Arts, for the year 1863, Sydney: R. Bone, 1864, p.10.

2 Thirty-second Annual Report of The Sydney Mechanics' School of Arts, for the year 1865, Sydney: Joseph Cook and Co., 1866, p.9.

3 ibid., p.11

of the working-class elements was evidenced by the movement, which intensified in the 'seventies, for the establishment of a separate institution to cater for the mechanics. The first concrete move in this direction was initiated by Mr. E. Dowling when at the Annual Meeting of the Mechanics' School of Arts, 4th February, 1873, he moved: "That a Working Men's College be formed in connection with this Institution, as suggested some years since by its late President --- the Rev. Dr. Wooley."[1] As a result of this resolution it was decided that steps should be taken, "to determine whether it is at present practicable to establish a Working Men's College in connection with this Institution."[2]

III Failure in Sydney and Melbourne Repeated Throughout Australia

This move was the beginning of the end for the Sydney Mechanics' School of Arts in its attempt to remain (or rather become) a Mechanics' Institute proper or become a Technical College. Just as it appeared that at last the dreams of the founders might be realised, events abroad and in Australia began to have a decided influence on the trend of educational development, and, consequently technical education was transferred to a separate institution. Soon, the most notable of the Colonial Mechanics' Institutes was to become a private lending library like its contemporaries in other parts of

1 Minutes of The Annual Meeting, Sydney Mechanics' School of Arts, February 4th, 1873, Minute Book 3rd June, 1859 - 1st February, 1876, p.425.

2 Ibid.

Australia. No other mechanics' institute in Australia went as close to the fulfilment of the aims of the founders as that in Sydney, but here also, the inadequacy of these institutions for technical education in an industrial age was eventually realised.

The writing was clearly on the wall when at a Special General Meeting, September 14th, 1871 the revised constitution of the institution was adopted. The aims as stated in this revised code are indicative of the changing role envisaged by the members, viz. "The Objects of the Institution shall be the intellectual improvement of its members, and the cultivation of literature, science and art." [1] The emphasis had obviously moved from scientific (or technical) to cultural aims.

In Melbourne, the failure of the institution to become an abode for mechanics was even more marked than its counterpart in Sydney. From the beginning the lecture programme adhered carefully to the pattern already established in the parent settlement. Single lectures on diverse topics, with little or no connected course of study were the means for carrying into effect the stereotyped objects of the movement. The lectures for the year 1840 for example included: Agriculture; The Press: Geology; The Science of the Present Day; and Phrenology; while Mr. Edward Sewell, a solicitor, "discoursed very amusingly on 'Heat'." [2]

1 Minutes of The Special General Meeting, Sydney Mechanics' School of Arts, September 14th, 1871, Minute Book 3rd June, 1859 - 1st February, 1876, p.380

2 The History of The Mechanics' Institute, by "Old Chum", op. cit., p.11.

As we have seen, artisan support was missing from the start and without the membership and backing of the more influential sections of society the institution would have perished during the depression of the 'forties. Little wonder then that we find the Annual Report for 1865 stating that: "The Committee is fully aware that the Institution has for many years past ceased to be in the true sense of the term a Mechanics' Institute. This change has gradually taken place with the change in the character of the persons becoming subscribers."[1] Further, it was suggested in this report that, "besides carrying on the Institution as at present, it might be made to answer the purposes of a literary club or Athenaeum consistent with the wishes of the members."[2] Consequent upon this proposal the name was changed to the Melbourne Athenaeum at a special meeting of members on 10th February, 1873.[3] Thus, well in advance of its sister establishment in Sydney, it became a cultural body in name as well as in kind.

This process was repeated time and time again throughout Australia. In fact, most of the Mechanics' Institutes were so in name only --- the term being an anachronism; merely representing a duplication of British nomenclature. They were never more than reading rooms, entertainment halls or lending libraries in most cases.

1 Quoted by R.W.E. Wilmot, The Melbourne Athenaeum, 1839-1939, History and Records of the Institution, Melbourne: Stillwell and Stephens, 1939, p.33.

2 ibid.

3 ibid., p.34.

IV The Place of the Mechanics' Institute Movement in the Development of Systematic Technical Education.

Thus, although the Mechanics' Institute Movement in Australia failed in the attempt to provide a system by which recruits to industry would receive basic training in the science underlying their trade or occupation, the seeds of technical education were scattered. Moreover, in this attempt the current approach to the problem in Great Britain overflowed and was transplanted to this country along with the fundamental philosophy of the day. This initial scheme for bringing scientific education to the working man was destined to leave its indelible mark upon technical education in Australia just as it did upon that of England.

The basic assumption during this inaugural phase in Australia was that recruits required theoretical training only ---- that the workshop, "on the job", would provide the practical training. Moreover, it was assumed, as a corollary of this, that the 'technical' training would be carried out during the evening as the artisan had to work during the day.

These assumptions represent a fundamental attitude which was to characterise the provision of technical education in Australia throughout the nineteenth century, and, incidentally, to persist up to the present time in certain respects. It was an attitude diametrically opposed to that which existed on the Continent of Europe, but in direct keeping with the prevailing one in Great Britain.

Again, it is important to realise that this earliest stage in

the development of technical education represented an attempt by private (middle-class philanthropy) as distinct from government or state enterprise to organise institutions for the training of industrial recruits. Admittedly, the Government (British) gave some financial aid to the early institutions.

Indeed, Governor Bourke had referred to the need for such institutions as boosts to both the social structure and the economy, viz.

> Whether we regard a wise economy of labour in a country, where labour is scarce, by giving to it the utmost efficiency which knowledge can impart, or whether we would seek to supersede those tastes for idle dissipation which are unhappily too prevalent, the instruction and amusement afforded by the Lectures and Reading Room of your Society, are of equal importance, and the utmost encouragement, which can with propriety be afforded by the Government.[1]

Nevertheless, there was, by the Government of the day, no intrinsic interest in, nor realisation of, the need for the technical education of the mechanic or artisan as a fundamental requirement for economic efficiency and expansion in an industrial age. Furthermore, the general public of course were ignorant of such a need. Great Britain had become the greatest manufacturing power in the world without a system of the 'new' technical education; apathy was the watchword. Only a few far-sighted individuals realised the importance of systematic training for the recruits to industry. What the majority did not realise was that the industrial age, the age of the factory and the machine, would

1 Fifth Annual Report of The Sydney Mechanics' School of Arts, for the year 1837, Sydney: James Spilsbury, 1838, p.17. Governor Bourke's Reply to Address of Thanks on Occasion of his Departure from Colony.

require a different approach to education. The Continent of Europe was not caught napping in this regard and led the way in systematic technical education which entailed the provision of both mass primary and secondary education.

Australia, a British outpost, followed her parent. What else?

The next stage in the development of systematic technical education in Australia was one in which private enterprise and local effort still characterised the movement, but these were supplemented more and more by State participation. The developments in this stage were indicative of the changing role of the State which was reflected in the educational field along with so many social institutions. In Europe, particularly Germany, it was early realised the significant part the State must play in the organisation of all branches of education. In Great Britain much time was needed to overcome traditional attitudes and practices --- a process which cast its shadows in Australia.

CHAPTER IV

MID-CENTURY CHANGES INFLUENCING DEVELOPMENT

This movement in Australia to give to the mechanic the scientific principles underlying his occupation was, from the very beginning, beset by similar obstacles encountered in Great Britain. The poor support from mechanics, government and manufacturers; absence of both a clear conception of what constituted technical education and strong conviction of its importance as a basic requirement of industrial efficiency and progress; the consequent ineffectiveness and unsuitability of curricula; and the great lack of elementary education amongst the working class; all of these contributed to the failure of the mechanics' institute movement both in Australia and at 'home'.

In Australia, of course, popular education at the primary level was non-existent at the time of the first mechanics' institute, and as we have seen these establishments failed to remedy the deficiency themselves. It was not until 1848 that any concrete move in this direction was made and another thirty years elapsed before the "free, compulsory and secular" slogan became a reality throughout New South Wales and Victoria --- later still in other States. This great need for elementary education as basic to

scientific, or, now as it was beginning to be termed, technical education, was not fully realised until after the fall of the mechanics' institutes. It was during the second phase of the development of systematic technical education that it became generally accepted that a proper primary education was essential for the mechanic to appreciate the theoretical principles underlying his occupation. Thus, with the development of national elementary systems throughout Australia during the second half of the nineteenth century, one of the foremost obstacles in the path of systematic technical education was to be removed --- even though the reason for removal was not intrinsically based on the interests of such an achievement.

Notwithstanding the absence of this essential ingredient, i.e. elementary education, a much more powerful internal influence existed to the detriment of the establishment of systematic technical education. Up until 1851 Australia had an economy based on pastoralism. Apart from a handful of manufacturies in Sydney and Melbourne, secondary industries were non-existent. This meant that a great supply of mechanics was not needed. Also Capital was interested in developing the land and its products; land which required but little application of science in that it was as yet neither unspoiled nor overpopulated and intensive methods were not needed to ensure large returns. In Great Britain the manufacturers themselves were little interested and in some cases were opposed to technical education; in Australia there were no leaders in this field as the industries did not exist.

As we have seen, technical education was a product of the

Industrial Revolution and the earliest attempts to develop a system were activated by the desire to train recruits for secondary industries. In other words, technical education was obviously the handmaiden of secondary industry. Until the social, geographical and political forces shaping the Australian economy turned attention to secondary industries, it seems clear that technical education would be neglected.

Thus the year 1851, the "year of gold", has special significance. This year has been envisaged as a focal point for many developments in Australian history --- political, social, economic. Once again, it becomes a focal point in more than one respect along the path of educational development in Australia. Not only did it mark the beginning of a new era in the social, political and economic development of Australia, but was also the year of the Great Exhibition in London which gave an impetus to the growth of technical education in Great Britain. Following upon the discovery of gold in 1851, certain factors were introduced making the ground more fertile for the play of British influences which stemmed from the exhibition of the same year.

The threat to Britain's industrial pre-eminence from foreign competition, especially Germany, first became apparent at the 1851 Exhibition.[1] For the first time, Continental exhibits had displaced British in order of merit in a number of departments. "This change in the relative excellence of the goods exhibited was attributed by

1 H. C. Dent, Change in English Education, London: University Press, 1952, p.85.

her Continental competitors to their better systems of general and technical education." [1]

Thus, in Great Britain, after 1851, technical education began to be associated with industrial efficiency. It became a stimulus to expansion and resulted in the first State grant for the teaching of technical subjects.[2] The number of inquiries and commissions which followed the display of craftsmanship evidenced a growing concern, and much discussion followed.[3] The Paris Exhibition of 1867 brought renewed interest and concern for it was found that Britain was ahead of her competitors in only ten departments out of ninety.[4] This stimulus to expansion in Great Britain was destined to affect Australia when she became interested in secondary industry.

Before 1851 the primary industries such as sheep farming, agriculture and whaling were the foundation of an expanding economy. With increases in population and expansion of marketing opportunities, simple manufactures were engaged in.[5] These however were of a sheltered nature, household commodities, both consumer goods like soap, candles and salt, and semi-durable goods like pottery, clothing, boots, hats and furniture --- "handicraft industries, usually worked by a master tradesman and a few assistants."[6] There was no large-scale industry in an economy where "wool was absolute monarch."

1 A. Abbott, op. cit., p.31

2 ibid., p.24

3 Stephen F. Cotgrove, op. cit., p.19

4 A. Abbott, op. cit., p.31.

5 R.M. Hartwell, "The Pastoral Ascendancy", Australia, A Social and Political History, ed., G. Greenwood, Sydney: Angus & Robertson, 1955, p.89.

6 ibid., p.90

7 H. Burton, "The Growth of the Australian Economy", Australia, ed. C.H. Grattan, Berkeley: University of California Press, 1947, p.157.

Soon the Australian scene was to change radically, for in 1851 the discovery of vast stores of wealth in the Colonies of New South Wales and Victoria brought to eastern Australia great numbers of people. Australia was whirled into a "social and economic revolution." [1] For instance, the decade 1851 to 1861 saw Victoria's population alone rise from 77,000 to 540,000.[2]

As Herbert Burton sums it up:

> The gold discoveries of the 1850's struck a blow at the dominance of pastoralism. Their influence in the Australian history was as profound as that of the Civil War in the economic history of the United States. The large influence of capital and population led to a more intensive use of land and to greater development of industry.[3]

The surface gold which caused the initial rushes during the early 'fifties soon petered out and deep shaft-mining, particularly in Victoria, had to be resorted to. Hence was born the gold-mining industry which would require men of skill and technical knowledge as well as the labourers to extract and process the ore. With more available capital and markets, the black coal fields of New South Wales began to develop rapidly with consequent expansion of the metal industry in that state.[4] During the last quarter of the nineteenth century the mining industry expanded still further with the discovery of tin, copper and gold in Tasmania; gold in Western Australia and Queensland; copper in South Australia

1 R.M. Crawford and C.F. James, "The Gold Rushes and the Aftermath", Australia ed. C.H. Grattan, ibid. p.48

2 ibid.

3 H. Burton, op. cit., p.153

4 ibid., p.161

and silver-lead-zinc in New South Wales.[1]

At the same time, the manufacturing industry had commenced to compete with imported commodities, "again mainly as a result of agitation by unemployed miners looking for new jobs."[2] Secondary industry was on the march. As early as 1866 the Victorian Government adopted a policy of "protection" to boost manufactures. With the powerful driving force of David Syme and his newspaper, "The Age", at the helm, this policy became a creed throughout Victoria.[3] He saw the need of manufactures to make Victoria great and maintained that with 'free trade' these industries would not develop, "the people of Australia will be as utter strangers to all scientific skill and practical dexterity in the arts and manufactures of highly civilized nations."[4] He asked whether Australia should abandon the practices of the parent State (Great Britain) ---

> the knowledge and the practice of those great industrial arts, which have constituted and still constitute the sole groundwork of her characteristic pre-eminence in trade, commerce and wealth, is it not on the contrary rather desirable that we should endeavour to perpetuate amongst us, in our new home, that civilizing and enriching skill and trained industry which is a part of our national inheritance?[5]

Syme, as was usual, had his way and between 1864 and 1874

1 ibid., p.158.

2 ibid., p.161

3 E. Shann, An Economic History of Australia, Cambridge: University Press, 1948, pp. 264-265.

4 Article in "The Age" by David Syme, quoted by E. Shann, ibid., p.265.

5 Article in "The Age", ibid., p.265.

the number of factory hands in Victoria increased fourfold, an increase of from 7,000 to 28,000.[1] Although this was hardly an advance in artistic and constructive talent, as Shann points out, "In its ostensible and immediate purpose of increasing employment in Victorian manufactures, protection was successful."[2] It meant therefore that the basic need for technical skill was becoming more and more paramount amongst the work-force of Victoria.

Moreover, despite the adherence of government to "free trade" New South Wales had, by the end of the century drawn ahead of Victoria in both population and manufactures.[3] Here again, the need for skilled artisans, mechanics, technologists would be on the increase. Whatever the basic economic principles adhered to by the respective States, the economy underwent a fundamental change in the direction of industrial expansion.

The development of secondary industry in Australia was such that by 1891 industrial workers were as numerous as rural workers.[4] "Thus in the period 1851-1901, helped by the stimulus of the gold discoveries, the Australian economy gained in diversity and strength."[5] Population and production grew rapidly, while government endeavoured to expand that sector of the economy in which skilled artisans and technologists would be required in ever-increasing numbers.

1 E. Shann, ibid., p.269

2 ibid., p. 268

3 ibid., p.270

4 H. Burton, op. cit., p.161

5 ibid.

The combined influence of developments in Great Britain and the changing economy in Australia began to be felt during the 'sixties. The necessary internal factors were at last available to allow the external influences to be cultivated and a general impetus was given to technical education. By the end of the century in each State attempts had been made at providing systematic training for the workforce. Some far-sighted individuals in the industrial, educational and political spheres came to realise the necessity of trained manpower for national development and efficiency. The private enterprise of the Mechanics' Institute Movement had not been equal to the task in the past but private and local effort were to remain the impelling forces until governments, like their slow-moving progenitor in Great Britain, eventually came to realise the role they must play.

Since New South Wales and Victoria entered the manufacturing field before the other states and were more populous and prosperous, it might well be expected that they would be the leaders in the movement for the establishment of systematic technical education throughout Australia. Moreover, as Prof. Francis Anderson pointed out, "until the middle of the nineteenth century, the parent colony was almost identical with Australia, and that, after that date, the educational history of the other colonies followed parallel lines of development."[1] This may be applied specifically to Technical Education also, but here the developments in New South Wales and Victoria were more obviously advanced than in the other states.

1 Francis Anderson, "Educational Policy and Development", The Commonwealth of Australia, Federal Handbook, ed. C.H. Knibbs, Melbourne: Government Printer, 1914, p.518.

CHAPTER V

DEVELOPMENTS IN VICTORIA DURING SECOND HALF OF THE NINETEENTH CENTURY

In Victoria, as we have seen, the Melbourne Mechanics' Institute failed from the beginning to bring the science underlying an occupation to the mechanic and artisan, and soon it dropped all pretensions of being a working man's educational establishment, even changing its name. It is not surprising that the next attempt at the provision of technical education should be for agriculturalists. However here again the story is one of failure. An experimental farm was established near Melbourne in 1858, the first report of the director on the 29th November, 1859 stating that,

> there is now provided within an easy distance of Melbourne a farm containing every useful agricultural product of Great Britain, in addition to many others, such as the vine, natives of more southern latitudes, and from its proximity to the university and other advantages an excellent opportunity is afforded by its conversion into a training establishment, of imparting an agricultural, in conjunction with a literary education to persons desirous of following farming pursuits in this colony.[1]

However, the opportunities were not availed of and although the Government contributed the land plus £13,827 between 1858 and 1868, in an endeavour to bring technical and experimental instruction to

1 Quoted by H. F. Eaton, "Technical Education in Victoria," (Paper read at International Congress on Technical Education, June 18th, 1897), Journal of the Society of Arts, vol. 45, August 1897, p.1040.

agriculturists, the venture was unsuccessful.[1]

I The Work of the Technological Commission

The next step in the direction of promoting technical education in Victoria came in 1868. This year is widely acknowledged as the one in which technical education commenced in this State. The year does indeed present a landmark in our developmental pattern not only for Victoria but for Australia, for the Government took its first step towards the promotion of technical education other than by pecuniary assistance of a meagre nature.

In the Legislative Assembly, on Wednesday, 2nd September, 1868, Mr. Samuel H. Bindon, Minister of Justice moved:

> That, in the opinion of this House, it is desirable that a Board be appointed, of which not less than three members of this House should be members, to promote, by lectures and otherwise, Technological and Industrial Instruction among the working classes, the expenditure not to exceed £200.[2]

A somewhat detailed analysis of the discussion and debate which followed the presentation of this motion is necessary as it reflected the attitudes which were to prevail for the rest of the century throughout Australia. It showed both a complete adherence to British precedent and philosophy and a reluctance by the majority of the government of the day to take too decisive a step towards the establishment of a system.

1 ibid.

2 Victoria:- Votes and Proceedings of the Legislative Assembly, 1868, vol. 1, Melbourne: Government Printer, 1868, p.272.

In supporting the motion Bindon pointed out that steps should be taken to do for "this country" what was being done for most European countries. "I stated on a recent occasion", he said, "that no social subject occupied the attention of the House of Commons so much as the one of technical instruction, to which I am alluding."[1] The effects of the Exhibitions of 1851 and 1867 were now being felt in Australia. The clamour which arose from the threat to Britain's industrial pre-eminence from countries with more advanced technical education systems was resounding at the Antipodes.

Bindon went on to quote from reports of a number of British manufacturers and also Mr. James McConnell, a British juror appointed to inspect machinery at the Paris Exhibition.[2] Mr. McConnell's evidence disclosed that the German, French, and Belgian engines were just as good as the British and that, "It requires no skill to predict that, unless we adopt a system of technical education for our workmen in this country, we shall soon not hold our own in cheapness of cost as well as in excellence of quality of our mechanical production."[3]

Such were the opinions expressed in Great Britain and used by Bindon to stir the government of Victoria to action. He apparently assumed that Great Britain would react immediately to these opinions for he pointed out that the workers of Victoria should have the same opportunities as those at home.

1 Victoria:- Parliamentary Debates, Legislative Assembly, 1868, vol. 6, p.836.

2 ibid., pp.836-837.

3 ibid., p.837

Moreover, the gold-mining industry was now a factor to be considered. "I do not see why opportunities should not be afforded to the mining managers and the miners on our gold-fields of learning something about geology, minerology, mechanics, and other subjects affecting their occupation",[1] continued Bindon. The supporters of technical education in Australia now had a more cogent argument for the training of recruits to industry. Industrial development had begun in Australia and Australia was not insulated from the view widely held throughout the world that a nation's strength depended primarily upon the efficiency of her industries. In conjunction with this view came the growing realisation that industrial efficiency depended upon trained manpower.

There was some opposition to the proposal put forward by Bindon, but this opposition was in the interests of systematic technical education. One, Captain MacMahon, described the amount of £200 as a paltry sum and suggested that the motion be reconsidered and brought forth during the next session, "in a manner not so much like tossing the men a bone."[2] He saw the necessity of a well-planned and comprehensive approach to the problem; a scheme for giving not only the theory but also the practice involved in an occupation. "A school of mechanics, where everything could be illustrated from the beginning to the end, might be of value; but I do not believe that our artisans are to be taught by any lectures whatsoever", he maintained. Maybe he was well aware of the shortcomings of the Mechanics' Institutes or maybe he looked with respect and admiration at what was being done

1 ibid.

2 ibid., p.838

in Germany. Whatever the basic facts upon which his reasoning, along with that of the others who opposed the resolution as too weak and haphazard a step, was based, British tradition won the day.

In supporting Bindon's motion another member, Mr. Blair, attacked MacMahon saying that he took "an altogether erroneous view of what is meant by the term 'technical education'."[1] Referring to the work of Professors Tyndall and Huxley and the lectures given at the Royal School of Mines in Britain, Blair gave the prevailing concept of technical education. Thus he concluded that,

> the radical defect which runs through the address of the honourable and gallant member is that he takes 'technical education' to be the instruction of working men in the handicrafts they are severally engaged in, whereas what it really is, is instruction in the sciences and arts with which, on the purely intellectual side, those handicrafts are connected.[2]

So runs the expression of the traditional British concept of technical education, nurtured in the Mechanics' Institutes and adhered to throughout the nineteenth century.

Bindon, in his final reply admitted that he didn't expect the £200 to be sufficient. "What the money is required for, however," he said, "is to enable the preliminary enquiries to be made by the board as to the best means by which technological instruction can be imparted to the working classes."[3] In other words, the proposed board was to work out policy and spread the 'technical gospel'. The

1 ibid.

2 ibid.

3 ibid., p.840

actual establishment of a system, if any, was to be left to voluntary private effort. The government would give some pecuniary aid but it was not to be responsible for the administration of any system that might eventuate. The political philosophy of liberal democracy was at hand but state socialism was still in the future.

Bindon's Philosophy prevailed: "Unless the work can be done to a great extent upon the voluntary principle, it will be difficult to do it at all. Zeal and a desire to see the work done will go further than money." [1]

The motion was carried and so began the earliest movement in Australia, outside the Mechanics' Institutes, towards systematic technical education. It began in an atmosphere of enthusiasm which was heavily laden with tradition and tempered by caution.

The board became known as the Technological Commission, with Mr. Bindon as chairman and amongst its members were the Rev. Dr. Bleasdale, a Catholic priest of scientific reputation, and Professor Frederick McCoy, D.Sc. of Cambridge.

From the first report issued by this Commission in February, 1869, and following reports, it is obvious that the goals of the promoters of technical education and the basic conceptions of it were little or no different from that expressed by the originators of the Mechanics' Institute Movement in Australia. "We Consider", so ran the report,

> that lectures on industrial instruction should be periodically delivered in Melbourne and other localities throughout the

1 ibid., p.837

> country, for the purpose of diffusing useful information on the most recent and approved scientific method of conducting the practical details of such arts and manufactures as are at present or may hereafter be carried on with profit in Victoria, and we are engaged in making arrangements for the delivery of such lectures. [1]

Technical education was still accepted as theoretical; the science underlying industrial pursuits.

The current trends at "Home" were accepted without question. Whatever was done there would be attempted in Victoria.

> Feeling that the lectures, in order to command success, should be of the highest order, and judging from the dictum of Professor Tyndall that lectures of such a character can be rendered acceptable to mixed audiences, as the lectures of Professor Huxley to the working classes of Nottingham have been, we put ourselves in communication with gentlemen of high scientific attainments, with the view of preparing a course of such lectures for delivery in Melbourne in the first instance. [2]

Where the lectures were to differ from those of the Institutes was in their direct relationship with Colonial industries. Here the Commission was more advanced in terms of curriculum construction, but then again, it must be remembered, that the industrial potential of the Country had advanced and they had the advantage of established industries to guide them. Nevertheless they were endeavouring to present the basic curriculum requirements for technical education in relation to the Colonial economy even if they were not taking the deficiencies of elementary education into account and relying solely on British method. Thus they outlined a whole series of industrial

1 Victoria:- First Report, 17th February, 1869, Technological Commission, Reports and Papers, Melbourne: Mason, Firth & McCutcheon, 1870, p.1.

2 Second Report, 11th November, 1869, ibid., p.2

processes on which lectures should be based under the headings: Animal Products; Vegetable Products; Mining and Mineral Products; Mechanics and Machinery Applied as Hydraulics, "Having regard to the special occupations and requirements of the people in different localities." [1]

Following British practice once again, the Commission recommended the establishment of Schools of Design,

> Considering how intimately connected the arts of drawing and designing are with manufactures and machinery, and that the mechanics and artisans of this country are without that assistance afforded both by the manufacturing capitalists and governments of Europe.[2]

They took particular notice of what was being done in Britain and readily followed the example thus set.

> The artisan in this country should at least receive as much care from the Government as he does in England; he has not the advantages of instruction here as in England, where schools of design, lectures, and museums of industry and art are daily on the increase.[3]

What they failed to realise was the fact that Great Britain was actually a poor exemplification of advanced thought or progress in the technical education field. Comparatively speaking she was very backward both in terms of widespread conviction of the need for technical education and the organisation of any systematic or co-ordinated popular education at the primary, secondary or tertiary

1 First Report, 1st February, 1869, loc. cit.

2 ibid., p.2.

3 Second Report, op. cit., p.8

level. It was the Continent of Europe that had set the pace and Great Britain was lagging badly; but for a few voices crying in the educational wilderness and a threat to her manufacturing prowess giving meaning to these exaltations the rather half-hearted stimulus to education for the working class would not have occurred.

Thus by following British precedent with a time-lag of almost two decades they were well behind in the race. Nevertheless they were alive to the necessity of making a start and did much to stimulate a movement for the technical education of the working man not only in Victoria but throughout Australia.

The Technological Commission continued until 1890 and during its twenty-one years of existence had an important bearing on the development of technical education in Victoria. By 1885, forty-one Schools of Design had been established mainly in Mechanics' Institutes or Schools of Art and subsidized by the Government.[1] This of course could hardly be termed systematic technical education and moreover the attempts at inaugurating a series of lectures on mining and industrial work, as in Great Britain, were unsuccessful.[2]

However, with very limited funds --- the £200 voted in 1868 had to last until 1879, and Bindon was proved wrong; zeal was not more important than money as they found out when they tried to introduce lectures and science classes --- the Commission had, during its early years, done much to arouse a degree of public opinion and

1 Victoria:- Royal Commission on Technical Education, Final Report on Technical Education, Melbourne: Government Printer, 1901, p.148.

2 Ibid.

interest in technical education. They had printed 5,000 copies of reports and tracts on technology for gratuitous circulation, and helped by a rare unanimity in the press[1] gave a stimulus to voluntary, private effort.

Notwithstanding this worthy outcome, one of the most important effects of its propaganda campaign was to reinforce British precedent and method for it accepted these as though they were a law of nature. This acceptance, without question, of the basic British attitudes and shortcomings meant that the movement began in an atmosphere devoid of originality and initiative. Instead of taking cognizance of the great need for co-ordination and expansion of primary and secondary education as exemplified in the German attitude, technical education was viewed in isolation. In Britain at this time there was no widespread conviction of the need for modification of elementary education to co-ordinate with technical education, to say nothing of the huge gap created by the absence of any popular secondary education. Little wonder then that the borrowing promoters in Victoria were misguided. They had very little to guide them thus they apparently hoped that by starting classes and institutions a system would eventually develop. There was no well formulated plan or comprehensive outline of attack, merely an adoption of a parental practice, even to the extent of becoming a part of this development; the Schools of Design controlled by the Commission being affiliated with the South Kensington Science and Art Department in 1887.[2]

1 Third Report, 7th May, 1870, Technological Commission, Reports and Papers, op. cit., p.3.

2 Victoria:- Royal Commission on Technical Education, 1901, loc. cit.

II Primary School Curriculum Affected

The campaign waged by the Commission had an effect on the curriculum of the primary school. In keeping with the Platonic tradition elementary education was concerned almost solely with things of the mind. The promoters of the "new" education in Victoria evidently saw the need for some connection between the lower rungs of the educational ladder and the higher vocational field of education. Even if they were not absolutely sure of what was required, nor indeed sufficiently aware of the need, to bring about a co-ordination between primary and technical education, they felt that a more practical approach was necessary at all levels of education.

In an endeavour to ascertain and present a factual picture of existing educational facilities and practices relevant to technical education a number of questionnaires was administered in the appropriate quarters. The first of these was sent to the Common Schools throughout Victoria in 1869. An analysis of the returns showed that no practical work --- eye, hand --- was being done, and little drawing.[1]

Another questionnaire sent to 107 employers of skilled labour in Victoria, to which only 33 replies were received --- showing the great lack of interest --- revealed that the vast body of apprentices learning trades did not attend classes or attempt to improve themselves;

1 J.J. Bleasdale, "Report on Education in Europe and England", Technological Commission, Reports and Papers, Melbourne: Mason, Firth & McCutcheon, 1870, p.21.

while the majority of those employers that did reply, thought that such education should be compulsory. [1]

Yet another questionnaire sent to 87 Mechanics' Institutes --- 51 replies --- revealed that only 3 of these had even a class "for practical instruction in any branch of art or trade".[2] Thus the investigations of the Commission gave ample proof of the failure of the Mechanics' Institute Movement to bring technical education to the working class of Victoria. The findings were in direct keeping with the conclusions previously arrived at in this paper when they say, "It would appear these places miscalled Mechanics' Institutes are mostly used for reading rooms and occasional lectures, etc.". [3]

The implications of these foregoing investigations into both primary and technical education in Victoria were well summarised by the Vice-Chairman of the Commission, Rev. J.J. Bleasdale, when he said,

> From the above it appears clearly enough that Victorian education whether primary or adult, has hitherto but little reference to the after-life of the child, or the improvement of the adult. To direct it towards practical ends is certainly one of the objects contemplated in the Commission..... This is a practical age, and our education, from first to last, must be practical.[4]

It was utterances such as these, expressed on the platform and in the press that brought an enthusiastic public opinion to the fore and thus stimulated a movement for scientific education at all levels.

1 ibid., p.22.
2 ibid., P.23.
3 ibid., p.23.
4 ibid., p.24.

In the first place, the actions of the Commission produced an effect upon the Education Department. In his report for 1871, the Minister of Public Instruction referred to the attention that had been called to the growing importance of technological instruction for the industrial development of the country and pointed out that instruction in mensuration, geometry and algebra was permitted.[1] Drawing was the only subject listed specifically under the heading of Technological Instruction.[2] However, by 1878 teachers were required to qualify themselves for the giving of instruction in at least one branch from the following list of "technological" subjects, viz:-[3]

> Physiology, with special reference to the laws of health.
> Botany, with special reference to the most useful products of Victoria.
> Geology and Minerology.
> Electricity and Magnetism, with applications to telegraphy, signalling etc.
> Acoustics, Light and Heat.
> Mechanics and Hydrostatics.
> Chemistry, with certain applications of it to the arts.

In other words, sporadic scientific education of a secondary nature was introduced into the primary school in the cause of vocational education. It represented a misguided attempt to impart practical elementary education as a forerunner of higher technical education and served to highlight the gulf that existed due to the absence of popular secondary education. Moreover, it would appear to have been an ad hoc arrangement in response to the doctrine of science as essential to true education as proclaimed by Herbert Spencer and his disciples.

1 H. F. Eaton, op. cit., p.1042.
2 ibid., p.1042.
3 ibid., p.1043

III Opening of Ballarat School of Mines Ushers in Era of Private, Local Effort

The other major development which owed much to the publicity campaign of the Technological Commission was the era of private local effort. Keeping in mind the great changes brought about by the discovery of gold in 1851 and the subsequent development of the mining industry in Victoria, it is not surprising that the gold-fields should be the scene of a pioneering enterprise in the sphere of technical education. As Bindon had pointed out when instigating the Technological Commission, "I do not see why opportunities should not be afforded to the mining managers and the miners on our gold-fields of learning something about geology, minerology, mechanics, and other subjects affecting their occupation".[1]

It was on the Ballarat field that the first move was made in this direction. Here, "On the 6th October, 1869, upon the suggestion of Mr. Harrie Wood, the Ballarat Mining Board, on the motion of Mr. J.M. Bicket resolved, that a School of Mines should be established".[2] A committee of prominent citizens, with His Honour Sir Redmond Barry and His Honour Judge Rogers as provisional President and Vice-President respectively, drew up a provisional constitution and the School was opened in the Circuit Court House on 26th October, 1870.[3]

1 Victoria:- Parliamentary Debates, Legislative Assembly, 1868, vol. 6, p.837.

2 Ballarat School of Mines, Statement of Objectives and Report of Administrative Council, Presented at the Annual Meeting of Governors, 16th December, 1873, Ballarat: School of Mines, 1873, p.8.

3 ibid., p.8.

Thus began, with a Council for Administration and a Government subsidy of £500 per annum,[1] the first real Technical School in Australia. For, although the immediate concern was the mining industry, as seen by the constitution viz., "The primary object of the School is to impart instruction in the various branches of Science relating to mining, the theory and practice of mining, mine management, mining surveying, and mining engineering",[2] there was to be an extension of facilities to cater for all branches of Victorian industry. "It is proposed, as soon as practicable, to extend the operation of The School so as to impart instruction in those branches of technical Science which may be considered most likely to exert a beneficial influence upon the prosperity of Victoria".[3] In other words, the ultimate goal of the Council was to develop, "a complete educational establishment or college"; a hope that was to be fulfilled.

This successful venture in Ballarat kindled a flame of private local effort throughout Victoria. Soon, technical schools with similar objects as their progenitor sprang to life in this State and other States took cognizance of the movement.

Thus we find schools established as follows: 1873 Bendigo School of Mines; 1883 Melbourne Working Men's College; 1885 Gordon Institute of Technology in Geelong. In the next Twenty-five years came Castlemaine, Sale, Maryborough, Bairnsdale, Stawell, Daylesford, Warrnambool, Echuca, Prahran, and Swinburne.

1 ibid., p.4.

2 ibid., p.8.

3 ibid., p.9.

In general, the pattern for foundation and administration was the same throughout Victoria. A band of enthusiastic citizens would draw up a constitution, form a local Council to govern the institution and apply to the Government for financial aid.

> It may be said that our Technical schools of the last century were founded because public spirited men realized that primary schools, secondary schools, and the University left untouched the great majority of the people who needed instruction in subjects connected with their occupations.[1]

Indeed the philanthropy of public spirited men and women counted for more than Government support in many instances. For example, the Melbourne Working Men's College was founded mainly by the liberality of the Honourable Francis Ormond who contributed £15,000 towards the establishment of this general technical institution.[2] Again, the Honourable George Swinburne and Mrs. Swinburne donated £20,000 to the College whch bears their name.[3]

Thus side by side, we see a dual movement in Victoria. On the one hand was a Government appointed Commission striving to promote technical education without a purse and on the other a private local effort stimulated by the penniless and powerless Commission, and afforded financial support by the Government. In neither sphere was there a clear, comprehensive scheme for the promotion of systematic technical education throughout the State. A variety of institutions and classes were established on a haphazard decentralised basis, according to the whims of a particular locality,

1 Victoria:- Technical Education, 1868-1934, Education Department of Victoria Technical Schools Branch 1934, p.6.

2 H.F. Eaton, op. cit., p.1044.

3 Victoria:- Technical Education, 1868-1934, op. cit., p.6.

with British precedent as the guiding force.

In 1888 the Minister of Public Instruction, Dr. Pearson, issued a Report on Technical Education in which he presented a detailed criticism of certain aspects of evidence given before the Royal Commission on Technical Education in Great Britain in 1884. Dr. Pearson concluded that, "The need in Victoria is rather to make perfect what we have got . . . . . fill up gaps and organise . . . . . rather than to create something radically new".[1] He saw that the real gap that existed was the interval between the primary school and the technical school. This attitude was in direct sympathy with the tenor of the conclusions of the British Commission which was beginning to spread its modelling hand towards Australia. Thus Dr. Pearson, by giving prominence to the need for secondary education in any overall scheme of technical education in Victoria, was expressing a view propounded in Britain and arrived at mainly as a recognition of the advances made notably in Germany.

IV The Government Takes Control

Dr. Pearson did not present a detailed scheme for re-organising technical education but he dissolved the Technological Commission in 1890 and brought the technical schools under control of the Department of Public Instruction in order to develop the system. In October of that year regulations were issued giving fixed quarterly grants to the authorities of the respective schools.[2]

1 C. H. Pearson, Technical Education, Melbourne: Government Printer, 1888, p.14.

2 Victoria:- Royal Commission on Technical Education, 1901, op.cit., p.149.

The much-needed plan of attack for re-organisation and co-ordination did not eventuate and we find yet another committee, this time from the Public Instruction Department, appointed by the Minister, Sir Frederick T. Sargood, 1891, to enquire into the organisation that existed and submit recommendations for the future.[1] In the Report which followed the committee referred to the previous attempts at technical education in Victoria as, "of a somewhat fragmentary character, being the result of an effort, which, however well meant, was in its nature imperfect and provisional".[2]

The recommendations submitted reflected once again the conclusions of the British Royal Commission of 1884 which were slowly gaining support at home. The primary school curriculum should be adapted to the needs of life; preparation for technical instruction should begin in the kindergarten and extend through the primary school with more emphasis on drawing and manual work. Moreover, trade schools and a Science and Art branch of the Department of Public Instruction were recommended.[3]

However, little or nothing was done. The only important innovation which followed was the 1891 Regulations for grants to technical schools.[4] Under a new scheme grants were to be made for certain specific subjects on the results of examinations. Remaining

1 Ibid., p.149.

2 Ibid., p.149.

3 Ibid., p.149.

4 Victoria:- Report of the Minister of Public Instruction, 1892-1893, Melbourne: Government Printer, 1893, p.26.

in force until 1896, these regulations were an adaptation of the South Kensington system of payment by results. And, "The operation of the regulations during a period of over four years fully demonstrated the fact that the South Kensington system was inapplicable to our conditions".[1] Indeed, by such ad hoc arrangements, whereby British practice was borrowed, far from moving closer to systematisation and co-ordination, many technical schools were further disorganised through financial stress and strain.[2]

Such measures coupled with the disastrous effects of the depression of the early 'nineties marks the first ten years of Departmental control of technical education in Victoria as a black decade.

At the turn of the century the foundation had been laid upon which a technical system could be built, but the pillars --- the technical schools --- stood in isolation. Many bricks and much mortar were required to shape the decentralised patchwork into a composite whole. The second half of the nineteenth century saw many flames kindled but the bonfire did not eventuate. As Dr. John Smyth (Professor of education at the University of Melbourne) wrote of technical education in this period,

> In the first glow of enthusiasm, it was too frequently believed that the establishment of a school ensured a

1 Victoria:- Royal Commission on Technical Education, 1901, op.cit., p.150

2 ibid., p.150.

> steady stream of learners. When disillusionment came, but before the authorities had learned how to adapt the school to what was needed, the "boom" burst; and, in the impoverishment that followed, both they and the workers grew disheartened, or merely plodded along without much vision or hope.[1]

In Victoria, many institutions were founded in response to the echoes from abroad, but over-reliance on British precedent and a lack of pre-vision outweighed the zeal of the promoters. Again, there seems to have been little clear, general conviction of the importance of technical education for industrial efficiency. Admittedly, the Government gave aid and some individuals were very generous, but such response that was forthcoming seems to have been based on the theme, "They are doing something in Britain, so we had better do something here".

1 E. Sweetman, C.R. Long & J. Smythe, A History of State Education in Victoria, Melbourne: Education Department of Victoria, 1922, p.243.

CHAPTER VI

DEVELOPMENTS IN NEW SOUTH WALES DURING THE SECOND HALF OF THE NINETEENTH CENTURY

In New South Wales the development of technical education during the second half of the nineteenth century was much more closely allied to the Mechanics' Institute Movement. In fact, it was a direct descendant of the Sydney Mechanics' School of Arts.

As we have seen this institution had failed from the beginning to live up to its nomenclature, being a haven for the middle class rather than the working class (mechanics and artisans). Again, it was noted how, during the late 'sixties, a number of classes for mechanics were at last established in keeping with the initial goals of the institution expounded over thirty years before. This belated achievement was overshadowed by developments at home and abroad. In Victoria, the Technological Commission had begun its promotion campaign and in 1870 the Ballarat School of Mines was founded. In Great Britain the exhibitions of 1851 and 1869 had given a certain impetus to technical education resulting in the establishment of Schools of Design and "Colleges". At the same time, the economy of New South Wales had begun to change in the direction of manufactures as in Victoria even though a policy

of "free trade" was maintained.

I A Technical or Working Men's College.

With these influences spurring them on, the members of the Sydney Mechanics' School of Arts established a School of Design (1871) and affirmed the motion put by Mr. E. Dowling in 1873 for the establishment of a Working Men's College in connection with the institution.[1] However, considerable difficulty was encountered in putting the scheme into effect, "principally to the want of the necessary appliances and accommodation within the building".[2] The finance bogey raised its ugly head and "in consequence of the liability previously incurred by the institution in improving its premises, nothing could be done but preserve a masterly inactivity till the mortgage debt, amounting to £5,000 was paid off".[3]

Thus a deputation was sent to the Minister of Justice and Public Instruction in an endeavour to obtain government support for the scheme. "The primary object of the deputation was to request that the School of Mines, provided by the Mining Act of 1874, be affiliated with the School of Arts, and also to seek

1 Vide supra, pp. 23-24

2 Extract from the Annual Report adopted at the Annual Meeting of the Sydney Mechanics' School of Arts, Feb., 6th, 1877, Sydney Working Men's College, Minute Book, 1873-1883.

3 W.C. Windeyer, Commemorative Address, Fifth Anniversary of the Sydney Mechanics' School of Arts, 22nd March, 1883, Sydney: Batson and Atwater, 1883, p.15

for assistance in establishing a proposed Working Men's College".[1]

The Government had no doubt been watching events in Great Britain and Victoria and had contemplated establishment of a School of Mines on the same lines as that at Ballarat. So the proposal put forward by the School of Arts gave a ready solution to the problem of technical education. As in Victoria, the State would give financial support while private effort would tend to organisation and administration. Eventually, slowly but surely, the Government decided to adopt such a policy and in 1878, "Parliament voted the sum of £2,000 towards the formation of a Technical or Working Men's College".[2]

In the following year classes were inaugurated, 478 students availing themselves of the education provided in the following categories:- Chemistry; Mathematics; Architectural Drawing; Mechanical Drawing; Freehand Drawing and Design; Geodesy; Latin; French; Elocution, Reading and Grammar; Arithmetic and Writing; Phonography; English Literature; Photography.[3]

It is difficult to reconcile some of these subjects with the expressed goal of the promotors, viz. "The College is founded for the purpose of affording systematic instruction in the sciences bearing on such branches of art and industry as are already or are capable of being successfully developed in New South Wales, and is principally intended for the education of persons engaged in

1 Extract from Annual Report of Sydney Mechanics' School of Arts, February, 1875, Sydney Working Men's College, Minute Book, 1873-1883.

2 Annual Report of the Sydney Mechanics' School of Arts for the year 1878, Sydney: John Sutton, 1879, p.5.

3 Annual Report, Sydney Mechanics' School of Arts for the year 1879, Sydney: Jarrett, 1880.

industrial pursuits".[1] The inclusion of Reading, Writing and Arithmetic is easily understood in terms of deficient elementary education as a drawback to technical or scientific instruction. However, one well might enquire what French and Latin had to do with "industrial pursuits", or the place of Elocution and English Literature in a scheme of industrial training for that matter.

The answer is readily discernible in terms of British precedent and practice. With the failure of the Mechanics' Institutes in Great Britain, or a branch development of them, came a movement which sought to bring to the working man a liberal as well as a scientific education. Indeed, Dr. Arnold, in an address at the Mechanics' Institute (London) in 1838, said that "humane" subjects were needed to educate --- as well as the physical sciences.[2] And as we have seen, the Mechanics' Institutes in both Britain and Australia became havens of liberal rather than scientific education. However, they had fallen far short in both respects, thus we find the establishment of a similar type of institution to cater for the working class. For example, in 1842 the Rev. R.S. Boyley founded the People's College Sheffield, the prospectus of which stated that since the Mechanics' Institutes generally had fallen far short in the attempt to expand popular education it was time other facilities were made available for the higher range of

1 Sydney Working Men's College, Minute Book, 1873-1883 (Rules Adopted 10th July, 1879).

2 J.W. Adamson, op. cit., p.263.

studies as yet unattainable by the middle and working class population. The subjects taught were Latin, Greek, French, German, English Literature, Elocution and Drawing as well as the elementary subjects of the ordinary night school.[1]

It is rather significant that the Sydney Mechanics' School of Arts, as we have seen, adopted such a scheme to cater for its middle class clientele.

A further development came when in 1854 Frederick Denison Maurice founded the Working Men's College, London. The use of the title "College", served to emphasise the close connection that existed between the students and the university men who taught them; "it also distinguished between the occasional lectures and courses of the Mechanics' Institutes, then somewhat moribund, and its own definitely educative plan of study."[2] The subjects taught comprised mathematics, languages, literature, history, physical sciences, drawing and painting.[3]

The goals and functions of the College were amply expounded in the prospectus of 1865 quoted by Professor John Adamson:-

> The students are for the most part working men; and the teachers are in general members of the Universities and of different professions, or those who have themselves been students of the College. Its purpose was and is to unite these classes together by associating them in the common work of teaching and learning. It provides instruction at the smallest possible cost (the teaching being almost wholly unpaid) in the subjects with which it concerns English citizens to be acquainted, and thus tries to place a liberal education within the reach of

1 C.T. Millis, Technical Education, Its Development and Aims, London: Edward Arnold & Co., 1925, P.21.

2 J.W. Adamson, op. cit., p.329.

3 Ibid., p.329.

working men. [1]

In other words this was the poor man's secondary school or university.

Looking to Great Britain as a model, the Sydney Mechanics' School of Arts determined to follow faithfully the precedent set. "Working Men's Colleges are now established in England in most of the great industrial centres and it is to be hoped that we shall not be slow to imitate the mother country in such an important respect." [2]

By this time however, the word "technical" had become closely associated with the education of workmen in the science underlying a trade or occupation and was being used more and more in Great Britain as a result of references to technical education in Europe. Thus the College in Sydney was inaugurated under the dual title of Technical or Working Men's College and the classes were in keeping with the established traditions of such Colleges in Great Britain.

Almost immediately however, the Working Men's section of the title was dropped in keeping with the trend in Britain towards the use of Technical College to describe such institutions. In fact, the Report for 1882 stated that, "The curriculum of the Technical College agrees with the recommendations made by

1 ibid., p.329.

2 Extract from the Annual Report, Sydney Mechanics' School of Arts, Feb. 6th, 1877. Sydney Working Men's College, Minute Book, 1873-1883.

Professor Huxley for a similar institution in London recently founded by the City and Livery Companies' Institute for promoting Technical Education, modified, however, to suit colonial requirements."[1]

Referring to the curriculum of the Sydney Technical College for 1883, the President of the School of Arts, Mr. Justice Windeyer, also stated that Professor Huxley's suggestions were adhered to and as a result the teaching was not entirely technical, an endeavour being made to cater for the wants of those who desired education of a more general and literary character.[2]

The classes to which Mr. Justice Windeyer referred were as follows:-[3]

Actuorial Science, Anatomy and Physiology, Architecture and Building Construction, Botany, Chemistry, Class Singing, Commercial School, Electricity, Elocution, Engineering, English Grammar and Reading, French, German, Greek, Latin, Law, Mathematics, Music Theory, Pharmacy, Phonography, Freehand Drawing, Geometry and Perspective, Teachers' Drawing, Design, Painting, Modelling, Constitutional History, Ladies' Drawing.

In fact, the objects of the promoters of technical education in New South Wales were identical with that of the promoters in

1 Annual Report, Sydney Mechanics' School of Arts for year 1882, Sydney, Jarrett, 1883, p.10.

2 W.C. Windeyer, op. cit., p.17.

3 Annual Report, Sydney Mechanics' School of Arts for the year 1883, Sydney: G. Loxton, 1884, p.12.

Great Britain. Mr. Justice Windeyer went to great lengths to make this absolutely clear on the occasion of his Commemorative Address to celebrate the fiftieth anniversary of the Sydney Mechanics' School of Arts, 22nd March, 1883. Here he states:-

> The objects which we have in view as far as the teaching of technical and practical science are concerned, are well set out in the report of the executive committee, of which Lord Selborne was chairman, appointed by the Corporation of the City of London and the Livery Companies, to inquire into certain reports made by Sir W. Armstrong, Professor Huxley and others, as to the feasibility of establishing a technical college. [1]

He goes on to quote the report fully:-

> The object which the Livery Companies have in view is the improvement of the technical knowledge of those engaged in the manufactures of this country, whether employed as workmen, managers, or foremen, or as principals. It appears to your executive committee that, except in some very special instances, such as the introduction of a new industry or the revival of an old one, the companies should not endeavour to effect this improvement by teaching the workman to be more expert in his handicraft; as, in their judgement, this form of improvement is one which must be derived from greater assiduity in their workshop and from longer practice therein, and they therefore are of the opinion that, except in special cases, it would be unwise to establish any place for teaching the actual carrying out of the different trades --- that is to say, a place in the nature of a model manufactory or workshop, or to provide instruction, for instance, in sawing and planing, and in chipping and filing, but they advise that the direction to be pursued in improving technical education should be one which will give to those employed in manufactures the knowledge of the science or artistic principles upon which the manufacture may depend.[2]

The report continued in such a vein then gave illustrations using various industries for example, such as the manufacture of

1 W.C. Windeyer, op. cit., p.16.

2 ibid., p.16.

textile fabrics. In respect of this industry it was stated that:-

> While, in the opinion of your executive committee, it would be unwise to follow the plan which has been pursued in some places upon the Continent, of endeavouring to give extra dexterity to the operative by establishing model manufactories, or workshops, it would be most wise to give the chemical knowledge and artistic instruction, which would enable the workers to grapple with differences in the quality of the water, differences in the quality of dyes, and of the materials to be dyed, and would likewise secure the designer from violations of the canons of good taste. [1]

That is to say, the leaders of the movement in New South Wales, by following the British pattern so closely were perpetuating and reinforcing the concept of technical education nurtured in the Mechanics' Institutes. As apprenticeship declined, the question of teaching the trades themselves became increasingly important. Yet, by the 'eighties of last century New South Wales, like its sister colony Victoria continued to accept the British attitude which by now had become traditional. As we have seen, the basic goal of the Mechanics' Institutes was to instruct workmen in the scientific principles underlying their trades. This separation between theory and practice continued to persist as a model for the provision of further education of a vocational nature and it became an established tradition that instruction outside of the workshop or factory should be confined to theoretical instruction --- trades should not be taught. This tradition along with its concomitants of evening instruction and curriculum

1 Ibid., p.17.

content and construction was adhered to in New South Wales at a crucial stage in the development of systematic technical education.

II State Control: The Board of Technical Education

No sooner had the Technical or Working Men's College been opened in Sydney than another important development was initiated. Up until 1880 the Government of New South Wales was concerned mainly with the establishment of a State system of education at the primary level. Following British precedent once again, State support for technical education had been limited to meagre grants to Mechanics' Institutes and of late somewhat more substantial annual grants to the Technical College. However, during the 'eighties a much more interested and active approach to the "new" education by the State was discernible.

The Annual Report of the Sydney Mechanics' School of Arts for 1880 recorded that,

> . . . it is gratifying to observe that the subject of Technical Education, which only so recently as the year 1873 was viewed as one of an almost utopian character, is now engaging the attention of influential persons in all directions. Industrial Training formed one of the topics in the programme of many of the Candidates at the general election of members for the new Parliament, and this fact augurs well for the future of Technical Education in this Colony. 1

1 Annual Report of the Sydney Mechanics' School of Arts for the year 1880, Sydney: Jarrett, 1881, p.4.

A number of influences were at work in the formulation of this changing attitude of the State to the provision of a further education of a vocational nature. The external influences of developments in Europe generally and Great Britain in particular, as we have seen, were reaching to the far off Antipodes; while the internal factor of a changing economy gave realism to the problem of technical training, especially in the face of what was happening in Victoria.

Notwithstanding these, the immediate event which gave rise to action by Parliament was a Public Conference of Technical Education held in the hall of the Technical College over a number of days in October, 1880. The then Premier of New South Wales, Sir Henry Parkes, presided at one of these meetings and delivered an address; the members of the School of Arts noting that: "It transpired on the occasion that he is personally favourable to the object of the Conference, and that it is the intention of the present Government to give its attention to this subject with a view to speedy legislation in this direction."[1]

Parkes' role in the formulation of State policy with regard to the provision of a system of technical education is rather obscure. From the above quote we see that he "favoured" some

1 ibid., p.4.

scheme for the training of recruits to industry. Again, G.T. Spaull testifies that Parkes advocated vocational training in the 'fifties when writing in "The Empire". "As early as 1856 he drew attention to the absence of any adequate provision for the training of the future artisan."[1] There is little doubt about his belief in the necessity for technical training nor in his advocacy of the right of the State to educate.

Still, his prime and immediate concern in the field of education was the provision of elementary education for the masses. Such an objective and its fulfilment were of course vitally important for further technical education. Nevertheless, there is little or no evidence to link Parkes closely with the movement for vocational training in New South Wales. Its leaders stood outside of the Government benches.

Indeed, when in the Legislative Assembly on 14th November, 1879, the member for West Sydney, Mr. Daniel O'Connor asked Parkes if the Government intended to bring in any measure relating to technological education, or to introduce any provisions in the Public Instruction Bill for the establishment of technological schools, Parkes replied: "It is not the intention of the Government to make any provision in the Bill now before Parliament for

1 G.T. Spaull, The Educational Aims and Work of Sir Henry Parkes, Sydney: Government Printer, 1920, p.15.

this purpose, and I am not now in a position to say whether any separate Bill will be introduced or not." [1]

Actually, as passed, the Bill was wide enough in scope to allow for the establishment of technical schools by regulation. [2] Thus, whether Parkes changed his mind before the final drafting of the Bill or whether he did it unconsciously is rather difficult to answer. Whatever the inference drawn, Parkes did give his support to the movement at the Technological Conference of 1880 and apparently intended to give more attention to it during the forthcoming session of Parliament.

Still, the members of the School of Arts supported by the Trade Societies of the Colony were not prepared to leave the matter there. Following up the determinations made at the Conference the problem of technical education was brought forcibly to the notice of the Government by a large deputation which submitted the resolutions to the Minister of Public Instruction, Sir John Robertson. The essence of the proposals was:-

> That in order to properly develop the resources of New South Wales, it is considered desirable that Technical Education should receive greater support in the Colony,

1 New South Wales Parliamentary Debates, First Series, 1879-1880, vol. 1, Sydney: Government Printer 1880, P.201.

2 H.L. Harris, "Legislation Affecting Secondary Education in Australia", The Education of The Adolescent in Australia, ed. P.R. Cole, Melbourne: University Press 1935, pp. 269-270.

> . . . . . That it is therefore respectfully suggested, that the Government should institute a proper system of Technical Education in Science and Art throughout the Colony, under the direction of competent Lecturers and teachers, and that the instruction afforded be principally of a practical character.[1]

Such suggestions were for that day and age progressive to say the least. They were in keeping with the Continental view of Technical Education, but rather more advanced than the traditional relegation of such education to private enterprise and theoretical study as witnessed in Great Britain. However, the Government of New South Wales apparently needed further proof of the necessity for such an undertaking and the Minister of Public Instruction called for a full report from the Committee of the Technical College.

After an analysis of the situation this report advised a comprehensive extension of facilities for technical education throughout New South Wales and reported, "That, in order to ensure unity and co-ordination in the Educational Institutions of the Colony, it is recommended that Technical Education be administered in connection with the teaching provided for by the Public Instruction Act of 1880."[2]

1 Annual Report, Sydney Mechanics' School of Arts, for the year 1880, Sydney: Jarrett, 1881, p.5.

2 Report to the Minister of Public Instruction, From the Committee of the Technical College, At the Sydney Mechanics' School of Arts, Sydney: Samuel Lees, 1881, p.20.

This far sighted approach to the problem had the desired effect on the Government of the day and in 1883 the members of the Trade Societies, and in particular of the School of Arts, had their ambition fulfilled, when the State upon the recommendation of Mr. G.H. Reid[1] assumed responsibility for technical education. Thus the Committee of the School of Arts was able to report that:-

> When the growing importance of Technical Education led, some years ago, to the gradual development of the Classes which resulted in the formation of the Technical College, it was anticipated that when due proof had been furnished of the importance of such a movement, the Government would incorporate it in the general system of State Education. This anticipation has now been fully realised and an arrangement was concluded between your Committee and the Board of Technical Education recently appointed by the Government, by which the management of the College was transferred to the Board on 30th September last. [2]

Thus the first step had been taken, administratively, towards the establishment of a co-ordinated system of technical education in New South Wales. The need for co-ordination in the educational institutions of the Colony was early realised by the members of the School of Arts and they made this their prime objective. Middle-class philanthropy saw that little progress

1 New South Wales, Conference of Inspectors and Departmental Officers, Tuesday, 21st January, 1902, and Following Days, Department of Public Instruction, Sydney: Government Printer, 1902, App. A.p.141.

2 Annual Report of the Sydney Mechanics' School of Arts for the year 1883, Sydney: G. Loxton, 1884, p.10.

could be made unless technical education was made a part of the overall State system of education.

Still, there was no comprehensive plan put forward to cater for the implementation of this co-ordination ideal. From the statements quoted we see that it was assumed that co-ordination and unity would follow Government Control. However, this was a false hope. Of course, the desire was eventually realised, but almost half a century was to be the hatching period.

The Board of Technical Education proved an active body and although consistently hampered by financial difficulties considerable development took place during the six years of its administration. Still British tradition and precedent were the guiding forces.

> Following out the principles laid down by the City of London Guilds for their own guidance, the Board of Technical Education resolved that the object of technical instruction in the Colony would be to improve the industrial knowledge of workmen by teaching the sciences and principles underlying their handicrafts, and that such training should be illustrated by the best apparatus and machines that can be obtained, and by visits to workshops, manufactories, etc.[1]

That is to say, the objects expressed by the Board were no different really from those propounded by the founders of the Mechanics' Institutes in Australia; from the Victorian Technological Commission; nor from the British promoters, where they originated. More emphasis was being given to practical illustration but the theoretical aspect was still the essence of technical

1 New South Wales:- Report of the Board of Technical Education, 1888, Sydney: Pepperday and Vider, 1889, p.4.

education.

Again, following the trend in Great Britain, an amended curriculum was introduced in 1885, the College being divided into twelve departments. Specific trades classes were introduced,

> similar to those in operation at the Finsbury Technical College or other Institutions under the City and Guilds of London Institute for the Advancement of Technical Education; and competent instructors have been selected from workmen to impart to artisans and apprentices the sciences relating to their trades. [1]

These included: Bricklaying, Masonry, Carpentry and Joinery, Cabinet-making, Plumbing, Carriage-building, Patternmaking, House Painting and Decorating. [2]

Sir Phillip Magnus was quoted so consistently throughout the Board's reports that one might readily assume that the Sydney Technical College was a branch establishment of Finsbury Technical College. In fact, in 1886 a request made by the Board to the City and Guilds of London Institute for the extension of its system of examinations to the Colony of New South Wales was acceded to and the plan put into operation the following year. [3]

1 ibid., p.4.

2 ibid., p.4.

3 S.H. Smith and G.T. Spaull, History of Education in New South Wales, Sydney: Government Printer, 1920, p.234.

III Expansion in Response to Demands of Local Industry

Valuable developmental work was carried out during the period of Board control. Itinerant lecturers were sent into country centres to cater for work in chemistry, physics, geology, agriculture, mineralogy and mining. Considerable support was forthcoming and eventually led to the establishment of branch schools at such places as Goulburn, Bathurst, and Newcastle.

With the demand created through coal mining in particular, technical classes were inaugurated at the Newcastle School of Arts as early as 1877. Again, in the following year, a school was opened at Bathurst in response to the demand of the gold mining industry and instruction was given in such subjects as physics, chemistry, mathematics, metallurgy and assaying. Actually, such work had commenced at Bathurst before this time, being carried on at the home of Dr. William Bassett. Formerly the Colonial Surgeon at Parramatta, and having studied under Michael Faraday, Dr. Bassett arrived at Bathurst in 1866 and soon took an active interest in providing classes in subjects associated with the mining industry.[1]

In suburban Sydney we see another example of technical instruction

1 Shillito, J.E., Seventy-five years of Progress, Technical Education as a factor in N.S.W. Industrial Development, Dept. of Education, N.S.W., 1958, p.2.

being initiated by and closely linked with the needs of local industry. During the year 1884, James B. Brown, of Hudson Brothers which later became the Clyde Engineering Company, was asked by a group of apprentices employed at the firm, to give them instruction in geometrical drawing. In October the class commenced and was so successful that Brown was appointed to the position of mechanical drawing instructor, and so began the Granville Trades School.[1]

The presence, discovery and consequent working of the metalliferous deposits at Broken Hill also bears a close relationship to developments in technical education. In 1886, on the night of the third quarterly meeting of the A.M.A., Mr. S. G. Pearce moved the following motion:

> It is advisable that a School of Mines be established on the Barrier and the secretary, Mr. R. Griffen, be requested to write to Mr. De Courcy Browne, the member for the district, asking him to move in the matter.[2]

The motion was passed, the letter written and eventually, in 1890 Mr. Harris, the first principal of the Broken Hill School of Mines began his classes. In 1892 the Department of Education took control, but due to the lack of suitable buildings, equipment, and interest by students, and friction over a new college site, classes were terminated in 1893. Still, in 1898 technical education in Broken Hill was revived with the opening of a new technical college.

Other instances of classes and schools called into existence

1 ibid., p.2.

2 Quoted by: Howard, H. T., "Early History of Local Technical Education", Barrier Daily Truth, Wednesday, December 14, 1938, p.29.

as a response to the demands of local industry may be found and these, in addition to the ones mentioned here, bear witness to the close association between the development of industry and that of technical education. Not only was this the case in New South Wales, but in the other states as well.

IV The Coombes Report and Developments at the Close of the Century

Late in 1884 Edward Coombes, President of the Board of Technical Education, as he intended visiting Europe, was commissioned by the Government at the request of the Board to "inquire into and report upon the working and constitution of Technological Schools, Technological Museums and other Institutions of a like character, in Great Britain and the Continents of Europe and America." [1]

Since the final report of the British Royal Commission on Technical Education had been issued in 1884, "bringing all the information it was possible to obtain upon the subject down to the time of the inquiry in the most thorough and satisfactory manner",[2] Coombes regarded this as conclusive and based his recommendations upon its findings, supplementing it where he had later information.[3] His first recommendation was,

> That as no one can possibly doubt the assistance given to Technical Education by the State can be more ably, judicially, and economically applied by a central authority, responsible directly to Parliament, I therefore recommend that a sub-department, under the Department of Education, be created, so that the administration of the vote may be made by the Minister, directly responsible to Parliament.[4]

1 E. Coombes, Report on Technical Education, to New South Wales Legislative Assembly, Sydney: Government Printer, 1887, p.218.

2 Ibid., p.2.

3 ibid., p.2.

4 Ibid., pp. 216.

The other recommendations included:-

a) That an Advisory Board be formed to assist the Minister.

b) That an up-to-date Technical College be built, convenient to the industrial classes -- such a site as Ultimo.

c) That rudimentary drawing be incorporated with writing as a single elementary subject.

d) Manual training should be an integral part of any system of general education.

e) That all teachers should receive instruction in manual training.[1]

The essence of the report was therefore an emphasis on unity and co-ordination, with elementary hand and eye training as the basic theme. In this respect Coombes was merely repeating the findings of the British Royal Commission of 1884 which laid so much stress on pre-technical education or education for life as opposed to the traditional academic education of the primary school. In other words the claims being made for the development of technical education were now being made in relation to primary education as well and stood to affect the curriculum in this field remarkably if accepted.

Coombes pointed to what was being done on the Continent of Europe where nations had developed their technical systems in relation to primary, secondary and tertiary education.

1 Ibid., pp.216, 217.

Coombes declared that,

> All the distinguished practical educationists of the present day have been impressed with the necessity of introducing the teaching of hand work in the rudimentary instruction of youth. Rabelais, Montaigne, Comenias, Locke, l'Abbe de Saint Pierre, Rousseau, Condorcet, Salzmaun, Pestalozzi, and Froebel, all perhaps of different opinions and different periods, have been entirely in accord upon this point. [1]

This philosophy had been accepted on the Continent of Europe along with that of the necessity for popular secondary education as a pre-requisite of advanced technical training. Of course, here was the cradle of Technical Education, where Technical universities were already established and where full-time trade schools taught both the theory and practice during the day, "as there the claims of industrial education were recognised with the most pronounced emphasis." [2] While not making it a specific recommendation, Coombes held up the Continental approach to the problem as a glowing model for New South Wales to follow but the British blood proved thicker than water. Notwithstanding this, the enquiries of the British Royal Commission on Technical Education had given a certain impetus to the movement in Great Britain which could be appreciated and acted upon in New South Wales. Consequently, in order to secure

1 Ibid., p.145.

2 Ibid., p.120

"a homogeneous connection"[1] between technical and primary school work, on 18th November, 1889 the Board of Technical Education was dissolved by proclamation and a Technical Education Branch of the Public Instruction Department was instituted under the direction of a Superintendent. The primary school curriculum was revised, drawing, agriculture, beekeeping and cookery being introduced to provide "technical" subjects.[2] Moreover, by 1892 the first portion of what now forms the Technical College was officially opened at Ultimo.[3]

The claim was now made that systematic technical education had been provided, the Ministerial Report declaring that, "no country had a system so well graded and comprehensive."[4] A thorough investigation into education in New South Wales was soon to highlight the falsity of this contention. There was little relationship between technical education and the work of the primary schools to say nothing of the huge gap that existed between the two due to the absence of mass secondary education. Still, the influence of technical education upon the whole field of general education was beginning to be felt.

1 New South Wales, Report of Minister of Public Instruction, 1889, Sydney: Government Printer, 1890, p.25.

2 New South Wales, Report of Minister of Public Instruction, 1890, Sydney: Government Printer, 1891, p.73.

3 New South Wales, Conference of Inspectors, 1902, op. cit., p.141.

4 New South Wales, Report of Minister of Public Instruction, 1890, op. cit., p.75.

The 'nineties saw a steady expansion of facilities, branch technical colleges being established in several country centres, and the range of instruction extended.[1] State enrolment figures showed a considerable increase also, rising from 6,580 in the year 1890 to 12,548 by 1901.[2]

Due to the efforts of a small band of energetic individuals, considerable progress had been made in New South Wales during the second half of the nineteenth century. This progress was not due to the presence of a strong public opinion or demand for technical education and because of the strong ties with Great Britain the pattern for future development had been firmly set in terms of British precedent.

Moreover, there was no comprehensive plan or clear goal. The objects of the promoters in New South Wales were borrowed directly from a country where systematic technical education was as yet not attained and where complacency and tradition made for very slow progress.

Little wonder then that J. W. Turner, Superindendent of Technical Education in New South Wales, said in 1909:

> Technical education in New South Wales is in its infancy. It is only in its initial stages of systematisation. It is a growth, not of prevision but of expediency. Like our thoroughfares which have followed mainly the tracks of the bullock drays of the early settlers, Technical

1 S.H. Smith and G.T. Spaull, op. cit., p.237.

2 New South Wales:- Conference of Inspectors, 1902, op. cit., p.141.

Education in the metropolis has developed haphazardly with the unsophisticated development of the city itself. [1]

1 New South Wales:- A Quarter Century of Technical Education in New South Wales, Department of Public Instruction, Sydney: Government Printer, 1909, p.119.

CHAPTER VII

DEVELOPMENTS IN OTHER STATES DURING THE NINETEENTH CENTURY

During the nineteenth century little development took place outside of New South Wales and Victoria, but such as did, was in direct accord with the traditional approach. Although all were less advanced industrially, South Australia, Queensland, Tasmania and Western Australia, as we have seen came under the sway of the Mechanics' Institute Movement. Thus, whilst the advances made were not a direct outcome of the work of any particular institute in these States, the link with the developmental pattern from Great Britain was early established.

I South Australia

Here again as in Britain private effort and initiative preceded government provision. The South Australian Subscription Library and Mechanics' Institute had been founded in 1848 and once again following British and Colonial practice a School of Design was established in 1861. Although these could hardly be termed technical education establishments viewed from the present-day conception, they did nevertheless provide the connecting link between

the old country and the new. Thus they are illustrative of the early transplanting of British attitudes and goals in the field of technical education.

The influence of developments in both Victoria and New South Wales on the progress of technical education in South Australia during the nineteenth century was undoubtedly great. The Rev. J. J. Bleasdale, Vice-President of the Technological and Industrial Museum of Victoria and a prominent member of the Victorian Technological Commission, visited the Colony in 1875 and presented his views to the South Australian Chamber of Manufacturers who were at the time concerned with the problem of providing for the training of mechanics and artisans. Following the basic assumptions underlying the current 'technical' philosophy in Victoria, transported almost directly from Great Britain as we have seen, this ardent worker in the technical education cause, sought to arouse the leaders of industry and to impart the prevailing conception of "technology". "I mean," he said, "the development of the thinking and reasoning powers, conjointly and contemporary with the imparting of the knowledge attainable in the workshop . . . . instruction in the scientific principles which underlie art." [1]

Following the traditional pattern, the Committee of the Chamber of Manufacturers set out to establish an evening class for mechanics and were able to report in 1876, "that a large Class has been

1 J.J. Bleasdale, "Technological Education", Papers Read Before the Chamber of Manufacturers, South Australia, Adelaide: Government Printer, 1875, p.229.

formally enrolled for instruction in the principles of mechanical drawing."[1]

The class was opened on July 20th in the Training School where the Council of Education had made a room available.[2] Three months later the Council took control of the pupils and transferred the class to Model School, Grote Street.[3] Thus began, due to the efforts of the leaders of industry, the first technical class of an industrial nature in South Australia.

The Chamber of Manufacturers with its ear to the ground and eyes focused on Victoria and New South Wales soon became impatient with the progress being made, since the drawing class, in itself fell, "very far short of the requirements of the rising youth of the city".[4] While, in the same report it was noted that in respect of facilities for technical education Victoria was very far in advance of South Australia.

The Committee intensified its campaign and endeavoured to impress (by forwarding a 'memorial' to the Minister of Education) the Government and Parliament, with the need for systematic technical education, "so requisite for the intelligent and efficient

1 Annual Report, South Australian Chamber of Manufacturers, 1876, Adelaide: W.K. Thomas, p.3.

2 ibid., p.3.

3 South Australia, One Hundred Years of Education, op. cit., p.18.

4 Annual Report, South Australian Chamber of Manufacturers, 1879, Adelaide: R.K. Thomas, 1879, p.7.

carrying out of those trade processes which form part of all our mechanical industries." [1] However, it was reported the following year that no substantial progress had been made in this direction and once again referred to the great need for similar courses of instruction as those already in existence in Victoria and New South Wales. [2] Moreover, it was pointed out that such a policy should be carried out, "not as a spasmodic effort but as a part and parcel of the general system of education carried on in the province." [3]

Such far-sighted thinking fell upon deaf ears and future development of technical facilities in this State was both spasmodic and haphazard. By 1889 the Government, with no doubt the Victorian precedent in view, at last took steps to provide additional facilities, the South Australian School of Mines and Industries being opened in that year, though the Act providing for its establishment was not assented to until December, 1892. A council of 12 members was appointed by the Governor in Council to administer the school. [4]

It is not surprising to note also that the first technical school of a special character was the Roseworthy Agricultural College. Opened in 1885, and governed by a council under the Department of Agriculture, the College was established for the study

1 Annual Report, South Australian Chamber of Manufacturers, 1880, Adelaide: Advertiser and Chronicle Office, 1880, p.6.

2 Annual Report, South Australian Chamber of Manufacturers, 1881, Adelaide: R.K. Thomas, 1881, p.9.

3 ibid., p.9.

4 South Australia:- One Hundred Years of Education, op. cit., p.19.

of agriculture and pastoral science and practice with experimental work.[1]

By the end of the nineteenth century several country technical schools had been established by local, private effort with Government Assistance. Classes were begun at Gawler, 1888, Kapunda and Moonta, 1891; in response to the mineral extractive industries carried on at these places. Port Pirie and Mount Gambier saw the opening of classes in 1901.[2] These country technical classes whether concerned with the mining industry or not went under the nomenclature of Schools of Mines, in keeping with the Victorian practice.

Thus, at the turn of the century South Australia had made very little progress towards the development of systematic technical education as recommended by the Chamber of Manufacturers so many years before. The foundation years of technical education in this State were marked by a sporadic growth of classes with no overall planning or comprehensive scheme for future development.

Indeed, as late as 1916, Donald Clark, Chief Inspector of Technical Schools of Victoria, reported that, "Many years must elapse before a comprehensive system of training for all occupations is evolved . . . . "[3]

1 Ibid., p.17.

2 Ibid., p.19.

3 D. Clark, Report on Technical Education in South Australia to Minister of Public Instruction, Adelaide: House of Assembly, 1916, p.3.

II Queensland

But slight progress was made in the field of technical education in Queensland during the nineteenth century. However, even this State with its predominantly primary producing population scattered over a wide area felt the effect of trends both across the seas and in the more populous and perhaps prosperous States of Australia. The pattern of development shows no variation of importance to that of the other states.

As early as 1874 a Royal Commission on Education concluded that "a great part of the work now being done in the state schools, especially in the larger rooms, is of such a character to fit children for employment in the Civil Service, in banks and in mercantile houses rather than for the more practical occupations of life."[1] Thus it was recommended that provision be made for the technical education of pupils after the age of twelve years.[2]

The Education Act of 1875 followed, and although it empowered the Minister to provide training schools, rural schools, night schools and such other schools as might be deemed expedient[3] the organisation was relegated to private enterprises and local effort until after the turn of the century. This period of about thirty

1 A.C.E.R., Review of Education in Australia, 1948-1954, ed., R.M. McDonnell et. al., Melbourne: A.C.E.R. 1956, p.315.

2 ibid., p.315.

3 E.R. Wyeth, Education in Queensland, Melbourne: A.C.E.R., 1956, p.127.

years was characterised by the absence of a definite and continuous policy in education which undoubtedly was reflected in the technical field. "In the background of events was a changing political situation, with the eventual emergence of the Labour Party, and a series of financial disturbances -- one of them a major depression of tremendous consequences."[1]

Following the well-established tradition evening classes for mechanics and artisans were commenced in the garret of the Brisbane School of Arts during the 'seventies and by the end of the century classes were being conducted in conjunction with the Schools of Art in: South Brisbane, Ipswich, Toowoomba, Gympie, Maryborough, Bundaberg, Rockhampton, Mackay, Charters, and Townsville.[2] These Schools of Art were of course administered by public committees and received limited pecuniary support from the Government. There were however many more such establishments receiving the Government allowance, considered as being given in aid of technical education, although they were "merely reading-rooms, and not yet in a position to fully fulfil the original intention of their formation."[3]

In 1882 a public meeting was held in the Brisbane Town Hall to consider the best means of establishing a technical college in connection with the School of Arts. Much emphasis was given to the

1 Ibid., p.133.

2 D.T. Lyons, "Technical Education in Queensland", (Paper read at the International Congress on Technical Education, June 18th, 1897), Journal of the Society of Arts, Vol. 45, August 1897, p.1048.

3 Ibid., p.1048.

success of the French and German workers who had the benefits of technical education, and it was felt that:

> The increased demand for skilled labour, whether in connection with the building trades or for the manufacture of machinery and implements used on the sugar plantations and in the numerous industries which are being developed in Queensland, shows the necessity of providing some means for the attainment of Technical Education.[1]

Following upon this meeting, a technical college modelled on that of Sydney, was established in conjunction with the Brisbane School of Arts. An annual government grant of £600 was obtained and a committee appointed to control the college affairs.

By the turn of the century the following subjects were being taught: machine construction and drawing, wood-carving, anatomy for artists, applied mechanics, electrical engineering, electricity - introductory to practical work, dressmaking, garment-making, dress-cutting, tailor's-cutting, elocution, chemistry, laboratory practice, botany, carpentry, joinery, cabinet-making, staircase-building, hand-railing, elementary woodwork, type-writing, sewing, garment-cutting, art needlework, design, nursing, cookery and physics.[2]

It is interesting to note however, that at the Third Annual Conference of the Federated Master Builders Association held in Brisbane, 1892, a Mr. Tout asked the president, Mr. C. W. Midson of Queensland, whether there was any technical college in Brisbane.

1 Technical Education, A Short Statement, (Published by Direction of Provisional Committee, Appointed at Public Meeting, Town Hall, Brisbane, August 1882), Brisbane: Cleghorn & Co., 1882, p.5.

2 D.T. Lyons, op. cit., p.1048

The president was able to reply that they had one on a small scale which was not of much assistance. When asked whether it was enough to turn out a thorough tradesman, the president answered an emphatic, "No".[1]

In 1897, the first lectures were given at the Rosewood Agricultural College after a decade or more of contemplation.[2] This was viewed as a major step forward in the field of technical education in an almost solely primary producing state.

> As agriculture must, in the near future, occupy a considerable portion of the population, the establishment of an Agricultural College is perhaps the most important concession of the Government to the cause of technical education.[3]

One notable and characteristic feature of development in Queensland was the emphasis placed on commercial subjects. This was no doubt due to the inherent weaknesses of a Government subsidy system instituted in 1892 when grants were given on a pound-for-pound basis.[4] Under such an arrangement classes which attracted large numbers of students and needed but meagre equipment were most lucrative.

Consequently, commercial instruction became the order of the day, being given precedence over scientific or industrial instruction for which expensive apparatus was required and to which limited numbers of students were attracted.[5] Moreover, as in the

1 Proceedings, Federated Master Builders Association of Australasia, 1890-1906, Official Reports, Vol.1, p.177.

2 E.R. Wyeth, op. cit., p.150.

3 D.T. Lyons, op. cit., p.1049.

4 A.C.E.R., Review of Education in Australia, op. cit., p.315.

5 ibid., p.315

other Australian States, primary education was not yet adapted to the needs of higher technical education to say nothing of complete absence of secondary education. Indeed, as late as 1909 when addressing the Australasian Association for the Advancement of Science, E. C. Barton maintained that, "Most teachers at technical colleges have felt that the work of the primary school is more suited to literary or mercantile pursuits than industrial." [1] This lack of co-ordination between the primary schools and technical education generally was characteristic of the nineteenth century and spilled forth well into the twentieth century.

Although, as we have seen, classes for technical instruction existed in a number of centres outside of Brisbane there was no co-ordination or state-wide control. A system of technical education did not exist and,

> . . . . as reports by district inspectors showed in 1901, the funds supplied were used in a variety of ways unconnected with technical education. As students selected their own subjects, often with no clear objective in view, studies were often not co-ordinated towards preparation for a vocation. [2]

The depression of the 'nineties undoubtedly retarded the development of all aspects of education in Queensland towards the end of the nineteenth century. Notwithstanding this, the short-sighted philosophy of educational leadership as evidenced in that of the General Inspector, D. Ewart, viz., "Recollection of my own boyhood, and the experiences of many years since, have shown me

1 E.C. Barton, "Aspects of Technical Education from a Queensland Point of View", Report of the Twelfth Meeting of the Australasian Association for the Advancement of Science, ed. J. Shirley, Brisbane: Government Printer, 1910, p.798.

2 A.C.E.R., Review of Education in Australia, op. cit., p.316.

that an apt boy will acquire a fair technical education and learn many things if he is given a few tools and the run of the backyard,"[1] must go far to explain the reason for such a dearth of technical facilities and complete lack of systematisation, integration and control at the close of the century.

III Tasmania and Western Australia

Before the turn of the century attempts had been made in both of these states to establish a system of technical training but little progress was made.

In Tasmania, a number of efforts had been made to start something in the way of classes for artisans and mechanics, especially in machine and freehand drawing, but success was not forthcoming.[2] As we have seen a mechanics' institute was established in Hobart as early as 1827 but as in the other states the prime objective of the founders was not attained. It was not until 1888 that the Hobart Technical School was erected, the Department of Education having assumed responsibility for technical training.[3] Instruction was confined to the evenings and included courses in machine and

1 Quoted by E.R. Wyeth, op. cit., p.150.

2 J.R. Tranthim-Fryer, "The Growth of Technical Education in Tasmania", (Paper read at the International Congress on Technical Education, June 18th, 1897,) Journal of the Society of Arts, vol. 45, August 1897, p.1049.

3 C. Reeves, A History of Tasmanian Education, Melbourne: University Press, 1935, p.83.

building construction, applied mechanics, chemistry, metallurgy, mineralogy, carpentry and turning.[1]

During the 'nineties the Zeehan and Mount Lyell Schools of Mines began their work while a technical school was established at Launceston.[2] However, progress was soon stifled to a great extent due to the wave of financial depression and consequent halving of the vote to technical education.[3]

Western Australia as noted had also participated in the Mechanics Institute Movement, the first provision being made at Perth in 1851. However, half a century went by before the first technical school came upon the scene, being established at Perth in 1900, with classes in chemistry, assaying, mineralogy, carpentry, metal work, wood carving and drawing.[4]

Thus the nineteenth century saw but few developments towards provision of systematic technical education in the western state. Being a vast expanse, thinly populated, and with little or no secondary industry to call forth a demand, such a state of affairs might well be expected. Nevertheless, by the last decade of the century, public men had taken notice of what was happening elsewhere, while the natural resources of the country began to exert

1 J.R. Tranthim-Fryer, op. cit., p.1050

2 C. Reeves, loc. cit.

3 J.R. Tranthim-Fryer, op. cit., p.1050

4 D.H. Rankin, "The History of the Development of Education in Western Australia, 1829-1923, Perth: Carrols Ltd., 1926, p.133.

an influence towards the need for technical skill.

The early murmurings were to be heard in the Parliament when in 1889, Mr. G. Randell moved,

> That an Humble Address be presented to His Excellency the Governor, asking him to appoint a Committee for the purpose of considering and reporting on the desirablenesss and practicability of introducing Technical Education into the more important Government Boys' Schools and the High School, Perth; also, whether assistance in this direction could not with advantage to the general interests of the Colony be extended to other Boys' Schools. [1]

The motion received the support of the House and showed that a certain interest was being taken in the training of young people in the science of industry. Nevertheless, some years were to elapse before higher technical education stole upon the scene, while the full story of systematic technical education in Western Australia really belongs to the Twentieth century.

1 ibid., p.67

CHAPTER VIII

THE SITUATION AT HOME AND ABROAD WITH THE TURN OF THE CENTURY

With the turn of the century came developments that were destined to affect all phases of national education throughout Australia. A great many factors combined to usher in a new era in education, and the claims of technical education loomed largely as both a springboard for action and a moulding influence in the re-organisation of the whole educational framework.

The first two decades of the present century witnessed an educational renaissance throughout Australia and it will be seen that recognition of the deficiencies in technical education and attempts to solve this problem stood to affect the development of both primary and secondary education. A multitude of influences were at work in this process of social change, both internally and externally. Political, economic and educational considerations in Australia were working together to prepare fertile ground for the seeds of development that were being scattered from abroad, while personalities began to shape constructive policies.

In Victoria, an enlightened public opinion had at last begun to express itself and uphold the claims of technical education. By

1898, the Victorian Association for the Promotion of Technical Education had been formed.

> The formation of the Association was due to the awakening of public opinion in demanding that the more adequate provision should be made by the State for the Technical and Secondary Education of the Youth of the Colony . . . . [1]

Moreover,

> The awakening of public opinion here in Victoria came as a reflex of that of the Old Country, and it was on this wave of public opinion that our Association was formed, its inception being the outcome of a conference of representatives of the various Intellectual, Industrial and Commercial Associations of the City.[2]

Here we see once again the close connection between developments in Great Britain and those in Australia. Further proof of the intimate link with trends "at home" was evidenced by the fact that the Association in Victoria asked for affiliation with the National Association for the Promotion of Technical and Secondary Education in Great Britain. The request was cordially accepted and the Association in Britain promised assistance.[3]

It is clear therefore that in order to fully appreciate the educational movement in Australia at the turn of the century, it is necessary to keep in mind what was happening in Great Britain.

1 Annual Report, Victorian Association for the Promotion of Technical Education, 1899, Melbourne: Austral Publishing Co., 1900, p.3.

2 ibid., p.3.

3 ibid., p.11

I Developments in Great Britain Towards the End of the Nineteenth Century

Throughout the nineteenth century the development of technical education in Great Britain was a slow process. After 1851, the threat to Britain's industrial pre-eminence, as we have seen, gave some impetus to expansion but progress was sluggish.

> Fifty years of industrial pre-eminence had bred complacency and had established industrial traditions in which science and research were absent, while the proprietors and managers were mainly without a knowledge of science -- a reflection of the low status of science in the educational system and its neglect by the public and elementary schools.[1]

It seems clear that the apathy and even hostility of industry towards technical education was a prominent factor contributing to this slow growth in public provision.[2]

By the 'eighties however, a growing realisation of the importance of scientific and technical education for industrial prosperity was discernible. The popularity of technical education began to grow, as the doctrine of Herbert Spencer and T. H. Huxley - that science was essential to true education -- became readily accepted. "Their main concern was to extend the teaching of science and technology, but they were generally agreed that such an extension would benefit industry."[3]

This growing acceptance of science as a necessary component of

1 Stephen F. Cotgrove, op. cit., p.30

2 Ibid., p.23-28.

3 Ibid., p.23.

education was given a practical connotation by the rapid movement of events abroad which demanded industrial efficiency in Britain if her manufactures were to survive. "The alarm caused by the industrial progress of the German Empire and the competition of the United States led to the appointment of yet another Royal Commission on Technical Instruction in 1884."[1] As a result of this inquiry the Technical Instruction Act of 1889 was passed, ushering in a decade of rapid expansion of technical education facilities.[2]

The Act gave power to local authorities (county councils) to levy rates for the promotion of technical education.[3] Moreover, in 1890, "by one of those illogical twists of the late Victorian conscience which sometimes set on foot such remarkable social movements,"[4] a huge sum of money, "Whiskey Money", was diverted by the Government from a compensation fund for publicans to the county councils for the financing of technical education. The State had at last recognised the necessity of aid to technical institutes in response to the nation's need for industrial efficiency.

Popular Education at Elementary and Secondary Level

By the last quarter of the nineteenth century concern for the nation's industrial efficiency and its concomitant, efficient technical education, began to operate strongly in favour of the extension of popular education at the elementary and secondary

1 S.J. Curtis, History of Education in Great Britain, London: University Tutorial Press Ltd., 4th Edition, 1957, p.496.

2 A. Abbott, op. cit., pp.36-38.

3 S.J. Curtis, op. cit., p.497.

4 G.A.N. Lowndes, The Silent Social Revolution, London: Oxford University Press, 1937, p.47.

level. Slowly, but surely, it was realised that technical efficiency amongst workers was dependent not only on higher vocational education, but on a sound foundation of general education as well.

In presenting the Elementary Education Bill of 1870, W. E. Forster stated that the nation must not hesitate because,

> . . . . upon the speedy provision of elementary education depends our industrial prosperity. It is of no use trying to give technical teaching to our artisans without elementary education; uneducated labourers -- and many of our labourers are utterly uneducated -- are for the most part unskilled labourers, and if we have our work-folk any longer unskilled, notwithstanding their strong sinews and determined energy, they will become over-matched in the competition of the world.[1]

During the next twenty-five years, no less than three Royal Commissions -- the Technical Instruction Commission of 1881-84; the Cross Commission 1886-88; and the Bryce Commission of 1894-95 on Secondary Education -- all used an almost identical argument to recommend an immediate expansion and improvement of secondary education.[2] In other words, the claims of technical education were bearing heavily in the direction of not only mass primary education, but secondary education as well. Secondary education was beginning to be viewed no longer as the domain of the academic and upper-class but as necessary for the work-force of the nation as well.

The barriers between cultural and practical subjects were

1 Great Britain and Ireland, Hansard's Parliamentary Debates, London: Cornelius Buck, 1870, 3rd Series, vol. 199, Col. 465, Feb. 17th, 1870.

2 H.C. Dent, op. cit., p.31.

breaking down, the Bryce Commission declaring that secondary education,

> . . . is the education of the boy or girl not simply as a human being who needs to be instructed in the mere rudiments of knowledge, but it is a process of intellectual training and personal discipline conducted with special regard to the profession or trade to be followed.[1]

The scientific curriculum having been accorded popular support due to the advocacy and labours of both Spencer and Huxley, was finding inclusion in both the elementary and secondary schools.[2] Indeed, the Royal Commission on Technical Education, 1882-84, recommended the establishment, along with the traditional Grammar School, of secondary schools with a scientific and technical bias.[3] Again, scientific subjects plus hand and eye training were recommended for inclusion in the primary school curriculum.[4] Strong support for such a move was forthcoming from Matthew Arnold who declared that, "the technical school is, in fact, a secondary school, to follow the elementary school, after some manual training has been acquired."[5]

The principle of inclusion of technical studies in the secondary school was upheld by the Technical Instruction Act of 1889 and by the Bryce Commission on Secondary Education, 1895.[6]

1 Quoted by S.J. Curtis, op. cit., p.308

2 S.J. Curtis, ibid., p.494.

3 H.C. Dent, op. cit., p.88

4 F.C. Montague, Technical Education, (Summary of Royal Commission), London: Cassell & Co. Ltd., 1887, p.4.

5 Great Britain and Ireland, Report of the Consultative Committee on Secondary Education, London: H.M.S.O., 1938, p.54.

6 H.C. Dent, op. cit., p.88

All of these social forces were in fact impelling the expansion of science teaching at the elementary and secondary levels, for, as Stephen Cotgrove shows so conclusively, "technical education in the nineteenth century meant the teaching of science." [1]

In response to the pressure for bridging the gap between the elementary school and the technical school, a separate Code for Evening Continuation Schools was issued by the Education Department in 1898. These "Secondary Schools", hitherto concerned merely with a repetition of elementary school work, now had introduced to their curriculum manual and technical instruction, languages, domestic and commercial subjects, in an endeavour to prepare young people for more advanced studies in the technical institutes.[2] This was the beginning of a movement which resulted in the complete re-organisation of Evening Continuation Schools especially after 1902 when the curriculum was divided into industrial, commercial, rural, domestic and general according to the future ambitions of pupils and the courses available in technical schools.[3]

Thus by the last decade of the nineteenth century the stage had been set and the task had commenced for a complete re-organisation of the educational framework. With the need for industrial efficiency looming largely as a prime motive, the claims of technical education had eventually been recognised and thus gave elementary and secondary education a new significance --- education for life.

1 Stephen F. Cotgrove, op. cit., p.36.

2 A. Abbott, op. cit., p.38.

3 Ibid., p.50

Slowly, but surely it was realised that the nation's prosperity depended on systematic technical education, which in turn depended upon a co-ordination of elementary and vocational education by filling the secondary gap that yawned between them.

This surge of educational interest and rapidly moving events which characterised the 1890's has marked it as the "pregnant decade" of British educational history.[1] Indeed, the movements of this era culminated in the Education Act of 1902 which, "brought administrative order where there had been chaos, and set up an organised system of elementary, secondary, and technical education".[2]

The Cockerton Judgement

There did occur however at the turn of the century an event which stood to affect the progress and very nature of technical education in England and consequently that of Australia. While as we have seen the changing concept of technical education had given it a position at the secondary education level, this movement was suddenly turned and hindered by a peculiar set of circumstances. Indeed, the circumstances forced technical education at this level to develop a life of its own.

The chief protagonist in this affair was Sir Robert Morant, who at the time, was Assistant Director of Special Inquiries and Reports. In September 1898, Morant made a comment on the Higher Grade schools of England in an article entitled "Organisation of Schools in Switzerland" and contained in Vol. 3 of 'Special Re-

1 H.C. Dent, op. cit., p.84.

2 Frank Smith, A History of English Elementary Education, 1760-1920, London: University of London Press Ltd., 1931, p.347.

ports'. He recorded that,

> In England, many School Boards have desired to improve their Higher Education and to extend its scope by providing Day Schools of a Higher Grade; but they have frequently been told by the Central Authority that they cannot take any such steps as would involve the School Board in any expense for this purpose, that it would be illegal to spend their rates in such a manner, inasmuch as they were only empowered by the Act of 1870 to use the rates to provide Elementary Education.[1]

It is important to note that at this time a dispute was in progress between the London School Board and the London Technical Education Board since the latter had applied for full recognition as the authority responsible for secondary education. In the struggle which ensued, the Technical Education Board was supported by the county council and the two bodies appealed to the Science and Art Department. Dr. William Garnett, secretary of the London Technical Education Board was made responsible for the preparation of the county council case.

Morant's next act in the drama was to bring to Garnett's notice the section of his own article on Swiss Education which referred to the higher grade schools. Moreover, he followed this up by giving evidence of the illegality of the London School Board in using the rates to cater for secondary education being given in the higher grade schools. Dr. Garnett was therefore bound to challenge the legality of the London School Board's position at the

1 L. Grier, Achievements in Education, The Work of Michael Ernest Sadler, 1885-1935, London: Constable, 1952, p.72.

next meeting with T. B. Cockerton, auditor of the Local Government Board. The decision given by Cockerton was that payments made by the School Board to higher grade schools, in which science and art classes had begun to flourish were illegal in terms of the 1870 and subsequent Elementary Education Acts. Upon taking the case to court, the School Board lost and the Cockerton judgement was further upheld by the Court of Appeal.

The result of this controversy and subsequent decision was to produce a distinction between secondary and technical education and hinder the rapid development of technical education at the secondary level. There is no doubt that at the time the widely held view was "that technical education must be founded on a sound basis of general secondary education and that liberal education was in danger of being swamped by technical instruction".[1] The social emphasis was of course on 'respectable' clerkship and secondary education was visualized as either a preparation for this, or, for the university. Nevertheless, as noted, the principle of including technical work in the secondary school was upheld by the Technical Instruction Commission, the Cross Commission and the Bryce Commission, hence it was unfortunate that the Cockerton judgement should throw a great obstacle in the path of the rapidly growing trend.

The vexed question as to the extent to which Morant was res-

1 M. Argles, "The Gentleman in Whitehall", The Journal of Education, London: Pergamon Press, 89, Jan., 1957, p.14.

ponsible for the neglect of technical education does not concern us markedly in this place. However, it is clear as indicated by the Spens Report of 1938,

> that 'an unreal and unnecessary division was introduced between secondary education and technical education' and that insufficient attention had been paid to the valuable experiments in the curricula of the higher-grade schools, the Organized Science Schools and the Technical Day Schools.[1]

Unfortunately, Morant was steeped in the classical tradition and had neither the breadth of mind nor interest for appreciation of the lesson to be gained from the Prussian "Realschulen". This classical or traditional approach to education was destined to be guarded closely for many years. As Michael Argles points out: "It is significant that only now, after sixty years, are the ideals outlined by Sadler in the article on 'The Realschulen in Berlin' (1896-97) being realized in some of our newer Secondary Technical Schools." [2]

With the coming of the 1902 Education Act and consequent Regulations of 1904, a secondary school was defined as

> a Day or Boarding School offering to each of its scholars up to and beyond the age of sixteen, a general education, physical, mental, and moral, given through a complete graded course of instruction, of wider scope and more advanced degree than that given in Elementary Schools.[3]

While this definition did not give a clear insight into the

1 ibid., p.14.

2 ibid., p.14.

3 S.J. Curtis, op. cit., p.323.

aims and purposes of the secondary school, it was soon evident that the new schools were conceived along traditional lines and that technical education had little place in the curriculum. The appeal was for a sound general education over a four-year period in which the curriculum stressed English Language and Literature, Geography, History, at least one Foreign Language, Mathematics, Science and Drawing.

Technical education at the secondary level had therefore to develop a life of its own through the Higher Elementary Schools -- central schools, trade schools or day technical classes, junior technical schools and eventually technical high schools. Much of the status of technical education had been lost. Indeed, in reference to junior technical schools for example, S. J. Curtis points out that, "It is important to note that these schools were not recognised as secondary schools until 1938." [1]

II Royal Commissions Show the State of Affairs in Australia

Victorian Commission, 1901 a Turning Point

The year 1901 was in many ways a turning point in the development of technical education in Australia. This was the year in which the Royal Commission on Technical Education in Victoria made its final report.

F. A. Campbell, when expressing his opinions on technical education in Victoria in 1898, referred to Britain's realisation

1 ibid., p.503.

of the necessity of filling the gap that existed between the primary school and higher technical establishments. He then concluded that:

> As our educational arrangements are modelled upon those of Great Britain (probably the worst model to be found), it is possible that the rousing of the mother country to a sense of her deficiencies in the matter of secondary education may in time cause a similar awakening here.[1]

How right he was. With the stirrings in Britain and the consequent rise of public opinion in Victoria came action by the Government. On 20th June, 1899, a royal commission, with Theodore Finke as Chairman, was appointed to inquire into the administration and organisation of technical education in Victoria.

Many influences were at work in this call to arms for a detailed examination of the Victorian technical education scheme. The seeds being scattered from abroad were not the only impelling force. There was of course the dislocation of the system itself and the need for self-appraisal. With the recovery from the depression of the early 'nineties there was a spurt in industrial development, including improvement in trading conditions, developments in mining and engineering, particularly in respect of electric power. Again, Labor had dropped much of its previous hostility to technical education for a number of reasons, including a weakening of militant action following the

1 F.A. Campbell, Some Facts, Opinions and Conclusions about Technical Education, Melbourne: Victorian Printing Works, 1898, p.8.

great strikes and the vision of technical training as a road to equality of educational and employment opportunity. [1]

All these helped to produce a climate in which the immediate forces of personality and personal conviction could have full sway and with the press, public and parliament taking up the cry, action became inevitable.

After extensive inquiries at home and abroad the Commission issued a number of progress reports followed by the Final Report in 1901. The investigations carried out were exhaustive and a comprehensive approach to the problem of future development was outlined.

The picture painted of the existing technical education facilities in Victoria was indeed bleak:- "The necessity for a progressive and comprehensive movement that will keep Victoria abreast of other communities is a pressing one." [2]

The administrative machinery was grossly inefficient both at the State and local level. At the Departmental level, "Instead of receiving sympathetic and careful attention, our technical schools have been regarded hitherto as an excrescence on the State educational system." [3] At the local level, evidence clearly showed that "the work of local councils has been, with

1 Stephen Murray-Smith, The Development of Technical Education in Australia, (Paper, History of Australian Education), University of Melbourne, 1963, p.13.

2 Victoria, Royal Commission on Technical Education in Victoria, Final Report on Technical Education, Melbourne: Government Printer, 1901, p.146.

3 ibid., p.147.

few exceptions, performed in a perfunctory manner." [1]

The fiscal policy in respect of technical education was attacked vehemently:- "The moneys granted by the State are paltry and wholly insufficient, and neither in revenue, equipment, nor endowment are the schools able to provide sound technical training." [2]

The students were not sufficiently prepared for higher technical studies. The consensus of opinion was that this was one of the most serious hindrances to effecitve technical instruction in Victoria. As the Director of the Gordon Technical School put it, "Taking them on the average, it may be said that the students are deficient all round." [3] Similar evidence was given by other witnesses.

A complete absence of systematic provision of technical facilities was evident, schools being established with but little regard to the necessities of the State. When questioned by the Commission on this point, the Secretary for Education gave the following evidence:-

> The schools were not established by the Department in accordance with any system? ---
> No system at all. The mode of procedure was that the member for the district would come and inform the Minister that his district required a technical school, and usually a maintenance grant and possibly a building grant would be

1 ibid., p.151.

2 ibid., p.147

3 ibid., p.159

made. The school would get a grant, and the Department would be committed to the maintenance of it.[1]

It was abundantly clear from the evidence adduced that the whole educational framework required a complete re-organisation and far-reaching changes were advocated. It was obvious that in order to build up a sound and comprehensive system of technical instruction, changes would be necessary in both the primary and secondary field. "It is idle, ... to talk about technical instruction without presupposing a thoroughly progressive and effective system of primary education."[2]

Thus the Commission concluded that:

> The State school age should be extended, the curriculum strengthened by manual and practical training with the view of developing faculty and powers of observation. The compulsory clauses of the Education Act should be rigorously enforced. Continuation schools should be provided to bridge over the gulf which at present yawns between the State schools and the technical schools; Secondary education should be vitalized by comprehensive reforms as to training and registration of teachers, and the best methods of allying secondary and technical education brought into vogue. Means should be adopted to make the secondary school not merely the avenue to learned professions, or the too often incomplete preparation for a business career, but a school of preparation for the higher technical training, including the studies of a higher commercial school.[3]

Great stress was placed on the need for constructing an adequate system of secondary education. The pre-occupation of the department of Education with primary instruction was seen as an

1 Ibid., Quoted in Report, p.153.

2 Ibid., p.147.

3 Ibid., p.146.

inhibiting factor and condemned roundly. The State had not entered the secondary arena at all and until they did technical education stood to suffer. Hence the priority afforded to recommendations for the establishment of continuation schools to forge a conspicuous missing link between primary and technical school.

In addition to those already mentioned, recommendations were made for such improvements as the transferring of control of technical schools to the Education Department, classification of technical schools according to their functions, establishment of classes for working men in the suburbs, and the necessity for ensuring educational readiness of entrants to technical establishments.

The Commission went on to cover in minute detail practically every facet of the educational scene in Victoria. Some of the topics dealt with were: industrial education, technical art instruction, reorganisation of the Education Department, mining education, commercial education, agricultural education, domestic economy, private secondary schools, registration of teachers, a council of education, a college of pharmacy, teacher training, university education, inspection curriculum of the primary school, teachers' salaries, kindergarten methods. Little if anything in the educational field was left unexplored, and concrete recommendations were made accordingly.

Significance of Report

In keeping with the scope of the field covered, the report had far-reaching implications and stood to affect not only educational outlook and future development in Victoria but indeed the basic philosophy and pattern of educational progress throughout the Commonwealth. The great service it rendered in the particular field into which it was directed to inquire was of particular significance while its valuable contribution to education generally adds considerably to its impact as a milestone in Australian educational history.

By extending its inquiries into the primary field, administration, inspection, staffing and so on, the Commission was regarded by some as having gone well beyond the limits of its instructions. However, the commissioners were convinced that the authority for their actions lay in the words of the command, "generally to recommend what means should be adopted for a systematic and graduated course of technical instruction".[1]

Hence, by extending the scope of its inquiries into the whole educational framework of Victoria, the Commission was in effect illustrating the interdependence of the various branches of the educational framework. Thus it brought to the fore the ideas which had long-since been put into practice on the Continent of

1 J.O. Anchen, Frank Tate and His Work for Education, Melbourne: A.C.E.R., 1956, p.46.

Europe and had recently found expression in Great Britain. It was the philosophy expressed by the Royal Commission on Technical Education in England, 1844, that: "Technical education was not a thing apart, but was closely bound up with other forms of education."[1]

The essence of the Finke Commission findings was in direct accord with this new outlook. The report maintained that technical education "is not a system or a method of instruction standing alone. It takes its place in all wisely ordered systems as part of a national scheme of education."[2]

In this respect the Commission brought to both Victoria and Australia the new conception of technical education. Not only was it to be regarded as an integral part of the whole educational framework, but was to be an essential ingredient of ALL education. No longer was it envisaged as merely the science underlying a trade or industry but more than this, it was a basic part of our social skills. In giving definite expression to the modern conception of technical education -- that technical training could "add interest to an occupation by cultivating intelligence regarding it, and that a school should not be an institution apart from the serious business of life,"[3] the Commission's Report of 1901 was opening up

1 H.C. Barnard, A History of English Education, from 1760, London: Uni. of London Press, Sec. Edit., 1961, p.178.

2 Royal Commission on Technical Education in Victoria, Report 1901, op. cit., p.240.

3 J. Smyth, et al., op. cit., p.242.

a new era in the history of technical education in Australia.

Conference of Inspectors, N.S.W. 1902

The technical education fever soon spread and we find in the following year, 1902, a very interesting development in New South Wales. A conference of Departmental inspectors called by the Minister to discuss educational problems resolved :

> That each member of this Conference pledges himself to support Technical Education to the utmost of his power by enlisting the sympathy and co-operation of teachers, by extending manual labour classes, and by inducing scholars and teachers to place themselves in communication with technical colleges or technical education authorities. [1]

In other words, the chief executive officers of the State system had come to accept the philosophy that education was more than mere academic knowledge, but that it had a practical utility as well. Indeed, they moreover resolved: "That no further extension of bursaries to the University is desirable, but that the extension should be in the direction of Commercial and Technical Education." [2]

It was their intention, as expressed by the Chief Inspector, Mr. F. Bridges,[3] to bring the importance and objects of technical education to the attention of teachers and induce them to become proficient in the teaching of manual training. Implicit in this scheme was of course the idea that technical education had its foundation not when an individual entered an occupation but when education commenced. Education for life rather than for entrance

1 New South Wales:- Conference of Inspectors, 21st Jan., 1902, op. cit., p.2.

2 Ibid., p.2.

3 Ibid., p.109.

to the University was gradually becoming the accepted philosophy of education throughout Australia.

The conference refrained from issuing detailed recommendations with regard to technical education for it was the intention of the Minister of Public Instruction, "to make this a special feature of inquiry" [1] by a Government Commission.

Commission in New South Wales

Following upon the revelations of the Victorian Royal Commission and in direct response to the outcry from public, Press and politicians set in motion by Professor Francis Anderson's criticism of the system of education in New South Wales, [2] G. H. Knibbs and J. W. Turner were appointed to inquire into education abroad.

> 'The general opinion of the authorities seemed to be that with a few "borrowings" here and there, the situation might be saved and criticism silenced.' But in face of the education debacle there could be no questions of half measures. [3]

The conclusions reached by the Commission, published in 1905, were almost identical with those of the Finke Commission in Victoria. Knibb's general impression was decisive; "that our whole scheme of technical education here wants reforming", [4] and in conjunction with the, "urgently required reform of our whole

1 ibid., p.11.

2 A.R. Crane & W.G. Walker, Peter Board, His Contribution to the Development of Education in New South Wales, Melbourne: A.C.E.R., 1957, pp. 13-17.

3 Francis Anderson, op. cit., p.521.

4 New South Wales:- Report of the Commissioners on Agricultural, Commercial, Industrial and other Forms of Technical Education, Sydney: Government Printer, 1905, p.193.

educational system." [1]

While condemning the lack of progress made in the technical system itself Knibbs emphasised the fact which had at last been accepted in Britain and was beginning to take hold in Australia that, "The secret of European advance in technical matters lies, not merely in the technical system itself, but in the completeness and efficiency of the educational organisation as a whole." [2] It followed therefore that the first requisite for good technical education was that "proper preparation in the elementary school, be to hand." [3]

In this respect he found that:-

> In the elementary schools of New South Wales, taken as a whole, there is as yet no adequate foundation, in the way of scientific instruction, nor in the way of manual training, on which the superstructure of technical education can be built. There are, as yet, but few properly organised kindergartens in the State; educative manual training has not been generally established, and where it exists it is imperfectly organised; and further, but few schools, State or other, are fitted up with the necessary aids for instruction in natural science.[4]

Thus, due to the defects in the scheme of primary and secondary education, higher technical education was "greatly limited by the indifferent state of preparation of students on entrance." [5] Not-

1 ibid., p.193.

2 ibid., p.41.

3 ibid., p.41.

4 ibid., p.41.

5 ibid., p.49.

withstanding this fact however, there were grave deficiencies in the Technical College scheme itself. The reputation of the Technical Education Branch and its technical classes among tradesmen and industry generally was low.[1] Knibbs reported that,

> There is a wide-spread conviction that competent tradesmen are becoming more and more scarce, and that this is in a large measure due to the defects of the provision made in the State for technical education, and to the defects also of the scheme of work in the technical colleges themselves.[2]

He maintained that there was an obvious reason for this lamentable state of affairs -- the administrative scheme itself was defective. The Department of Public Instruction was concerned chiefly with primary education, even the secondary education given under its aegis being practically negligible with regard to the needs of technical education. The Superintendent of the Technical Branch was under the direct control of the Chief Inspector, whose experience and life-work had been limited to the primary sphere of education. Hence the technologist had to be governed by the dominating influence of the primary schoolmaster.[3]

Knibbs blamed this administrative arrangement for most of the shortcomings of the technical system and his criticism was cutting.

> Placed under the control of the officers of a Primary System of Education, which not only failed to satisfactorily respond to the World's progress in education, but even deteriorated in organic character, it is not remarkable that the technical

1 Ibid., p.46.

2 Ibid., p.46

3 Ibid., p.46

education system also failed to reach what its advocates had hoped for it.[1]

If technical education was to progress satisfactorily it was essential that the Branch be independent of the personal influence below it in respect of intellectual atmosphere and professional sentiments. Indeed he said that, "Excepting this country, the practice of the educated world is uniform in this respect." [2]

Vitally connected with this administrative defect was the fiscal policy adopted. The relative lack of importance attached to technical education was made conspicuous by the vote being only 1/28 of that for primary education. Knibbs complained that this was "the condition of things to which the unique method of placing technical education under the aegis of primary instruction"[3] had led.

Within the Colleges the instruction was defective, being too theoretical and lacking in practical application. The practical work was very amateurish and dilettantish, having no definite objective,[4] while the courses of instruction were not always educatively organised.[5] Moreover, but few of the instructors were educationists having no knowledge of general educational theory or practice.

1 ibid., p.194

2 ibid., p.195.

3 ibid., p.46.

4 ibid., p.195.

5 ibid., p.196.

> Hence their personal influence over the pupil, the stimulus of their instruction and influence, the lucidity of their technological ideas and their capacity to enlarge the outlook of the workmen whom they train is very limited as compared with their European confreres.[1]

These then were the most conspicuous defects, along with those that came through lack of finance, such as buildings and equipment, brought out by the Knibbs Report of 1905 on technical education in New South Wales.

Thus during the dawn of the Commonwealth of Australia, it had been made perfectly clear that the leading States of Victoria and New South Wales were very far behind progressive countries in the field of technical education and indeed the necessary framework of proper primary and secondary education which was fundamental to it. Since, as we have seen, these two states were the most advanced in this field throughout Australia, the national situation was poor to say the least.

III Economic and Political Conditions in Australia

In the face of such severe criticism levelled at the existing technical education facilities throughout Australia some action might well have been expected. Still there had been many reports issued before with but little resultant change or systematic reorganisation. The cry of the reformers might therefore have been

1 Ibid., p.196.

quite ineffective but for the economic and political conditions which prevailed.

"During the twenty years 1880-1900, the Australian people became fully conscious of their nationhood."[1] This growth of Nationalism leading to the constitution of the Australian Commonwealth in 1901 ushered in a period of national growth and development.

> The Commonwealth, from its inception, acted as a further stimulus to nationalist sentiment, and, with the assistance of the States, as a positive agent of national development. Every side of Australian life shared in the remarkable burst of creative activity which characterized the period.[2]

As noted, technical education is the handmaiden of secondary industry hence any developments in this sphere stood to enhance the prospects of technical education. With the breaking down of tariff barriers at the turn of the century and the protectionist policy pursued by the Commonwealth industrial development was advanced.[3]

Moreover,

> The Labour Party began to shake itself free from its earlier narrowness of outlook, and with the responsibilities which came with greater power, showed a saner and more comprehensive appreciation of the problems of national education.[4]

While Labour did not reach the treasury benches in New South Wales

1 R.A. Gollan, "Nationalism, The Labour Movement and the Commonwealth, 1880-1900," Australia, A Social and Political History, ed. G.Greenwood, Sydney: Angus and Robertson, 1955, p.145.

2 G. Greenwood, "National Development and Social Experimentation, 1901-1914," ibid., p.252.

3 H. Burton, op. cit., p.162.

4 Francis Anderson, op. cit., p.520.

until 1910, the government had been dependent on its support after 1894.[1] In Victoria also, the early years of this century saw Labour in a dominant position.[2] Reforms in education loomed quite large in Labour's platform. "Free compulsory and technical education, higher as well as secondary, elementary to be extended to all alike",[3] was after 1892 a prominent feature of their programme.

At a time when "individual and national 'efficiency' was declared, in Australia as in England, to be the one thing needful",[4] the exposed shortcomings of the national system of education stood to be taken up as a battle cry.

IV Stage Set for Systematic Provision in Australia

With a vast array of evidence in condemnation of existing technical education facilities and comprehensive recommendations for reform, together with the presence of fertile ground for development throughout Australia, the prospect of speedy re-orientation would seem to have been inviting. However, ironically enough, the technical systems of each State had to wait their turn

1 R.A. Gollan, op. cit., p.180

2 ibid., p.180

3 Platform of the Labour Electoral League of New South Wales, (as revised and amended by the Conference of Delegates, January 26th, 1892), In: R.N. Ebbels, The Australian Movement 1850-1907, Selected Documents, Sydney: Noel Ebbels Memorial Committee and Australian Book Society, 1960, Doc. No. 131, Clause 2, p.215.

4 Francis Anderson, op. cit., p.520

for reorganisation.

As we have seen the claims of technical education had brought to the fore the necessity of a new approach and philosophy in the field of primary education. Moreover, the need for secondary education for the masses was envisaged as a necessary pre-requisite of efficient technical education. Since any reform would entail detailed and careful planning it was obvious that all could not be achieved overnight and much would depend upon the administrators responsible for the reorganisation.

Thus we find that although the first twenty years of this century saw a renaissance in national education throughout Australia, technical education at the tertiary level was the last branch to be revitalized, expanded and co-ordinated within the educational framework.

In the overhaul that eventually came New South Wales and Victoria led the way naturally enough, with the other States adopting similar schemes of organisation. With the inauguration in 1906 of a series of conferences of Directors of Education from the various States the possibility of similar developments throughout Australia was enhanced.

The conferences of these administrators not only led

> to a simultaneous development of advanced education in all the States, but they also caused that development to take place along very similar lines in all the States.[1]

In 1905, Peter Board took control of the New South Wales Department of Education and inherited the task of reform. The pattern of development that was to come would therefore depend to a large extent on his view of the situation and his method of attack. As we have seen, all investigations of technical education, both in Australia and abroad, had emphasised the need for changes in both primary and secondary education as a pre-requisite of reforms in the field of technical education proper. In pursuance of such an ideal Board began at the bottom of the educational ladder hence "technical education at the tertiary level had to wait until all the other levels were organised".[2]

1 Peter Board, "The Development of Secondary Education in Australia", The Education of the Adolescent in Australia, ed., P.R. Cole, Melbourne: University Press, 1935, p.3.

2 A.R. Crane & W.G. Walker, op. cit., p.214.

CHAPTER IX

GERMANY, THE CRADLE OF TECHNICAL EDUCATION

In order to appreciate fully the story of technical education it is necessary to take account of the Germanic system. Indeed, every report or commission on technical education, whether that of an individual or group stresses the rise of this system in Germany. The various Royal Commissions on technical education in Great Britain during the nineteenth century, the early reports on technical education in New South Wales, the Finke Commission in Victoria, the Knibbs-Turner Commission in New South Wales and the reports of the first directors of education in both New South Wales and Victoria, all pointed to Germany where modern technical education might be said to have had its source.

A Thoroughly Organised System

Some of the German technical schools already had a lengthy history at the time when these reports were written. In Saxony for instance, the Freidberg Academy of Mining was founded in 1766. As early as 1796, Chemnitz had a school of industrial design, while the town of Annaberg originated the system of Industrial Continuation Schools in 1823 and was followed by Zwickau in 1828 and Chemnitz in 1829. Furthermore, as W. H. Dawson points out

technical schools existed in large numbers in Germany and were doing most valuable work well before the State concerned itself greatly with technical efficiency. The early movement was characterised by a spontaneous desire and enthusiasm for technical education.[1]

By the sixties of last century Germany had well-established technical schools and moreover, the primary schools of Prussia and Saxony offered free instruction combined with compulsory attendance. Hence as well as producing large numbers of highly skilled technicians she had a highly trained workforce which had received a liberal elementary education and a grounding in technical knowledge as well as in many instances the manual dexterity gained from courses in Continuation or Professional School.

However, it was during the last third of the nineteenth century that technical education as an imperial and national German Institution really came to the fore. The success of Prussian arms against Denmark, Austria and France in the years 1864-71 proved the effectiveness of sound technical background. It was soon realised that the outcome of the Franco-Prussian War of 1870-1 was to a considerable measure due to the fact that every German soldier was a mechanic. "The German army was a 'Technical

1 W.H. Dawson, The Evolution of Modern Germany, London: T. Fisher Unwin, 1908, p.98.

School', making a marching tour through France for educational purposes." [1]

Along with the newly-born German Empire there arose a political economist, Friederick List, to whom has been given the honour of the initiation of technical education in Germany. This of course can only be partly true because, as we have seen, technical instruction had long since formed an integral part of the education system. However, with his adoption of a new industrial policy as a weapon of international economic warfare, greater demands were placed on technical efficiency, it being seen as essential to national progress. This demand was destined to be met with all the characteristic thoroughness of the race. With a determination to build a strong industrial economy and capture the markets of the world, Germany prepared for the struggle clear in its appreciation of the advantages of systematic technical education.

By the turn of the century, technical education as developed in Germany was more comprehensive and advanced than anywhere else in the world. It was applied and fostered to such an extent that it "passed into the very life of the land and its people." [2]

The State decided upon a very thoroughly organized system of public education, in which every type of worker from the artisan

1 J.W. Turner, "Technical Education", A Quarter Century of Technical Education in New South Wales, Department of Public Instruction, Sydney: Government Printer, 1909, p.2.

2 W.H. Dawson, op. cit., p.97.

to the captains and generals of industry were catered for. Hence, by the time Australia came to sending her educational leaders abroad to study methods and trends the educational framework in Germany was a model with its orderly and progressive lead-up to high-class technical education. So it was that Frank Tate found the following system in operation.[1]

1. Day school attendance was compulsory to 14 years of age, the great mass using the common schools (Volksschulen). The well-to-do used the preparatory section of secondary schools (Realschulen and Gymnasien).
2. When the pupil attained the age of 10 years a decision had to be made as to whether he would remain in the common school and receive a primary education only, or whether he would transfer to one of the secondary schools, (either Realschule or Gymnasium). The Real School catered for a six years' course (i.e. to 16 years of age) while the classical Gymnasium offered an eight years' course (i.e. up to 18 years of age).
3. Those that remained at the common school to the age of 14 years were required, on leaving school, to attend an evening or continuation school (Fortbildungsschule) for about six hours per week for a period of three years. Such schools were established for the special purpose of continuing the instruction

1 F. Tate, Preliminary Report, 1908, op. cit., p.53-62.

of young workers after they had started to earn a livelihood.

4. There were three main classes of evening schools:

(a) general continuation schools;

(b) industrial continuation schools; and

(c) commercial continuation schools.

The general continuation schools continued and broadened the work of the common school. The purpose of the industrial continuation schools was to develop industrial efficiency. They were inseparably connected to trade schools, but in general the trade school was one in which instruction was given during the day to those not already in employment and where shop work or practical work was given in addition to technical instruction (i.e. theoretical). The commercial continuation schools were practically the same as the industrial continuation schools, but the subjects were linked with commercial life.

The German attitude to technical education generally was amply exemplified in the approach to continuation schools, not only did the State have its obligations to fulfil, but industry had its part to play also. Frank Tate felt that it was necessary to show in detail the guiding principles behind these schools and quoted the following lengthy extract from Professor M. Sadler's work, "Continuation Schools in England and Elsewhere", 1908, to throw additional light on the system of German industrial education:

> The continuation school system in Germany is a modern development of an Old educational tradition which has had a con-

> tinuous history of several centuries. Its revival is due, in two ways, to the Industrial Revolution. Fear of the economic effects of the factory system, which sprang up in England in the last decades of the eighteenth and early years of the nineteenth centuries, soon forced the master workmen of industrial Germany to increase the efficiency of their apprentices and journeymen by encouraging their attendance at continuation classes. This self-protective movement on the part of the German master-workmen, which may be dated 1830 onwards, gave a new turn to the continuation school system, and forms the historic link between its past and present phases. Secondly, in the years immediately following the Franco-German War, of 1870-71, the national genius showed itself in masterly applications of scientific method to industrial processes and organization. In order to win its way to the front rank in world-wide competition, the German people threw itself with characteristic energy into plans for extending educational opportunity. The industrial aptitudes of the workmen must, it was seen, be developed by special training, and the social evils, which arise from want of regulation of the factory system, must be averted by far-seeing local government, and by the enforcement of educational and physical discipline. Hence came encouragement from the State to systematic efforts for the establishment of continuation schools, chiefly of a technical or commercial character, and approval of plans for compulsory attendance at those schools on the part of youths during the critical years of their adolescence. [1]

In the field of full secondary and higher technical education the following provision prevailed:

The secondary schools were of three types, viz., the classical (Gymnasium), the semi-classical (Real gymnasium), and the non-classical (Realschule and Oberreal-schule).

In the Real schools (six to nine years from age of 10) modern languages, mathematics, geography, history, science and drawing were taught. Upon leaving the Real school the student intending

1 Quoted, ibid., p.58.

to pursue industrial, agricultural or commercial pursuits, found a variety of higher technical schools open to him. Typical of such institutions were the Gewerbeschulen or higher trade schools, which offered courses of from three to four years.

By qualifying from a lower technical school a student could ultimately gain admission to one of the higher technical schools of university rank or he could qualify by remaining in the Oberrealschule until the age of 18 or 19 years. The Gymnasium was a secondary school leading mainly to university courses in the learned professions. The Realschule and Oberrealschule were secondary schools training for industrial and commercial pursuits and led into the higher trade schools and the higher technical schools respectively.

At the apex of the system was the higher technical school or technical university which afforded the most advanced technical instruction, both theoretical and practical. Such was the Dresden Technical School, founded in 1828 and placed on the higher technical basis in 1871. It had five departments devoted respectively to Architecture; Civil Engineering; Machine Construction and Electrical Engineering; Chemical Industries; and a general department for Mathematics, Natural Science, Political and Social Sciences, Philosophy, Philology, etc.

Little wonder then that reformers in the field of technical education pointed to Germany for inspiration, France and United States soon took up the challenge and followed the example set.

However, unfortunately for Australia, who looked to 'home' for example, Great Britain was slow to move.

The British Position

The apathy and complacency of industry and public; the adherence to traditional curriculum and practice; the tardy realization of the importance of technical skill for national efficiency were included among the forces amassed against the rapid development of technical education in Britain, and Australia was destined to partake of the results.

Although, as we have seen, Britain was on the verge of giving a new look to technical education, she was still not an outstanding example to follow by the end of the nineteenth century as clearly evidenced in the following summary of her position at that time as formulated by A. Abbott (formerly Chief Inspector of Technical Schools in England):-[1]

> 1. It was a generally accepted opinion that the burden of training recruits to industry was one to be shared between industry and the community; the share to be borne by industry was the training in workshop practice during employment, while that to be borne by the community, acting through the schools it maintains, was the teaching of the theoretical principles which underlie workshop practice.
> This view of the respective functions of industry and of the school had its origin early in the nineteenth century, when Mechanics' Institutes were first set up, was accepted by the framers of the Technical Instruction

1 A. Abbott, op. cit., p.41-43.

Acts, and was generally held in a rigid form, not only in 1902 but much later.

2. During the first half of the nineteenth century no assistance was given from State funds to the promoters of technical education. After the establishment of the Science and Art Department, this Department granted aid towards the education of the 'industrial classes' only. The successes in its examinations of students who paid income tax, or whose parents paid income tax, were not eligible for grant, although it had been stated frequently by competent observers that it was the general and technical education of the masters and managers that was defective as compared with that of similar workers on the Continent.
3. After the Technical Instruction Acts were passed, there was no administrative restriction on the expenditure of funds not derived from the Department on the education of others than wage-earners.
4. Grants were made by the Science and Art Department in aid of instruction in a somewhat limited range of subjects. There were no grants from this Department in respect of the teaching of textiles, boot and shoe manufacture, plumbing, dyeing, and other subjects of great industrial importance.
5. Nearly all the instruction was given in the evenings of the winter months to persons 'whose ordinary employment or avocation occupied the greater part of their time'. This was the obvious corollary of the limitation of grants from the Department to the instruction of the wage-earning classes.
6. The vast majority of the students attending science and art schools had finished their full-time education at the age of 13 or 14. There was not, in fact, any widespread system of secondary education, and the proportion of the population who had received this type of education was small.
7. The evening continuation schools had been re-organised, but although they were numerically successful, they gave little instruction except in elementary and recreational subjects. They did very little to prepare ex-elementary school pupils for specialized work in science and art schools.
8. Many pupils attended the science and art schools for instruction in single subjects, or in several unrelated subjects, since the system of grouped courses had not yet been developed. Much of the work of these schools was on a low plane on account of the defective early education of their pupils.

9. There had been very little consideration of commercial education, which was generally regarded as including mainly the office arts.
10. The great bulk of the work of the science and art schools was prescribed by the central examining bodies, that is, the Science and Arts Department and the City and Guilds of London Institute, although there were the beginnings of freedom to take account of local circumstances and conditions after the Technical Instruction Acts had made available certain limited funds from other sources.
11. The Reports of the Royal Commission on Technical Education issued in 1882 and 1884 had shown that England was relatively backward both in her provision of technical education and in the esteem in which this branch of education was regarded; and they had compared our national provision unfavourably with that of other countries. At the end of the nineteenth century, in spite of the energy shown by the different local committees, our position as regards technical education was still relatively bad.

CHAPTER X

Re-organization and Co-ordination in New South Wales

1. Moving up the Ladder

The Primary School Curriculum

As we have seen Edward Coombes in his report of 1887 had echoed the findings of the British Royal Commission on Technical Education (1882-4) in respect of the necessity for practical education in the Primary School:

> That recognizing the necessity that manual training should be an integral part of any system of general education, inasmuch as it contributes to develop activity, observation, and intuitive perception, I recommend that it be introduced into all public, primary, or elementary schools as soon as possible.[1]

In order to facilitate the implementation of such a policy it was essential, "That manual training be taught as an integral subject at the Fort Street Training School, and that in future all the Training School students should be examined in manual training. [2] So important was this training for the future development of Technical Education that Coombes suggested the inauguration

1 E. Coombes, op. cit., p.217.

2 Ibid., p.217

of special manual training courses for teachers during vacations and that evening courses for teachers be instituted in connection with the technical college.[1]

Following upon the Coombes Report, as we have seen, in order to secure "a homogeneous connection" between the primary school work and higher technical studies, in 1889 a Technical Education Branch of the Public Instruction Department was instituted. During 1889 also, a number of changes came about in the primary school syllabus, kindergarten work, drawing, agriculture, beekeeping and cooking being introduced as "preliminary training" in technical subjects. With these moves came the conviction that Technical Education had been made complete and homogeneous, extending from the kindergarten to the most advanced technical training centres. There was of course little or nothing to give support to such a far-reaching contention. The development of hand and eye training in the primary schools was singularly lacking, being neither complete nor comprehensive.[2] "It was fragmentary and meagre in character, being confined to a few classes in a few schools." [3] Six manual training and twenty shorthand classes were in existence by late 1890. Fees for instruction were paid by the pupils, and classes held after school hours. Little wonder then that attendance was poor and irregular.

In 1889 Edward Coombes once again went abroad, the New South Wales Government taking the opportunity to Commission him,

1 ibid., p.217.

2 New South Wales: Report of the Commissioners on Agricultural, Commercial, Industrial and other Forms of Technical Education, Sydney: Government Printer, 1905, p.41.

3 S.H. Smith and G.T. Spaull, op. cit., p.235.

> to attend, on behalf of the Government of the said Colony, the International Exhibition in Paris, with a view to making such inquiries respecting Technical Education and the progress of Technical Science as may be of service in extending those branches of instruction and knowledge in the said Colony.[1]

As well as attending the Paris Universal Exhibition in 1889, Coombes once again travelled extensively throughout Great Britain, France and the United States of America, submitting a detailed report to Parliament in 1891. Having witnessed atfirst-hand the growing movement throughout Europe for practical training as an integral part of general education, and having reported at length in 1887 upon higher technical training, he concentrated his efforts in this report on bringing to the attention of administrators and public the importance of manual training as an essential ingredient of general education. He pointed to Technical education as the careful and practical instruction of youths in the scientific and artistic knowledge demanded by any branch of industry, in order to make them thoroughly efficient and economic workmen. However he was adamant in his conviction that:

> To fully effect this we must ingraft the industrial element into education, and this can only be accomplished by instruction in manual training at an early age.[2]

Continuing with his exposition put forward in 1887 of the new

1 New South Wales: Votes and Proceedings of the Legislative Assembly, 1891, 2nd Session, vol. 3, Sydney: Government Printer, 1892, p.409.

2 E. Coombes, Report on Technical Education and Manual Training, Sydney: Government Printer, 1891, p.2.

philosophy based on the advocacies of Rousseau, Pestalozzi, Froebel and others, which had changed the face of education on the Continent of Europe and had found acceptance in the United States, he warned that:

> it is not to Great Britain Australia must go for information and instruction as to model school for manual training, or for the development of that technical education which takes the form of professional instruction.[1]

While conceding that there were many excellent schools of technology and institutions for imparting instruction in applied science in England, he emphasised that with few exception they did not seem to progress in the same rapid manner that similar institutions did in Europe and the United States. Moreover he was convinced that "progress will continue sluggish until the people wake up to the fact that other nations are going ahead faster than Great Britain." [2]

At the very basis of any technical education system was the type of education available in primary schools. Referring to the sound basis upon which technical systems were being built in Europe and the United States, Coombes pointed out that, "the great movement that has been made in primary education during the last half-dozen years, almost entirely relates to the co-education of

1 ibid., p.146.

2 ibid., p.146.

the head and hand."[1] The need for prompt action was at hand for, "The new education is undoubtedly revolutionising the systems of primary education throughout the world."[2] However, the flame had not been sufficiently kindled in Great Britain, why therefore should Australia be expected to change her outlook? Traditional approaches would be adhered to until the last.

The writings of Edward Coombes probably represent the earliest attempts in Australia to convey the message of changing attitudes towards technical education. No longer could it be viewed in isolation. The whole field of education was both its cradle and development area. If technical education was to be investigated or discussed, primary and secondary education would have to be investigated and discussed also.

The all-important Finke commission high-lighted this fact. When inquiring into technical education it found it necessary to extend the scope of its inquiries into the whole educational framework, contending that it was useless to think about technical education without "presupposing a thoroughly progressive and effective system of primary education".[3] As we have seen also, the Conference of Inspectors in New South Wales in 1902 fully endorsed the necessity for bringing to teachers both the importance of, and techniques for, the teaching of manual training in the primary school.

1 ibid., p.2.

2 ibid., p.2.

3 Victoria:- Royal Commission on Technical Education, 1901, op. cit., p.147.

Francis Anderson had been scathing in his criticism of existing approaches to manual training in the primary schools of New South Wales when he delivered his onslaught at the Teachers' Conference of 1901. He declared that,

> the so-called 'manual training' given in our elementary schools is a sham and a delusion . . . . . The existing arrangements have been made to satisfy and silence a popular demand, but there has been no intelligent or systematic attempt, beyond the most meagre instruction in Kindergarten work. to apply those methods of manual training in elementary schools, which have been so successfully developed in nearly every civilized country except our own.[1]

Again, the Knibbs Report was most emphatic on this point, that "the first great requisite for good technical education", was adequate preparation in the elementary school.[2]

This then was Board's starting point, the Primary School, and he was able to see for himself when in 1903 he toured on the Continent and Great Britain. Crane tells us that before Board went abroad he was by no means a protagonist of the New Education, however when he returned he had turned his back on the old, stereotyped and circumscribed curriculum of the primary school.[3] In his Report on the Primary School, presented to the Minister in 1903 he captured the spirit of the times. Indeed the first major point expounded by him was the attention being attached "to the training of hand and eye".[4] Again he placed emphasis on the prevalent practice of postponing specialization of study until such time as a sound background of general education and hand and

1 Francis Anderson, The Public School System of New South Wales, Sydney: Angus and Robertson, 1901, p.17.

2 op. cit., p.41.

3 A.R. Crane & W.G. Walker, Peter Board, His Contribution to the Development of Education in New South Wales, Melbourne: A.C.E.R., 1957, p.35.

4 ibid., p.36.

eye training was secured.[1] Being the central figure at discussions on and final drafting of the new primary school syllabus in 1904, Board ensured that the spirit of reform was written into the suggestions to teachers and when he became Director the following year, issued a new edition of the syllabus, which contained a lengthy addition of explanatory notes.[2]

His annual report for 1905, concluded with:

> Until manumental training enters in a systematised form into the school courses the element is lacking which is the necessary foundation for the technical education of the adolescent period, and the necessary preparation for any career of productive activity.[3]

While the spirit of change had been thus infused into the primary school it was some years before manual training became systematized throughout the schools, especially in the post-primary field. However, having launched the primary programme Board could now devote his attention to Secondary education which loomed largely as a conjoint development in the complete re-organization of technical training.

Secondary Education

It is probably in the field of secondary education more than any other that we see manifest the claims of technical education

1 ibid., p.36.

2 ibid., p.215

3 New South Wales:- Report of the Minister of Public Instruction, 1905, Sydney: Government Printer, 1906, p.43.

as an agent of reform in method, content and organization of education generally. We have noted the developments in secondary education abroad and the great emphasis given by various commissions to the gap that yawned throughout Australia. These commissions had certainly high-lighted the need; it was now necessary for administrators to accept the challenge, draw up a comprehensive plan and see that this plan became operational. In the re-organization of secondary education in New South Wales during the first decade of this century, there was the ever-present moulding hand of technical education.

During the nineteenth century a measure of secondary education had been provided in New South Wales. Before 1880 this provision, in keeping with the British tradition, was characterised by academic studies designed to serve and produce a social as well as an intellectual elite. These "Church" schools were not, strictly speaking, secondary schools as envisaged today but rather academies for the training of Christian gentlemen.

With the passing of the Public Instruction Act of 1880 the State made certain provisions for secondary education. As well as providing for the establishment of high schools for boys and girls, the Act provided for the establishment of "Superior" public schools to give additional lessons in higher branches of education, any school falling into this category if at least twenty pupils had completed the fourth grade course and intended remaining at school. Both the superior schools and the high schools in accordance with the prevailing philosophy and circumstances of the day came to cater

for an elite. They lacked the social appeal of the privately established schools but they provided for an elite nevertheless, an elite of scholastic ability. [1]

At the dawn of this century, as we have seen, there was increasing concern and outcry at the state of affairs in the secondary field. The Knibbs-Turner Commission had not only shown the significance of systematic secondary education for the future development of technical education but also the need for a new approach and philosophy in the secondary field. "What is needed, is the intermediary school, sufficiently equipped as regards the personnel of its teaching staff and as regards its scientific and other educational apparatus to properly discharge the functions of secondary education." [2] They viewed secondary education from two aspects. For the pupils who would become the artisans and workmen of society "higher primary" facilities should be provided to the age of fourteen. Secondary schools proper should provide for those pupils who were destined to reach the higher levels of industrial, commercial and professional occupations.

While the views expressed by Knibbs and Turner with regard to technical and secondary education no doubt bore heavily upon designs for re-organization, the ultimate plan of operation sprang from the fertile mind of Peter Board. As Crane shows, it

1 New South Wales:- Report of the Committee Appointed to Survey Secondary Education in New South Wales, Sydney: Government Printer, 1957, p.14.

2 New South Wales:- Report of the Commissioners on Agricultural, Commercial, Industrial and other Forms of Technical Education, (Secondary Education, Summarised Report), Sydney: Government Printer, 1905, p.37.

was fortunate that Board went abroad in 1903, at a time when secondary education was receiving so much attention throughout the western world. It was probably unfortunate for Australia that this field of education, so vital in its role as a central cog in the technical education machinery, had not been given due recognition in England during the nineteenth century, as it was to the mother country that governments and administrators had turned for example. When Board visited England for the first time he was unable to gain a great deal there, by way of actual pattern, in the secondary field, since local authorities had only so recently (1902) been empowered to establish secondary schools. However, the principle of the need had been recognised and the machinery of change set in operation. Moreover, Scotland had established a secondary system and Board was able to note the organization that existed. Here, at the beginning of 1903, provision was made for secondary education in two broad categories. For those who would leave school at 14, commercial, industrial, rural and home management courses were established. The majority of pupils, after finishing their primary work, would enter these courses, which catered for the artisans, mechanics or workmen. The rest were catered for in Higher Grade Schools, which led to advanced work in the commercial and technical fields, and the High Class Schools, which provided the traditional academic curriculum in preparation for university entrance.

At least in Scotland the need for a break from the traditional

academic conception of the secondary school had been made, the claims of technical education being amply recognized, and Peter Board was able to witness the change. When he returned, he made no immediate special report on secondary education but it soon became clear that any steps he would tread for provision in this field would lead to full recognition of the educational needs of youth in an industrial age. In his initial report to the Minister as Director in 1905 he declared that,

> to guard against such a course of instruction as will produce a drifting of young people into merely clerical or professional occupations . . . . In a young country calling for the development of its natural resources and with its manufacturing industries yet in their infancy, the aim of secondary education should be to combine the liberal elements of a curriculum with such studies as will furnish the student with a body of knowledge, habits of thought and trend of interests that have a distinctly practical outcome.[1]

These words heralded the beginning of the end of the previously held conception of post-primary education in New South Wales. No longer was it to be based merely on classical learning, but rather on useful knowledge. Moreover, as Crane points out, the influence of Herbert Spencer's emphasis on science was to be felt.[2] From the beginning of his Directorship, Board's conception of

1 New South Wales:- Report of the Minister of Public Instruction, 1905, Sydney: Government Printer, 1906, p.31.

2 A.R. Crane and W.G. Walker, op. cit., p.104.

secondary education was much wider than that exemplified in the system initiated in New South Wales during the nineteenth century. He contemplated provision for all boys and girls who were willing to remain at school.[1]

All the various forms of education which lay beyond the strictly primary course were involved -- including technical education. Just as the new primary education was coloured by technical education considerations, so too would any re-organization of the secondary school.

2. A Plan is Evolved

The first move for an extension of secondary facilities came in 1905 when "district schools" were established in fifteen country towns. These were actually primary schools to which was added a secondary top. The secondary section provided two years of education in academic subjects as well as Manual Training, Science and Agriculture, in keeping with the demands of local industry.

In the following year, 1906, Board gave a more specific idea of his future approach when he put forward a six-pointed plan for the re-organization of secondary schools. The plan envisaged

1 Ibid., p.104.

the catering for all children, division into three streams being according to potential vocational placement, the curriculum to be based on the needs of the students according to future vocations. The influence of the Scottish system on this initial plan seems quite clear.[1]

During the next few years this embryonic scheme was developed and clarified before being put into operation. In the 1907 Report to the Minister further suggestions were put forward by Board. The new scheme of post-primary education would include evening schools as well as day schools, the utilitarian purpose of secondary education looming largely as a basis for reform. In the middle of educating administrators and public in the basic assumptions behind his developing scheme Board visited the United States of America and Canada in 1909 and returned home firmly convinced that he was in the correct pathway. Furthermore he was able to see more clearly the direction in which he should move. The Report he submitted is of outstanding significance in the history of technical education both in New South Wales and in Australia, for in it he presented his design for a complete reorganization of technical training, not as an isolated system but interwoven into the whole educational framework. Indeed, while he did devote a special chapter to secondary education, the basic assumptions, purposes and nature of the secondary school were set

1 ibid., p.100-101.

out in detail in the section, "Education for Industrial Purposes."

This pattern of organization was in three strands as follows:-[1]

Class I (Boys who will leave school with only a primary education.)

Primary School: 8 years

Evening Continuation School: 2 years

Trade School: 2 years

Class II (Boys who can stay at school 2 years beyond the primary course).

Primary School: 8 years

Day Continuation School: 2 years

Trade School: 2 years

Class III (Boys who can stay at school for 4 years beyond the primary course).

Primary School: 8 years
High School: 4 years

Technical College or University: 4 years

As can be seen, in order to fully provide for education in a technological age, youth at the adolescent stage would be catered for in three groups, the nature of schools depending on the needs of students. The provision of systematic manual training courses in the elementary school was, as clarified some years before, most essential. After the primary school, the evening continuation

1 P. Board, A Report Following Upon Observations of American Education, New South Wales Department of Public Instruction, Sydney: Government Printer, 1909, p.21.

school would provide for students as citizens and artisans. The course would include English, manual training, elementary science and trade arithmetic, leading to the evening trade school for particular vocational education. For those who could remain at school for two years beyond the primary stage the day continuation school would provide an education similar to the evening sister, but somewhat wider in scope. For the more advanced, the high school would provide four years of schooling, including courses basic for entry into higher technical professions.

In other words his re-organization would take account of secondary technical education requirements in respect of three groups: [1]

1. The pupils who must leave school with only an elementary education.

2. The pupils who stay at school till the age of 15 or 16, and then leave to take up a skilled trade.

3. The pupils who stay longer at school with a view to entering the technical professions.

For those leaving school to take up a skilled occupation, trade schools were to be provided. These would be conducted in the evening and be designed to supplement workshop practice by teaching the principles underlying a trade or occupation. The nineteenth century British traditions held good. At this stage Board did

1 ibid., p.30

not elaborate fully on the trade school but it seems clear that he did not envisage it as a fulltime school nor a part-time day school. Later he was to clarify his ideas somewhat in this regard and put forward revolutionary ideas for a British community, but he was both too late and less forceful than his employers who had their own ideas.

Board summarised his 1909 ideas for reform as follows:[1]

1. The establishment of systematic manual training as a part of an elementary school course.
2. The provision of Evening and Day Continuation Schools for pupils 14 to 16 years of age, with two-year courses.
3. The institution of Trade Schools to supplement workshop practice for pupils of 16 years of age and over.
4. The modification of High School courses to admit of qualification of pupils for higher technical instruction.

Technical education at the tertiary level had then received but cursory attention. Reference was made to the technical college in passing. It was envisaged as being concerned mainly with scientific principles, to prepare students for the technical professions, qualifying them to become captains of industry. Board did not see the need for more than one central college at this time.

His relegation of higher technical organization to the background of planning might be expected as Board was working up the educational ladder. His main concern for the moment was the secondary field and now that he was clear where he was going, first

1 ibid., p.30.

things first, he proceeded to put his scheme into practice as soon as possible.

In December 1910 new regulations were issued under the Public Instruction Act of 1880, to cover the complete re-organization of secondary education, specific legislation not being required to give scope for the institution of Board's system. Although Board's nomenclature for the various schools was not followed in order to offset the need for a new act, the scheme was the same. The high schools would cater for a four year course providing progression to higher technical education in that there were to be general, industrial and commercial courses. Superior public (day continuation) schools would offer two year courses of a technical, commercial or domestic character; while evening continuation schools would provide industrial, commercial and domestic courses for adolescents who had completed primary school and had entered employment.

Such developments were of course just as important for technical education as any changes at the Technical College itself. Here was the foundation of the basic framework for preparation for higher technical education; a fully reticulated framework that was destined to set the pattern of development of secondary education in New South Wales for the next fifty years and exert an influence on such development throughout Australia. Early in 1911 the scheme

was launched and copies of syllabuses for the new high schools were put into circulation.

At this stage it is worthy of note that Board was not impressed by the basic pattern of either the French or German systems for the secondary school. He regarded the secondary school as an agent for social unity rather than social stratification, the school being shaped to fit the child as an individual to be groomed for citizenship in a technical society. The basic ideas formulated from his first visit to Scotland had held good. The British approach to secondary education had won through and was destined to be reinforced in 1911 when the Director inquired into the continuation schools of Great Britain and Europe. Hence, the writing was clearly on the wall for the ultimate approach to be adopted in the field of higher technical education when its turn came for re-organization.

The Curricula of the Secondary Schools Take Shape.

High School Courses of Study

The "Course of Study for High Schools" circulated in 1911 showed that these were to be classified according to the particular course to be followed. These were to be: general, technical, commercial and domestic science. Nevertheless, it was made clear that, notwithstanding the bias in curriculum, each type of school would still cater for a core of liberal studies in keeping with Board's basic assumptions on secondary education:

> The purpose of the High School is the education of boys and girls from 13 to 18 years of age. It fulfills this purpose

> by enabling the pupil to acquire such knowledge and skill, combined with training in their use, and such habits of thought and conduct as will form the foundation for the private and public responsibilities of adult age.[1]

These liberal studies were not however to be tied to the classical tradition. Board had shown his attitude in this respect some years before. In his first report as Director in 1905 he referred to the insistence upon Latin as a requirement for Matriculation, a condition,

> . . . . which imposes upon secondary schools the necessity for devoting much time to a study which has a restricted value for practical purposes, and can scarcely be regarded as absolutely essential for liberal secondary training.[2]

Hence the core of subjects for all high schools under the syllabus of 1911 was: English, History, Mathematics and Elementary Science. Such subjects were and are of course basic ingredients for technical training at all levels.

The Continuation Schools (or Superior Public Schools).

In addition to the re-organization of the high schools, the 1910 regulations made possible the development of the superior public school system. As noted, in 1911, Board carried out further inquiries with regard to continuation schools in Great Britain and Europe where such evening schools or part-time day schools, with a vocational curriculum, had been established.

1 New South Wales:- Report of the Committee Appointed to Survey Secondary Education in New South Wales, Sydney: Government Printer, 1957, p.19.

2 New South Wales:- Report of the Minister for Public Instruction, 1905, Sydney: Government Printer, 1906, p.32.

From his Report on Continuation Schools, published on his return, the Director showed that he was adamant in his view of the necessity for both full-time and part-time continuation schools and the press gave wide publicity of his views.

> It is felt that the State cannot afford to leave a large percentage of its population with no more instruction and training and preparation for the responsibilities of life than are got in the primary school, with the addition only of the unorganized and haphazard training that is picked up in the ordinary avenues of industry and business. [1]

The guiding influence of the claims of technical education in shaping his policy were obvious.

> The technical school can only be built on the continuation school. If, as soon as the boy leaves the primary school, he is caught by the continuation school, and he finds in it some instruction which evidently suits his needs, and stirs his ambitions, and makes him realise his powers, the chances are then all in favour of his taking up later on the more specialised work of the technical school. If not, he drifts. [2]

This view of the needs of technical education, with its concomitant, vocational demand, produced the day continuation schools or Superior Commercial, Superior Junior Technical and Superior Domestic, the first syllabus for each of these being issued late in 1912. From the Ministerial Report for the next year it was recorded that of eighty-five Superior schools in Sydney 26 had been designated Commercial, 17 Junior Technical and 42 Domestic. Also,

1 Sydney Morning Herald, Mr. Board's Report (Continuation Schools), Tuesday, December 12th, 1911, p.5.

2 ibid., p.5.

in the Newcastle-Maitland area there were 4 Junior Technical, 6 Commercial and 10 Domestic.[1]

The introduction to the Syllabuses for these schools was formulated by Board, and their aim was clearly vocational in bias. There would not be the specialized instruction that any one particular occupation might demand, but rather the fundamental subject matter of the workaday world with special emphasis on one of the three dimensions of technical, commercial or domestic life. What these students needed was a grounding in

> . . . . such subjects as materials used in industry, the tools of industry and how to handle them, the processes through which these materials pass to make them useful, the distribution of trade, the keeping of accounts, the transportation of goods, the methods of exchange, the management of correspondence, the public institutions of the country.[2]

Nevertheless, general education would need to be continued as well, "the need for constantly extending the pupil's knowledge of the literature of his mother tongue as the source from which ideas of a wider world than his own may be gathered."[3] As in the high schools, a core of liberal subjects such as English, Civics and Morals, History, and Music were necessary to produce citizens of a well-balanced society, individual aptitude and prospects

1 New South Wales:- Report of the Minister for Public Instruction, 1913, Sydney: Government Printer, 1914, p.6.

2 Course of Instruction for Superior Public (Day Continuation) Schools, Sydney: Government Printer, 1912, p.3.

3 Ibid., p.4.

of a future career determining other subjects such as Bench Work and Business Principles.

Junior Technical Programme.

During the early years of the day continuation schools implementation of the foregoing policy resulted in programmes of work which clearly showed the close connection between school and future occupation. Considerable emphasis was placed on vocational strands as may be seen in the programme of the Junior Technical School in 1914, viz:- [1]

SUBJECTS	PERIODS
English	5
Practical Arithmetic	4
Industries	2
Practical Drawing & Workshop Practice	13
Elementary Science	3
Morals and Civics	4
Music and Social Exercises	1
P.E. & Organized Games	3
TOTAL	35

At the end of two years a Junior Technical Certificate was awarded to successful candidates at examination, the idea being of course that such graduates would be earning their living in

1 G. England, The History of Junior Technical Education in New South Wales, M. Ed. Thesis, University of Sydney, 1962, p.156.

industry. This procedure was followed until 1925 when the course was extended to three years as was that of the domestic science schools. A number of causes for this change are discernible but in particular employer attitude and anxiety for parity of status with the junior stage of high schools are most significant. Employers were concerned with the relative value to be placed on Junior Certificates after two years and the Intermediate Certificate after three years in a high school. In 1918 the course in Junior Commerical Schools was extended to three years, at the end of which the Intermediate Certificate, embracing commercial subjects was awarded. After 1925 the same policy was adopted with the Junior Technical and Domestic Science schools. The result of this change was quite significant in that the uniformity of purpose and operation imposed by external examination requirements robbed the schools of much of their identity. Before, with their particular syllabus and examinations, they had a clearly defined purpose, now they lacked singularity of meaning either as entities within the general framework of education or the special field of technical education.

The Continuation School (Evening)

As we have already seen Peter Board believed that it was by the preliminary training of the Continuation Schools that the standard of technical education was to be raised and its efficiency increased. In his Report on Continuation Schools he pointed out that there was a constant demand by leaders in public life for extended facilities in technical education. "The Education Depart-

ment is frequently urged to provide technical (usually a technical 'college') in large country towns of this State."[1] However, he was emphatic that young people were not being sufficiently prepared for such higher technical studies. The mayors and leading men of the towns were pressing for advanced vocational training but youth itself had no desire for it. What they needed was an intermediate stage. "The technical school can only be built on the continuation school."[2]

The re-organization of the high schools had catered for adolescents who could remain at school for a full secondary course, while the day continuation schools filled the gap for those who would remain as non-wage earners for two years. However, for most of those who entered employment as soon as they left the primary school at 14 years of age progress to more advanced vocational education was sadly restricted, while general education was terminated at a most formative stage of youth.

Board was greatly impressed by the Continuation approach to the problem of training youth at this stage, particularly that of Germany. Hence, he advocated legislation for compulsory attendance at continuation schools in the employer's time during the day; such legislation to "provide for such a limitation of hours of labour as will admit of attendance for not less than six daylight

1 Sydney Morning Herald, Mr. Board's Report (Continuation Schools), Tuesday, December 12th, 1911, p.5.

2 ibid., p.5.

hours weekly." [1]

However, the Director's thinking was ahead of the times in New South Wales, neither the Government nor the employers being predisposed to agree with such advanced educational practice. Thus the evening schools had to cater for the group who left the primary schools at 14 years.

Evening schools had been in existence before Board became Director, but attendance had always been irregular and spasmodic. In his plans for reform, the Evening Continuation School was regarded by Board as the counterpart of the Junior Technical, Commercial and Domestic Schools. Like these day schools, they were placed under an Inspector of Continuation Schools, S. H. Smith being appointed to this position in 1911. In the following year a Course of Study and Rules of Management for Evening Continuation Schools was issued.

From the beginning, S. H. Smith was very happy with the development of continuative education during the day, but the evening schools were subjects for constant concern. They just did not command the support warranted, enrolment continuing to be poor and attendance irregular.[2] The Inspector laid the blame for such conditions with the short-sightedness of youth, but more

1 Ibid., p.5.

2 New South Wales:- Report of the Minister for Public Instruction, 1912, Sydney: Government Printer, 1913, p.59.

particularly at the feet of the employer sector of the community, which was clearly indifferent to the claims of the school and in so many ways lacking in perspective with regard to technical education.

Smith's efforts for compulsory attendance were in vain and as we shall see the Apprenticeship System of the State suffered as a consequence.

3. The Re-Organization of Technical Education at the Tertiary Level.

The Plan

As we have seen, G. H. Knibbs, in his report as commissioner in 1905, was emphatic that without a complete re-organization of secondary education and a new approach to primary work developments in the higher levels of technology would be sadly restricted. Peter Board had taken care of this situation, moving up the educational ladder. It will be recalled that Knibbs had also been most critical of technical education at the tertiary level, blaming administrative arrangements for most of the shortcomings of the system, and recommending that a Director of Technical Education responsible only to the Minister, be appointed. Still, this policy was not adopted. Indeed, there was no immediate change in the system at the higher levels, Board being pre-occupied

with reforms in the lower rungs of the ladder.

It was not until 1912 that Board was ready to devote full attention to higher technical education.

> The time has now arrived in the building up of the educational system of this State when the existing scheme of technical instruction should be brought into proper relation with the other parts of the system.[1]

In that year James Nangle had become Superintendant of Technical Education and in the Press he testified as to the nature of the Technical College: "The Technical College to-day is like a magnificent diamond uncut -- full of intrinsic worth, but as yet requiring to be shaped and polished off."[2]

Later, in his statements issued to the commission on Technical Education, 1933-4 Nangle pointed out that although enrolments had increased after the Department of Education had taken control, the technical system had become more and more inefficient until by 1912 the Branch was

> . . . . without any definite policy; without organized courses of instruction; without any means of coming systematically into contact with external interests; without any system internally of a proper relationship of the various departments;

while the certificates issued commanded little respect.[3]

1 New South Wales: "Report of the Director of Education", Report of Minister for Public Instruction, 1912, Sydney: Government Printer, 1913, p.34.

2 J. Nangle, Reported, Sydney Morning Herald, Tuesday, November 4th, 1913, p.5.

3 New South Wales: Commission on Technical Education, N.S.W., 1933-4, Sydney: Government Printer, 1935, p.75.

Nangle recorded that

> With a view to bringing the industrial interests at once into sympathy with the scheme and securing that it shall really be capable of supplying what is lacking in the workshop training, representatives of both employers and employees in each trade were asked to confer with the Director of Education and to assist in drawing up a scheme.[1]

It seems quite clear however that Board was very definite on what the plan should be before these conferences took place,[2] the principles of re-organization being foreshadowed in the Ministerial Report for 1912. The Director felt that,

> . . . . an institution devoted to Technical Education, fulfils its duty in two ways -- one by such scientific investigation of mechanical experiment as will enable it to act in an advisory capacity to industrial enterprises; the other by instructing the workmen and the apprentices in that kind of knowledge which the daily work of the factory or workshop does not supply.[3]

In other words, the research field was considered wide enough to allow the technical establishment to work in co-operation with the university as a scientific aid to industry; while at the same time a passage was to be found for capable students to move from the technical school to the university. Moreover, it should be noted that full time attendance at the technical college was not en-

1 Sydney Morning Herald, Tuesday, November 4th, 1913, p.5.

2 A.R. Crane and W.G. Walker, op. cit., p.217.

3 New South Wales: "Report of the Director of Education", Report of Minister for Public Instruction, 1912, Sydney: Government Printer, 1913, p.34.

visaged. Existing technical classes and branch colleges were to be organized as Trade Schools where courses would supplement workshop experience.

We have seen how higher technical education considerations had been shaping Board's integrating policy for years and in particular ever since his return from abroad in 1909. The main features of the tertiary re-organization were: [1]

1. The necessary preparation for entrance to the trade schools was to be had in the newly established continuation schools.
2. Instruction in trade schools would be restricted to apprentices or those actually engaged in learning a trade and confined to what was needed to produce a skilled workman.
3. The student would have to acquire the necessary qualifications before admission and would be required to take up the whole course required for his trade.
4. The advanced courses in each trade would fit the students to be journeymen and foremen.

The previously reformed secondary system enabled the tertiary programme to be implemented without delay. The plan thus outlined came into effect in 1913, the details of administration being entrusted to Nangle who proved an able and enthusiastic organizer.

1 ibid., p.39.

By the end of that year he was able to report that Board's programme had been launched. "The year has been an eventful one, inasmuch as the complete re-organization of the system of technical education has been fully considered and decided upon." [1]

The Final Links

By the following year, the next important link in the educational chain was forged when the Senate of the University of Sydney accepted the Diploma Courses in Science and Engineering at the Technical College. Such Diplomas were now regarded as equal to completion of first year courses in Science and Mechanical Engineering at the University, thus enabling successful students to enter second year with a view to proceeding to a degree. Moreover, the system of scholarships was revised to pave the way financially for worthy students to proceed from the day and evening continuation schools, through the Technical College, to the University.

Hence it was justly claimed in 1914 that complete co-ordination of the educational framework had been achieved in New South Wales. "We have now co-ordinated primary, secondary, technical and higher education." [2]

Developments within the Branch

Following Board's master plan, Nangle went ahead rapidly and the Trade Schools soon superseded the Branch Colleges and Technical

1 New South Wales: "Report of Superintendent of Technical Education", Report of Minister for Public Instruction, 1913, Sydney: Government Printer, 1914, p.84.

2 New South Wales: Report of Minister for Public Instruction, 1914, Sydney: Government Printer, 1915, p.29.

Schools. The conditions for admission went into operation immediately, entrants being actively engaged in a trade during the day and having acquired the necessary preparatory knowledge as supported by the possession of a Day or Evening Continuation School Certificate or passing an entrance test. The traditional assumption, that part of the training needed to produce a competent tradesman could only be gained from experience in the workshop or factory remained unchanged. The Trade School was to supply the necessary theoretical training.

Courses of instruction were organized in two stages. The Lower Trades Course covering three years was conducted in the Trades Schools, while the Higher Trades Course (Diploma), continuing on the Lower and extending over two years, was followed in the Technical College. This procedure was in direct accord with Knibb's recommendation of 1905. "A sharper distinction should be drawn between lower professional courses and trade courses." [1] The German influence was apparent here, Knibbs drawing an analogy with the difference between Technikum and Gewerbe or Industrie-Schule.

Trades Schools were inaugurated in the Sydney Metropolitan

1 New South Wales: Report of the Commissioners on Agricultural, Commercial, Industrial and Other Forms of Technical Education, Sydney: Government Printer, 1905, p.198.

Area at Granville, Balmain, Erskineville, Sydney and North Sydney, while the country centres were Newcastle, Broken Hill, Albury, Bathurst, Goulburn and West Maitland. The Higher Trades Course would be conducted at the Sydney and Newcastle Technical Colleges.

Internal Organisation

Knibbs, in his 1905 report had pointed to the grave deficiencies in the Technical College scheme itself, and the internal organization therein. Nangle was clearly aware of this lack of "any system internally of a proper relationship of the various departments".[1] In 1915 a re-organization of the College administration was effected, making for a thoroughly integrated and co-ordinated framework.[2] This consisted of a Council of Studies, comprising the Heads and Sub-heads of the various departments, and the principal administrative officers of the College. Boards of Studies or sub-committees of the Council, were drawn up in connection with the courses of study for the various departments. These Boards were responsible for the furnishing of regular reports to the Council, and arrangements for the discussion of matters relating to the efficient working of the technical education system. It was plain to see how this programme enlisted the co-operation of the whole teaching staff in the instructional work

1 New South Wales: Commission on Technical Education, N.S.W., 1933-4, Sydney: Government Printer, 1935, p.75.

2 vide infra, Appendix, p. 359

of the College and in the well-being of the whole system.

Fully aware also of the lack of "any means of coming systematically into contact with external interests," [1] Nangle set about to remedy the situation. The new internal organization included the establishment of Advisory Committees for each trade. The formation of these bodies meant that the College administration was brought into close contact with new developments and the constantly occurring changes of industry. Moreover, each Advisory Committee included representatives officially nominated by the associates of employers and employees engaged in the industries provided for by the Department in respect of which the Committee was established.

Nangle had declared in 1913 that: "The Technical College has been run too much 'on its own'. We are producers, and must consult the consumers. We must find out if we are up to date, if the men we are turning out are efficient." [2] With the advent of the Advisory Committee system such necessary relationship between industry and technical training was a reality.

Technical Education by Correspondence

It was during the early years of Nangle's administration that a rapid extension took place in an aspect of technical education

1 Commission on Technical Education, N.S.W., 1933-4, op. cit., p.75.

2 J. Nangle, Reported, Sydney Morning Herald, Tuesday, November 4th, 1913, p.5.

that had not been developed anywhere else in the world. In this field, technical education by correspondence, Australia was a pioneer. It might have been expected that such would have been the case due to Australia's vast expanses and scattered population and New South Wales led the way.

A beginning was made in this State in 1910 when correspondence courses were instituted in Sanitary Engineering and Sanitary Law for Health Inspectors, in an endeavour to improve the efficiency of Public Health Administration. Courses were extended to include Compositing in 1911 and in the following year, "owing to a demand created by country water supply and sewerage extensions, a course for Drainers and Water Fitters was commenced." [1]

The courses followed the same lines as those of the oral classes at the Technical College, while practical demonstrations were given immediately preceding the annual examinations so that correspondence students could sit for the same theoretical and practical tests as those of the oral classes. Enrolments grew rapidly and results were encouraging but it was not until the re-organization of technical education in 1913 that definite consideration was given to an extension which would provide instruction in all subjects to students who could not attend Trade School or College. Even then, with so much to be done all at once, it was not until 1916 that a detailed scheme was drawn up by the Superintendent, Nangle,

1 W.E. Gundry, Report on Technical Education by Correspondence in New South Wales, Dept. of Education, Technical Education Branch, 1935, p.1.

and approved by the Minister for Public Instruction. The main points of the scheme were:- [1]

1. The same class exercises and lessons would be used for correspondence students as those in operation at the Trades Schools and Colleges. Additional printed material needed to replace oral instruction would be added for such exercises.

2. In all cases where courses included the working of practical trade exercises, students would have the benefit of at least a few personal lessons by a teacher.

3. The progress of correspondence students would be recorded in the same manner as that of the technical school classes. Annual examinations would be the same for the both groups.

4. Correspondence students in trade subjects, and under the age of 21 years to be brought to the nearest Trade School for lessons in Trade Motion and certain operations with tools that presented difficulties to impart through correspondence. The State was to grant a living away from home allowance to subsidize expenses for such students.

The following year saw the appointment of an officer (W. E. Gundry) to carry out the organization and full extension of the correspondence system along the lines planned by Nangle. By 1919 a comprehensive range of subjects was being covered by the scheme, as follows: [2]

1 ibid., p.2.

2 ibid., p.3.

Agriculture, Stage I and II

Accountancy

Bookkeeping

Business Principles, First Year Course

Business Principles, Second Year Course

Building Construction, Stages I, II and III

Construction Drawing, Stages I, II and III

Carpentry and Joinery (Trades Course), Stages I, II and III

Care of Animals (or Animal Husbandry), Stages I and II

Drainage and Water Fitting

Elementary Art Drawing

Freehand Drawing, Stages I and II

Model or Object Drawing

Geometrical Drawing

Perspective Drawing

Inspection of Meat and of Animals

Penmanship and Correspondence

Printing (Composing)

Practical Sanitation

Sanitary Law

Sewer Plumbing, Stage I and II

Sheep and Woolclassing

Shorthand

Trades Calculations (Building Trades Courses), Stages I, II and III

Later, other subjects were included.

Here then was a scheme of technical training that had to be originated and extended without the benefit of a previously devised pattern anywhere else in the world. The task of providing courses of equal value to those at the technical schools was indeed formidable but was attacked with enthusiasm and foresight.

Systematic Provision Attained

Systematic provision for technical education had certainly come to New South Wales and the pattern evolved was destined to exert a profound influence on development throughout Australia. Most of the reforms recommended by Knibbs in 1905 had been carried out. By the skilful and scholarly planning of Peter Board the various levels of education had been integrated and woven into a composite whole, using the technical education strand. By the enthusiasm of James Nangle technical education at the tertiary level had been given a much needed face lift. This Board-Nangle pattern of organization did not undergo any significant change before the Second World War.

All this had been acomplished in the face of what Knibbs described as, "the most conspicuous administration defect",[1] the absence of a separate technical education department with the

1 Report Commissioners on Agricultural, Commercial, Industrial and Other Forms of Technical Education, 1905, op. cit., p.194.

superintendent having direct access to the Minister. Knibbs further emphasized that "the practice of the educated world is uniform in this respect",[1] but Board had not seen fit to recommend such a change. The historian has recorded that Board was quite adamant in his view that all branches of education should be under the one control as they come into relation at so many points.[2] It has also been recorded that Nangle's one serious complaint put before the Commission of Enquiry, 1933-4, was that as Superintendent of Technical Education he had no real power.[3] He therefore requested that the Superintendent of Technical Education be given direct access to the Minister, stating "the Director of Education for the time being must be an eminent expert on primary and secondary education, but he is not necessarily versed in the specialized features of technical education."[4]

This attitude expressed by Nangle becomes quite startling when it is realised that only five years before he had expressed the exact opposite point of view. In 1928 much dissatisfaction was being expressed at the working of the Technical Education Branch in Western Australia and Nangle was appointed Commissioner to inquire

1 ibid., p.194.

2 A.R. Crane and W.G. Walker, op. cit., p.220.

3 ibid., p.219.

4 Commission on Technical Education, N.S.W., 1933-4, op. cit., p.77

into the system of technical education in that State. In his report that followed he pointed to many defects in the system and in particular found that "the stationary character of the Vote for Technical Education" was a tremendous barrier to progress and development.[1] He recorded that arguments were presented by W. E. Thomas (General Secretary, Teachers' Union) and E. H. Bark (General Secretary, Australian Labour Party) maintaining that the smallness of the vote was a direct result of the relationship that the Technical Branch occupied with the Department of Education. They claimed that the Branch should have a separate entity and that its Director should have direct access to the Minister.

Nangle however was not convinced of this and declared:

> I feel quite satisfied that Technical Education should remain an integral part of the educational system, and should be under the Director of Education. This is the position in all other States . . . . in order that proper co-ordination between the different departments of the education system may exist. [2]

The precise circumstance leading to this change of mind is a matter for conjecture. It may have been that Nangle was now experiencing similar obstacles to those of the Superintendent of Technical Education in Western Australia in 1928. It may have been that he

1 Western Australia:- Technical Education in Western Australia, Report of James Nangle, Perth: Government Printer, 1928, p.6.

2 ibid., p.6.

was not expressing his deeper feelings with regard to his own position when acting as Commissioner in the West, for he did say in his report to the 1933-4 Commission; "My feeling is that my recommendations have not been allowed to go to the Minister, without unnecessary, and often very irritating, inquiries."[1] Whatever the particular instances of conflict, it is important to realise that the policy he expressed was helping to shape the pattern of technical education development throughout Australia, for he had also acted as a Commissioner along with the Director, McCoy, in the re-organization of technical education in Tasmania in 1916. Moreover, McCoy later became Director in South Australia. Hence any attitude towards administration could (and did) have a profound effect on the pattern of educational provision being built outside of New South Wales.

Nevertheless there was no immediate response to Nangle's suggestion for separation tabled in the Commission's Report in 1935. This had to wait until 1948 when the Technical Education and New South Wales University of Technology Act was passed.

Again, with New South Wales exerting a definite influence on other parts of Australia during the period of re-construction, the basic philosophy shaping her systematic provision of technical education was bound to find adherents in other states. Knibbs and

1 Commission on Technical Education, N.S.W., 1933-4, op. cit., p.77.

Board had tried to move opinion towards the Continental approach in certain aspects, but British tradition won the day. Fundamentally, technical education still meant the theory underlying a trade or occupation, and was to be carried on during the evening.

CHAPTER XI

RE-ORGANIZATION AND CO-ORDINATION IN VICTORIA

1. The Work of Frank Tate

The developmental pattern and results of the re-organization of technical education in Victoria were somewhat similar to those of New South Wales, and occurred at approximately the same time. When Frank Tate became the first Director of Education in Victoria in 1902, he was faced with a formidable task as indicated in the FinkeReport; and the prevailing parsimonious attitude towards education generally, together with the persistent hindrances of vested interests and public apathy did not help matters. It took almost a decade of reiteration by Tate of the findings of the Technical Education Commission before the necessary legislation was passed to enable the educational ladder to be fully constructed. We find that even as late as 1908 Tate was still deploring the lack of support for reform.

> Unfortunately, there are many hindrances to the impartial and free discussion of an educational problem. The ever-present religious question is sure to be imparted into it; private interests, which feel themselves jeopardized, will range themselves against new types of public schools; fear of increased expenditure will insure the opposition of sections of the taxpayers; while there are not wanting many who, from a variety of causes, dread and distrust popular education. The greatest obstacle, however to a satisfactory settlement of the question is public

ignorance and apathy.[1]

As we have seen, the Finke Commission, by extending the scope of its inquiries and recommendations into the whole educational framework, illustrated the interdependence of the various branches of education. With its breadth of vision and boldness of approach the Commission had shown not only the need for vigorous over-all planning but also the need for a new approach to Technical Education. No longer could it be regarded as the Cinderella of education for it was an integral component of the whole educational framework. All branches of education played a part in the development of some Technical Education, hence each branch would have to be moulded to fill its role effectively.

The Commission pointed to the basic need for sound administration as a pre-requisite for educational progress, hence in the general field of educational administration, under the reforming zeal of Frank Tate, a number of its findings were transplanted into action fairly promptly. However, its direct recommendations on technical education bore slow fruit, the decisive steps for implementation not being taken until 1910, with the passing of the Education Act.

Administrative Reform.

Following upon the recommendations of the Finke Commission, Frank Tate was appointed Director in 1902 and he immediately set

1 F. Tate, Preliminary Report of the Director of Education upon Observations made during an Official Visit to Europe and America, Melbourne: Government Printer, 1908, pp. 3-4.

about putting his house in order. However, the first three years saw his energies taken up with endeavouring to promote educational progress in the face of out-of-date legislation. Matters of staffing, salaries and promotion took up most of his time and hindered rapid progress. In his second report as Director he was forced to complain that: "The anticipations of being able to effect much-needed educational reforms which I necessarily entertained from the promises held out to me on my taking office as Director have again not been realized." [1] He declared that he was striving to carry out reforms but needed the necessary legislation, especially with regard to conditions of teachers, for he saw that without a capable, contented and well-organized teaching service all efforts for reform would be in vain.[2]

Eventually, after a time-consuming struggle, the necessary legislation for administrative reform was passed in 1905. This provided for much needed schedules of salaries, abolition of payment by results, issuing of annual promotion lists and registration of schools and teachers. "The year 1905 was thus most momentous in the history of state education in Victoria."[3] Hence Tate was able to report in that year that the educational agencies of

1 Victoria:- Report of the Minister of Public Instruction, 1902-3, Melbourne: Government Printer, 1904, p.26.

2 ibid., p.26.

3 J.O. Anchen, Frank Tate and His Work for Education, Melbourne: A.C.E.R., 1956, p.69.

Victoria could now "become parts of an organic whole instead of being as, heretofore, a series of disunited, uncorrelated parts."[1]

Primary Education

The Finke Commission, as we have seen, was adamant in its conviction that it was fruitless "to talk about technical instruction without presupposing a thoroughly progressive and effective system of primary education."[2] In keeping with overseas trends it was recommended that the curriculum of the primary school should be modified in favour of a more liberal approach, with less undue stress on the three R's and the introduction of new subjects to better fit the child as an individual and citizen.

The importance of hand and eye training was soon being given due consideration in Victoria, Francis Anderson in his famous address to teachers in New South Wales, June 1901, declaring that:

> We are suffering now for long years of ignorance, indolence and unwillingness to learn. Our neighbours in Victoria, wiser than we are, have imported special teachers with the highest certificates (see Victoria Reports, 1899 to 1900, P. 32) whose first duties are to deliver lectures, give instruction to teachers, and organize manual training and kindergarten teaching in the schools of the State.[3]

This work had been given impetus by Tate while he was Principal of the Teachers' College.[4]

Still, when he became Director, Tate, like his contemporary

1 Victoria:- Report of the Minister of Public Instruction, 1904-5, Melbourne: Government Printer, 1906, p.32.

2 Victoria:- Royal Commission on Technical Education, op. cit., p.147.

3 Francis Anderson, op. cit., p.21.

4 J.O. Anchen, op. cit., p.84.

Peter Board in New South Wales, had to engage himself in the task of bringing to Victoria the "New Education" which meant far more than hand and eye training. He had to bring the state primary system of education abreast of progressive educational thought and practice generally, and had little or no time at first to concern himself with the direct claims of higher technical education. His revised course of study issued in 1902 catered for the current ideas that were sweeping the world and at the same time gave promise of a sound basis on which to build further education, including technical training. All was not clear sailing however and problems of teacher training, opposition of traditionalists and public apathy loomed largely in the process of making the revised course fully operational.[1] Hence, quite a number of years were to pass by before Tate could devote attention to the higher rungs of the educational ladder, but when he did the central theme of his planning was technical education.

Co-ordination (Secondary Rungs)

In keeping with educational trends abroad, the Finke Commission had given emphatic advice on the necessity of adequate secondary education "to bridge over the gulf which at present yawns between the State schools and the technical schools".[2] Probably

1 ibid., pp.84-88.

2 Victoria:- Royal Commission on Technical Education, op. cit., p.146.

the most serious hindrance to effective technical instruction in Victoria was that students were not sufficiently prepared for higher technical studies. Indeed, state secondary education did not exist. Private secondary schools of the traditional grammar-school type had been established but as Tate was soon to point out: "Schools which are intended to lead into technical schools must be governed by different ideals from those which exist in our private schools, and must have a much more liberal equipment."[1] The existing private secondary schools could not perform the work of bridging the gap between primary and technical education for they had been developed under an entirely different tradition.

Tate early showed that he was aware of the necessity of co-ordinating the various branches of education, including the secondary stages. Once he had gained sufficient ground in the primary sphere and in the field of general administration with the legislation of 1905, he became more persistent and outspoken on the subject of secondary education.

> Sooner or later Victoria must face the question of the State supplying a more advanced education than that now given in the State school. So long as higher primary and secondary instruction are entirely in the hands of private individuals, general education in Victoria must suffer, ...[2]

Still it was to be later rather than sooner.

1 F. Tate, Preliminary Report, 1908, op. cit., p.52.

2 Quoted: J.O. Anchen, op. cit., p.91.

First-Hand Experience of Developments Overseas.

Fortunately for Victoria, Tate was able to see at first-hand what was happening abroad, just as Peter Board had a few years earlier. The Victorian Director was sent to London in 1907 to represent the State at a Federal Educational Conference and also to report on educational developments in Europe and America. (Fortunately for Victoria also, and indeed for Australia, England had by this time followed the pattern set by most European countries and the United States in providing for a fully co-ordinated system of natural education.)

After making a close study of overseas trends Tate submitted his report in which the central theme pointed directly towards the claims of technical education. While he did not give a detailed plan for, or specific organization of, the higher technical system of Victoria, his recommendations for reform were based on the assumption that all phases of the educational ladder must be so co-ordinated that efficient technical education would be a reality. While it is clear that Tate had made a careful and accurate appraisal of overseas trends, it must be remembered that the findings of the Finke Commission were, to a large extent, the

impelling force behind his investigations and ultimate considerations.

Declaring, "that national progress is bound up inextricably with national education," [1] he saw the need for providing an education system to cater for the needs of a young country in a technological age.

> I recognise that we occupy a new country which needs manual workers, and intelligent manual workers. All of my recommendations are in the direction of providing these. Our city intermediate schools will train for future technical work, our country agricultural high schools will aim at giving an intelligent interest in farm affairs.[2]

In the light of such convictions secondary education was to be regarded as quite different to the traditional conception of the academic secondary school. Tate was emphatic in declaring the great need for bridging the gap between primary and higher technical education. However he was equally emphatic in his declaration, "that the establishment of higher schools such as I advise in this report, will not tend to still further increase the number of aspirants to clerical occupations, nor will it add recruits to the 'black coat brigade'." [3]

He wished to make it quite clear to all that in filling the gaps in the Victorian education framework, technical education considerations were paramount. "It is to our technical education as

1 F. Tate, Preliminary Report, 1908, op. cit., p.3.

2 ibid., p.4.

3 ibid., p.4.

represented by our existing technical schools, and those to be created, and to the technical side of our University that I desire to lead up efficiently." [1]

He made it quite clear also that the conception of National education in Australia was behind the age.

> Such a system, or want of system, as ours, which endeavours to build up a successful technical and university education on the basis of State primary schools, with the whole field of intermediate education left to unregulated private enterprise, is unheard of outside Australia, and would never be expected from an enterprising and enlightened people, living under the forms of democratic government.[2]

Secondary education was seen as the missing link in the technical chain. Being most impressed with the orderly and progressive organization of education in Germany, Tate gave an outline of the German "system of industrial education".[3] Using this country as a glowing example, he pointed out that here and in other countries, experience had shown that "it certainly is not possible to develop the higher side of technical instruction, unless this instruction rests upon a sound basis of intermediate or secondary education". [4]

This most important factor had been neglected in Victoria and was still far from fully realised by many of the most ardent

1 ibid., p.4.

2 ibid., p.8.

3 ibid., pp.54-62.

4 ibid., p.51.

supporters of technical education.

> It might even be asserted that there has, occasionally, arisen a strong demand for so-called technical education, while there has never, except from a voice crying in the wilderness, been any strong request for secondary or intermediate education.[1]

Moreover the need for a new concept of secondary education was apparent. The term had been applied in Victoria in a misleading way. To many it meant the education given in a school not under the control of the Education Department. To others it meant schools of the grammar-school type, and they did not see why it was necessary for the State to provide such schools as a foundation for technical education.

Tate therefore went to great lengths to show the new conception of secondary education, and what steps he would take for provision in Victoria. He would have a "broad, open stairway accessible to all".[2] This would be accomplished through a system of intermediate schools, carrying pupils upward from the primary schools and through appropriate subjects (science, practical mathematics, modern languages, drawing and manual training) in preparation for technical work. That is, the gap between the primary school and the technical school would be filled with suitable higher primary or secondary schools, according to whether the intention was to lead on to trade work or higher technical work.

1 ibid., p.50.

2 ibid., p.11.

Provision would include both day and evening schools. The aim would not be to make the school programme excessively practical, with no provision for general culture. Rather would the aim be to produce not only trained workmen but good citizens as well, the cultural element being maintained through a study of such subjects as English literature and history.

The basic underlying principles and elements of Tate's programme for secondary education were therefore the same as those of Board's in New South Wales. Both men had seen the trends overseas and set about building a new order at home. However, whereas Board had an established nucleus of State secondary education on which to build, Tate was faced with the task of convincing the vested interests that State secondary schools were a necessary pre-requisite for systematic technical education.

The existing private secondary schools of Victoria could not perform the work he envisaged for the intermediate stage of education. They had developed under an entirely different tradition. Dominated by examinations based on University requirements in literary subjects, their courses had not been chosen with the purpose of leading on to technical studies either at the University or technical schools. Not only were they governed by different ideals to that of the modern secondary school but they lacked the necessary finance to become properly equipped for teaching manual training and science in the right way. "In settling the question whether we shall have public education in continuation of our

present State school system, we are really settling the question whether we are to have any technical education worthy of the name." [1]

Here again, Tate pointed to Germany as the most progressive country in leading up to high-class technical education through a thoroughly organized State system. However he was quick to point to recent developments in Great Britain where, "During the past six years the attitude towards public instruction . . . . has completely changed."[2] The Act of 1902 had provided for public education from the kindergarten to the highest technical establishments, including of course the secondary stage. The mother country had been slow to move but now that she had, it was time for Victoria and the rest of Australia to move also. "Victoria must follow Great Britain in organizing national education".[3]

Legislation for Reform

When Tate returned from abroad he did not receive Government support for his schemes immediately but set about educating the public by addressing meetings throughout the State. Eventually his pleas for reform were heeded by the Government, the necessary legislation being passed in 1910. Tate's ideas were given due recognition, the Act of 1910 making provision for higher elementary and district schools (if in agricultural district termed Agricultural High School), and the establishment of trade classes,

1 ibid., p.53.

2 ibid., p.7.

3 ibid., p.50

trade schools and junior technical schools.

This act was the logical conclusion to the recommendations of the Finke Commission, a conclusion that Tate had worked towards for a decade. The legislation meant that a co-ordinated scheme of State education could be developed and systematic technical education could become a reality. The State had at least taken responsibility for each rung of the educational ladder.

State Secondary Schools

Tate took immediate action to inaugurate a State secondary system by opening the continuation schools to all qualified applicants, entry no longer being restricted to scholarship holders and prospective school teachers. Those schools at Melbourne, Ballarat, Bendigo and Geelong were proclaimed high schools, while by the end of 1911 seven additional high schools and five agricultural high schools were proclaimed. During 1912, eighteen higher elementary schools were established, being designed to provide two or three years of secondary education in places where enrolments did not necessitate the establishment of full high schools.

As time passed it was obvious to Tate and others that an even more extensive programme of secondary education was essential in Victoria, but meanwhile a beginning had been made. The gap that yawned for so long was at last being bridged.

2. Development of Technical Education

A great deal had yet to be done in order to develop the pattern

of systematic technical education, the administrative details being entrusted to a chief inspector of technical schools, Donald Clark, who was appointed in 1911. During the next decade a continuity of policy was apparent in the organization and such policy was no doubt to a very large measure the outcome of the educational vision of Donald Clark. In his most comprehensive reports, this man displayed his keen understanding of the situation and showed how he was guiding the technical schools into a close relationship with the other branches of education and the industries of the State.

The Plan

In his first report as Chief Inspector of Technical Education, Clark gave a detailed plan for development of systematic technical education.

Need for Extension:

It was pointed out that unless the proper provision was made for technical education, then most of the effort and expenditure on primary education would continue to be wasted. "We are building in an elaborate foundation, and we are not carrying on the work through the superstructure which should be raised on this foundation."[1] About 25,000 pupils were leaving the elementary schools each year. Of these, about 4% were going on to technical schools, 2.7% to high schools, and 1% to the University. That is,

1 Victoria:- Report of the Minister of Public Instruction, 1910-11, Melbourne: Government Printer, 1911, p.112.

omitting the private secondary schools, less than 7% of Victorian children were obtaining any instruction beyond the primary stage. Moreover, the majority of those who attended the technical schools obtained the benefit only of study of one or two subjects.

This to Clark was an appalling state of affairs.

> In our modern days of keen industrial competition and universal education, it is inconceivable that we can regard the education of a boy up to the age of fourteen years as sufficient to fit him for his life's work. He is only then in a position to commence an education which will enable him to compete with workers in other parts of the world.[1]

The Necessity of an Adequate and Appropriate Intermediate Stage

Great emphasis was given to the need for development of intermediate education, of a system between the primary school and technical school proper. Clark declared that:

> If our intermediate system of education is neglected, then it is absolutely certain that we are committing 'a national crime' in turning ill-equipped youths adrift, and that no matter what sum we spend on technical education, a large proportion will be wasted.[2]

However, he was equally emphatic with regard to the type of intermediate education needed as a preparation for technical training. Secondary education needed to be directed towards the technical side of the curriculum.

> Neither the secondary schools nor the continuation schools have, in the past, directed their teaching towards technical school work, but it is imperative that, in the future, our

1 ibid., p.112.

2 ibid., p.112.

> scheme for intermediate education should be governed by the ascertained requirements of the community.[1]

No longer was it appropriate for the University to dominate education beyond the primary stage. The time was well overdue for the State to provide secondary education for those who were going to enter upon technical, commercial and domestic work, untrammelled by university requirements. Academic training necessary for university courses was not the best preparation for technical work, and often led to the diversion of talent into unproductive channels.

Moreover, with much of the technical training being carried on during the evening the student was severely handicapped if he did not have a sound background in basic subject matter. Having to work during the day he did not have the time nor energy to do extensive reading or enough experimental work in science or extra work in mathematics. It was imperative therefore that the student entering a technical school should have an adequate grounding in mathematics, the key to the sciences; in drawing, which is the language of most trades; and in the underlying principles and facts of science. Such work was a pre-requisite as a foundation on which to build a sound technical training programme.

The role of the University was not seen in a restricted light, and in a large measure it was to be regarded as a technical institution. However, it was to be regarded as providing the

1 ibid., p.113.

highest form of teaching and research work in pure science, art, and literature, while the fundamental idea of the technical school was the application of principles to practice, as well as instruction in practice. With the Education Act of 1910, adequate provision for the establishment of a system of intermediate and higher education had been made. It now remained to ensure that the work done in the higher elementary schools, evening continuation classes, high schools and agricultural schools, would provide the appropriate education for secondary students in an industrial age. As Clark so aptly remarked: "The objective of the whole system is not the University, but the technical school and the University." [1]

Administrative Arrangements

It was felt that for a properly co-ordinated system of national education to be effective administration should be in the hands of a central department. In this way, expert officers would be able to draft courses for elementary, intermediate and technical schools, allowing students to pass without waste of time or loss of efficiency from one stage of the ladder to the next.

A vital factor here was that the Department of Education must undertake direct control of all technical schools to ensure a progressive system of co-ordinated education. If this were not accomplished then: "There would be a continuance of the present

1 ibid., p.113.

conditions, mainly, a lack of coherance in each independent school, an overlapping of teaching among kindred Government institutions, and an isolation of staff and pupils from kindred institutions." [1] Fortunately, the councils of the existing technical schools were virtually unanimously in favour of having the schools work under Departmental control. Arrangements were to be made to continue the services of councils. Their duties would be: to administer an annual grant for developmental and maintenance purposes apart from salaries paid to the permanent staff; to advise on the establishment and development of classes; and to appoint and supervise all teachers temporarily employed, for example, as trade instructors or assistants.

Moreover, technical schools were to be classified and given a definite sphere of operation. Such a system would obviate the existing rivalry between institutions which made for inefficiency in terms supplying expensive courses for which there was not an adequate demand by students. All technical schools would provide a common syllabus for fundamental work in any branch of industry. For example, in schools catering for trade instruction (carpentry, plumbing, tinsmithing, etc.) there would be courses common to all students in the various branches of mechanical drawing. However, each school would be encouraged to develop higher work in a few

1 ibid., p.116.

branches connected with the industrial requirements of the district. At Echuca and Warrnambool for example there were important carriage-building industries.

The second grade of technical schools would carry on the study of fundamental work to a higher stage, providing full courses in more subjects. Schools placed in the first grade, for example, the central technical colleges in Melbourne, Ballarat, Bendigo and Geelong, would provide full courses in whatever branch of work was started, and the students would receive a higher technical training in these courses. The number of such higher-grade technical schools would of necessity be small, for, Victoria had neither the equipment nor the teachers to provide for many such schools. Again there was not the opportunity within the State at that time for the employment of the students thus trained.

The proposed grading for existing schools was as follows:

First Grade: The Working-Men's College (to be renamed "The Melbourne Technical College"). The Ballarat School of Mines, The Bendigo School of Mines and Industries, Geelong Gordon College, The Eastern Suburbs Technical School.

Second Grade: The Schools of Mines at Bairnsdale, Stawell, Maryborough, and Castlemaine.

Third Grade: Daylesford, Horsham, Echuca, Kyneton, Nhill, Sale and Warrnambool.

Included in the other recommendations made by Clark were a number which related to the courses to be undertaken in the technical

schools. No longer was there to be haphazard entry to classes. A definite course of study would be set down whether it be in a trade or scientific field, examiners would be appointed from experts in the work being undertaken and high standards maintained by the Department of Education.

The recommendations for administrative changes and extensions were summarized as follows:[1]

1. That the whole of the technical schools be taken over from the 1st January, 1912, and worked directly under the control of the Department.
2. That arrangements be made to continue the services of councils in each technical school. The duties of the councils should be -- to administer an annual grant for developmental and maintenance purposes apart from salaries paid to the permanent staff; to advise as to the establishment and development of classes; and to appoint and supervise all teachers temporarily employed, for example as trade instructors or assistants.
3. That, in the metropolitan area, arrangements be made for the immediate establishment, under the same conditions, of a technical school at Collingwood on the land recently conveyed to the Minister by the Collingwood Municipal Council, and of a technical school at Sunshine, in accordance with the proposals of Mr. H.V. McKay, made recently to the cabinet.
4. That, as a basis for future technical work in the metropolitan area, at least ten (10) higher elementary schools be established at once in central positions in the metropolitan area.
5. That, at Ballarat and Bendigo, two higher elementary schools be established.
6. That, at Geelong, one higher elementary school be established.
7. That, at Bairnsdale, Horsham, Kyneton, Maryborough and Stawell, district high schools be established.
8. That, at Daylesford, Echuca and Nhill, higher elementary schools be established.
9. That consideration be given to the establishment of technical schools at Footscray and Wonthaggi.

1 Ibid., pp.118-119.

The inference to be drawn here was clear. A concerted, overall policy was required while all gaps had to be filled if students were to get the necessary basic general education in order to take advantage of and be successful with technical education.

Thus was presented a preliminary blueprint for the development of systematic technical education in Victoria during the next decade. This plan was soon being put into effect, with Donald Clark at the helm, ever-ready to expand his ideas and insert additional cogs to ensure the smooth development of the system.

The Senior Schools

All technical schools opened after the launching of Clark's scheme were administered to a large extent by Councils appointed by the Governor-in-Council, as were the older so called "Council controlled" schools. However, under the central guidance of the Department of Education, represented by Donald Clark a continuity of policy was apparent in the organization, with the technical schools being definitely related to all sections of the educational edifice and to the industries of the State.

During the ensuing years the following new schools were established: Collingwood, 1912, Sunshine 1912, Footscray 1916, Brunswick 1916, South Melbourne 1917, Brighton 1921, Caulfield 1922, Wonthaggi 1922, Box Hill 1924, Richmond 1926, Emily McPherson College 1927, Wangaratta 1927, Yallourn 1928.

Each of these schools, as well as those previously established became part of the State-wide system, controlled by the govern-

ment. However, each developed certain characteristics of its own, since local demand and public effort played a large part in the establishment. Indeed, technical education in Victoria owes quite a deal to public spirited men and women. Such were people like Francis Ormond who gave £15,000 towards the foundation of the Melbourne Technical College (Working Men's College); George Swinburne who donated over £20,000 to the College that bears his name; and Sir William McPherson who made possible the establishment of the Emily McPherson College of Domestic Economy through his donation of £25,000.

Many of the Victorian technical schools have other characteristics of their own for, following the pattern outlined by Clark and in accordance with the organizational policy adopted, certain schools came to specialise in training appropriate to the industries of the particular district. As Clark declared: "There should undoubtedly be a proper relationship between the demand of an industry for skilled men and the output in this direction of the technical school."[1] Each school of the more elementary type should, he felt, be encouraged to develop in higher work in a few branches connected with the industrial requirements of the district. Thus for example, we find the following specialization: Collingwood, boot trade; Brunswick, pottery; Prahran, art metal work; Geelong, wool; Sunshine, agricultural machinery.

1 Ibid., p.116

As we have seen, trade education in Victoria was first developed at the Working Men's College and while the emphasis was placed on the British precedent of teaching the theory underlying an art or trade, provision was made for three small workshops in the original building programme. Instruction in trade drawing, methematics, and practical trade work were developed and by 1900 courses included carpentry, plumbing, gasfitting, sheet metal work, coach building, signwriting, plaster casting, turning and fitting, printing, blacksmithing and iron founding.

Other Colleges followed the lead given and with the passing of the Education Act of 1910, the Clark planning as outlined and the subsequent establishment of junior technical day courses, a great impetus was given to trade education. However, the Chief Inspector of Technical Schools was not altogether satisfied with developments. In his report of 12th September, 1912, he remarked that it was, "a hopeless task to attempt to build up a system of technical education on evening classes alone."[1] Junior technical day classes, as we shall see, were coming into prominence but almost the whole of trade education was still carried on during the evening.

In his report of the 15th October, 1914, Clark reiterated most forcibly his conviction that a sound system of technical

1 Victoria:- Report of the Minister of Public Instruction, 1911-12, Melbourne: Government Printer, 1912, p.130.

education could not be based solely on evening work. "It must be confessed", he declared, "that evening class work alone is most unsatisfactory."[1] The lessons were being given to boys who were too weary to cope while teachers had too little time to teach and supervise. There was no time for home study and few lads were prepared to keep up the necessary course of study for five years. The evening continuation classes set up to provide intermediate training for technical students, were regarded as failures. It was felt that compulsory attendance at technical classes was no answer to the pressing problem unless day provision could be established.

By 1919, the Chief Inspector was still deploring the lack of adequate provision for day release to allow students to attend technical classes. He was adamant that students taking evening classes were severely handicapped. "This has been pointed out repeatedly", he wrote, "and the time has arrived when it should be obligatory on the part of the employer to allow students time off for certain hours in the day."[2] Some employers had begun to do so, but in the main, the nineteenth century British practice held its ground and trade education continued to be confined mainly to evening work.

1 Victoria:- Report of the Minister of Public Instruction, 1913-14, Melbourne: Government Printer, 1914, p.88.

2 Victoria:- Report of the Minister of Public Instruction,1918-19, Melbourne: Government Printer, 1919, p.21.

Eventually, however, but in the wake of South Australia, Queensland and Western Australia, the Victorian Government saw the light and passed legislation in keeping with the so-often expressed opinion of Donald Clark.

The Apprenticeship Act of 1927 established the requirement of a minimum educational standard for entrance into apprenticeship trade, and the obligation of compulsory attendance at a technical school for one half day each week during the first two years, and two evenings per week for periods ranging from three to five years of the apprenticeship. Under this scheme, which applied in the metropolitan area, wider and more comprehensive courses were made possible and a continuity of study for lower and higher trades courses was assured.

With regard to full-time day technical education leading to the higher branches of technology, a beginning was made before the close of the nineteenth century. The Ballarat School of Mines appears to have been the first technical school in Victoria to establish higher or diploma courses. Here, in 1895, instead of confining classes to chemistry, mathematics and isolated subjects, professional courses in metallurgy and mining engineering were commenced.

Such courses were expanded gradually and spread to other schools,

being given due emphasis with the re-organization carried out by Donald Clark who was to report of them in 1914 that: "The most advanced work in the State is done by the students who attend day classes."[1] Representing the highest grade of work carried out in the technical schools, these courses, in general, provided for three or four years of full day higher technical training following upon the successful completion of work in a high school or junior technical school. They became progressive and in them, the lecture room, laboratory and workshop became closely associated. Diploma courses became available in such areas as: applied chemistry; science and art; architecture; commerce; the whole range of engineering from chemical to marine; and so on. Again, the need for practical experience on the job was not overlooked for the student was obliged to undergo twelve months approved practical experience in industry before receiving his diploma.

Such courses also became closely connected with the University degree course in various branches of science and engineering. In 1919, Donald Clark was able to report that,

> The connexion between senior technical schools and the University is now much more satisfactory. Occasionally a student possesses qualifications which entitle him to the best training that can be given, and the path has now been opened for him to procure science and engineering courses at the University. The schools are indebted to the deans

1 Victoria:-Report of the Minister of Public Instruction, 1913-14, Melbourne: Government Printer, 1914, p.88.

of the faculties of engineering and science for the concession granted.[1]

Alongside the full-time diploma courses there developed the part-time professional course for expert certificates. These became available for students possessing ability and ambition who wished to continue with technical studies after leaving the high school or junior technical school but were not, through financial or other reasons, able to undertake fulltime day courses. Part-time evening work, concurrent with employment, was the order of the day here, courses being a modified version of the day diploma programme. This meant attendance at a technical school for three or four evenings per week for periods ranging from four to six years.

Evening Expert Certificate courses had necessarily, because of the limited time available, to become less comprehensive in range than full diploma courses. Being of a more specialised nature they embraced subjects such as: applied chemistry; science and art; assaying; building construction and architecture; electrical engineering and so on.

Links With Industry

While, as we have seen, some technical schools in Victoria were encouraged and came to specialize in trade work associated with

1. Victoria:- Report of the Minister of Public Instruction, 1918-19, Melbourne: Government Printer, 1919, p.22.

industries of the local district, the links with industry in this State were not forged with the machinery of central administrative organization as in New South Wales where the Advisory Committee System came as a result of the re-organization of 1913. The technical school at Sunshine was vitally connected with the production of agricultural machinery for instance but Donald Clark took the view that "technical education, unlike primary or secondary education", could not be reduced to routine.[1] The continuance of the local councils with considerable power was seen as the solution to the problem of keeping the technical schools in touch with the needs of industry and of promoting a public interest in technical training. This attitude was very clearly expressed in his report of 12th September, 1912, when he wrote:

> Industries are continually changing -- one branch dies out and another arises, and the teaching must be continually changing to meet the altered conditions. By having local councils, the members of which are experts in the branches of work taught, and who possess a knowledge of the requirements of employers, the teaching in the schools will be kept up to date. Without the assistance of such councils, many of which have done excellent work in the past, there would be little local interest and no local assistance towards the development of the schools.[2]

With regard to the influence of school councils in promoting a community interest in technical training, the early results were quite

1 Victoria:- Report of the Minister of Public Instruction, 1911-12, Melbourne: Government Printer, 1912, p. 130.

2 ibid., p.130.

pleasing, Clark being able to report in 1913 that, "The councils of technical schools have done excellent work during the year."[1] Some councils had offered grants of money or sites for the establishment of schools. Cities and municipalities were eager to have junior and senior technical schools, the Chief Inspector declaring that: "A very satisfactory feature in connexion with technical education is the widespread local interest now becoming manifest."[2]

The Swinburne Technical College had received £1,000 from an anonymous donor towards the erection of a new building, while a Mr. W. Beazley had left about £12,000 for scholarships for the Collingwood Technical School and the Working Men's College. A donation of £2,000 and five acres of land by Mr. H. V. McKay, largely helped to establish the Sunshine Technical School.

Even with this renewed public interest there were still many links to be strengthened. The work of the technical schools just did not come into close relationship with industry at so many points. "There is too great a gap at present between many of our technical schools and the industrial workshop,"[3] said Clark in 1914.

1 Victoria:- Report of the Minister of Public Instruction, 1912-13, Melbourne: Government Printer, 1913, p.102.

2 Ibid., p.102.

3 Victoria:- Report of the Minister of Public Instruction, 1913-14, Melbourne: Government Printer, 1914, p.90.

For the larger centres, it was felt that more specialisation should be attained, with expert councils in a particular field. In the case of country technical schools there was a falling off of interest by some local councils and a general cessation of local subscriptions with the coming of government control. Consequently, many schools just did not come into close contact with industry. Hence Clark was obliged to continue to press for councils composed of men with special technical knowledge and an interest in the welfare of students. Moreover, the councils needed to be entrusted with considerable power otherwise they would not waste their time making recommendations which would not be carried out. Clark's cry, "Our technical schools, to be of any value, must be in close touch with industries."[1] was still to be heard and was destined to reverberate without being completely absorbed.

Correspondence Courses

In this aspect of technical education, Victoria eventually followed the path blazed by New South Wales. By 1919 the Sydney Technical College was providing quite a comprehensive range of technical correspondence courses, but Victoria had just launched a programme, the Chief Inspector reporting that, "A beginning has been made by the Working Men's College with correspondence courses."[2]

1 ibid., p.92.

2 Victoria:- Report of the Minister of Public Instruction, 1918-19, Melbourne: Government Printer, 1919, p.21.

At this time the bulk of the instruction sought was for commercial subjects, but it was anticipated that the demand for technical instruction in other directions would increase.

This expectation proved correct and there was rapid expansion in enrolments from 1919 to 1920. However, the year 1921 saw a steep decline in numbers enrolled with the Technical College when the Repatriation Department commenced correspondence courses.[1] Nevertheless, by the end of the 'twenties there were about 100 courses being offered by the Technical College.

Teacher Training

With the expansion of college facilities following the 1910 Act, and the increase in classes generally, the problem of an adequate supply of trained teachers loomed largely. The Working Men's College, Melbourne, was for many years the only technical school which offered a number of trade courses. As the College developed, teachers were trained in these classes for its own work. However, by 1914 the Ministerial Report had to point out that: "As new schools have been established, the Working Men's College staff has been depleted of many of its teachers."[2]

The shortage of trained teachers had to be faced and a solution to the problem found if progress was to be continued in the

1 S.A. Rayner, Correspondence Education in Australia and New Zealand, A.C.E.R., Melbourne: Uni. Press., 1949, p.71.

2 Victoria:- Report of the Minister of Public Instruction, 1913-14, Melbourne Government Printer, 1914, p.42.

technical schools. Fortunately, Clark was able to report in 1914 that, "A beginning has been made, on more definite lines, to train a number of suitable students as instructors in our technical schools."[1] He outlined the scheme for systematic teacher training as follows:

1. Suitable lads were to be encouraged to take up complete courses in junior technical schools.
2. On completion of their course they would be tested as junior teachers or demonstrators in the school and retained for a year.
3. Positions would subsequently be found for them in various branches of industry where they would be apprenticed.
4. Further courses of work for teachers had been arranged. When these were completed the students would be eligible for junior positions on the staffs of the technical schools.
5. It was felt essential that the trade and special technical instructors should be able to hold their own both within and without the school.
6. Highly qualified tradesmen who reached the standard prescribed for trainee teachers would also be eligible for positions as trade instructors.

Here then was the comprehensive plan for training trade in-

1 ibid., p.86.

structors. Provision also had to be made for the expanding needs of teachers in the more advanced technological fields. Clark was quite convinced of the path to be followed in this matter. As he declared,

> With regard to the instructors in the highly scientific or artistic subjects, the practice of selecting University graduates, after they have gained a year's or two years' experience in the working of a technical school, has worked well and will be continued.[1]

Again, provision had to be made for staff in the newly established junior technical schools, where the initial success obtained was "due not to the programme of work so much as to the teachers."[2] In so far as these schools provided a dual programme of general education and technical training, teachers were appointed accordingly. For the purely academic subjects, men with experience were selected from the State teaching service, emphasis being given to the selection of highly qualified science and mathematics teachers. On the other hand, teachers chosen for drawing and for manual work were, wherever possible, men who had gone through their apprenticeship to some craft, and who knew the relationship between drawing and practical work.

3. The Junior Technical School.

It has been noted how the Finke Commission stressed the importance of filling the gap between the primary school and the

1 ibid., p.86.

2 ibid., p.85.

technical school, how also Frank Tate had taken up the battle cry and emphasised the need for a new conception of secondary education, for the technical element had to be instilled into the secondary school. The Education Act of 1910 gave the necessary legislation for reform and the plan to bridge the gap between primary school and technical school was put into operation. As we have seen, the year 1911 witnessed a boom in high school provision. Again, by July, 1911, Donald Clark had placed on record the detailed plan of attack for development of technical education, listing the number and placement of higher elementary schools required as a basis for future technical work. During 1912, eighteen of these schools were provided.

The Secondary Schools Fail to Bridge the Gap

In the newly-established high schools the course of study could provide manual training, with workshop practice for boys and domestic arts for girls, while the course could also be varied to cater for a theoretical and practical training in subjects bearing on the industrial requirements of a particular locality. However, for various reasons, both the high schools and higher elementary schools failed to supply the senior technical schools with students prepared for higher grade work.

The basic reason for the failure of the original plan of intermediate schools to act as feeders for the technical schools, would seem to have been the unsuccessful attempt to ingraft the industrial and technical element into the secondary school. Donald

Clark was soon convinced that not only had the attempt failed but that the process could not be accomplished successfully.

In 1913, this extremely able and enthusiastic man pointed out that the 1910 Education Act had been introduced with the primary object of building up a more efficient system of technical education, but so far such results had not been attained.

> High Schools, higher elementary schools, preparatory trade schools, and evening continuation classes were started three or more years ago; but they have had no effect in placing technical education on a sounder basis than it was before the passing of the Act.[1]

Unfortunately for technical education, the traditional conception of secondary education was still too strong, academic training prevailed. A few of the boys trained in secondary schools would eventually enter upon technical day courses of work. A large number would attend intermediate schools for too short a period for them to profit by the instruction given. The main objective of such schools was to impart a full secondary education of the academic type. Clark felt that the work done in this direction was well done, but it was clearly evident that a mixed industrial and secondary school would not be successful in both branches of the work. In other words for the majority of future citizens being in a technological age provision of secondary education was grossly inadequate.

From the following we get a clear picture of the situation:

1 Victoria:- Report of the Minister of Public Instruction, 1912-13, Melbourne: Government Printer, 1913, p.98.

> Our educational policy in the past amply provided for the training of professional men and men of leisure. The courses of study encouraged every boy with ability to proceed to the professional work of the doctor, lawyer, the teacher. The same tendency still exists, and it is undoubted that it is mainly due to social conditions and the influence of the academic teacher that an undue proportion of our youth receives an irremovable bias in the direction of such work. The importance of industrial work and the prizes to be won are either unknown or ignored.[1]

Secondary education as an adequate preparation for technical education had not eventuated.

The first expression of failure came as early as 1912, when in September, Donald Clark declared that, "The preparatory training for technical school work is still the most important problem we have to face."[2] The skilled technical teacher was still wasting time in attempting to instruct youths who were not capable of receiving instruction because of inadequate preparation. Clark saw that the only solution to the problem was the creation of junior technical or preparatory schools.

The path in this field had already been paved by the Working Man's College which for some time was the only school providing preparatory training for both the higher and lower branches of industrial work. The Chief Inspector was convinced of the success of this school where every boy attending went through a course of mathematics, English, civics, geography, modelling, freehand drawing, geometrical drawing, cardboard modelling, sheetmetal work

1 ibid., p.99.

2 Victoria:- Report of the Minister of Public Instruction, 1911-12, Melbourne: Government Printer, 1912, p.129.

and experimental science. Most of the staff consisted of men who had special technical experience and whose outlook was industrial, while provision was made for both day and evening students.

Clark was emphatic:

> Unless schools of this and similar types are established throughout the suburbs and in populous country centres, it will never be possible to develop an effective system of technical education.[1]

Other thoughts expressed by Clark at this time gave the general picture for future provision. These included:

1. Such schools would bear the same relation to the technical schools as the grammar or high schools bore to the University.
2. They would cater for two classes of students:
   a) those going on to higher branches of technical work such as industrial chemists, metallurgists, mining managers, electrical engineers, and so on.
   b) that great army of tradesmen needed each year, such as carpenters, plumbers, fitters and turners, and so on.
3. Day schools were essential, although they should be open for evening students as well.
4. The length of courses should be short, bearing in mind that employers in the industrial or commercial world did not want boys after the age of sixteen. Moreover, the period of instruction would be governed by parental position in keeping

1 ibid., p.130.

boys at school, industrial requirements and class of work to be followed.

With these basic principles in mind and following the pattern set by the preparatory school of the Working Men's College, a scheme was launched in 1913, junior technical schools being established at Swinburne Technical College, and in connection with the senior technical schools at Ballarat, Bendigo, Geelong and Collingwood. They proved successful from the beginning and eventually such schools were established in connection with almost every senior school.

The Type of Junior Technical School that Evolved

When the first junior technical schools were established, boys were admitted when they had reached 14 years of age or before this if they had obtained the elementary school Merit Certificate. Fees amounted to £6 per annum and the annual cost of books was about 30/-. The course was for one year, but was subsequently extended to two years.

It soon became evident that while this scheme provided adequate training for many boys, the majority who needed preparatory training for attendance at a senior technical school just did not get it because parents could not afford to keep boys as non-wage earners from the age of 14 to 16. Also, boys who were retained in the elementary schools, doing the ordinary subjects, were only too pleased to get away from the drudgery of lesson books as soon as they had finished their compulsory period of education.

As a result, the entrance age to junior technical schools was

lowered to 13 years, while admission was granted to boys who had obtained their Qualifying Certificate. This meant that a boy could remain in the elementary school, enter a high school or a junior technical school. With these new arrangements the junior technical schools were soon filled to capacity and extension of facilities carried out.

While Clark was fairly satisfied with the development of the junior technical schools, he was ever ready to seek improvements. Hence we find that by 1914 he was advocating a further extension of the course to make it three years. He felt that two years' preparation was not sufficient to ensure adequate training for the higher branches of trade and technical work.[1] As he said later: "The extension of the Junior Technical School Course from two to three years was rendered necessary by the standard of education reached by many of the boys who entered."[2] While such an increase in length of course did give a more adequate preparation for higher technical work, it did not, as we shall see, solve the problem of securing boys of high educational standard upon entrance to a junior technical school.

The aims of the junior technical school were of a twofold nature. In the first place, the courses were designed to give a

1 Victoria:- Report of the Minister of Public Instruction, 1913-14, Melbourne: Government Printer, 1914, p.85.

2 Victoria:- Report of the Minister of Public Instruction, 1918-19, Melbourne: Government Printer, 1919, p.21.

preparatory and pre-vocational training in science, art and trade, which would enable students to continue profitably their senior technical studies in the day or evening classes. A concomitant of this training was of course the assistance given to students in the determination of the type of industrial and technical work for which they were best suited. However, there was no intention of giving specialized, vocational training as the following extract from the 1913 Prospectus of the Melbourne Junior Technical School shows:

> It should be clearly understood that the School does not teach a boy a trade. It gives him that combination of theory and practice which is the best introduction to all trades, and which will make him a better and a more intelligent artisan if he subsequently learns a trade, or will enable him to enter any other occupation with well trained faculties.[1]

Again, there was another aspect of education to be considered at all times and the Prospectus continued in this way:

> In order that a boy, while being thus prepared to enter a trade, may not devote his attention exclusively to that work to the neglect of his general culture, he will attend classes in English, Geography and Civics, and learn something of the strength and beauty of his native tongue, and of the privileges and duties which fall to his lot as a future citizen of the Commonwealth.[2]

In other words, the general and cultural education of the youths was continued, although the establishments were regarded as different from the secondary schools, Clark remarking in 1914 that, "The time spent on the various subjects is somewhat greater than that occupied

1 The Melbourne Junior Technical School, Prospectus 1913, Melbourne: McCarron, Bird & Co., 1913, p.11.

2 ibid., p.11

in secondary schools".[1] In that year, half the time was spent on English, civics, geography, mathematics and science, a quarter on drawing, and a quarter on manipulative work. The course covered the following subjects:[2]

First Year	Second Year
English	English
Geography	Elementary Economics
Civics	Algebra
Arithmetic and Mensuration	Euclid
Algebra	Mensuration
Elementary Science	Elementary Science
Practical Geometry	Dimensional Sketching
Geometrical Development	Freehand Drawing and Design
Solid Geometry	Mechanical Drawing
Dimensional Sketching	Constructive Drawing
Freehand Drawing	Modelling
Woodworking	Elementary Carpentry
Sheet-metal Working	Sheet-metal Working
Physical Culture	Blacksmithing
	Elementary Instrument Fitting

With regard to teachers, we have noted how these were chosen

1 Victoria:- Report of the Minister of Public Instruction, 1913-14, Melbourne: Government Printer, 1914, p.84.

2. ibid., p.84.

according to the dual aspect of the schools. For the purely academic subjects, teachers were recruited from the State teaching service, while men with industrial experience were chosen wherever possible for the teaching of drawing and manual work. From this point of view then, an attempt was made from the beginning to bring the work of the school into relationship with industry.

However, as far as relationships are concerned, probably the most characteristic feature of the evolution of the junior technical school in Victoria was its close connection with the senior technical school from the beginning. Donald Clark referred to this special aspect when outlining the work of junior schools in 1914. He noted that, "Another very important factor is that, with one exception, the junior technical schools are closely associated with the senior schools."[1] The Principal of the senior school had the responsibility of seeing that the courses of study in the junior school were carried out in such a way as to prepare boys for their higher technical studies, while the staff in the senior school assisted in the work of the junior school. In this way an unbroken path was constructed between the types of schools. The exception mentioned was the Melbourne Junior Technical School which was originally an adjunct of the Working Mens' College, but was separated when the Education Department took control. As matters stood in 1914, there was considerable overlapping of teaching since the staffs of the two

1 Ibid., p.85

schools were quite distinct.

Selection of Students for Technical Schools

Although the extension of junior technical education from two to three years was in the direction of more adequate preparation for higher technical studies, the problem of securing sufficient boys of high educational standard upon entrance to a junior technical school remained. Both the city and country junior technical schools depended on the elementary schools for a supply of pupils. In turn, the technical schools depended almost wholly on the junior technical schools for their supply of students. It was imperative therefore that the junior technical schools should draw the most suitable youths from the elementary schools, otherwise the senior technical school stood to suffer. Unfortunately, by the 'twenties, at least, the most suitable types just were not being recruited for technical education.

The Chief Inspector of Technical Schools was quite disappointed with the situation. In the large centres of population the junior technical schools were drawing a fair percentage of good boys, mainly because these schools had more applications than could be admitted. However, in the country centres, the number of well-equipped pupils was relatively small.

Clark declared,

> Generally speaking, I am wholly dissatisfied during the present year with the type of lad who is passing into country junior technical schools, and with the inadequate and temporary staff of nearly all junior technical schools.[1]

There were a number of reasons for this state of affairs, the more important ones being summarized as follows:[2]

1. Ignorance of parents and many public men as to what technical education really means.
2. Prejudice, due to ignorance, on the part of many schoolmasters.
3. Subordinate position with consequent lack of buildings, staffing, and equipment occupied by many schools.
4. The cultivation of school snobbery.

The remainder of Clark's report on the junior technical schools was a scathing criticism of both public and professional attitudes towards technical education. His had been the painful lot to listen to lectures and speeches of men occupying prominent positions as to the merits and defects of technical education. "These men unfortunately knew little or nothing about the aims or even the workings of the technical schools, and, were it not for their positions, their useless advice could be ignored."[3] Most people gained their knowledge by visiting a technical school on some invitation night, where they saw the more easily demonstrated work of practical classes. Hence the main impression taken away was that technical education meant training only in the use of hammer, chisel, file and

1 Victoria:- Report of the Minister of Public Instruction, 1918-19, Melbourne: Government Printer, 1919, p.21.

2 ibid., p.20.

3 ibid., p.20.

drill, or some other form of manual work.

There was also the underlying and ever-present tradition as to the servitude of manual work. "The very term 'industrial school' was one of reproach."[1] Parents did not realise that, while a certain amount of practical work is really necessary in the training of a technologist, it is the brain which directs the practical work and is therefore in need of the higher training.

Again, the purely academic schoolmaster added to the trend. Being trained along traditional lines, the teacher was prone to divide his pupils into good at the usual subjects or not so good. The former would be channelled into higher academic educational training while the latter would be recommended for technical work. Such procedure was adopted in perfectly good faith and was of course a very strong factor in influencing the future careers of youth. The general result was therefore to deflect all the bright boys into courses which did not bring them to the technical schools. However, Clark did not lay all the blame at the feet of the school teacher, for as he said,

> The schoolmaster can scarcely be blamed for this attitude, since, the whole educational policy of the State, until very recently, was to endeavour to pick the brightest and brainiest of our youths for a very limited number of University courses, altogether ignoring the wider field of primary and secondary industry and commerce.[2]

1 Ibid., p.20.

2 Ibid., p.20.

With such strong influences at work, traditional attitudes were bound to persist and indeed have carried through to the present time in many respects.

4. Systematic Technical Education in Victoria a Reality.

Notwithstanding Clark's dissatisfaction at various points of development, systematic technical education had been attained in Victoria by the 'twenties of this century. Moreover, the moulding force of Clark's hands was clearly evidenced in the years of re-organization and development after 1910. Tremendous strides were made in a decade, and in the face of many obstacles. There was still the narrow outlook which tended to place technical education on the sideline as a pursuit for those who were not bright enough for academic examinations. There was still the hampering effect of those who pleaded for a sound general education, without taking a balanced view of the situation which called for special skills as well, and thereby perpetuated the academic tradition.

Nevertheless, Clark was able, in 1925, to record with pride that: "During the last twelve years, despite many difficulties, marked progress has been made, as the figures given hereunder will indicate."[1]

1 Victoria: Report of the Minister of Public Instruction, 1924-25, Government Printer, 1925, p.25.

Figures as follows:-

Year	No. of Students	Total Grant £	No. of Schools
1880	200	4,000	2
1890	...	16,450	13
1900	3,200	13,000	18
1910	6,000	15,000	15
1920	14,000	145,036) Salaries and	24
1925	19,730	205,378) Maintenance	26

There is no denying the expansion and progress made in terms of both physical facilities and educational outlook. Many new technical schools, with better equipment, had come into existence; the administrative machinery was efficient and provision was systematic; the educational framework was linked, there being a clearly defined path from the primary school through secondary technical and university education; when the secondary schools failed to adequately span the gap to higher technical studies the junior technical school was erected as a successful bridge; subjects were no longer taken up in a haphazard manner, definite courses of study being organized both in the trade and professional scientific fields, while the number of students increased rapidly; definite links with industry were forged through the advisory committee technique, while certain schools came to specialize in work associated with local industries; and a beginning was made with correspondence education. In other words, the main recommendations put forward by the Finke Commission in 1901 had been carried into

effect. No longer were the technical schools regarded as an excrescence on the State educational system.

Still, nineteenth century traditions died hard. Despite the frequent pleas by Chief Inspector Clark, evening work continued to be the predominantly accepted procedure, while the basically British attitudes and concepts with regard to technical education remained, Clark himself was convinced that the correct approach was for the practical training of mechanics and technicians to be carried out 'on the job'. Some employers desired that the instruction given in technical schools should consist of teaching lads workshop operations just in advance of those required in the particular workshop, but this was regarded as a narrow outlook. Technical education was seen as the theory underlying a trade or professional occupation. "The onus of supplying the practical training to employees should rest mainly on the employer, and of technical instruction on the school," said Clark.[1]

1 Victoria:- Report of the Minister of Public Instruction, 1918-19, Melbourne: Government Printer, 1919, p.20.

CHAPTER XII

TASMANIA FOLLOWS THE TREND

Tasmania was soon influenced by trends on the mainland, especially after the appointment of W. T. McCoy, a New South Wales inspector, as Director in 1910. Up until this time progress was slow.

As we have seen, attempts had been made during nineteenth century to develop facilities for technical education, particularly in response to the demands of local industry such as that of the mining centres of Zeehan and Mount Lyell. Progress was however very slow and almost came to a standstill following the wave of economic depression during the 'nineties. The Department of Education had accepted responsibility for technical education and provided the first facilities for the Hobart Technical School in 1888. Those at Launceston, Mount Lyell, Zeehan and other mining centres soon followed. With the great restrictions imposed by the halving of the Government vote progress or development was almost impossible. Most of the country schools were compelled to close while those at Hobart and Launceston had their work reduced by at least half.

Little wonder then that J. R. Tranthim-Fryer's report on "The Growth of Technical Education in Tasmania," in 1897, contained such

a dearth of information on progress made. Rather did it resolve itself into a cry for greater interest and attention by the Government in the establishment of a technical education system. Tranthim-Fryer, who was Principal of the Art Section of the Hobart Technical School, expressed the hope

> . . . . that the Government and members of Parliament will soon see their way clear to vote such a sum of money for technical education, that the committee will be enabled to carry on their fine work properly . . . . That being done, there is no need to fear the result. [1]

The matter was not quite as clear cut as this however, for more than finance was lacking for the adequate development of systematic technical training. Not only was there the huge gap, as in other Australian States, between the primary school and the technical school, but primary education itself was far from being undertaken by all. Indeed, up to the year 1912 the efforts of the Department of Education were confined almost exclusively to providing a primary education for the majority of the children in the State. Energies were for so long expanded on gaining full attendance and ensuring that all children received an adequate elementary training. Even by 1906, the position remained acute in that out of 36, 315 children in the State between the ages of 6 and 14 there were 35.6% not enrolled at any school. This compared with only 1.9% in New South Wales and 5.8% in Victoria. [2]

1 J.R. Tranthim-Fryer, op.cit., p. 1052.

2 C. Reeves, op.cit., p.96.

The Secondary Gap

With regard to secondary education, while State exhibitions were available to the most promising students, higher schools were controlled by traditional private enterprise. As early as 1897 reference to the need for adequate State secondary school facilities was made. In his report for that year, the Director expressed the hope,

> that when funds are available, a scheme of secondary education far more comprehensive than the exhibition system will be adopted -- one that will be within the reach of all scholars who may be found educated up to a minimum standard in the State schools or elsewhere, and will enable such scholars to acquire not only the knowledge of history, politics, and literature that a citizen in a free country ought to have, but also such elementary knowledge of Science and such training of the eye/hand as may enable them to learn easily and quickly the principles that underlie any special industrial pursuit or profession, toward which they may have a natural bent, and in which they may find openings.[1]

How clearly these words resemble those uttered later by other Australian educational leaders like Tate and Board. They captured the spirit of the times, but little action to transplant ideals into practice was forthcoming. In 1905 a number of promising Tasmanian teachers were selected for special training in Melbourne, particular emphasis being given to work in natural science, woodwork and domestic science. Again, in 1906, all teachers in training were obliged to receive instruction in general craft work while male students were given special instruction in woodwork and females a course in domestic science. The following year, woodwork and cook-

1 ibid., p.86.

ing classes were started in Hobart and Launceston under the control of the specialist teachers who had trained in Melbourne, Special rail tickets were issued by the Education Department to allow children within travelling distance to take advantage of these courses before terminating their primary education.[1]

However, the secondary gap still yawned and the technical schools still stood in isolation for many years. Then came the year 1910, the year in which W. T. McCoy became Director. Bringing with him the experience of many years service in the New South Wales Department of Education, culminating in the position of Inspector of Schools, it seems natural enough that he should look to what was happening in that State to guide him in his new administrative role. Consequently, by the end of the year was seen the first attempt at State post-primary education by the establishment of a new seventh class in larger schools. This system was extended during the next few years and by 1913 State High Schools had been established in Hobart and Launceston. Five separate courses were provided for originally, according to whether the student intended proceeding to:-

a. the teaching profession

b. the University

c. a commercial career

d. a mechanical occupation

1 Ibid., p.99.

e. home duties

Like Peter Board and Frank Tate, McCoy decided that he should work up the educational ladder, giving his attention to the lower rungs first, with the ultimate aim of co-ordinating the whole framework.

This is amply reflected in his own words when in 1916 he reported the following:-

> The efforts of the past seven years have been mainly directed towards improving the primary schools, laying solid foundations for building up a sound secondary system, and providing an adequate education and training for our future teachers. The paramount importance of giving to children such a training as will build up their characters, fit them to become self-reliant citizens, who will realise to the full their responsibilities, and enable them to take an intelligent and active part in the development of their State, has been ever kept in view. Kindergartens, Montessori Schools, model country schools, model infant schools, and model primary schools, have been established as adjuncts to the Training College, and the courses of training are now being remodelled, with a view to providing the State with an adequate supply of well-educated and fully-trained teachers for both primary and secondary work. The scope of work and the sphere of influence of the cookery, woodwork and ironwork schools have been extended. High schools, with secondary, commercial, industrial, and domestic courses have been established.[1]

Re-organization in the Technical Field

Much had certainly been accomplished, and now that the primary stage of education had been re-vitalized and expanded and secondary education given a solid foundation, it was time for special consideration to be afforded to co-ordinating and developing the higher technical system of the State. McCoy declared that if Tasmania

1 Tasmania:- "Report of the Director of Education", Education Department Report, 1916, Hobart: Government Printer, 1917, p.2.

was to maintain her position amongst the States, "to increase our commerce and our industries, and maintain our prosperity",[1] then more had to be done in education.

> It is generally recognised that technical and scientific knowledge forms the basis on which the success of a State rests, and it appears that the time has now arrived when the State should take some definite action towards developing and encouraging scientific knowledge, and organising the means of obtaining it.[2]

In August, 1916, James Nangle, Superintendent of Technical Education in New South Wales and the Director, McCoy, were appointed as a commission to:-[3]

a. Enquire into the management of the technical schools and schools of mines in Tasmania, and the methods of instruction employed therein.

b. Report whether these schools were meeting the needs of the community in regard to technical instruction or not.

If they were not:-

c. To recommend a scheme of technical education which, in their opinion, would be suited to the needs of the State.

From the recommendations put forward by this Commission it was clearly shown that the existing technical schools certainly were not meeting the needs of the community. Moreover, it was obvious that the scheme proposed was almost an exact replica of the newly

1 Ibid., p.2.

2 Ibid., p.2.

3 Ibid., p.3.

organized scheme for technical education in New South Wales. The recommendations in summary were as follows:-[1]

1. A new branch of the Education Department to be established and to be named the Technical Education Branch.
2. All technical schools and schools of mines in Tasmania to be taken over and administered by this branch.
3. An organizing inspector to be placed in charge of technical education, with duties as detailed in the report.
4. That the following schools be established as soon as practicable:
   a. Junior technical schools to give the necessary preparation to boys desiring to become apprentices.
   b. Technical schools to provide for trade, mining, elementary art, science, and commercial courses.
   c. Technical schools to provide higher technical courses in applied art, architecture, mechanical engineering, sanitary engineering, electrical engineering, mining engineering, metallurgy and assaying, and industrial chemistry.
   d. A domestic school for girls.
5. An apprentice bureau to be established, with the object of obtaining suitable employment for lads leaving the junior technical school.
6. The co-operation of employers and employees to be sought to

1 ibid., p.3.

assist in laying out courses and performing the other duties indicated in the report.

7. Arrangements to be made to co-ordinate certain of the more advanced courses given at the technical schools with the courses given at the University.

8. A correspondence section to be established for the benefit of country students.

The conspectus (see in appendix)[1] shows the overall scheme of State education in Tasmania in 1916, with the proposed development and co-ordination of technical education in dotted lines. It should be noted how closely the organization followed that of New South Wales.

Little time was wasted in making a start on the new programme and in 1917 Mr. Frank Ellis was appointed Organising Inspector of Technical Education, "with a view to bringing the existing technical schools into proper relation with the primary and secondary schools of the State."[2] It was realised that some time must necessarily elapse before the recommendations of the 1916 Commission could be carried fully into effect, but it was hoped that Ellis

1 Vide infra, Appendix p.357

2 Tasmania:- "Report of Director of Education", Education Department Report, 1917, Hobart: Government Printer, 1918, p.2.

would be able to make such preliminary arrangements as would allow "that children leaving the primary schools at the end of 1918 will have the opportunity of obtaining further education to fit them specially for their future occupations as tradesmen."[1]

Such proved the case for the Director was able to report that in 1918 a Technical Education Branch had been formed under the control of Mr. Ellis and that all technical schools and schools of mines were taken over to be administered by this branch. The scheme included the establishment of junior technical schools, the re-organization of existing technical schools to provide for trade, mining, elementary art, science, and commercial courses, and the establishment of senior classes in the technical schools to provide higher training in applied art, architecture, engineering, and science.[2]

The co-operation of employers and employees was sought to assist in laying out courses and arrangements were in hand to co-ordinate certain of the more advanced courses with those given at the University. In order to secure the sympathy and valuable advice of persons expert in various fields, advisory committees were formed for the senior technical schools. During 1918 the following committees came into existence; applied science, electric wiring, building trades, plumbing and sanitary trades,

1 ibid., p.2.

2 Tasmania:- "Report of Director of Education", Education Department Report, 1918, Hobart: Government Printer, 1919, p.7.

mechanical engineering trades, applied art.[1]

Junior Technical Schools.

In January, 1918, Junior technical schools were opened at Hobart, Launceston, Zeehan and Queenstown, there being a gross enrolment of about 170. The aim was to provide a preliminary technical training for boys who intended eventually to enter one of the industrial professions or trades, qualification for entrance being the same as that for the State high schools.[2]

The Director was emphatic in his conception of this type of school. "The junior technical school does not pretend to teach a boy a trade", he declared.[3] The general cultural education of the pupil was not to be neglected, but the course of instruction was particularly designed to equip him with special technical knowledge of those subjects which it was felt formed the basis of all trades and professions connected with industry. It would give him a mental and practical training in the processes fundamental to art, trade, and science, as would enable him to learn the technique of a skilled industry quickly. Again, the training given would enable a boy to determine the vocation for which he was best fitted, mentally and temperamentally. Moreover, it would develop in the pupil a taste for technical study which would almost certainly act as an incentive towards the continuance of

1 Tasmania:- "Report of the Organising Inspector of Technical Education", Education Department Report, 1918, Hobart: Government Printer, 1919, p.26.

2 Tasmania:- Education Department Regulations, Technical Branch, Hobart: Government Printer, 1918, p.8.

3 Tasmania:- Education Department Report, 1918, op.cit., p.7.

work in the evening classes at the Technical School.

A complete syllabus for the two to three years course was prepared, the subjects including:- civics, drawing, woodwork and sheet-metal work, solid geometry, practical plane geometry, geometrical development, physical culture, science and English literature.

During the following year, 1919, in order to ensure that standards compared favourably with those in Victoria and New South Wales, Mr. C. E. Fletcher, Inspector of High Schools, visited those States.[1] Consequently, in keeping with the mainland, the secondary course was extended by one year to cater for the Intermediate Certificate at the end of three years, with an additional two years for the Leaving Certificate.

At the same time, "Towards the end of the year it became evident that something must be done to enable pupils in the junior technical schools to avail themselves of the advantages of preparing for the public examinations".[2] As a result, the syllabus of the junior technical school was modified slightly while certain subjects peculiar to the technical schools were inserted in the curriculum for public examinations.

Systematic Technical Education Achieved

Having controlled the destiny of the Tasmanian Department of

1 Tasmania:- "Report of the Director of Education", Education Department Report, 1919, Hobart: Government Printer, 1920, p.7.

2 ibid., p.7.

Education for almost a decade, W. T. McCoy was selected to take up the position of Director in South Australia. During his term in Tasmania he had succeeded in bringing the State system into line with that of New South Wales and Victoria, the pattern of organization and co-ordination of technical education being on the same lines as those of New South Wales. Mr. G. V. Brookes the succeeding Director gave the following glowing review of McCoy's accomplishments:-

> Under his direction the system of primary education was reorganized . . . . He initiated and established a secondary school system, embracing secondary, commercial, domestic and industrial teaching, and organized qualifying certificate, intermediate, and leaving examinations in connection with it. As a sequel to the Nangle-McCoy Commission, he in recent times thoroughly re-organized technical education in the State, and put it on a sound basis, this reform including the establishment of four junior technical schools.[1]

1 ibid., p.2.

CHAPTER XIII

QUEENSLAND EVOLVES A SYSTEM

The story of the coming of systematic technical education to Queensland is, unlike a number of other states, one of evolution rather than revolution. There are quite a number of focal points in the developmental pattern but none of the real milestones that are so easily discernible along the pathway in other parts of Australia. This is not to say that Queensland did not reach similar goals to the rest of Australia, for she did develop a system of technical education in keeping with the basic pattern and supported by almost identical assumptions as the other states. It is merely to suggest that the story is somewhat less dramatic, in that at no stage does there appear to have been a detailed plan of attack put forward for a complete re-organization of the educational framework in response to the need for education applicable to an industrial age.

1. Difficulties at Turn of Century.

We have seen how the development of technical education in the northern state was retarded during the closing years of the nineteenth century due to the effects of economic depression coupled with the prevailing narrow philosophy of educational leadership. Unfortunately growth was destined to be further impeded dur-

ing the early years of the present century due to a number of disturbing influences. As one writer has said, this period "provided quite sensational events in the field of technical education".[1] Unhappily however the sensation was not one of outstanding achievement but rather one of conflict and condemnation which took a number of years to fully eradicate from the educational scene.

With the growth of technical colleges attached to various Schools of Arts and administered by councils financed by fees and government grants, there developed a situation in which each school acted independently. Moreover, "a considerable amount of friction existed between the Department and the colleges."[2]

There were a number of causes given for this friction, the principal being:

a. the disinclination of the Department to allow endowment on preparatory classes held at the colleges on the grounds that subjects being taught were included in the primary school curriculum and that students should have taken advantage of the instruction at that stage.

b. the discounting of endowment for subjects of the college course such as music, regarded as not applicable to technical education.[3]

1 E.R. Wyeth, op.cit., p.161.

2 Queensland: Report of the Secretary for Public Instruction, 1904, Brisbane: Government Printer, 1905, p.69.

3 ibid., p.69-70.

In order to bring about a more settled state of affairs and co-ordinate efforts in the field, a Board of Technical Education was created in 1902 whereby all councils were brought under a central authority. However this did not prove a solution to the problem, for although the new Board found that it had to agree with the colleges in respect of the inadequacy of the primary school curriculum as a preparation for technical work, and therefore supported payment of endowment to preparatory technical classes, it found itself at variance on many other matters. Again, the Board found that a number of technical colleges were guilty of misapplication of funds. Hence the gulf between Board and Colleges, particularly the one in Brisbane widened and to make matters worse, the Board felt that the Department of Education had, "missed opportunities of promoting sound technical education in ignoring the recommendations which the Board after full and careful consideration have thought proper to submit".[1]

So disturbing was the situation that the Minister for Public Instruction, A. H. Barlow felt obliged to declare, "I have inherited a state of things that has nearly driven me mad."[2]

2. The Call for Action.

Action was needed and came in 1905, the Board of Technical

1 Ibid., p.73.

2 Brisbane Courier, 6th May, 1904, quoted by E.R. Wyeth, op.cit., p.161.

Education being replaced by an Inspector of Technical Colleges. Mr. R. M. Ridell was appointed to this position and proved an able administrator in his task of developing the system of technical education, inspecting colleges and supervising the endowments. The Departmental report for the following year was much more enthusiastic and optimistic. The differential scheme of endowment (originally recommended by the Board) instituted at the beginning of the year was well accepted and made for greater developments in the field.

> Owing to the more liberal subsidy, the advances made by the Government, the return of better times, and the strenuous efforts and careful management of the council, the Brisbane Technical College is surmounting its difficulties, and its future prospects are hopeful.[1]

The syllabus for technical colleges was being revised and attempts were being made to bring about a closer link between primary curriculum and the work of the technical school. Efforts were being made to expand facilities and place technical education on a sound basis as seen from the following extract from the Secretary's Report:

> It is now a consideration of State assistance that new colleges shall be vested in the Secretary for Public Instruction. Existing colleges are being gradually dissociated from the Schools of Arts, and are being conducted as separate institutions. The Brisbane and South Brisbane Colleges have been extending their work; the Ipswich College is opening electrical and chemical classes; a mining course, including physics, chemistry, minerology, metallurgy, and assaying, has been begun at Rockhampton; the Townsville College has an engineering course in active operation; the Charters Towers College has increased the efficiency of its mechanical engineering course; and the Cairns College has opened classes

1 Queensland:- Report of the Secretary for Public Instruction, 1906, Brisbane; Government Printer, 1907, p.27.

> in geology and mineralogy, which are being well attended. In nine centres classes bearing upon the dairying industry have been established. As opportunities have arisen subjects have been added to the departmental syllabus to provide for the training of engine drivers, boiler-attendants, french-polishers, milk and cream testers, etc., and the classes are all State endowed. Continued effort is being made to bring the work of the technical colleges into touch with the practical life of the people. These particulars will show that technical education is beginning to assume definite shape and that some true technical work is being undertaken and accomplished.[1]

Classes in subjects such as higher mathematics, physics, chemistry, electricity, geology, and mechanical engineering were growing, while music had been excluded from technical college work, It could be justly claimed that: "technical education in this State is no longer synonymous with music, cookery, shorthand, and typewriting."[2] Moreover, the following statement was equally just: "It may be fairly said that a beginning on a sound basis has now been made in regard to technical education, but it cannot be pretended that it is more than a beginning."[3]

It was obvious that considerable time would have to elapse and much money would have to be spent before Queensland could hope to attain the high standard of excellence of the German or American technical institutes, but a spirit of reform was afoot, at least in the Department of Education, as seen in the following:

1 ibid., p.27

2 ibid., p.27.

3 ibid., p.28.

> We cannot expect to immediately undertake the wide scope of subjects covered by Britain, America and Germany, and it would be foolish to attempt to do so. But we should always bear fully in mind the resources and actual requirements of Queensland, and shape our system of technical education accordingly. Our mineral and agricultural resources, for instance, are unbounded; there is a wide scope for mine managers, engineers, assayers, and scientific farmers. Our minerals are many and varied, and the proper way of treating many of them has yet to be discovered. Scientific farming is becoming more and more necessary each year. Queensland in these directions at least should train her own managers, engineers, assayers, and experts, and it should not be necessary for our young people to go abroad to complete their education in mining and agriculture; it should be made possible for students to get better instruction in these subjects in Queensland, both theoretical and practical, than they can get elsewhere.[1]

Mr. J. D. Story was at the helm as Under Secretary and technical education was destined to benefit greatly due to his far sighted administration. He noted that this branch of education had not been successful under local control and was emphatic in his conviction that: "The need of Legislative action to place technical education under State control and make proper provision for the expansion and development of the system is pressing, and action should not be longer deferred."[2] While it was granted that many of the best American institutions had been privately endowed, and owed their success to private benefactors, it was evident that Queensland had to look to the State for the provision of systematic technical education. "If technical education is to flourish as it should do, it is apparent that the State must assume control and

1 ibid., p.28.

2 ibid., p.28.

provide the necessary funds."[1]

The year 1908 saw action being taken with the passing of the Technical Instruction Act, which principal features included under the Act were: provision for the amalgamation of the several metropolitan colleges: establishment of a central technical college under direct control of the Department of Public Instruction: placing of country colleges upon the same basis as State schools in regard to establishment and equipment; and provision for the establishment of branch classes to be worked in conjunction with technical colleges.

The department collected a great deal of information both from overseas and, in particular, from New South Wales in terms of the Knibbs-Turner Report. With this material as a guide, a fresh start was made and the next decade witnessed a period of growth and expansion.

3. A Turning Point

By 1910 the stage was set for implementation of the reorganization envisaged by the 1908 Act. The South Brisbane and West End colleges were closed and the building which had previously housed the Brisbane Technical College became the principal part of the Central Technical College. A day school of the junior technical type was commenced and additional trade courses established in a number of centres. Work began on the construction of a new

1 ibid., p.28.

Central College and plans drawn up for the erection of new colleges in a number of country centres. Diploma work was inaugurated at the Central College and approval given for application with the University. In the following year, the lines on which the central College was to be linked with the University were laid down and the Superintendent of Technical Education, Leonard Morris, felt obliged to boast that these arrangements,

> should lead to increased efficiency in the Technical College work, and will place within the reach of engineering trade students opportunities which are not enjoyed in any of the other States of the Commonwealth.[1]

Over the next decade steady progress was made in most aspects of technical work and one of the most important advances made was the passing of the technical Instruction Amendment Act in 1918. This Act enabled the Government to "take complete charge of and administer all or any of the colleges or institutions established for the purpose of technical instruction to which any aid or endowment has been given or granted."[2] Country colleges were gradually taken over by the Department and systematic provision enhanced. By 1920 there were colleges operating in 17 large centres of population while various branch classes were being conducted in smaller centres. The following table gives some indication of the effort being made to cater for different types of technical education

1 Queensland:- Report of the Secretary for Public Instruction, 1911, Brisbane: Government Printer, 1912, p.114.

2. State Education in Queensland, 1941, op.cit., p.17.

suited to particular centres:-[1]

Population of Centre	Type of Centre	Examples of Type	Type of Technical Work Undertaken
From 4,000 upwards	Commercial and Manufacturing centres surrounded by several smaller centres	Brisbane Rockhampton Toowoomba	Combined High School and Technical College with full-time day schools in academic and vocational subjects.
		Bundaberg	Day and evening classes in technical subjects according to the demand of the particular industries and occupations of the districts. Branch classes for school pupils and adults in surrounding centres.
From 1,000 to 4,000	Centres in pastoral areas with no other centres of a reasonable size in the vicinity	Barcaldine Longreach Charleville Cunnamulla	Day and evening classes in vocational subjects for adults. Vocational Top Schools for senior pupils.
From 400 to 1,000	Either isolated centres or centres within a reasonable distance of a Technical College	Emerald Clermont Finch Hatton Mirani	Intermittent classes in vocational subjects conducted by itinerant teachers working in circuits, or as branches of existing Technical Colleges.
From 400 to 1,000	Centres in closely settled agricultural and dairying districts	Boonah Marburg Nambour Beaudesert Atherton Home Hill	Rural Schools with classes in vocational subjects having a special bearing on the rural industries, special attention being given to agricultural science classes for adults.

1 Queensland:- Report of the Secretary for Public Instruction, 1919, Brisbane: Government Printer, 1920, p.127.

Great strides were certainly being made, still, the nineteenth century British traditions remained relatively unblemished. Technical education was basically instruction in the theory underlying a trade or calling and was confined to evening work. In fact, the Superintendent of Technical Education in 1910 seemed convinced that: "The hours of employment in most occupations permit of time being devoted to self-improvement, and no great hardship is entailed in attending evening classes."[1]

Trade Instruction:

At all events, trade instruction and the problem of apprenticeship began to be given more attention and in the following year, the Superintendent, taking into account the findings of a number of conferences on apprenticeship and no doubt the conclusions reached by leading educators from other States in overseas surveys, had a change of mind with regard to apprenticeship and expressed the opinion that: "The full-time day trade school is the only solution to the problem".[2] Realising the implications of such a radical change in basic philosophy he further predicted that:

> There is no doubt that it will take some time to convince employers and employees that the full-time Day Trade School is superior to the apprenticeship system, but, as College students take their places in the trade, the prejudice will cease to exist.[3]

1 Queensland: Report of the Secretary for Public Instruction, 1910, Brisbane: Government Printer, 1911, p.111.

2 Queensland: Report of the Secretary for Public Instruction, 1911, Brisbane: Government Printer, 1912, p.115.

3 ibid., p.115.

This of course, as we shall see, was far too optimistic a view, but it did show that the leaders of the movement in Queensland were aiming high. Over the next few years, more and more attention was given to trade instruction and although full-time day trade work, as planned, did not eventuate, comprehensive courses were drawn up for the Central College and, full-scale workshops came into operation. Moreover, "with a view to gaining the interest and practical assistance of the employers and employees",[1] four Trade Advisory Committees were established during 1915. The trades included in this progressive move (in keeping with developments in New South Wales) were carpentry and joinery, electricians' work, fitting and machining, and plumbing. In constitution, the Committees were representative of all the interests concerned in the respective trades and their duties included:

1. consideration of exercises planned for trade course practice.
2. inspection of assessment of trade course work.
3. inspection of methods of instruction.

It is worth noting at this stage that the Under Secretary still felt that much greater development of the technical system was needed. Nevertheless, he was optimistic when in 1915 he wrote;

> The system of technical education in Queensland is in its infancy, but no branch of education is likely to make more rapid and lusty growth in the future, or to have a more important bearing upon the industrial and commercial develop-

1 Queensland: Report of the Secretary for Public Instruction, 1915, Brisbane, Government Printer, 1916, p.162.

ment of the State. [1]

Mr. Story's predictions were certainly justified in respect of trade education for, over the next decade, through progressive experiment and experience Queensland, as we shall see, became one of the leading figures in the movement towards the new apprenticeship. By 1920 a Central Apprenticeship Committee had been established and a detailed plan drawn up for trade training. Then in 1924 came the Apprenticeship Act which provided for compulsory attendance at trade classes and part-time day release. This Act was later amended to stabilize and develop the apprenticeship scheme, but with its passing Queensland became one of the forerunners in the Australia-wide movement for apprenticeship reform.

The Secondary Link

Due no doubt in a large measure to the conservative and even reactionary attitude of leading educationists and politicians during the 'nineties. Queensland had not been blessed with State secondary education by the turn of the century, and technical education stood to suffer as a consequence. This attitude is amply exemplified in the utterances of the General Inspector, D. Ewart when asked by parliament, in 1896, to submit a report on a proposal to incorporate in an amendment of the 1875 Act certain provisions of the New South Wales Act of 1880 relating to Superior Public Schools. This education "leader" expressed the view that,

1 J.D. Story, State Education in Queensland, Dept. of Education, Brisbane: Government Printer, 1915, p.45.

> . . . . whatever may be the opinions and desires of individuals eager to procure at the general expense a higher education for their children, there is no doubt that the common sentiment will rule, to prevent those persons from obtaining from the public purse a peculiar benefit which the mass of the people will refuse to accord them, because the latter cannot enjoy it and see no need for it.[1]

Little wonder then that A. H. Barlow, Minister for Public Instruction, found it necessary, in 1905, to lament the lack of cohesion between State schools and technical schools.

During the next few years, J. D. Story, Under Secretary, pointed on various occasions to the missing rungs in the educational ladder. In his Report for 1906, he particularly emphasized the need for schools corresponding with the Superior Schools of New South Wales, the District High Schools of New Zealand, and the High grade schools of the United States and Scotland. He was equally emphatic two years later when he said: "A central technical college, worthy of the name, should no more be expected to do the work of an advanced elementary school than a University should be expected to do the work of a Secondary school."[2] The claims of technical education were beginning to shape the educational policy and pattern of Queensland. It was deemed that a high school for boys and one for girls were necessary in Brisbane,

> . . . . if for no other purpose than to provide for the day and evening classes of the central college a continuous flow

1 E.R. Wyeth, op. cit., p.152.

2 Queensland: Report of the Secretary for Public Instruction, 1908, Brisbane: Government Printer, 1909, p.19.

> of boys and girls sufficiently educated to take advantage of the specialized courses in the institute without having to undergo preliminary courses of a higher elementary nature.[1]

A scheme was drawn up for converting the Brisbane Central schools into two high schools, but a more comprehensive provision for State secondary schools was not launched until 1912. In the meantime continuation classes had been started as a connecting link between the elementary schools and the technical college. These came as direct result once again of the foresight of the Under Secretary who stated in 1906: "I am anxious to see a satisfactory system of evening continuation classes established in connection with technical colleges."[2]

The objects of these three classes were three-fold:-

1. To enable pupils who have left the elementary schools with an incomplete elementary education to continue and complete such education;
2. To assist young people who have completed their elementary education and have entered employment, to obtain guidance and instruction in special subjects bearing upon their occupations; and
3. To prepare students for admission to higher technical classes.[3]

These classes expanded after the Education Department took control of the Brisbane Technical College in 1910, but they were regarded as evening technical classes, the nomenclature being rather confusing in this respect, and as we shall see, in respect

1 ibid., p.19.

2 Queensland: Report of the Secretary for Public Instruction, 1906, Brisbane: Government Printer, 1907, p.27.

3 ibid., p.29.

of other types of secondary education as well.

The culmination of a long campaign to provide secondary education in schools other than grammar schools came in 1912 when the State established high schools at Warwick, Gympie, Bundaberg, Mount Morgan, Mackay and Charters Towers. These schools catered for three curriculum strands of general, commercial, and domestic science, Again, "topped" or District High Schools (ie. primary schools with a secondary department added) were established at Herberton, Childers and Gatton.

This was a big step forward in filling the gap between primary and technical education, but in the meantime, a beginning had been made with a scheme which gave a peculiar twist to secondary education in Queensland and created a confusing nomenclature for secondary schools. At the beginning of 1910 a Day School or Technical High School was inaugurated in connection with the Central Technical College, Brisbane. It was felt that this type of school "supplied a long-felt want for a secondary school in which the more useful science and manual subjects are substituted for the ancient Classics."[1] The course stressed the teaching of English, Mathematics, Drawing, Chemistry, Physics and Manual Training, with an option between French and German, the curriculum being framed to suit the attainments of pupils who had reached the Sixth Class standard in the State primary schools. A similar school had been

1 Queensland: Report of the Secretary for Public Instruction, 1910, Brisbane: Government Printer, 1911, p.109.

started at the Warwick Technical College and it was felt that establishments of such schools with the other technical colleges in the State would be most beneficial for the following reasons:-

1. The subjects ordinarily undertaken in a High School, except Foreign Languages, History, and Geography, are all required in a Technical College; and the standards of instruction in the different subjects are the same in both institutes.
2. The modern tendency in High schools is to provide instruction in Science and Manual Training subjects; and the special laboratories, workshops, and equipment required for these should not be duplicated.
3. The association of a High School with a Technical College should give a practical bent to the instruction in the High School, and should also enable Technical College trade students to undertake full courses of instruction. That combination of theory and practice should be attained which is so necessary for industrial efficiency.
4. The cost of conducting the two institutions in combination would be much less than the cost of the two conducted separately.[1]

During the following year a conference was held to discuss progress, and it was decided to change the emphasis within the curriculum and refer to the adjunct as a Day School. The basic principles behind this change of policy were:-

1. That the school should be secondary rather than technical;
2. That the school should be so organized as to defer to as late a date as possible a boy's choice of occupation, in the belief that a general education forms the best possible preparation for any occupation, and in the belief that a boy should not by his early training be committed irrevocably to entry into any certain occupation.
3. That the compulsory portion of the curriculum should be such as equally well to prepare a boy for entrance to the University, as for commercial work, or for any other

1 Ibid., p.109

> occupation without detriment to his efficiency by reason of his training.[1]

Hence in 1912 the new scheme came into operation and provided that literary mathematical and scientific subjects should be included in every course, and that commercial or domestic subjects should be available for those desiring them, but as alternatives to the subjects of drawing and manual training in the general course. Schools of this type became attached to various technical colleges in the state and were referred to as "State High School and Technical College", "Technical High School" or "Technical College".

Preparatory Day Trade Schools

At the beginning of 1916 a type of junior technical school was opened at Ipswich and another at the Central College, Brisbane. The curriculum provided for instruction in English, history, geography, trade mathematics, applied science, trade drawing and practical trade work. The general educational subjects were given as practical a turn as possible, and the afternoons as well as parts of the mornings were devoted to trade work. In the first year the practical instruction was of a general nature, and designed as an introduction to the work of any of the mechanical trades. At the beginning of the second year, students were to select their trades and specialise in them.

Referring to these as "vocation day schools" the Superintendent

1 Queensland: Report of the Secretary for Public Instruction, 1911, Brisbane: Government Printer, 1912, p.119.

reported in the following year that it had been decided that the work they covered should be of a more general nature on the trade side. Assuming that a boy would enter such a school at fourteen years of age, the reasons given for the change of policy were:

1. It is not possible to determine with any degree of accuracy the future vocation of the lad of that age. Many factors exert an influence in finally settling this matter.
2. The underlying principles of the various trades are very closely related, and the functions of the vocational school should be to teach the student the first principles rather than the use of empirical rules of specialised trades.
3. The tendency of specialising at such an early age would be to dwarf the outlook of the student, and to make him to a large extent mechanical in his thoughts as well as in his acts.[1]

Thus, although junior technical education did not become as extensive or as clearly defined as it did in Victoria or even New South Wales, the principle was adopted and along similar lines.

Comprehensive Provision Attained.

By the early 'twenties then, Queensland had developed a comprehensive system of technical education. Developments may not have been quite so dramatic as in certain other parts of Australia, but they did result in the evolution of a similar system to that of the other States. The observer could therefore comment in 1939, "in Queensland technical education is well provided for, and this is true of the provincial cities as well as of Brisbane itself." [2]

1 Queensland: Report of the Secretary for Public Instruction, 1918, Brisbane: Government Printer, 1919, p.132.

2 F.H. Spencer, op. cit., p.90.

The educational framework had been co-ordinated and expanded, due in a large measure to the claims of technical education. While the secondary link had been evolved in a somewhat different manner from the rest of the states, it was nevertheless in position.

In this evolutionary process, although a deviation was made with regard to apprenticeship, basically the traditional view had been adopted. Technical education was mainly an evening occupation whereby students were instructed in the theory or science underlying workshop practice.

CHAPTER XIV

WESTERN AUSTRALIA FEELS HER WAY

1. Early This Century

The first decade of the twentieth century saw in Western Australia a similar growth in technical education facilities as had occurred in the eastern states during the nineteenth century. The mining boom in particular had changed the economic and industrial climate and with the movement away from purely rural economy an impetus was given to technical training.

At the turn of the century, the first Director of Technical Education, Mr. Alex Purdie was appointed, the task of initiating the State system of technical education being his immediate concern. In March 1900, he issued the first prospectus for the Perth Technical School which was soon to be opened. Here he classified his courses under three headings:- [1]

1. Science and Technical Classes: Here it was felt that, "no rigid distinction can be maintained between these two classes, since Technical Education is mainly education in Science, always with special reference to its application in the arts."

1 Western Australia: Fifty Years of Technical Education, 1900-1951, Jubilee Brochure, Dept. of Education, Technical Education Branch, 1951, un-numbered.

2. Manual Training Classes: These were for giving "those apprenticed, the opportunity of learning the scientific principles underlying many of the operations of their trade."
3. Art Classes.

In brief, the inference to be drawn here is clear. With the inauguration of technical education in Western Australia there was no difference in concept or principle to that nurtured in Britain and the eastern states of Australia during the nineteenth century. Technical education was the scientific theory underlying a trade or industry.

With this in mind, Purdie, launched the classes at the Perth Technical School in May, 1900. There were 69 students enrolled, classes being held in chemistry, assaying, minerology, carpentry, metal work and art. They were accommodated in a building erected in 1853 for the Perth Boys' School, as well as in several galvanised iron structures. This arrangement continued, with similar additions, until 1912 when a new building was opened.

Other developments during the first decade of this century included the appointment in 1901 of Mr. J. B. Allen as lecturer in mathematics and physics. This gave the necessary standing for the school to be affiliated with the University of Adelaide in 1902, thus allowing students to qualify for B.A. and B.Sc. degrees.[1]

1 Ibid., p. un-numbered.

The Education Department took control of classes in 1904 and the work was extended to Fremantle and Midland Junction. At the same time, evening classes were opened in Perth, Fremantle, Kalgoorlie and Boulder. The succeeding years saw a gradual development with the introduction in 1907 of classes in hygiene and sanitation for meat inspectors, and in 1910 such classes as house painting, sign writing, decorating and graining.[1]

The goldfields proper also came into the picture, with the establishment of the School of Mines of Western Australia. In 1899 a building had been constructed for the Coolgardie Mining and Industrial Exhibition and two years later it was decided to use these premises for a mining school.[2] The year 1903 saw the school transferred from Coolgardie to Kalgoorlie, provision being made for associateship courses in mining and metallurgy and a certificate course in assaying. Later, in 1909, associateship courses in mechanical and electrical engineering were introduced.

2. The Movement Towards Integration and Co-ordination

In the construction of a co-ordinated State system of education in Western Australia, there were no impulsive leaps into the future. "The west utilised the best that could be gleaned from the educational systems of New South Wales, Victoria and South Australia."[3]

1 D.H. Rankin, op. cit., p.135.

2 School of Mines of Western Australia, Jubilee, 1902-52, Pamphlet, p.un-numbered.

3 D.H. Rankin, op. cit., p.129.

and technical was no exception. This meant of course that development in the West came as an aftermath of that in the eastern states, while at the same time, the British ties held strong.

Recommendations

Notwithstanding these basic considerations it should be noted that administrators in Western Australia were alive to what was happening both at home and abroad and were quick to recommend reform, even though such recommendations were not carried to fulfilment immediately or in their entirety. Such was the position with regard to two reports issued by the Inspector General of Schools, Mr. C. Andrews, in 1912.

The first of these reports which covered generally, the field of educational organization presented an overall plan which was in direct accord with developments overseas. Moreover, the direct similarity between the plan and that being put into operation in both Victoria and New South Wales at that time was clearly evident. The organizational design outlined by Andrews is fully summarised in the following:

> According to the proposals outlined in the preceding sections, the course of study in the State Schools will be uniform for all until the Sixth Standard has been passed, a point which should be generally reached when a child is between thirteen and fourteen. Here there will be three possibilities open to him.
> 1. He may proceed to a High School for a four years' course.
> 2. He may remain in the higher classes of the Primary School which should be so organized as to have a direct bearing upon his future work.
> 3. He may proceed to a Farm School, or, if such is established, to a Day Industrial School.

If the first course is to be generally available, there must be a further establishment of High Schools, whether separate from, or attached to, Primary Schools; and a liberal provision of maintenance scholarships for those whose homes are at a distance from such schools. The High Schools should provide for those who will proceed to the University, for those who will proceed to the Training College for teachers and also for those who will enter directly upon various industries and professions. The last group may be enabled later to attend Evening classes at the University or the Technical School.

Of those who adopt the second course, some will leave school as soon as they reach the age of 14. These should then attend Continuation Classes, which will lead up to Trades Classes or Commercial Classes or other courses. Those who remain for a two years' course in the Higher Primary Classes will be qualified to enter such Trades Classes or Commercial Classes directly. It may also be possible to arrange for the transfer of those who are qualified to some of the upper courses of the High School, thus allowing for a change of plan at a later period than the age of 13. It will, however, always be preferable, where possible, for the whole of the four years' course to be taken in the High School.

The third group will be those for whom specialized schools are provided at this stage. After completing the Farm School course and gaining practical experience on a farm, the country boy will be ready to take advantage of opportunities offered by the Agricultural College of the University. In the same way the boy who attends a Day Industrial School and gains practical experience in the workshop will have opportunities offered him by the Technical School.

The relations between the Technical School and the University have still to be determined. It may be pointed out that our Technical Schools include courses of very diverse character, which in many countries are provided for by quite distinct institutions. The Trade School which aims at co-operating with the workshop in turning out efficient tradesmen, is an educational unit quite distinct in grade and character from what is generally known as a Technical College. The latter is mainly concerned not with manual dexterity but with scientific principles, with the theory that underlies the practice of technical professions. The Technical College is often recognized as being of University rank in its standards. Its courses are often to a large extent a duplication of University courses: where they differ it is mainly in the fact that the

> Technical College keeps more directly in view the application of scientific principles to practical purposes.[1]

While this report did not offer a detailed scheme or specific organization for the higher technical system of Western Australia, the basic assumption was that the educational framework should be so co-ordinated that full provision would be made for technical training. The claims of technical education had been recognized as the central theme for educational development.

2. Bridging the Gaps.

Western Australia had created a Central Board of Education in 1871 and a Public Instruction Act in keeping with that of New South Wales was passed in 1893. Primary instruction was made free in 1899 for children from 6 to 14 years of age.[2]

By the beginning of the twentieth century then, State elementary education had been well established, but the higher rungs of general education had not been placed in position.

In 1905, the Chief Inspector Mr. J. P. Walton visited England and inquired into the matter of secondary education. On his return he pointed to the developments in Germany, U.S.A. and England, and to the fact that in New South Wales the State had made provision for High Schools.[3] By this time, technical schools and

1 C. Andrews, Report upon Educational Organization, Education Department Western Australia, Perth: Government Printer, 1912, pp.38-39.

2 D.H. Rankin, op. cit., pp.128-9

3 Ibid., p.179.

evening classes were in existence in the West, and while a modicum of secondary education of the traditional literary type was being provided by practical enterprise, students were without the essential facilities for provision of the educational background required for more advanced work in technology and science. Only through State secondary schools could the gap be filled. However, half a decade was to pass by before the initial steps were taken to remedy the situation.

In 1909 the first State secondary school was under construction and duly opened in 1910. By this year, the importance of providing education of a technical character at the secondary level was being given due consideration, in keeping with the trends at home and abroad.

The Departmental Report now declared:

> It is distinctly for the advantage of the State to furnish as wide opportunities as possible for higher education, whether scientific, commercial or industrial, in both day schools and evening schools, and to give every encouragement to its people to take advantage of these opportunities.[1]

The next State High School came in 1914, being established on the goldfields, half-way between Boulder and Kalgoorlie. (It was some years before others followed at Northam, Bunbury, Albany and Geraldton).

1 ibid., p.180

The Continuation and Central Schools

With the gradual coming of High Schools a link had been forged between the primary school and higher technological fields, but secondary education for the masses called for other schools as well, and following upon re-organization in the eastern states, Western Australia set out to cater for secondary education in a technical context.

Mr. C. Andrews, Inspector General of Schools, took up the theme in a second report issued in 1912 in which he discussed at length "Continuation Schools and the Question of Compulsory Attendance", and declared that: "In Western Australia, as far as our skilled trades are concerned, the need for organised Continuation Classes is probably as great as in any other country."[1] Like his confreres in the eastern States, Andrews was imbued with the spirit of the times and as we have seen in his report on educational organization emphasized the need for Continuation Schools as a link between the primary and technical schools. From his more detailed analysis on continuation work given in his second report it was clear that the basic philosophy and principles underlying his concept of these schools were in direct accord with those of New South Wales in particular and with the eastern States

1 C. Andrews, Report upon Continuation Schools and the Question of Compulsory Attendance, Education Department Western Australia, Perth: Government Printer, 1912, p.24.

generally. In other words, the British precedent and traditional link held firm.

However, a deviation in respect of evening work was beginning to find prominence. He pointed out that the problem in Western Australia differed in many ways from that which was being solved in Germany, since the whole scheme of German education based upon a caste system had "no parallel in our democratic community." [1] The German boys' future calling was generally settled at an earlier age than was the case with the Australian boy. The boy of 13 for example in one of the upper classes of a primary school in Western Australia may have been destined for any profession or calling. Hence the education given to him must, it was felt, be on broad and general lines until he decided where he was going. Even after the boy had left school, he did not as a rule, like the German boy, immediately decide, once and for all, upon his particular trade. The conditions of a new and growing country were less settled and change might be necessary. Hence it was concluded that:

> The Continuation School courses that will suit our conditions best will resemble those of England and Scotland rather than those of Germany. For the first two years the work should not be too specialized; the industrial course should be one that will give a serviceable grounding for skilled trade that may subsequently be selected. [2]

In other words, the continuation classes were to be the link

1 ibid., p.22

2 ibid., p.23

between the primary school and the trade classes of the technical school, but were to be a general preparation for the latter, and would not be subdivided into classes for particular trades. A course in English, Practical Arithmetic, Mensuration, and Elementary Mechanics, Mechanical Drawing, and Practical Work with tools for two years would give students who were well prepared to take up intelligently and efficiently the specialized work of the trades classes.

During the two years preceding Andrew's report, continuation classes had been established in Perth, Fremantle, Claremont, Midland Junction, Kalgoorlie, Boulder, Coolgardie, Day Dawn, Northam, Geraldton, Albany, Wagin and Bunbury. The classes were free for students under eighteen, provided that they took a course in three subjects, one of which had to be English. The greatest demand at this time was for commercial subjects -- arithmetic, history, geography, bookkeeping and shorthand.

Most of the work being done was confined to the evening and there was at that time but little direct connection between courses in the continuation school and those of the technical school proper. Andrews gave consideration to both of these matters. In the first place he maintained that: "Night classes are not altogether satisfactory; the ideal to be kept in view is a system of classes to be held in the daytime, the employers being obliged to release

the children from work for attendance."[1] A beginning had already been made with the State setting the example by the Railway Department requiring boys, employed at the Midland Junction workshops, to attend continuation classes held during working hours. It was hoped that soon a particular Trade Union would follow the example so set and it was felt that, "If the principle is once recognized in this way, no doubt other trades will follow suit, and the way will thus be paved for a compulsory system in the future."[2]

We shall see how this prediction came to pass during the 'twenties when compulsory day release for apprentices became a reality.

With regard to the matter of co-ordinating the work of the continuation school and that of the technical school, plans were in hand for preparing a more definite scheme of graded courses for the larger evening course centres. So that there would be a more direct link with the higher courses of the technical school, mechanical drawing or trade drawing would be included in the preparatory industrial courses. Again, in the larger centres, where the schools had been supplied with science rooms, preparatory courses in elementary mechanics and physics would be added.[3]

Considerable emphasis was also placed on the desirability of

1 ibid., p.22

2 ibid., p.24

3 ibid., p.25

bringing about a closer relationship and co-operation between employers, employees and educational agencies.

> In connection with each of the Trade Courses to which the preparatory Continuation Classes will lead, there should be a small committee, which should include representatives of the employers and of the workers.[1]

A number of other matters were discussed and an indication of future policy presented. The ideas and principles involved on the whole were as already noted in direct keeping with those underlying the re-organization in New South Wales and Victoria but greater emphasis was clearly accorded to provision for day classes during the employer's time. Hence a deviation from British tradition becomes discernible.

The recommendations of the report on continuation schools were summarized as follows:-

a. An extension of the present classes with graded Industrial, Commercial, and Domestic Courses so organized as to lead directly, wherever possible, up to higher courses in the Technical Schools.
b. Endeavours to induce every child leaving the Primary Schools, and not proceeding to a higher school, to enter the Continuation Classes.
c. The formation of Committees of those willing to assist in every centre where classes can be established.
d. The securing of the co-operation of employers, Chambers of Commerce, etc., so that employment may, in as many cases as possible, be conditional upon attendance at Continuation Classes.
e. The securing of the co-operation of Trades Unions and other bodies of workers.
f. That the State should make attendance at Continuation Classes a condition of employment in Government Departments for those under a certain age, and that the Federal

1 ibid., p.24

Government should be urged to take similar action.

g. That, wherever possible, arrangements should be made for the holding of the classes in the daytime during working hours.

h. That a Bill should be introduced giving power to proclaim compulsory attendance in any district for those under a fixed age, such compulsion to be applied at first only to those who leave school after the passing of the Act.

i. Consideration of the proposal to make attendance at Day Schools compulsory up to the age of 16 for those not in employment.[1]

During the next decade there was a gradual expansion of secondary education as expressed by Andrews and along a similar pattern to that of the other States. Central Schools were first brought into existence to initiate the work of the continuation classes. Gradually the work and facilities were extended and by 1923, evening continuation classes were being held in 21 centres, the average enrolment being 2,823. There were industrial, commercial and domestic courses as the three main strands and the scheme of studies was cultural and vocational, with English a compulsory subject.[2]

Still, the voluntary system persisted, while evening classes were the general rule, hence success could only be measured to a limited extent.

1 ibid., p.28

2 Western Australia:- Report of the Education Department, 1921, Perth: Government Printer, 1922, p.11.

3. The Technical Schools

Development

The expansion of facilities at this level was rather slow during the second decade of the twentieth century. However, enrolments continued to increase as seen from the following table for 1921:[1]

Year	Average Enrolment of Individual Students for the Three Terms	Students on Roll at the End of Year
1917	2,969	2,767
1918	3,523	3,320
1919	3,790	3,347
1920	3,611	3,158
1921	3,849	3,466

Technical classes were being conducted at the following centres: Perth, Fremantle, Claremont, Boulder, Kalgoorlie, Albany, Collie, Bunbury, Midland Junction, Geraldton and Coolgardie. Of the 3,466 students, there were 1,332 enrolled in science, technical and trade classes, while commercial students numbered 948 and domestic science 867.

The Perth Technical School was affiliated with the University, providing first year University work in mathematics, physics and chemistry, and in second year work in mathematics and chemistry.

1 ibid., p.7.

Trade classes continued to expand and soon, advisory committees composed of representatives of the Employers and of the trade unions had been formed in connection with these classes.

By the 'twenties of this century then systematic technical education had come to the West, the pattern of provision being more or less a replica of that of New South Wales. This likeness was destined to be reinforced by developments during the 'twenties.

The Royal Commission of 1921

Following upon an Australia-wide move to cut educational expenditure, the West Australian government appointed a Royal commission in 1921, to report upon the adequacy of the education system of the State. Peter Board was appointed chairman of the commission and the report became his. The report extended well beyond the original terms of reference and as Crane and Walker point out, "Board's comments upon technical education in Western Australia were far from flattering."[1]

The main complaint was the lack of sufficient opportunity for obtaining both elementary and advanced training in agriculture, in a State whose economy was based on the land. Apart from this, the principal ground of criticism on the part of the Commissioners was that the technical schools were biased towards elementary sub-

1 A.R. Crane and W.G. Walker, op. cit., p.309

jects such as dressmaking and bookkeeping; whereas the emphasis should have been towards skill in craftmanship and technology.

In answer to this the Education Department admitted that it had long recognised these shortcomings and was doing its best to remedy the situation. For example, in four years the percentage of children in the Central schools taking the commercial course had been reduced from 53 to less than 35. Moreover, it was pointed out that:

> It must always be remembered, when our State is compared with other countries, that the small development of secondary industries here greatly diminishes the variety of openings afforded to the adolescent boy or girl. Skilled trades can absorb very few, and the number of factories offering employment is very small. [1]

Again, the Department maintained that the figures used by the Commissioners for their analysis of commercial students were quite misleading. Students enrolled for English, Shorthand, and bookkeeping were counted three times over. [2] Nevertheless it was admitted that the preponderance of commercial work was a matter for concern.

The Commission also suggested that the apprenticeship system should be re-organized on New South Wales lines, with provision for advisory committees in the principal groups of trades connected with the Perth Technical School.

Gradually, most of the commission's recommendations were carried

1 Western Australia:- Report of Education Department, 1921, Perth: Government Printer, 1922, p.15.

2 ibid., p.15.

out and the West Australian educational system became even more like that of New South Wales. However, in the field of apprenticeship developments were soon to surpass even Peter Board's recommendations of 1921. The West jumped well ahead of New South Wales in one very important and significant aspect of Apprenticeship Training as the following report shows:

> Day classes were established at the beginning of the year for trade apprentices, in consequence of the passing of the Industrial Arbitration Act at the end of 1925. Arbitration Court awards have made attendance in the day time compulsory for four hours a week for apprentices in many trades. Four hundred and thirty-four apprentices were in attendance at these classes in Perth, and 17 in Fremantle. The trades included were Carpentry, Fitting and Turning, Electrical Trades, Plumbing, Sheet-Metal Working, Printing and Painting. [1]

This was indeed a major step forward but in itself brought other problems and highlighted the need for an expansion in facilities and a re-appraisal of administrative organization.

The James Nangle Commission

Following upon the establishment of compulsory day classes for trade apprentices in accordance with the Industrial Arbitration Act of 1925, there began an agitation for an improved technical education structure to cater for the needs of students. As the Minister for Education, J. M. Drew declared:

> It appeared to me that this legislation cast upon the Department of Education an obligation to provide efficient instruction for these apprentices, and, as a result of my official knowledge,

1 Western Australia:- Report of Education Department, 1927, Perth: Government Printer, 1928, p.8.

> supported by statements made by representatives of employers and employees, I concluded that much would need to be done and at substantial cost, in order to bring our Technical schools up to the required standard, to ensure that any re-organization should be on a sound basis. I felt it wise to secure advice of someone whose judgment and counsel would command respect. [1]

Consequently, James Nangle, Superintendent of Technical Education in New South Wales, was called upon once again to inquire into another State's technical education system and recommend the path that should be followed. In 1928, in a letter from the West Australian Minister, Nangle was commissioned to:

> 1. To inquire generally into our system of Technical Education with a view to its development on right lines; to take evidence relative thereto; and to make any recommendations considered necessary.
> 2. To inquire into the methods of administration of the Perth Technical School, particularly as to
>
> a. Whether the Trades Classes and other Departments receive financial recognition according to their relative importance;
>
> b. Whether there is any unnecessary interference by any of the officers with the trades instructors in the carrying out of their duties, and whether the trades instructors are ignored in connection with matters directly concerning their classes, and on which they should be consulted in the interests of the school;
>
> c. Whether the qualifications of the Inspector are such as to enable him successfully to carry out the duties of his position;
>
> d. Whether there is a necessity for both an Inspector and a Superintendent, and whether their respective duties in any way overlap. [2]

From the terms of reference it seems clear that all was not

1 Western Australia:- Technical Education in Western Australia, Report of James Nangle, Perth: Government Printer, 1928, p.3

2 ibid., p.5

calm and peaceful within the technical education orbit. At the same time there was considerable unrest from without, for, as the Minister put it, "The Teachers' Union and the Industrial Secretary of the Australian Labour Party are greatly interested in the inquiry."[1]

Consequently, Mr. W. E. Thomas and Mr. E. H. Barker, respective General Secretaries of these organizations were invited to be present, submit evidence and examine witnesses.

Nangle spent from 7th March to the 16th March taking evidence through six sittings, meetings with Advisory Committees and employers, and visits to factories. Although the stay was short he felt that it was sufficient time to thoroughly investigate the position and form definite conclusions.

In his report he was emphatic that the system in Western Australia required completely re-organizing. Moreover, notwithstanding the vastness of the State and the scant population, it was felt that the system should be planned so as to allow for the expansion that would inevitably be demanded. As might be expected therefore, Nangle concluded:

> Having given the matter much consideration, I am satisfied that it will be quite safe to plan the system for Western Australia on much the same lines as I have already found to work very successfully in the State of New South Wales. [2]

1 ibid., p.5.

2 ibid., p.8

He pointed out that the main lines on which the system was laid out in New South Wales were practically the same as when it was designed many years before and he was apparently very satisfied with the arrangements. He then proceeded to describe the plan which was illustrated by a graph of the existing arrangement for New South Wales.[1] Here it should be noted that the West had already developed its technical education system on this general pattern, the proposal outlined being a clarification of the component parts and a clearer path for future development.

The Need for an Expansion in Facilities and Re-Appraisal of Administrative Organization

Nangle pointed to many shortcomings in the provisions for technical education proper, and the basic cause for this lack of provision was the inadequate finance being made available for expansion.

Trades classes were both poorly accommodated and scantily equipped, particularly in the engineering trades. "Even a casual visit to the existing workshops at Perth and Fremantle shows that there is but little equipment. What there is, with few exceptions is very obsolete."[2]

Much of the discontent that had arisen at the Perth Technical School was a direct out come of insufficient funds, there being no evidence that the teaching had been interfered with. Evidence

1 vide. infra, Appendix, p. 358

2 ibid., p.12.

showed that supplies had been inadequate and requisitions reduced, but: "On the whole, it appears that whilst there were some unfortunate incidents of this kind, the trouble was that there was an absence of funds to buy things, rather than a wilful neglect on the part of the authorities to supply them." [1]

A recommendation for a great extension of accommodation, equipment and teaching staff for the purposes of trade instruction was linked with the large proportion of students attending for Commercial instruction (54% including art and dressmaking). It was felt that this number was not necessarily too many for the commercial division, but it did mean that there were not enough in the section given over to trade and professional subjects. An expansion of facilities was essential so that the Perth Technical School could be organized to serve primarily the purposes of a technical school -- to provide the kind of specialised education needed for the supplementary training of skilled mechanics as well as professional technicians.

The difficulties experienced in trades classes at Perth Technical School had been greatly intensified due to the introduction of daylight instruction for apprentices. A great proportion of the most bitter complaints with regard to the inefficiency of the trades classes arose out of the unpreparedness of the

1 Ibid., p.7.

college for daylight classes. The regulations making for daylight provision were apparently instituted without due consideration of the need for adequate facilities at the Technical School. Nangle declared that:

> The matter is of such supreme importance that it would be most regrettable to have anything interfere with the satisfactory arrangements of such wise provisions. It is therefore a cause of some concern that the proper facilities did not exist at Perth, where regulations have been brought into force providing for the attendance of apprentices at the Trade School during daylight hours.[1]

Large sums of money were obviously required to cope with expansion need. However, evidence showed that as well as the rate for technical education being too small during the preceding years, there had been very little increase in amounts allocated from 1919-1925, the per capita amount spent being considerably less than in other States. Nangle found it difficult, "to account for the stationary character of the Vote for Technical Education in Western Australia, in view of the fact that the State needs to be developed rapidly." [2]

During the course of the inquiry it was argued by Barker and Thomas (Australian Labour Party and Teachers' Federation) that the lack of finance for development was a direct outcome of the relationship that existed between the Technical Branch and the Department of Education. It was claimed that the Branch should be a separate

1 ibid., p.7.

2 ibid., p.6.

entity with the Director having direct access to the Minister, This was seen as the solution to the problem of ensuring an adequate flow of money to technical education.

Nangle however was not convinced that such a step should be taken. He felt quite satisfied that, "Technical Education should remain an integral part of the educational system, and should be under the Director of Education." [1] Using the argument that this was the position in all other States, he maintained that it was necessary in order to ensure a proper co-ordination between the various facets of state education.

This matter has already been discussed, but deserves considerable emphasis, particularly in the light of subsequent events in New South Wales (1933-4) Nangle's one serious complaint was that as Superintendent he was greatly restricted and he had no real power. He was emphatic that the chief administrator for technical education should have direct access to the Minister by the creation of a separate department. The reason he gave for this was that the Director of Education had to be "an eminent expert on primary and secondary education, but he is not necessarily versed in the specialized features of technical education." [2] This statement was of course quite true but it showed that Nangle's views had undergone a complete reversal from those expressed as Commissioner for Western Australia in 1928.

1 ibid., p.7.

2 Commission on Technical Education, N.S.W., 1933-4, op. cit., p.77.

As noted previously, the precise reason for this change of attitude is rather obscure. However, the fact that there was such a reversal is important in that Nangle, as Superintendent in New South Wales and as Commissioner both in Tasmania and Western Australia, had, for many years, been exerting a strong influence on basic policy in the field of technical education throughout Australia.

There were a number of other significant points made by Nangle as Commissioner in 1928. On the matter of discontent expressed by trade teachers being inspected by a school inspector, it was felt that the system, not the inspector, was at fault. Hence special inspectors for each trade were advocated. The organization of administrative staff also appeared unnecessarily complicated and the New South Wales pattern was recommended. In the junior technical schools, basically the same as those of New South Wales, Nangle saw much to be commended, declaring that: "Western Australia has reason to be proud of the work done in the junior technical schools."[1] In reference to the previously established trade advisory committees, it appeared that effective work was not being accomplished, hence the New South Wales pattern was explained and illustrated at length.[2]

1 J. Nangle, Technical Education in Western Australia, op. cit., p.9.

2 vide infra, Appendix, p. 359

Outcome of Inquiry

The Department of Education made but slight mention of the Nangle inquiry, the Report for the year 1928 stating that,

> Mr. James Nangle, Superintendent of Technical Education in New South Wales, was asked to report early in the year on the needs of Technical Education in this State. This report stressed the necessity for a large expenditure upon buildings and equipment. These are especially necessary in view of the development of compulsory day-time classes for apprentices in skilled trades.[1]

This was the only reference made to the recommendations, there being no indication of either acceptance or rejection of proposals other than the need for increased expenditure.

Nevertheless, two years later it was announced that, "the trade workshops at the Perth Technical College have been equipped with a certain amount of modern machinery which will enable the apprentices to be trained more efficiently than in the past."[2] Moreover, the same report noted that the Advisory Committee System was working more effectively, having given great assistance, particularly in such areas as the selection of new machinery and equipment.

Another decade was to pass however before more extensive accommodation was provided for apprentices, the opening of the Trades Building in 1940 presenting the opportunity to extend

1 Western Australia:- Report of the Education Department, 1928, Perth: Government Printer, 1929, p.8.

2 Western Australia:- Report of the Education Department, 1930, Perth: Government Printer, 1931, p.10.

technical training to other industries.

In 1930 a closer link between the junior and senior technical schools came when towards the end of that year continuation classes were discontinued. In order that those students who had not completed the course might have the option of qualifying for entry to the technical schools, regulations providing for the establishment of preparatory technical classes were passed. Admission to these classes was based on a pass at grade VII and confined to those in employment.

The Pattern Evolved

The co-ordination of the educational framework and the consequent provision of systematic technical education took somewhat longer to achieve in Western Australia than in the eastern states. Still, by the twenties of this century the basic pattern had been evolved and the path set for the future. It needed only an extension and integration of the component parts to bring it into close line with the rest of Australia.

Again, the same underlying ideas prevailed as seen in the following:

> The aim of technical education of apprentices was, and still is, to supplement the training given in the workshop on the job. The theoretical instruction and the practical exercises which the apprentices receive in the college workshops are always given with that end in view. [1]

1 Western Australia:- Jubilee Brochure, Fifty Years of Technical Education, 1900-1951, Department of Education, Technical Education Branch, p. not numbered.

CHAPTER XV

SOUTH AUSTRALIA PLAYS HER PART

1. Early this Century

In 1900, Mr. W. G. Torr, Principal of Way College, Adelaide, submitted a report to the South Australian Government on his observations of systems of education in Great Britain and the Continent. The report had a very wide publication in South Australia and other states, including Departments and the Victorian Technical Education Commission. It contained a wealth of information on happenings abroad and showed the need for a thorough re-organization of the existing educational framework of South Australia, particularly with regard to the needs of technical education. The content and views in the report were commended on all sides, the secretary of the National Education Association of Great Britain commenting:

> I have read the report through with unusual pleasure, for it is seldom that we have a statement so concise, and which combines the freshness of an outside view with the accuracy of inside knowledge.[1]

However, few material developments followed this wave of enthusiasm at the beginning of this century. It appeared for a

1 (Clipping, "The Advertiser", June 23, 1900), W.G. Torr, Report upon Systems of Education in Great Britain and Other Countries, Adelaide: J.L. Bonython & Co., 1900, p.30.

time that under the leadership of Thomas Price who became Premier and Minister for Education, in 1905, significant changes would soon eventuate. This representative of the manual workers when addressing a public meeting was convinced,

> . . . . that the great battle of the future between the nations will be for the supremacy of trade, and if the people of Great Britain and Australia are not equipped with the best technical and other education, they must inevitably go down in the struggle. [1]

Unfortunately this far-sighted man met an untimely death and re-organization of technical education did not come until the movement was well advanced throughout Australia. As noted, Donald Clark, Chief Inspector of Technical Schools in Victoria, was asked to investigate technical education in South Australia and reported in 1916 that a comprehensive system of training for all occupations would take many years to build. Up until this time the technical schools that had their beginnings in the nineteenth century continued to function along traditional lines and as isolated units.

There was the Adelaide School of Mines and Industries which was established in 1889 and managed by a Council. Here, preparatory classes had grown up in order to prepare lads for the more advanced diploma courses. In actual fact, this school provided for but a small number of those who needed technical education, there being no "regular and systematic courses for trade subjects." [2]

1 T.H. Smeaton, Education in South Australia, 1836-1927, Adelaide: Rigby Ltd., 1927, p.102.

2 D. Clark, Report on Technical Education in South Australia, op. cit., p.15.

The South Australian School of Arts and Crafts gave training in drawing, painting, design, metal work, leather work and so on. Training was given to general students, trade apprentices and trainee teachers.

Then there were the non-state, country technical schools or Schools of Mines. These were situated at Gawler, Kapunda, Moonta, Port Pirie and Mount Gambier. At Moonta for instance, classes were established in 1891 in response to the demands of the copper industry and yet the subjects being studied were not basic to the needs of this industry. They included: arithmetic, drawing, engine driving, electrical wiring, chemistry, shorthand, bookkeeping, carpentry, plumbing and sheet-metal work. There was not a comprehensive mining course. Donald Clark felt justified in commenting in this respect:

> A certain amount of useful work is done in providing instruction in the various subjects set down in the programme, but it is extremely improbable under existing conditions that any high grade or thoroughly satisfactory courses of technical work will be carried out.[1]

2. A Beginning With Filling the Gaps

A start had been made with advanced classes in certain primary schools, but before 1908 there were no State secondary schools in South Australia. The "tops" to primary schools provided a super-primary education, but it was limited in scope and the schools were both inadequately equipped and staffed. Then in 1907 Mr. Alfred

1 ibid., p.15.

Williams, Director of Education, was sent overseas to investigate the educational scene. On his return, the first State high school was opened in Adelaide and the previously missing secondary rungs began to take shape. In the meantime, continuation classes had been established in some primary school establishments and later these developed into district high schools at such places as Gawler, Gladstone, Kadina, Kapunda, Moonta, Mount Gambier and Peterborough. [1]

Commission, 1912

A beginning had therefore been made towards a co-ordination of the educational framework but many links still had to be forged. The chain of events which led to the link-up of the various phases of the educational programme began in 1910. In that year, a Select Committee was appointed by Parliament to inquire into the best method of making available certain facilities for higher education at the University of Adelaide. Eventually, this committee grew into a Commission which was given the task of investigating higher education generally.

> The task undertaken by that Commission included enquiry into all aspects of departmental organisation and administration; and one of its functions was to suggest the lines upon which these should be conducted to secure the greatest measure of efficiency for the child and effectiveness and economy for the State. [2]

The Commission sat for four years and evidence was taken from

1 South Australia, One Hundred Years of Education, op. cit., p.21.

2 T.H. Smeaton, op. cit., p.105.

several other states including that of New South Wales through the Director, Peter Board.

Education Act, 1915

As a result of the Commission's recommendations there developed the most progressive and important piece of legislation in the history of education in South Australia, the Education Act of 1915. This Act has been regarded as:

> a document which responds to every reasonable demand of the times; although perhaps its finest, and most valuable feature is the elasticity of provisions which permit of it being applied to every phase of educational development.[1]

There followed from this legislation a complete re-organization of the Department of Education by the establishment of sub-departments of primary, secondary, technical and agricultural education, each under a superintendent. The system of local advisory bodies for primary schools was altered, provision was made for an Advisory Council and high school councils, Secondary Education was given fresh life, especially when W. T. McCoy became Director in 1919, when country high schools were separated from the primary schools and were better equipped and staffed.

With this educational reformation technical education stood to gain through the co-ordination of the various educational branches, but it also stood to gain in its own right.

1 Ibid., p.105.

The Clark Inquiry

In anticipation of the coming revival of education, Donald Clark was commissioned to inquire into and make recommendations with regard to junior technical education in South Australia. Clark found of course that he could not deal with preparatory or junior technical education without taking into account the lower and higher rungs of the educational ladder, and brought to South Australia the philosophy we have seen spreading throughout Australia, that systematic technical education could only be attained through co-ordination and integration.

He felt that the primary schools had developed a well-graded programme in the basic subjects but concluded that:

> It cannot be said however, that the pupils from these schools receive a fitting preparation for the practical work of life. The introduction of more hand work or hand and eye work, from an educational point of view, is desirable.[1]

It was further pointed out however that such a change was not likely to exert any marked influence on the future of technical education. Secondary education had to be infused with the technical element. Moreover, the technical schools were few in number and did not adequately provide for more than a small fraction of the technical work that should be undertaken.

He felt justified in recording:

> It may be stated briefly that the elementary schools, the high schools, and the University are able to supply the traditional and some forms of modern education to those

1 D. Clark, Report on Technical Education in South Australia, op. cit., p.4.

> who are intellectually, physically and financially capable of profiting by the instruction provided, but that the great proportion of young people leave school at 14 years of age and receive no further instruction.[1]

He verged into the higher technical field and commended the work being done at the diploma course level. However, he pointed out that, as important as this work was, it should not be made the sole object of technical training. There was a great need for both preparatory and higher trade work as well.

The system was lacking from within and the main causes of failure were: lack of preparatory training; emphasis on evening work; poor teaching at times; haphazard selection for trades; lack of incentive to study through non-recognition of qualifications in wage rates between expert and labourer; specious claims of correspondence schools; and failure to attract the brighter students.

A lengthy list of specific recommendations was made, including:

1. a central junior technical school be established in Adelaide.
2. boys be specially selected at 12 years and over.
3. the full course be three years.
4. co-operation of employers be sought.
5. a junior technical school should not be an isolated unit.
6. such schools be attached to the technical schools at Gawler, Port Pirie and Moonta.

1 ibid., p.4.

7. a system of recognition be adopted for skilled trades.
8. the junior technical school at the school of mines be altered into a technical high school.
9. teachers be adequately trained for junior technical work.
10. technical school examinations to be under the control of the Education Department.

It should be noted, that although it was felt that, "as matters stand, apprenticeship is a mere name",[1] compulsory technical training was not recommended. Instead, registration was thought to be more effective, skilled workers being required to show proficiency before being allowed to practice.

During the next decade, Clark's challenge was taken up. The previously independent country technical schools were taken over by the Department and re-organized. By 1925, central schools (of the junior technical type) had been established throughout the metropolitan area at Hindmarsh, Le Fevre Peninsula, Croydon, Goodwood, Unley, Nailsworth, and Norwood, while similar facilities were being developed at Port Pirie. Woodwork centres were opened in eleven localities, and in 1924, the first departmental junior technical school was opened in a building erected at Thebarton for this pur-

1 ibid., p.6.

pose in 1919.[1]

Thus, in his report for 1923, the Superintendent of Technical Education, Dr. Fenner, could record the following:

> In 1916 Mr. Donald Clark, M.M.E., B.C.E., visited the State and drew up for the Government a valuable and comprehensive report on Technical Education. Of the twenty-three special recommendations made in that report, it may be here noted that not less than fourteen have been given effect to, while alternative schemes have been undertaken in some of the other cases.[2]

The Technical Education of Apprentices Act, 1917

Included in the alternative schemes mentioned by Dr. Fenner was one which put South Australia in the forefront of technical education throughout Australia, and as we shall see in the survey of apprenticeship, of Great Britain also. The Technical Education of Apprentices Act, 1917, required apprentices to attend technical classes for six hours per week, for the first three years of their apprenticeship, with portion of this time being obtained during working hours. An Apprenticeship Board was instituted and in order to ensure close co-operation and participation by industry, Advisory Trade Committees were established for the various trades. While considerable difficulty was experienced during the early years and accommodation for trade schools had to be found in temporary premises, the scheme proved most successful, and with the opening of the Adelaide Technical College in 1927 the accommodation problem was eased.

1 South Australia: Report of the Minister of Education, 1924, Adelaide: Government Printer, 1925, p.30.

2 South Australia: Report of the Minister of Education, 1923, Adelaide, Government Printer, 1924, p.20.

Systematic Provision

Like the other States of the Commonwealth, South Australia had developed a reticulated system of education in which the claims of the technical branch had been given due recognition. Systematic provision had resulted in a similar pattern to the other States with the same basic philosophy shaping the programme. Although a deviation was made by way of day-release of apprentices, the fundamental principle of technical education as the theory underlying a trade was maintained.

CHAPTER XVI

THE NEW APPRENTICESHIP

1. In Retrospect

In as much as British history is also Australian history, the systematic training of skilled craftsmen in industry dates back to the twelfth century. The association of master and apprentice was originally intended to give effect to the policy of the trading guilds of mediaeval Britain. For some hundreds of years from that period the industrial organizations of the country centred around these guilds which were associations of workers engaged in a common trade or craft. The guildsmen made regulations for the conduct of their trade and by corporative methods won justice, concessions and privileges which advanced their trading interests. Later, membership of their group was made compulsory, the guilds governing apprentices and making training obligatory. In this way they were able to control the supply of artisans and protect members from serious competition. They were very jealous of their reputations, and by their regulation of trade practice achieved

high standards of craftmanship. In other words, the guilds appreciated to the full the value of technical training, hence they evolved a system which was of great industrial and social importance. Indeed, when the Statute of Artificers made apprenticeship necessary for all who wished to engage in a craft or trade, technical training in effect became compulsory.[1]

In 1563 the English Parliament forbade any person to "set up, occupy, use or exercise any craft, mistery, or occupation now used or occupied within the realm" unless he had "been brought up therein seven years at the least as apprentice".[2]

The principal characteristics of the system of apprenticeship under the guilds were its paternal and domestic features. Invariably, the apprentice lived with his master, and in return for his services received training, board, lodging and clothing. He received no monetary reward, his labour being paid for in kind, and he was entirely under the control of his master who was a skilled craftsman. Moreover,

> Since the apprentice of today was the journeyman or master of tomorrow, the guild was interested in the number of pupils, the length and character of their studies, and their career when their technical education ended.[3]

Although the Statute of Artificers remained in force until

1 O.J. Dunlop and R.D. Denman, English Apprenticeship and Child Labour, London: T. Fisher Unwin, 1912, pp.28,29,30.

2 H. Heaton, Economic History of Europe, New York: Harper & Brothers, Rev. Ed., 1948, p.355.

3 ibid., p.205

1814, by 1700 the guilds, looked upon as monopolists, had come into public disfavour. Moreover in attempting to contest their claims they spent their wealth and strength, thus ceasing to be an economic factor of importance. Hand in hand with the decline of the guilds came the breakdown in the system of technical training. Hence, as Herbert Heaton records, by the beginning of the eighteenth century, the Statute of Artificers "was being ignored or whittled away by amendment or judicial rulings, and apprenticeship was therefore largely a matter of local practice and trade custom".[1]

Moreover, during the seventeenth century, definite changes in the character of apprenticeship began to manifest themselves, particularly with regard to the mutual obligations of master and apprentice. The first move was in the direction of requiring the parent or guardian to supply the apprentice's personal needs.[2] Later, there was a clear substitution of payment for some of the standard provisions due from the master and by the early eighteenth century there was general recognition of the wage rights of apprentices.[3] This substitution of purely commercial arrangements

1 Ibid., p.355.

2 O.J. Dunlop and R.D. Denman, English Apprenticeship and Child Labour, London: T. Fisher Unwin, 1912, p.179.

3 O.J. Dunlop and R.D. Denman, English Apprenticeship and Child Labour, London: T. Fisher Unwin, 1912, p.179.

(outdoor system) for the close personal relationship of the indoor system heralded the end of a cheap and efficient system of general and technical education.

Other factors which clearly hastened the passing of the old system included the introduction of machinery and the rise of the factory system with its concomitant developments in science, inventions and specialisation of production. With the breaking down of the old apprenticeship relations there was a loss of the employer's sense of responsibility for the future prospects of the apprentice. In other words, there remained a more or less haphazard system of training for craftmanship in which the apprentice was usually left to his own devices. Apprenticeship had lost much of its social value, and ceased to be either a method of general education or a system of technical instruction. The trainee might still spend a definite time in the workshop but there was no guarantee that he would become competent as a craftsman or have a thorough knowledge of the underlying principles of his trade.

By the time the first British settlers came to Australia, the old system of apprenticeship had of course fallen into decay and the

haphazard training of craftsmen was imported along with the other traditions, institutions and customs of the mother country. However an even more definite link with British trends was made when the question of the relationship between masters and apprentices in the colony of New South Wales was put beyond doubt by the Statute 9 Geo. IV, No.8. This Act was passed in 1828 and its effect was definitely to import into the Colony almost the whole of the then existing Statute and Common Law of England.[1] Under the Act, in order to prevent any uncertainty as to how far the laws of England relating to master and apprentice extended to cases of apprentices in the colony, all masters were to have such and the like powers over every such apprentice as the master of every apprentice had by the laws of England. The stage had been set in Australia for a continuance of the British approach to apprenticeship throughout the nineteenth century, an approach which made for lack of system and consequent shortage of skilled labour.

2. The Master Builders of Australia Play Their Part

We have seen how the necessity for finding a substitute for the old apprenticeship system gave rise in Britain to the Mechanics'

1 New South Wales: Apprenticeship in Industries, being a Report to the New South Wales Board of Trade, by a Committee of its Members, Sydney: Government Printer, 1920, p.25.

Institute Movement, the object of which was instruction of members in the scientific principles underlying an art or craft and how technical education grew from these roots planted in Australia. Throughout the nineteenth century this trend was followed as if a law of nature with but little regard to the regulation of apprenticeship or the adoption of a plan for bringing technical education into close touch with industry and practical trade training. By the end of the century it had become apparent to some that a more comprehensive approach to trade education was needed. Not only was it necessary to devise a sound system of technical education but also to ensure training for trades was carried out systematically within the overall programme. Indeed, by 1890, we find that the Federal Master Builders' Association of Australia, being deeply concerned at the lack of skilled craftsmen in the trade, felt obliged to incorporate in their constitution the following object: "to devise and suggest plans for the preservation of mechanical skill through a more complete and practical apprenticeship system".[1]

This objective, formed by the association at its first annual conference, was the centre of discussion during the following decade,

1 Proceedings Federated Master Builders Association of Australasia, 1890-1906, Official Reports, Vol. 1, p.117.

but events moved slowly, little or no direct action being taken. At the Sixth Convention, held at Melbourne in 1900, views on the apprenticeship question loomed largely on the agenda, it being recommended that a more active interest be taken in the technical training of apprentices. After two more years, the same problem came up for discussion at the Seventh Convention held at Sydney in 1902. All agreed on the lack of skilled tradesmen available throughout the country and the following resolutions were adopted:[1]

a. That, in the opinion of this Conference, to thoroughly train apprentices so as to make them competent workmen, facilities should be granted in the workshops, and that the technical colleges can only serve as a secondary element in the attainment of mechanical skill, and that it is the duty of employers generally to assist in providing these facilities.
b. That the Conference recommend the appointment by the State Government of advisory boards composed of practical and professional men, for the purpose of securing better results in the system of technical education and also in securing its extension on practical lines.

It was clear to the Master Builders of Australia that a mere extension of technical college facilities was not enough, nor was the theoretical training to be gained in a technical school sufficient to ensure an adequate supply of skilled manpower. The consensus of

1 ibid., p.376.

opinion amongst these men was that a system of indenture should be adopted and that as well as receiving theoretical training in the technical school, the apprentice must be given the essential guidance and practical training on the job.

As Mr. T. Loveridge, representing New South Wales at the Eighth Convention held at Brisbane in 1904 declared:

> The great evil of technical education, as departmentally administered, lies in the fact that the general public is allowed to believe that the system meets all the wants and necessities of the case, and that a lad need only to be sent to one of these emporiums of learning to be turned out a thoroughly skilled and efficient mechanic.[1]

With the prevailing concept of technical education as training in the principles underlying a trade, the schools could not produce the skilled tradesmen without the close co-operation of industry. The employer had to accept this responsibility of giving the practical training on the job.

In 1906, Loveridge was pleased to report to the Association that at least in New South Wales, the indenture system had been re-established for carpenters by an award of the Arbitration Court in 1905. Moreover, the award also provided for compulsory attendance at technical classes for apprentices in the trade.

However, the carpenters were but one set of tradesmen, what of the many and varied occupations not encompassed by the 1905 award, and what of the remaining States? In other words the regulation of apprenticeship remained an urgent and complicated problem.

1 ibid., p.398.

Fortunately, the call was heeded during the period of technical education reconstruction throughout Australia, but even then the tree of development and change bore slow fruit.

To review in detail the multitude of Acts which have had a bearing on developments in this field throughout Australia seems to be unnecessary here and indeed would be almost impossible, particularly in New South Wales where the system of industrial arbitration has introduced further intricacies. However, the social implications of apprenticeship are of great importance and the subject is of vital significance in the field of technical education.

Hence a survey of developments in twentieth century Australia seems most desirable.

3. New South Wales

Revolutionary Ideas

When Knibbs issued his report on technical education in 1905 he did not give a detailed plan for regulation of apprenticeship, rather did he point to the need for a new outlook towards technical training of the apprentice. He pointed out that throughout the world technical schools for apprentices could be divided into three categories as follows:- [1]

1. Schools which gave theoretical technical instruction only, in order to constitute, with the practical instruction received

1 Report of the Commissioners, 1905, op. cit., p.190.

by the apprentice on the job, a fairly complete scheme of technical education. This theoretical instruction was designed, moreover, to broaden out somewhat the pupil's outlook, and thus to make him a more intelligent workman. These schools were usually of the evening variety.

2. Schools which provided both theoretical technical instruction together with a certain amount of manual training -- more or less directly associated with the particular trade or calling -- and with exercises in the practical work of the calling itself. These were sometimes evening schools, and sometimes both day and evening. Moreover, it was clear that the growing custom in many places was to allow apprentices a portion of the day to attend such schools.

3. Schools with a complete scheme of correlated theoretical and practical technical instruction, such that the two elements were properly co-ordinated throughout. These were almost invariably day schools.

In Knibbs' view, these three schools stood in order of increasing efficiency, the third type being the ideal school. It was further considered that such a school would more appropriately be called an apprentice school or school of apprenticeship, in contradistinction to a mere school for apprentices, Knibbs declaring that:

> The function and purpose of this last type of school may therefore be defined to be the creation in the minimum time of thoroughly educated and accomplished craftsmen. No one can compare the work done in this type of school in, say, less than three years, with what is done by apprentices who have

served seven years, without observing how inferior is the apprenticeship system. [1]

Such were the schools which had developed on the Continent of Europe and in America, and which Edward Coombes had placed at the pinnacle of trade schools in his report almost twenty years before Knibbs. Possessing great breadth of vision, Coombes was quick to analyse apprenticeship schools into two chief types. The first combined instruction in the principles of science, with the actual teaching of the trade. Not only was the science taught in the school, but the trade carried on, the scholar learing the handicraft and applying the scientific principles at one and the same time. The second system was to add to the usual instruction in science classes instruction in the practical application of scientific principles in the usual operations of the trade in which the student was engaged by workshop practice as well as by lectures.

Coombes was clearly most impressed with the former type declaring that: "On the continent of Europe the first-named system prevails, as there the claims of industrial education are recognized with the most pronounced emphasis." [2]

The opinions and recommendations of both Knibbs and Coombes in respect of apprenticeship schools counted for little. As we have seen, the British precedent and tradition of technical education generally held firm, and apprenticeship was to be no exception to

1 ibid., p.190.

2 E. Coombes, Report on Technical Education, 1887, op. cit., p.120.

the rule. There were of course many forces militating against the full day technical training of apprentices, and some of the arguments against such practice were very strong. For example it was very doubtful whether such a trades school could ever hope to provide the same conditions and atmosphere of the real life workshop. However, there was of course the problem of who would provide the training. The ever-present selfish attitude of employers, who would be reluctant to provide an education for boys who would not give them any returns for a number of years, had to be considered. Even when Peter Board, as we shall see, put forward a detailed plan for such a scheme in 1920, the opposition was still too great. The re-organization of and long-range planning for apprenticeship was slow in coming to Australia, but in New South Wales it was even worse. Developments were of a snail-pace character, with fine reports containing constructive recommendations becoming mere scraps of paper.

Commission of 1912

In 1912 a Royal Commission of inquiry issued a report on the cause of decline in apprenticeship in New South Wales, and the practicability of technical and trade classes as aids to, or substitutes for, apprenticeship. The main reasons for the decline were found to be:

1. the prevalance of the factory or large system of production
2. the outstanding feature of modern free industrialism whereby the moral obligation towards the other party in a labour contract and the element of stability in the master and servant

relationship had been displaced by the supposed interest which capital had in the command of labour forces, and by the supposed interest of labour in retaining every facility for changing masters at will.

3. the short-sighted policy of parents and boys in accepting the highest wages that could be easily procured by boys who took up unskilled work rather than skilled trades.

Again, the Commission was convinced that technical education was not a substitute for apprenticeship in the turning out of competent tradesmen, but merely a valuable aid to apprenticeship. In other words, the concept of technical education as the theory underlying a trade held firm.

The solution of the apprenticeship dilemma was seen to be a national necessity and from both an educational and industrial standpoint, the onus was on the State to invoke its authority in the matter. Hence the Commission recommended that: [1]

a. apprenticeship in skilled trades should be made compulsory for future juvenile labour;
b. technical education, if procurable, should be made obligatory on all apprentices;
c. apprentices should receive additional pay for certified technical study;
d. an apprenticeship commission should classify, for apprenticeship, trades and branches of trades which can be called skilled;
e. the Commission should determine with regard to apprenticeship the period, rates of pay, length of attendance at technical classes, and amount of pay for certified attendance;

1 Apprenticeship in Industries, Report N.S.W. Board of Trade, 1920, op. cit., p.29

f. the Commission should supervise the carrying out by masters and apprentices of the apprenticeship agreement and transfer from one master to another.

Unfortunately the report was pigeon-holed and the regulation of apprenticeship by the State remained a pressing problem with consequent shortcomings in the production of skilled manpower.

The Work of Peter Board

In the meantime, the Director of Education in New South Wales had launched his plan for a complete re-organization of the educational framework and included in his scheme, as we have seen, was the provision of both day and evening continuation schools. While this system did not solve the problem of apprenticeship, it did make for a more even pathway towards the technical school proper and gave a considerable measure of extended education both of a general and technical nature.

Board was convinced that the primary school alone could never produce efficient, skilled workers, declaring that,

> . . . . the State cannot afford to leave a large percentage of its population with no more instruction and training and preparation for the responsibilities of life than are got in the primary school, with the addition only of the unorganized and haphazard training that is picked up in the ordinary avenues of industry and business. [1]

He saw that the modern continuation school was a necessity in an industrial society, being called into existence by,

1 (Report on Continuation Schools), Sydney Morning Herald, Tuesday, December, 12th, 1911, p.5.

1. the inefficiency of any education that terminates at the age of 14 years;
2. the need for building on the foundation of primary instruction an education for adult vocation and responsibility;
3. the sense that an element of national weakness exists in the aimless drifting of young people between the age of 14 and the age at which they settle down to a definite career; and
4. the failure on their part to acquire any wage-earning knowledge and skill in those years when their minds are most receptive and their hands best adapted to acquire manipulative skill.[1]

The plan outlined by Board in his Report on Continuation Schools, 1911, contained many elements of the Continental approach to education for industrial purposes, particularly with regard to attendance at schools in the employer's time, but such progressive thinking proved premature for the State of New South Wales. His proposals were summarized as follows:- [2]

1. The extension of evening continuation schools in Sydney and the larger country towns, and the organization of them as industrial, commercial, and domestic schools.
2. The establishment of a limited number of evening continuation schools for pupils who have reached the junior University or intermediate certificate standard, in order that they may be prepared for admission to the evening courses of the University -- virtually evening high schools.
3. That all pupils of evening continuation schools be requested to take groups of subjects.
4. That the State Government require all its employees under 17 years of age to attend continuation schools as a condition of employment, and that their attendance be arranged within daylight hours.
5. That the Federal Government be approached with a view to similar arrangements being made for its employees under 17 years of age in this State.

1 ibid., p.5.

2 ibid., p.5.

6. That representatives for a similar purpose be made to the Sydney Municipal Council,
7. Steps be taken by the department to secure the attendance at the continuation school of pupils immediately upon leaving the day school.
8. The securing of the co-operation of employers of boy labour and of labour organizations in facilitating attendance.
9. The linking of the evening continuation school with the trade classes of the Technical College and with evening advanced commercial schools.
10. The special training of continuation school teachers in the Teachers' College and Technical College.
11. The organization of Superior Public Schools into day, continuation schools.
12. The establishment of two-year scholarships to assist parents in keeping their boys at Superior Public Schools for continuation school work.
13. That after sufficient schools have been established for pupils who attend under the above arrangements legislation for compulsory attendance be ultimately adopted.
14. That legislation for compulsory attendance at continuation schools provide, first, for the attendance of all pupils who leave school without completing their primary education, and afterwards for other young persons under 16 years who leave the day schools after the passing of the law.
15. That such legislation provide for such a limitation of the hours of labour as will admit of attendance for not less than six daylight hours weekly.

The type of continuation school, both day and evening, which evolved from this plan has already been discussed in the section on re-organization in New South Wales. However, it is important to note here that proposals which were not adopted were those that made for direct regulation by the State of the personal lives of adolescents and of the policy in industry. Such moves were no doubt applicable in a country like Germany where the importance of vocational training and the responsibility of industry towards national efficiency were deeply ingrained. In New South Wales however, the social and political climate was not at hand for such

direct action. Hence, although S. H. Smith who became Inspector of the newly formed continuation schools after 1911, continued to press for the necessary legislation, compulsory attendance did not eventuate, while attendance in the employers' time also remained a forlorn hope.

While the evening continuation schools failed to attract students, a not very surprising state of affairs, the day continuation schools filled a gaping hole in the educational framework and met with considerable support. However, the apprenticeship question proper remained unsolved. After the boy left the continuation school at the age of fifteen or sixteen and became apprenticed, who was responsible for his proper training and education? The trades schools which came with the re-organization of 1914 were especially designed to give theoretical and some practical training to the apprentice but attendance was compulsory in some trades only. Moreover, while the responsibility for training on the job was left to the employer, there was no guarantee that adequate guidance would be forthcoming. The regulation of apprenticeship was far from perfect.

When speaking on apprenticeship before the Board of Trade in 1919, W. Williamson brought a number of pertinent points to the fore. He pointed to the fact that generally there was a lack of a proper system of training to take the place of the earlier methods

of personal tuition given by the employer. "Training has not kept pace with industrial development." [1] Moreover, there was a lack of co-ordination between industry and the Departments of Education. "The one has striven for a better education and technical training; the other for industrial regulations with or without knowledge, training, or efficiency." [2]

Again, the secondary technical strand had shortcomings,

> What are known as continuation and junior technical schools in New South Wales may co-ordinate with the general scheme of education, but they, to a great extent, fail to complete the chain, and link up as it were, with our industries. [3]

The Board of Trade Inquiry

In 1914 the war clouds had gathered, the storm had burst and Australia was called upon to play her part in the world conflict that followed. Before the conflagration ceased there was quite a deal of criticism being levelled at the dearth of skilled tradesmen and mechanics available in time of national emergency. The finger of blame was pointed directly at the lack of systematic apprenticeship and one result of the outcry was the appointment of a committee of the New South Wales Board of Trade to inquire into the apprenticeship question. The Committee took evidence from various trade organizations, educational bodies and representatives of in-

1 Apprenticeship in Industries, Report N.S.W. Board of Trade, op. cit., p.73.

2 ibid., p.74.

3 ibid., p.75.

dustry, and in general carried out extensive research into apprenticeship at home and abroad, both past and present. However, although the report which followed contained a wealth of information on apprenticeship, no clear, concrete scheme or recommendations for future organization were forthcoming. Indeed, the only comprehensive plan for systematic apprenticeship presented during the lengthy inquiry was that put forward by Peter Board.

Board's plan was contained in an address delivered to the Committee of the Board of Trade on 4th August, 1920, and entitled "Apprenticeship and National Education." In a very careful analysis of the situation he declared that there were four interests involved in the apprenticeship problem. "One is the employer's interests, another those of industrial organizations, another the interests of the State, and another the interests of the apprentice himself."[1] While not denying the importance of the first three he maintained that much more emphasis should be accorded to the fourth, the interests of the apprentice, which for so long had been overlooked. In serving the interests of the boy, by giving him the best qualifications for fulfilling all his responsibilities, the remaining three interested parties in the situation would thereby have their wants satisfied. The logical conclusion reached therefore was that the question of apprenticeship became an educational rather than an industrial one since the boy had to be

1 P. Board, Apprenticeship and National Education, Sydney: Government Printer, 1920, p.3.

trained as an intelligent citizen as well as a skilled tradesman.

It was further pointed out that the educational machinery for progression from the primary school, through continuation or junior technical school to trade school, and ultimately through technical college to the University, was available. It was at the point where the boy entered employment that the real problem began to manifest itself; the point where the State regarded itself as having no more responsibility for him. If the employment undertaken required skill, then the evening trade school was open to the boy. However, not only was attendance an irksome task, but also the instruction received in the trade school was not intended to be a substitute for the practical training to be gained in the workshop of the employer. In other words evening instruction was considered to be outmoded and unnecessary, while under the prevailing conditions apprentices were not getting an adequate training from the employer.

The possibility of partial day-release was explored, but dismissed rather hurriedly even though, as we have seen, it was an important part of Board's original plan for continuation schools in 1911. The reason behind such a change in policy was however not hard to find. Board knew only too well a move for day releases in employers' time would still meet with very strong dis-

approval, declaring that, "evidence is already abundant that the withdrawal of the boys during the working hours would meet with strenuous opposition from employers." [1] He therefore decided that he might as well incur the full wrath of employers and put forward the plan that would give the best results. "The plan I wish to support," he said, "is the establishment of a full-time Trade School, or student apprentice school, extending over the first two years of the apprenticeship period." [2]

Such a plan may have seemed revolutionary and impracticable to many, but as we have noted the same idea had been advocated by Coombes during the nineteenth century and Knibbs at the beginning of the twentieth century. Board was really emphasising the need for a new approach to apprenticeship. The Continental approach as distinct from the British. Moreover, as usual he had a definite plan of attack.

Being full-time day schools, such establishments would provide in two years a practical training that was more comprehensive and just as thorough as could be provided through actual experience in the trade over the same two year period. Moreover theoretical instruction would be assured, and be equivalent to at least four years of evening instruction. It was granted that some of the benefit that comes from actual experience on the job would be lacking, but that the apprentices would gain such experience at a later stage. Moreover schools would be organized so as to give

1 ibid., p.11.

2 ibid., p.12.

instruction in a specific trade and be so organized as to reproduce as far as possible actual working conditions. The scheme would of course entail considerable expenditure and while the States would be obliged to bear a considerable proportion of the burden, it was the responsibility of industry to play its part also.

However, tradition and self-interest both at the State and industrial level proved too strong, while the Committee of the Board of Trade was reluctant to take command of the situation and make forceful concrete recommendations for reform. Indeed, all pleas for reform of the apprenticeship system with its highly complicated Acts went unheeded. While there was an increasing number of awards by the Arbitration Court for compulsory attendance of apprentices at trade schools and while some far-sighted, more benevolent employers came to practise day-release, there was in general very little improvement in the apprenticeship situation. By 1933 we find James Nangle, when presenting evidence before the Commission on Technical Education, speaking of the same shortcomings put forward by both Board and others over the past decades, and advocating similar reforms to those pressed by leading educators of a previous era.[1]

It was not until 1944 that part-time day release of apprentices was firmly established.[2] The finger of blame for this slow develop-

1 Commission on Technical Education, N.S.W., 1933-4, op. cit., p.81.

2 A. Denning, Technical Education in Australia during the First Half of the Twentieth Century, Sydney: Government Printer, 1951, p.5.

ment in New South Wales must be pointed directly at employers who adopted a firm attitude towards day release of youths, while governments allowed themselves to be intimidated by the attitude. This was clearly exhibited in 1917 when the President of the Employers' Federation of New South Wales wrote to the Minister of Public Instruction stating that a committee had considered the proposals put forward for apprenticeship training and that,

> employers unanimously object to the clause providing for the attendance of apprentices at Technical Schools during working hours. In some trades apprentices work with journeymen, forming part of a team, and if the apprentice is away either the team is broken up or a man had to do the work usually done by the apprentice. [1]

Such an attitude was destined to persist for many years and a visiting observer Dr. F. H. Spencer, after investigating technical education in Australia in 1939 was able to record that:

> In the regulation of apprenticeship, and, therefore, in the provision of compulsory day-time instruction, for apprentices, New South Wales, like Great Britain, is far behind the other Australian states and South Africa. [2]

4. The Younger States Show the Way

Victoria

At the turn of the century, the Technical Education Commission, showing unprecedented breadth of vision, and while not giving a de-

1 Letter from President of Employers' Federation of N.S.W., to Minister of Public Instruction, 25th October, 1917. Copy in: Apprenticeship in Industries, N.S.W. Board of Trade, op. cit., p.63.

2 F.H. Spencer, Technical Education in Australia and New Zealand, New York: Carnegie Corporation, 1939, p.77.

tailed account of apprenticeship or remedial action, did recommend legislation for fixing periods of apprenticeship for the various trades. Nothing was done however, and prior to the year 1915, the State of Victoria was in much the same position as that of New South Wales so far as the law of apprenticeship was concerned.

In 1906 an Apprenticeship Conference was convened under the chairmanship of that far sighted protagonist of technical education in Australia, Theodore Finke. The valuable report that followed contained concrete suggestions for the amendment of the law to provide for compulsory attendance at continuation classes, and appointment of a permanent Apprenticeship Commission to organize and direct the system. Discarding the explanations of employers and employees for the collapse of the apprenticeship system, the Committee was adamant that "in trades as a whole there has hitherto been no general recognition of the necessity for complete industrial skill being based upon any sufficient educational standard beyond the elementary State school curriculum."[1] Notwithstanding the fact that intermediate educational facilities had as yet not been developed, "no definite result ensued from the work of the Committee."[2]

However, with the passing of the Education Act of 1910, which made provision for secondary technical education prior to apprenticeship, the stage was set for further developments. Hence in 1913 a

1 E. Sweetman, C.R. Long and J. Smyth, op. cit., p.246.

2 ibid., p.246.

second conference was convened, once again under the chairmanship of Finke, to examine proposals for a more systematic approach to the problem. In the meantime, wages boards had been given powers in respect of apprenticeship and the committee suggested that these boards should be given additional powers in order to draw up regulations for the training and education of apprentices. Such authority was forthcoming but compulsory attendance at technical classes was not.[1] Thus, although in 1915 an Act was passed to consolidate the law relating to the supervision and regulation of factories and shops, and included in it certain provisions with respect to apprentices,[2] the position remained, in the main, unaltered. Apprenticeship in Victoria continued to be a problem demanding solution.

Departmental Attitude

In the survey of the re-organization of technical education in Victoria it has been shown how Donald Clark, representing the Department of Education, from the beginning of his appointment as Chief Inspector, emphasized that it was a hopeless task to endeavour to build a system of technical education on evening classes only. Indeed his dissatisfaction at the lack of systematic provision for the training of apprentices as skilled tradesmen was clearly evident

1 J.O. Anchen, op. cit., p.134.

2 Apprenticeship in Industries, N.S.W. Board of Trade, 1920, op. cit. p.30.

from the start. By 1913 we find him convinced that something had to be done as a matter of urgency, declaring that, "apprentices at least should be allowed time during the day to attend technical schools." [1]

In 1914 Clark found it necessary to report that a very large number of tradesmen were not receiving an adequate training. There were no classes for many important trades. It was clear that a reasonable standard of industrial efficiency would never be attained unless industrial workers received a better technical training. A number of causes were operating adversely, and the examples given by the Chief Inspector were as follows:- [2]

1. The small number of apprentices admitted to each trade. This is fixed by legislation. The ratio between the number of apprentices to the number of journeymen is such that we are likely to have a diminishing supply of tradesmen, if apprenticeship is to be the necessary introduction to the trade.
2. Apprenticeship, as pointed out in my last report, has practically ceased to exist. Many masters will not be bothered with apprentices, and there is really a less number than the law allows. The masters are under no obligation to thoroughly train those who become indentured.
3. Many boys who are apprenticed have, as a rule, to pick up their trade as best they can. They receive little or no special practical instruction, and no theoretical instruction. They very often are confined to some special branch of work, and acquire a very limited and narrow experience. In many cases, their employers are not competent to teach them.
4. Boys who are not apprenticed, and who desire to learn a trade, move about from shop to shop in order to gain ex-

1 Victoria: Report of the Minister of Public Instruction, 1912-13, Melbourne: Government Printer, 1914, p.100.

2 Victoria: Report of the Minister of Public Instruction, 1913-14, Melbourne: Government Printer, 1914, p.89.

perience. When tradesmen are scarce, they may get a job and hold it for some time then get another, and by this process acquire a footing in a trade.

5. Very few of them are qualified to profit by the instruction in technical schools, very few complete courses there, and very few can be expected to do so, considering the majority of them would have to spend some sixteen hours in day and evening at work, travelling, and study for at least three evenings per week for from three to five years. It is ridiculuous to talk about making such courses of study compulsory. The doctor, the dentist, the lawyer, and the chemist are not asked to work under such conditions.
6. It would naturally be expected that the tradesman who has mastered his craft and has completed his full course of training would be able to command much more than one who has not. Unfortunately, this is not so. There is but little difference in the rates of pay awarded to the skilled tradesman and to the unskilled labourer. The minimum legal wage tends to become the maximum, so as to equalize the difference between the trained and untrained tradesman. There is thus little incentive for most young men to sacrifice time and effort in improving their knowledge and skill, when they know their wages may not be any better than if they muddle along."

The situation was poor to say the least and in order to overcome some of the difficulties it was recommended that a system of registration be introduced, whereby all tradesmen would be compelled to pass some type of examination before they were allowed to practice. This was the only alternative to compulsory attendance which was not applicable while employers were against allowing students to attend classes during working hours. There was indeed the necessity for a much better relationship between employers and employees such as that in existence at H. V. McKay's establishment at Sunshine where apprentices were allowed time off during working hours to attend technical classes.

However, by 1919, Clark still found it necessary to speak vehemently with regard to apprenticeship training. Declaring that

repeated overtures had been made on behalf of the worker who had to grapple with evening studies he felt the time was more than overdue for it to be made "obligatory on the part of the employer to allow students time off for certain hours in the day." [1]

Apprenticeship Commission Finally Established

In 1922, yet another committee was convened to examine the apprenticeship question and once again the recommendations included the appointment of a permanent Apprenticeship Commission. As J.O. Anchen so aptly records, "'hasten slowly' remained the motto in taking action, and it was not until 1927 that the Apprenticeship Act was entered in the Statute Book." [2] The main educational features of this legislation were the requirement of a minimum educational standard for entrance into an apprenticeship trade and the obligation of compulsory attendance at technical classes for at least one half day per week during the first two years, and two evenings per week for periods ranging from three to five years of the apprenticeship. Upon attainment of the required trade and educational standards a final certificate of proficiency was to be issued. The Commission established under the Act became linked closely with the educational system of the State through its ex officio chairman, the Chief Inspector of Technical Schools, through the preparation of sections of syllabuses of instruction, and through

1 Victoria: Report of the Minister of Public Instruction, 1918-19, Melbourne: Government Printer, 1919, p.21.

2 J.O. Anchen, op. cit., p.135.

attendance by most students at junior technical schools to gain educational qualification for admission to apprenticeship.

The scheme of apprenticeship thus introduced also made possible a wider and more comprehensive range of courses and a continuity of study for periods ranging from three to five years. Hence in 1933, E. P. Eltham, the Chief Inspector of Technical Schools was able to appraise the scheme as follows:

> Sufficient experience of the value of 'part-time' day and evening technical school training of young workers in industry under the Apprenticeship Act, 1927, or under voluntary arrangements made with their employers, has been obtained to show the marked educational and industrial advantages such training has over voluntary evening training only.
>
> By providing portion of the training in the day time, fuller and more comprehensive courses of instruction are successfully carried out without throwing too great a burden on the students; the wastage of students through inability 'to stay' the full length of the course is found to be very greatly reduced and the regularity of attendance at both day and evening classes greatly increased. [1]

Victorian apprenticeship had certainly progressed beyond that of New South Wales but was by no means the pioneer in Australia, South Australia, Queensland and Western Australia had outpaced the elder sisters.

South Australia

It is to South Australia that full honours must go for the first bold movement in Australia towards systematic re-organization of apprenticeship. Indeed, when the first bulletin on the new apprentice-

1 E.P. Eltham, The Present Position of Technical Education in Victoria, Melbourne: Printed Working Men's College, 1933, p.12.

ship in that State was issued by Charles Fenner, Superintendent of Technical Education, in 1924, the title chosen was, "An Experiment in Compulsory Specialized Adolescent Education."[1] The pioneer character of the development in this field is clearly evident and becomes even more pertinent when regarded in the light of the predominantly agricultural nature of the State at this time.

The Education Act of 1915 had led to a complete re-organization of education in South Australia, including of course technical education. However it was two years later, in 1917, when the Technical Education of Apprentices Act, was passed that the necessary legislative machinery became available for a complete face-lift to be given to apprenticeship.

There was no denying the primary need for such action for in 1917 the approach to apprenticeship in the State was completely haphazard. There was no information available as to the number of trainees in a particular trade and people in authority did not really know whether any young worker was an apprentice or not. In July of that year, the Chief Inspector of Factories in South Australia recorded in his annual report that:

> As a general rule little or no provision is made by employers for teaching apprentices their trades. The apprentices for the most part pick up what knowledge they can in the course of their work, and those who are keen and observant turn out good tradesmen, while the careless lad after finishing his

1 South Australia: Bulletin No. 1, Apprenticeship Training, Education Department, Adelaide: Government Printer, 1924.

> term often becomes a disturbing element and a nuisance in the trade owing to incompetence. [1]

It is obvious therefore that the chief factors leading to the passing of the Technical Education of Apprentices Act were the shortage of skilled craftsmen in almost every branch of industry, and the difficulty of giving apprentices adequate training under modern industrial conditions. However, it is not so clear as to why the particular plan of re-organization was adopted. As late as August, 1916, Donald Clark, the Victorian Chief Inspector of Technical Schools, had submitted a report on technical education in South Australia. In this report he pointed to many shortcomings in the provision of technical training and made many recommendations for reform. Included in the plan were suggestions having a direct bearing on improvement of the apprenticeship system, but there was no blueprint given for the 1917 legislation. Indeed, Clark actually advised against compulsory attendance of apprentices at trades schools, giving preference to registration. He maintained that,

> If skilled workers were required to show proficiency before being allowed to practise, and if registration were only given to those who proved themselves proficient there would be no necessity for compulsion. [2]

It would seem therefore that the plan grew directly from the findings of the Education Commission appointed initially in 1910 to report on facilities at Adelaide University, inquiries later

1 ibid., pp.5-6,

2 D. Clark, Report on Technical Education in South Australia, to Minister of Public Instruction, Adelaide: House of Assembly, 1916, p.7.

being extended to cover higher education generally. Some of the recommendations relating to apprenticeship made by this Commission were as follows:

1. That it be obligatory on employers to send their apprentices to technical schools one-half day per week during working hours and pay the school fees.
2. That the Minister of Education may direct that such apprentices shall also attend technical schools one evening per week, the school fees to be paid by their employers.
3. That the trades, districts, and times to which compulsory technical training shall apply be determined by the minister of Education on the advice of the Council of Education.
4. That the duty of sending apprentices to technical schools one half day per week during working hours be imposed on employers in all future indentures of apprenticeship, and that apprentices be similarly bound to attend technical schools one evening per week wherever such schools are established.[1]

These and other recommendations were based on the examination of witnesses from the fields of education and industry in South Australia, New South Wales, Victoria and Queensland. They formed the nucleus on which the Technical Education of Apprentices Act, 1917 was framed.

The main provisions of the Act were for apprentices to attend technical classes for six hours per week, for the first three years of their apprenticeship, half day per week being in working hours and one evening per week. Day attendance was to be without loss of pay, the employers being subject to penalty for placing obstacles in the way of the apprentice. The Act applied to the whole of the

1 South Australia:- Bulletin No. 1, Apprenticeship Training, op. cit., p.7.

indentured apprentices or probationers in the proclaimed trades, which included practically the whole of the skilled trades of the State.

The correlation of the school work of the apprentices with that of their factory or workshop was accomplished in a number of ways, principally by: [1]

a. The Apprenticeship Advisory Board with the Superintendent of Technical Education as chairman, and six other members --- two appointed by the Minister, the others by Trades and Labour Councils, and by Employers' Associations.
b. Trade Committees, appointed by the Minister on the nomination of employers and employees, every member being a person skilled in one of the trades concerned. Meeting quarterly, these committees were to inspect classes and work done.
c. A system of Term Reports by employers and school instructors.
d. Visits to the workshops by a special officer appointed by the Advisory Board.

Many difficulties were met with in putting the scheme into effect, particularly with regard to accommodation. However, these were gradually overcome and the system flourished. Ample testimony to the success of the scheme was afforded in the replies received in response to a letter sent by the Superintendent of Technical Education to various employers, foremen, employees' unions and trade instructors, inviting an expression of opinion. Thirteen extracts from these replies were recorded in Bulletin No. 1 of the Education Department, 1924, and the following from an employer is a typical

1 Ibid., pp.10-11

example of the opinion expressed:

> The general benefit derived from the Act is very noticeable. The apprentice in the workshop understands his work better, and thereby becomes a faster and better tradesman. He takes a greater interest in his work and is more satisfied than previous to the operation of the Act, because he understands he is being taught his trade better than he would if he had not the Apprentice Act behind him. The moral effect is good. He is introduced to things that in other circumstances he would have no access, thus arousing those higher ideals which go to make better citizens.[1]

South Australia had shown the way in a new approach to apprenticeship and the other States of Australia sooner or later saw the wisdom of the precedent set.

Queensland

In Queensland, trade education had been carried on for many years, but it was not until the years following the outbreak of the First World War that the problem of Apprenticeship was given close attention. During 1915, in order to bring the work of the Central Technical College into closer touch with industry, four Trade Advisory Committees (carpentry, electrical, fitting and machining, plumbing) were established. The duties of these committees were as follows:[2]

a. The consideration of exercises drafted for use in connection with College trade course practice.
b. The inspection of work of trade course students and College assessments of its value.
c. The inspection of methods of trade instruction.
d. The consideration of such other matters as may be referred to them.

These committees proved successful and were expanded during the

1 ibid., p.25.

2 Queensland: Report of the Secretary for Public Instruction, 1915, Brisbane: Government Printer, 1916, p.166.

following year, being found of particular value in connection with the establishment of Preparatory Day Trade Schools. There followed from this time a series of developments towards the provision of systematic trade apprenticeship, culminating in the Apprenticeship Act of 1924.

At the beginning of 1916, Preparatory Day Trade Schools were opened in connection with the Central and Ipswich technical colleges. This move had been foreshadowed since 1914 and the plan of organization was drawn up as follows: [1]

1. That entrance to the school should be by qualifying examination, the number of places to be fifty.
2. That instruction should be free.
3. That during the first year of the course the instruction given should include school subjects and trade subjects, the subjects of trade instruction to include carpentry and joinery, plumbing, fitting and machining, and electricians' work.
4. That the first year should be regarded as a year of selection, to be utilised for the purpose of ascertaining the trade for which each boy was particularly fitted.
5. That the second year's course should include general school work, but should comprise trade work principally.
6. That the third year's course should be practically wholly trade work.

During the first year, work was planned to embrace trade subjects specified above in addition to English, mathematics, history, geography, trade geometry, and engineering sketching. However, after a full trial with the syllabus, it was deemed desirable to change the course of instruction to a more general one and to organize

1 Queensland: Report of the Secretary for Public Instruction, 1916, Brisbane: Government Printer, 1917, p.134.

the trade training so that it was a fitting preparation for any of the skilled trades.[1] This brought such schools into closer line with those of the junior technical schools in other States, particularly New South Wales, but they did fulfil a deep-felt need for pre-apprenticeship education.

However, in the same year as these changes were taking place, there were indications that much bigger moves were afoot with regard to apprenticeship. The Superintendent of Technical Education in 1919 declared that: "The only method of ensuring an adequate supply of apprentices and of avoiding a glut is by means of the apprenticeship committees which it is hoped to inaugurate very shortly." [2]

By the end of 1919 action had been taken. A conference was called, presided over by the President of the Arbitration Court, and attended by representatives from the Trades Hall Council, the Employers' Federation, and the Education Department. After a full inquiry into the position, concrete recommendations were made and the scheme so designed was inaugurated in the following year.

Under the scheme provision was made for a Central Apprenticeship Committee, which had general control of the entrance of apprentices to the various trades. In addition, Group Apprenticeship Committees were formed in order to control apprenticeship matters in the respective trades, and for submission to the Arbitration Court of

1 Queensland: Report of the Secretary for Public Instruction, 1919, Brisbane: Government Printer, 1920, p.128.

2 ibid., p.128.

recommendations with regard to apprenticeship. The latter committees were composed of equal numbers of representatives of employers and employees, and, in addition, the Principal of the Central Technical College as Chairman.[1]

Other aspects of the scheme were:

a. Entrance examinations were held to select apprentices for the various callings.

b. After passing the entrance test candidates were interviewed by the Central Committee which decided on the most suitable trades for them.

c. The Group Committees placed the boys in workshops and took control of their workshops and college training during the whole period of apprenticeship.

During the early stages of the scheme considerable difficulty was experienced in securing positions as apprentices, especially in the engineering and electrical trades. The main reasons for this state of affairs were given as:[2]

a. General depression in the manufacturing industries for a time following the cessation of hostilities.

b. The attitude of employers who, at first, looked askance at a scheme which tended to restrict their privileges in engaging

1 Queensland: Report of the Secretary for Public Instruction, 1920, Brisbane: Government Printer, 1921, p.64.

2 Queensland: Report of the Secretary for Public Instruction, 1921, Brisbane: Government Printer, 1922, p.80.

apprentices.

c. Preference of boys for certain trades.

However, the year 1922 saw a recovery in the manufacturing industries and expansion in the building and engineering industries, while the increased confidence of employers in the scheme was evident. Consequently, the placement problem was eased. Still, the Superintendent of Technical Education felt that there were many matters connected with the scheme which could be more satisfactorily dealt with and expressed the view that the complexity of the problem pointed "to the need for an Apprenticeship Act under which the force of law will be given to decisions of the authority dealing with the matter." [1]

The Superintendent did not have very long to wait, for in 1924 such an Act was passed. Under the Act, indenture and attendance at technical classes became compulsory, fifth grade standard qualification was introduced, employers could choose their apprentice, and the powers of the Apprenticeship Executive were clearly defined. However, the machinery of systematic apprenticeship had already been assembled and was used as the basic component. Hence it could be recorded in 1928 that: "The scheme of apprenticeship training at present in operation is the result of experience gained over a period of years since 1914." [2]

1 Queensland: Report of the Secretary for Public Instruction, 1922, Brisbane: Government Printer, 1923, p.99

2 State Education in Queensland, Department of Public Instruction, Brisbane: Government Printer, 1928, p.62.

For a State far less advanced industrially than either New South Wales or Victoria, the reasons for the more progressive nature of the approach to apprenticeship are difficult to ascertain. Nevertheless, the esteem with which the approach to apprenticeship is regarded in Queensland is clear from the following:

> It has been authoritatively stated that the Apprenticeship Act is second in industrial importance only to the Arbitration Act, and in education the benefits it confers are second only to the basic provision of 'education, free, secular and compulsory'. [1]

Western Australia

In the first prospectus of the Perth Technical School, 1900, we have seen that provision was made for giving apprentices the scientific principles underlying their trade. Over the years this work was expanded gradually and following the declaration by Mr. C. Andrews, Inspector General of Schools, in 1912, that Western Australia like any other country needed organized continuation schools to cater for the skilled trades, such classes were established in many centres. Andrews had also recommended both compulsory and daytime attendance in the employers' time, while links with industry through advisory committees were advocated. However, evening attendance under a voluntary system persisted and only limited success was attained with the continuation system, while the advisory committee system for trades was but loosely developed.

The Royal Commission of 1921 noted the lack of systematic provision for apprenticeship and suggested that it be re-organized on

1 State Education in Queensland, by Direction of Minister for Public Instruction, Brisbane: Government Printer, 1941, p.18.

New South Wales lines, with a more adequate provision for advisory bodies. Bearing in mind the position with regard to apprenticeship in New South Wales at this time, the criticism levelled at Western Australia may be regarded with considerable bewilderment, but it must be understood that from an educational point of view, New South Wales had made extensive improvements in the organization of trade instruction.

As it turned out, however, the West soon took a leap well in advance of New South Wales with regard to some very important aspects of apprenticeship. With the coming of the Industrial Arbitration Act of 1925, attendance at technical classes for four hours per week during the day was made compulsory for apprentices. During the following year, day classes were established in carpentry, fitting and turning, electrical trades, plumbing, sheet-metal working, printing and painting.

This was of course a very significant development, but as we have seen, it brought other problems and highlighted the necessity for a considerable expansion in facilities and a re-appraisal of administrative organization within the technical education sphere. Many of these problems were overcome by the beginning of the Second World War, but it was not until 1940, the really adequate facilities, by way of the Trades Building, were provided for rapid expansion of trade education.

Tasmania

With the re-organization which came as a result of the McCoy-Nangle inquiry of 1916, junior technical schools and trade schools

were established to cater for education of the skilled craftsman. In planning the work of the trade schools, the Sydney Technical College model was adopted and followed very closely. As J.A. Johnson records, the main principles recognised in the organization of trade work became:[1]

1. That apprenticeship is mainly an educational problem;
2. That the education of the apprentice cannot be undertaken by the employer alone;
3. That the business of the Trade Technical School is to supplement the training given the apprentice in his master's shop.
4. That, therefore, the school is for apprentices and those learning a trade.

Advisory committees of experts in each trade were formed and trade education became quite efficient and closely linked with industry. Over the years, trade certificate courses showed a steady expansion and a supply of skilled labour was assured. However, as in the mother State, apprenticeship itself remained unsystematised for many years, part-time day release not eventuating until 1945.

5. In Advance of Home

By the beginning of World War 11, Australia had therefore made much greater progress in the field of apprenticeship than her British progenitor. As Dr. F.H. Spencer announced in 1939,

> One matter in which Australia, like South Africa, is in advance of Great Britain is in the scheme for the supervision of apprenticeship and for the compulsory attendance of apprentices at technical colleges or schools within their ordinary working hours.[2]

1 J.A. Johnson, "Tasmania", Education in Australia, ed. G.S. Browne, London: Macmillan & Co., 1927, p.401.

2 F.H. Spencer, op. cit., pp.21-22.

In general, Australia could claim to have a comprehensive and well-regulated system of apprenticeship. The struggle to overcome traditional social and educational trends had not been easy, but with the less industrialized States showing the way, the initial opposition of both employers and students was eventually overcome and the community became aware of the great advantages presented by this development in the social order towards the new apprenticeship.

It was in this field of trade apprenticeship, probably more than in any other aspect of technical education, that Australia deviated from the British tradition and practice. Yet, even here, the basic bonds still held firm. The assumption that the school would give the necessary principles underlying a trade, while experience on the job would give the required practical experience still remained, hence a portion of trade education had to be given during the evening. Some leading educationists had advocated a complete break with tradition by proposing that the Continental-type Apprentice school be established, but this was rejected for a less radical change.

Nevertheless, by 1939, the competent observer was justified in claiming that:

> There is little doubt that this wise and enlightened treatment of the apprenticeship question will do much to solve the difficulty of a sufficiently large skilled personnel for the secondary industries which Australia is developing and intends to reinforce. [1]

1 ibid., p.23.

CHAPTER XVII

THE QUIESCENT YEARS

By the 'twenties of this century, systematic technical education had been provided on similar lines throughout Australia and there followed a period of quiescence. Up until the outbreak of the Second World War, there were some significant developments with regard to apprenticeship, and correspondence education. There was a limited expansion of facilities, some broadening of diploma work, and some innovation by way of mobile training units, but no vitally significant changes occurred in the pattern of provision. Promoters of technical education had descended from the mountain tops to dwell upon the plains.

Apprenticeship

In the apprenticeship sphere certain important developments took place, yet even here, to a large degree, the ground had already been cultivated during the period of reformation throughout Australia. As we have seen, with the passing of the Technical Education Act, 1917, in South Australia, the precedent was set for regulation of apprenticeship and part-time day attendance of apprentices at trade schools. In Queensland with the proclamation of the Apprenticeship Act 1924, came compulsory attendance of apprentices at technical college classes. Amendments to this Act in 1929 further stabilized and developed the

apprenticeship scheme and brought part-time day attendance in conjunction with evening attendance at trade schools. Western Australia had already made her move in the same direction when in 1925 the Arbitration Act was amended to make provision for a half-day period of instruction in trades schools each week. Victoria, although rather hesitant, took the decisive step in 1927, the Apprenticeship Act requiring a minimum educational standard for entrance to apprenticeship and attendance at technical classes for at least one half day per week in the employer's time. In New South Wales, on the other hand, all pleas for reform of the apprenticeship system with its highly complicated Acts went unheeded. It was not until 1944 that part-time day release of apprentices was firmly established.

These events were significant, to say the least, for they put Australia well in advance of her traditional example, Great Britain. However, it seems clear that the ideas put forward in discussions, conferences, speeches, reports and general publicity before the First World War, played a major role in the enactments of the mid-war period.

Technical Education by Correspondence

During this period there was some expansion in the correspondence field, but even here, the real boom came after 1939. We have seen how the Sydney Technical College had originated, established and extended this new system of technical training along lines probably never previously attempted anywhere else in the world. The scheme, first attempted in 1910, then re-organized and developed after 1916, was further expanded, but felt the impact of the economic depression

of the 'thirties. Victoria, in which a scheme was started soon after 1918, had a similar experience while most other States followed the trend; little progress was made in South Australia, Western Australia or Tasmania before 1939.

In Queensland, however, considerable expansion took place. The Technical Branch of the Department began commercial correspondence work in 1911, the report for that year pointing out that, "During the year preparation was made for the commencement, at the beginning of the year, of instruction by correspondence in Bookkeeping and Accountancy."[1] However, it was in 1926 that technical education by correspondence had its real beginnings in Queensland when courses were provided for apprentice electricians. Electrical tradesmen were required to hold certificates of competency and in order to obtain these, it was necessary to have passed the fourth year apprenticeship examinations. Since classes for electrical apprentices were available only at the Central Technical College, Brisbane, the necessity arose for provision of instruction outside the metropolitan area. Because of the expense that would be involved if additional workshops and specialist teachers were to be provided, it was decided to handle the situation through correspondence courses.[2]

Thus, although the greatest expansion in technical education by correspondence has been since 1939, much had been done before this time to serve the needs of the following groups of students:[3]

1 Queensland: Report of the Secretary for Public Instruction, 1911, Brisbane: Government Printer, 1912, p.119.

2 S.A. Rayner, op. cit., p.72.

3 Ibid., p.69.

1. Apprentices in rural areas.
2. Past students completing on transfer to the country or undertaking new courses.
3. Part-time students at colleges who were unable to attend all lectures.
4. Students with practical experience but needing more advanced general education in order to enter a college.

The Depression

The wave of economic depression in the 'thirties, of course, had a stifling effect upon expansion in the technical education realm. Not only did it result in serious retrenchment and unemployment, but it also caused a large number of youths to miss out on training through not being able to find a position.

James Nangle referred to the "fearful depression" in his report to the 1933-4 Technical Education Commission in New South Wales. He blamed it for much of the poor impression to be gained from an inspection of the technical system at that point of time. He maintained that:

> The effect of the depression has been to greatly discount many of the established features of the present system. For example, it has been difficult, in some instances, to keep the classes in operation, through the small numbers of students that were available and qualified for training. In many cases the occupation qualification has had to be abandoned in order to help youths who, having left school at about the age of 16, have been without employment and without chances of learning.[1]

Such a state of affairs was certain to result in a serious shortage of skilled labour in the future. Moreover, to make matters worse, as Dr. K.S. Cunningham has pointed out: "With woeful lack of

1 Commission on Technical Education, N.S.W., 1933-4, op. cit., p.76.

foresight some of the States made it even harder for training to be obtained through their action in raising school fees or imposing them where courses had previously been free." [1]

Technical Education Commission, New South Wales, 1933-4

Nevertheless, it was during The Depression that in New South Wales the first indications came of an awakening interest in the somewhat obvious fact that the technical education system was not adequately meeting the needs of industry and the nation. As P.D. Riddell shows: "This dissatisfaction found expression through the many trade and professional advisory committees which were an integral part of the Technical College organization." [2]

These committees were fully representative of employers and employees and after many discussions internally, they felt obliged to express their views publicly, a meeting being held in Sydney during 1931. Eventually the government took action and in 1933 the Premier, Bertram Stevens appointed a Commission "to inquire into and report upon the organization of Technical Education within the said State and its adequacy or otherwise for community and other needs." [3]

The Superintendent of Technical Education, James Nangle,

1 K.S. Cunningham, "Technical Education in Australia", The Year Book of Education, ed. H.V. Usill, London: Uni. of London & Evans Bros., 1939, p.647.

2 P.D. Riddell, "The Work of Technical Education", The Australian Exporter, ed. A.W. Watt, April, 1947, p.12.

3 Commission on Technical Education, N.S.W., 1933-4, op. cit., p.5.

submitted a lengthy report in which he gave a detailed account of the existing system. He felt that basically the approach and organization were sound, but as we have seen, he deplored the fact that his hands were tied in so many ways. "I have been without any real power", he exclaimed.[1] Moreover, he had been unable to carry out much needed extension work because of lack of funds.

The Commission paid a tribute to the fine work accomplished by Mr. Nangle and his staff, "in spite of the very grave difficulties under which they have laboured".[2] A considerable number of suggestions were made for improvement, most of which pointed to the need for increased expenditure rather than any drastic change in the system. Indeed the essence of the Commission's findings in respect of lack of development may be summed up in the following:

> The lack of adequate finance and of a definite policy with regard to accommodation and equipment have been major factors contributing to this unsatisfactory condition and the future development can be viewed only with the utmost disquiet unless a change of policy in this regard is brought about.[3]

Thus, the Commission recommended the appropriation of a substantial sum to extend facilities in particular. Still, the experienced observer, in 1939, was able to remark of the Sydney Technical College:

> A new building is necessary for any approach to complete efficiency, and the indirect effects of a simple, dignified, and adequate technical college as a feature of a

1 ibid., p.77.

2 ibid., p.10

3 ibid., p.9.

> great city like Sydney would not be negligible, especially in a city taking a more than ordinary pride in its material environment.[1]

The Need for Commonwealth Participation

As early as 1919, we find one, G.D. Delprat, emphasising the need for more direct action by the Commonwealth in the field of technical education, particularly with regard to making the necessary finance available. He was quite vigorous in his plea for Commonwealth participation as seen by the following:

> We have spent several hundred million pounds equipping our men to obtain a winning position on the battlefields of France. Let us now spend a few more millions in equipping our nation mentally, in order to conquer a winning position on the battlefields of industry and commerce.[2]

It was conceded that education was in the hands of the States, but that this difficulty should not be allowed to stand in the way. The Commonwealth Institute of Science and Industry had been formed during the First World War, with W.M. Hughes as the first chairman. The Bill, under which it was established, provided for co-operation with the States in a number of matters including:

1. Advancing the teaching of science in schools, technical colleges and universities, where the teaching is determined by those authorities;
2. The training of investigators in pure and applied science and of technical experts; and
3. The training and education of craftsmen and skilled artisans.[3]

1 F.H. Spencer, op. cit., pp.73-74.

2 G.D. Delprat, "Technical Education", Science and Industry, Official Journal of the Commonwealth Institute of Science and Industry, vol.1, No.1, May 1919, p.25.

3 Ibid., p.24.

However, the cries for aid at that time fell on deaf ears and by the 'thirties were still resounding rather than being absorbed. In early March, 1936, the Minister for Education in New South Wales, D.H. Drummond, convened a conference of Ministers from other States at Melbourne, "..for the purpose of drawing the attention of the Commonwealth Government to the fact that the finance available from State sources was insufficient to carry out a scheme of technical education."[1]

At the conference it was pointed out that it had been obvious for some time that the technical education facilities throughout the Commonwealth were thoroughly inadequate. Moreover, it was felt that technical education could not be considered apart from the general implications of the impact of Commonwealth taxing policy on State finances. Hence it was decided to approach the Commonwealth for a grant of £2,000,000 to be paid to the States in four equal annual instalments, and in addition a permanent annual subsidy of £1,000,000. It was proposed that the initial grants should be used for capital expenditure on sites, buildings, and equipment.

The Ministers formed themselves into an Australian Council of Education, and waited upon the Prime Minister at Canberra in April. The Prime Minister, gave them little hope, and at their next meeting in October, they were formally informed that the National Government

1 Western Australia: Report of the Education Department, 1936, Perth: Government Printer, 1937, p.14.

could not grant assistance to take various governments in the matter of technical education. [1]

During the following year, D.H. Drummond went abroad and took the opportunity of inquiring into technical education generally, and the extent to which Central Governments assisted State or local authorities in respect of technical education. In the Report, published on his return, he pointed to funds made available by central authorities in Canada, U.S.A., and Great Britain, where in each remarkable progress had been made in technical education. He concluded therefore that:

> .....it appears reasonable to emphasise that unless Australia, through its Federal Government, is prepared to recognise the disabilities under which the States must continue to labour in the proper organization and equipment of technical education, she will continue to lag in this important matter. .....I therefore recommend that the necessity of early and generous financial co-operation of the Commonwealth with the States in this vital matter of vocational education again be vigorously pressed with the Federal Government. [2]

No results were forthcoming and the mid-war period remained a relatively unproductive era in the field of technical education. Efforts were being made but it seemed that only a violent upheaval could awaken the nation to the pressing need for more adequate facilities for training the skilled manpower of the modern State. There was not long to wait, for in 1939 the second great conflict

1 ibid., p.15.

2 D.H. Drummond, Report of Inquiries made into Various Aspects of Education during a Visit to the United Kingdom, Europe, the United States and Canada, Sydney: Government Printer, 1937, p.48.

of the twentieth century burst upon the scene and the need for the skilled manpower became only too obvious. As P.D. Riddell has pointed out in reference to the refusal of the Commonwealth to give aid, "The grant was not made and this omission resulted in the serious inadequacy of the system when war demanded the intensive and rapid training of personnel in thousands and thousands for service and munition production." [1]

1 P.D. Riddell, op. cit., p.13.

CHAPTER XVIII

IN CONCLUSION

Thus, the educational renaissance that occurred during the first two decades of the present century brought systematic technical education to Australia. Technical education became co-ordinated and quite comprehensive. Instead of being an isolated fragment of education as it had been during the nineteenth century, it became an integral part of the educational framework and systematic in its own right.

By the 'twenties great progress and expansion were evident with regard to both physical facilities and educational outlook. Many new technical schools with better equipment and more highly trained staff graced the Australian scene. Administrative machinery had become efficient and the educational framework was linked together, creating a clearly defined pathway from the primary school, through secondary, technical and university education.

The primary school curriculum had been re-vitalized in keeping with the trend towards education for living in an industrial age. Secondary education had taken on a broader and deeper meaning, with industrial, commercial, domestic and agricultural strands reflecting the movement for higher education for all. The scientific curriculum

had found a place in high schools while continuation schools allowed more to partake of vocational subjects in a general education setting.

In a direct response to the needs of higher technical training, preparatory technical schools had been widely established. While nomenclature was at times confusing and Victoria was the only State where junior and senior technical education had become juxstaposed and closely linked on a wide scale, each State had catered for junior technical education or technical education at the secondary level. As a general rule, there had developed the "normal" junior technical school of the British type. That is, a school in which the curriculum aimed at continuing general education but with emphasis on technical and scientific subjects in a practical setting which would give the student an adequate all-round preparation for industrial vocations and higher technical education. There was no attempt to teach a specific trade or even prepare for a particular trade as in the Continental junior trade schools.

In senior technical schools and colleges, enrolments had climbed steeply, while subjects were no longer taken up in a haphazard manner, definite grouped courses of study being the order of the day both in trade and professional technical fields, corresponding with the British "minor" and "major" courses. Definite links with industry had been forged, in the main through the advisory committee system, but also in some cases through specialization in technical work associated with local industry. These all-important links were extended and strengthened with the regulation of apprenticeship and consequent part-time

day release of apprentices for technical training, which placed Australia in the vanguard of trade education in the British Commonwealth. Again, the technical chain was lengthened in relation to the technological work of the universities, systems of co-operation, correlation and continuation being devised by technical colleges and universities throughout Australia. Also, the scope of activities had been extended to the field of external studies with the new venture of technical education by correspondence. The pillars of technical education no longer stood in isolation, a reticulated system had been constructed.

The forces impelling change and reform during the early years of this century provide a complexity of interrelated influences, but stirrings in Great Britain appear to stand out as a forerunner of the demand for appraisal of technical education in Australia. Then, by exposing in minute detail the shortcomings of the Victorian system, the Finke Commission exploded the myth of adequate technical education and set off a chain reaction throughout the length and breadth of the whole country. Fortunately, the climate both economically and politicially was ripe, while combinations of educationists of the calibre of Tate and Clark, Board and Nangle, were placed in position to exert influence and form constructive plans and policies. Industrial growth and development must undoubtedly be regarded as having provided a strong internal demand for action in the technical education field. Still, this demand was inherent in the industrial progress itself rather than the product of a spontaneous calling by employees or a widespread

realization and cry by employers. Indeed, it must be remembered that employers on occasions had hampered the rapid development of technical education by placing obstacles in the way of revolutionary changes advocated by leading educationists. This was particularly noticeable in the case of New South Wales where the major share of blame for the tardy coming of day release for apprentices must be placed at the feet of self-interested employers.

Political Labour, particularly in New South Wales, must be credited with responsibility for a considerable amount of social legislation making for educational reform. Nevertheless, it would be erroneous and too simple a matter to assume that because the Labour platform incorporated points for such change that the re-organisation of the educational scene was a direct result of the appearance of the party in Parliament where it had held office in all States before 1914. There is ample room for a closer inspection of the influence exerted by the Labour Movement, but it should be realized in any such analysis that by the early years of this century, "Trade unionism, collectionist ideas, and industrial struggle created conditions in which positive action by the State had become historically necessary."[1]

The Finke Commission had brought to Australia the idea that technical education was not to be regarded as a thing apart, but as an integral component of any national system of education. Thus it was

1 R.A. Gollan, "Nationalism, The Labour Movement and the Commonwealth, 1880-1900", op. cit., p.180.

that in Victoria the great movement began with New South Wales soon joining in the challenge. There is no denying the fact that these two States exerted considerable influence on the other States with regard to the type and method of provision which came with the co-ordination of the educational strands. South Australia looked to Victoria for advice in respect of junior technical education and received the views which had found recognition through the work of Donald Clark. Peter Board had earlier given his views on education to the South Australian Royal Commission of 1912, while later, W.T. McCoy who was schooled in New South Wales became the South Australian Director. Western Australia and Tasmania looked to New South Wales for example, James Nangle playing a prominent role in the presentation of recommendations for reform in each case. Queensland apparently did not feel obliged to import investigations from the senior States, but it seems clear that particularly during the J.D. Story era, a watchful eye was kept on happenings in the south. Moreover, as Peter Board has pointed out, the conferences of leading administrators from each State after 1906 led to the simultaneous and similar development of advanced education throughout Australia.

Nevertheless there was no borrowing 'in toto', except to a degree in the case of Tasmania where, following the recommendations of the Nangle-McCoy Commission, technical education was re-organised largely on the New South Wales pattern. Again, although they evolved similar systems, there is little or no evidence to show that New South Wales and Victoria borrowed directly from each other, rather did they

re-organise and co-ordinate their systems in the light of British trends while watching each other's progress.

New South Wales and Victoria had set the pattern for re-organisation throughout Australia and by the beginning of the Second World War in 1939, this design had not changed significantly. When the Commission on Technical Education in New South Wales, 1933-34, inquired of the other States as to whether any changes were contemplated in their organisation of technical education, all answered in the negative.[1] The nature and pattern of provision had been firmly fixed during the period of educational re-organisation.

Notwithstanding this face-lifting and co-ordinating movement throughout Australia, most of the characteristic features of technical education were determined by antecedent developments. By the turn of the century, the broad outlines of subsequent provision were largely determined.

The importance of the approach adopted during the nineteenth century cannot be overemphasised. The basic conceptions underlying technical education carried through to the twentieth century. Furthermore, the antecedent developments were in most cases directly linked with those of Great Britain.

Although the Mechanics' Institute Movement, transported to Australia along with the current British philosophy failed to promote a system through which recruits to industry could partake of the theory or science underlying their trade, it left is indelible mark.

1 New South Wales: Commission on Technical Education, 1933-34, op. cit., p.133.

The basic assumption, nurtured in the mechanics' institutes, that the mechanic or artisan should acquire practical training "on the job" and theoretical instruction during the evening, represented a fundamental attitude which not only characterised provision throughout the nineteenth century, but persisted in the twentieth century.

There was no real attempt to change this attitude during the period of re-organisation and co-ordination. A slight deviation from British and Colonial tradition came by way of partial day release of apprentices, but the basic principle of theoretical training in the evening and practical training during working hours was maintained. Hence Dr. F.H. Spencer, when visiting Australia in 1939, was able to observe that, "Victoria like the rest of Australia has followed the British rather than the Continental or American tradition."[1]

While many forces have shaped the educational framework in Australia, far too little emphasis has been accorded to the importance of technical education as a moulding element in the process. The claims of systematic technical education not only influenced the movement for popular primary education during the nineteenth century, but stood to affect the very nature of the primary school curriculum for the twentieth century. Edward Coombes in his reports on technical education had emphasised the need for a new approach to primary education, practical activity work or hand and eye training being envisaged as an integral part of general education and a fundamental

1 F.H. Spencer, op. cit., p.46.

pre-requisite of technical education. The Fink Commission and the Knibbs-Turner Report reached similar conclusions, while both Frank Tate and Peter Board took the necessary action. During the first decade of this century, primary education in Victoria and New South Wales was given a new look both in content and method, kindergarten teaching and manual training looming largely in the face-lifting movement.

Again, adequate realisation of not only the need for, but also the means of acquiring highly trained tradesmen and technicians as a fundamental requirement for efficiency and expansion in an industrial age, gave a new meaning and significance to secondary education. It was regarded more as a multiple lane bridge of general educational development, between the fundamental curriculum of the primary school and the specialised curriculum of the technical school, not merely as a single lane causeway to the university. No longer was it to be the exclusive domain of the academic but rather a proving ground where all adolescents were to be catered for and where the acquisition of scientific and technical skills began to be regarded as important as that of literary.

Yet, even here, the traditional barriers, although somewhat crumbled, had not been demolished during the era of reform and continued to stand with the coming of systematic technical education. The classical tradition and its concomitant literary curriculum still held a commanding position. As A.N. Whitehead has pointed out, technical education suffered from social traditions: "An evil side of the

Platonic culture has been its total neglect of technical education as an ingredient in the complete development of ideal human beings."[1]

Also, we have seen how the Cockerton Judgement had affirmed an unreal distinction between secondary and technical education, and proved a great hindrance to the development of technical education at the secondary level. With Australia following the British example so closely, such a state of affairs was bound to have repercussions on trends here. Secondary technical education in Australia, as in Britain had to develop a life of its own through the higher elementary, central, junior technical and later, the technical high schools.

The resilience of the cultural forces was great and while technical education was no longer the Cinderella of the educational scene, having risen considerably in prestige, it still had not reached the pinnacle of public and professional acclaim throughout Australia. This was brought to the fore by Dr. F.H. Spencer when in 1939, he observed that, "The time has not yet arrived, ... when the pick of the primary school students apply for entrance to a junior technical school or a technical high school."[2] Although considerable progress had been made towards the raising of the status of technical education, by 1939 public interest in and full national awareness of the importance of technical education as an instrument of social,

1 A.N. Whitehead, "Technical Education and its Relation to Science and Literature", The Aims of Education, and Other Essays, London: Williams & Norgate Ltd., 1950 edition, p.77.

2 F.H. Spencer, op. cit., p.27.

economic, industrial and educational development were still lacking, being reflected to a considerable degree in the relatively unproductive period following re-organisation and co-ordination.

APPENDIX

Lectures delivered at the Sydney Mechanics' School of Arts.

(From the Annual Reports of the Institute for the years listed).

1835 Sydney: Henry Bull, 1836, P.11.

1 Benefits and Advantages of Scientific Knowledge

1 Landscape Gardening

1 Banking

1 Temperance

2 Natural Philosophy

1 Application of Sciences

1 Botany

1 Animal Physiology

2 Steam Engine

2 Natural History

3 Geology

4 Philosophy of the Atmosphere

1 Strength of Colonial Timber

1838 Sydney: T. Trood, 1839, P.13.

6 Chemistry

3 Poetry and Drama

2 Pallography

1838 (Cont.)

3 Zoology

1 Botany

1 Architecture

1 Phrenology

1 Mechanics

2 Grecian Antiquities

1 Meterology

1840 Sydney: Kemp & Fairfax, 1841, P.12.

4 Mechanical Philosophy

6 Chemistry

3 Advancement of Society

2 Geology

1 Poetry

2 Oratory

4 Vision and Hearing

1845 Sydney: James Reading, 1846, P.12.

2 Digestion

1 Elocution

2 Ancient and Modern Fable

1 Taste

1 Pneumatics

1845 (Cont.)

5 Chemistry

1 Beauties of Animal Construction

3 Adaptation

3 History of Music

1850 Sydney: Barr, 1851, P.8

4 Chemistry

2 Discoveries on East Coast of Australia

1 Historic Legends

2 Poetry of Ireland

1 Philosophy of Amusement

1 Self Advancement

2 Celestial Mechanics

2 Chemistry

1 Philosophy of Life

1860 Sydney: W.H. Buzacott, 1861, P.5.

1 Taxation

1 De Quincy and his writings

1 How Our Forefathers Travelled

1 Pictures from the Poets

1 The Relation of the Universe

1 Photography

1860 (Cont.)

1 History

1 Phonography

1 Model Dwelling Houses

1 The Earth and its Satellites

1864 Sydney: Joseph Cook & Co., 1865, P.11.

1 The Study of Law

1 Life and Writings of Sydney Smith

1 Poets from the People

1 The Pictured Tombs of Egypt

1 The Philosophy of Anglo-African Proverbs

1 The Story of Cupid and Psyche

CONSPECTUS SHOWING IN BLACK LINES THE SCHEME OF STATE EDUCATION IN TASMANIA. THE DOTTED LINES SHOW THE PROPOSED DEVELOPMENTS IN TECHNICAL EDUCATION.

Tasmania: "Report of the Director of Education", Education Department Report, 1916, Hobart: Government Printer, 1917, P.2A.

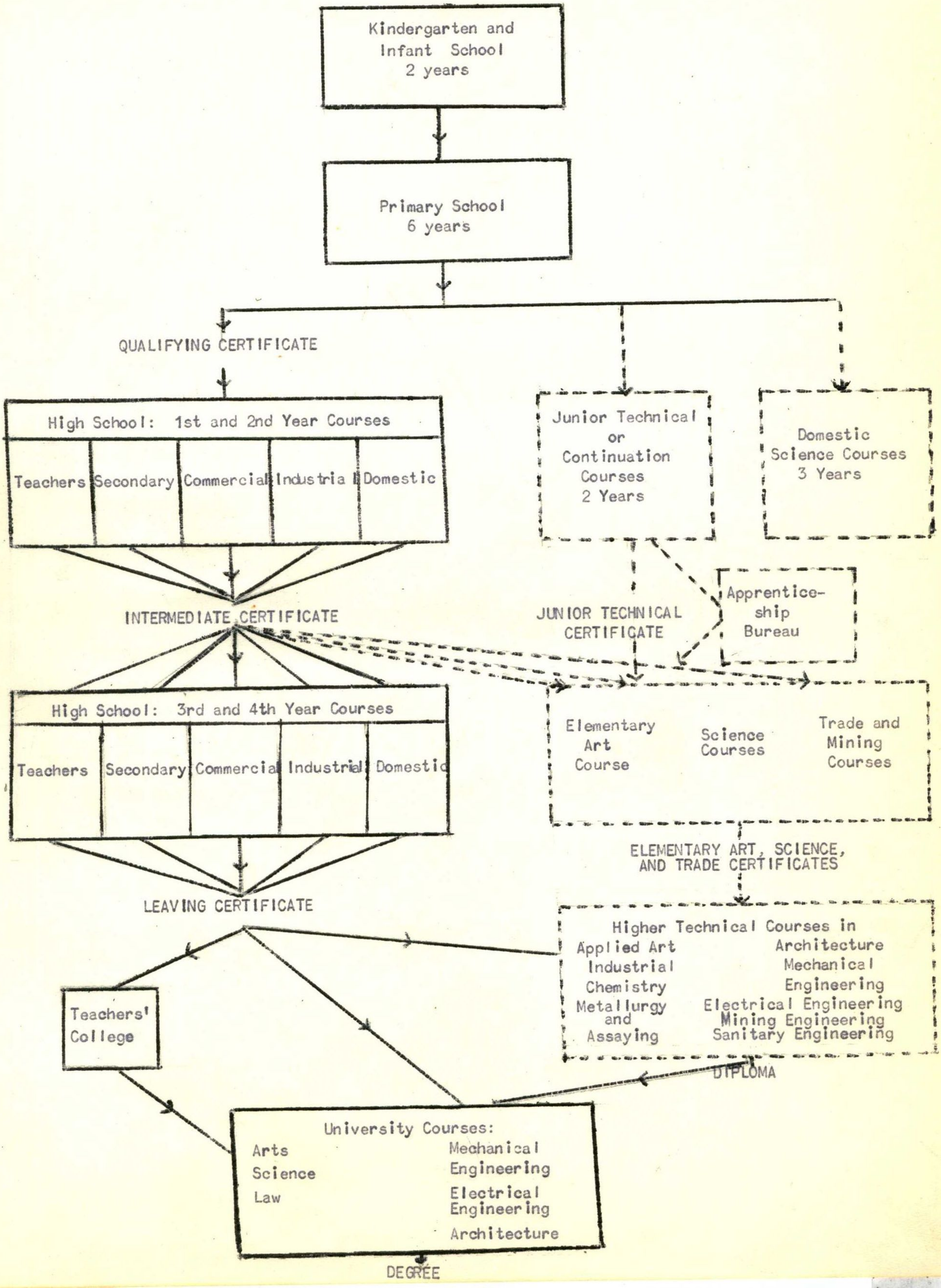
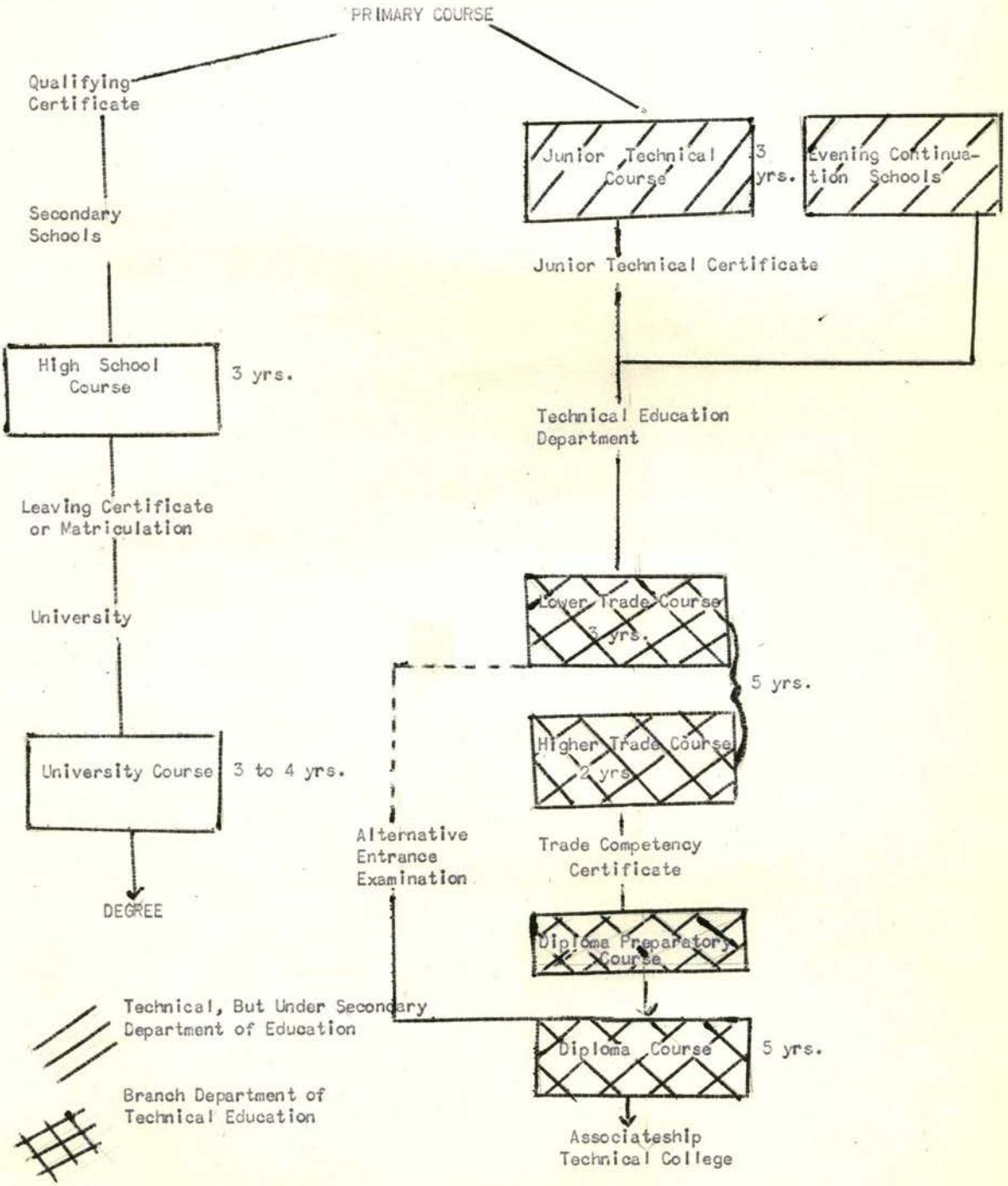


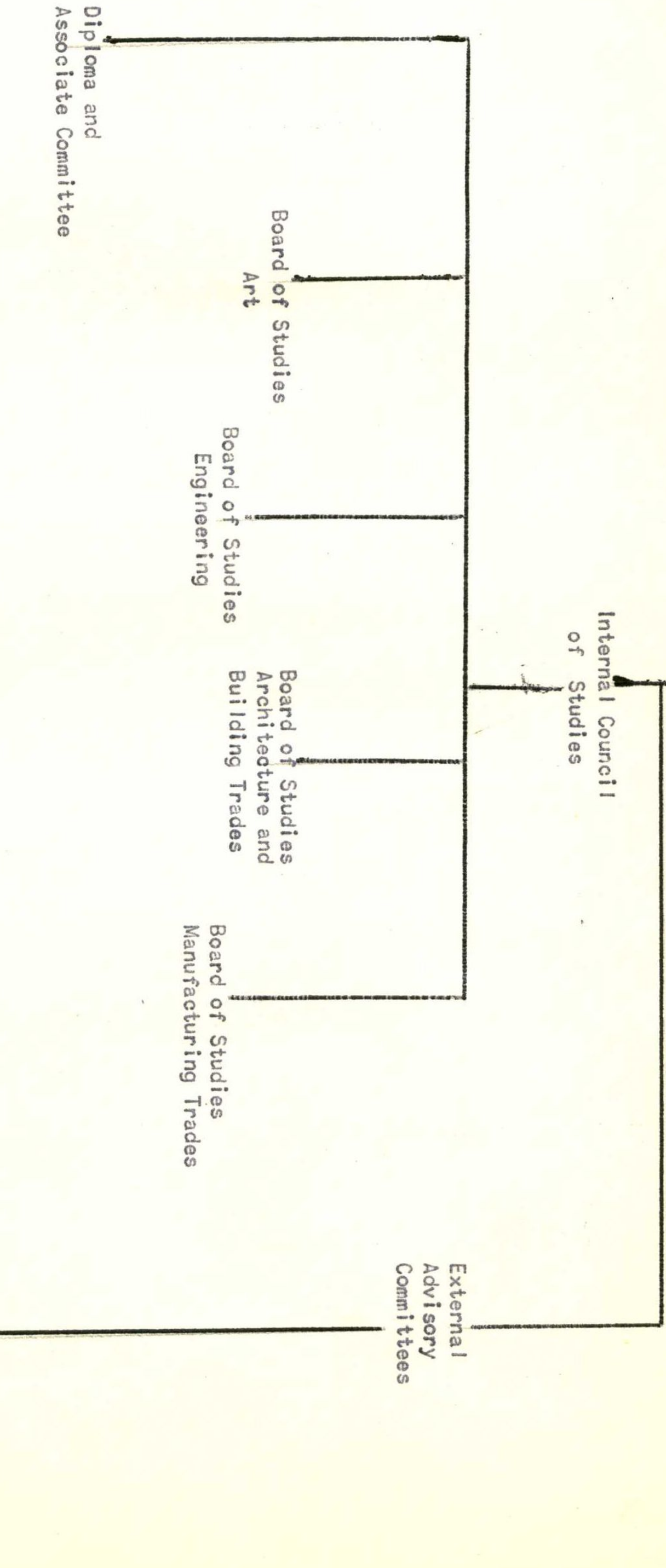
CHART SHOWING RELATIONSHIP OF TECHNICAL COURSES WITH PRIMARY AND SECONDARY SCHOOLS AND UNIVERSITY. (RECOMMENDED PATTERN FOR WESTERN AUSTRALIA --- BY JAMES NANGLE, SUPERINTENDENT OF TECHNICAL EDUCATION, NEW SOUTH WALES, 1928).

From: Western Australia: Technical Education in Western Australia; Report of James Nangle, Perth, Government Printer, 1928, P.23.



GRAPH SHOWING RELATIONSHIP OF DEPARTMENTS OF STUDY WITH EACH OTHER AND THE SUPERINTENDENT AND OF THE WHOLE DEPARTMENT OF TECHNICAL EDUCATION WITH THE INDUSTRIAL WORK OF THE STATE. (THE NEW SOUTH WALES PATTERN AS RECOMMENDED BY JAMES NANGLE FOR WESTERN AUSTRALIA, 1928).

From: Western Australia: Technical Education in Western Australia, Report of James Nangle, Perth; Government Printer, 1928, P.25.



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