Vocational and technical education in South and East Asia

VOCATIONAL AND TECHNICAL EDUCATION IN SOUTH AND EAST ASIA

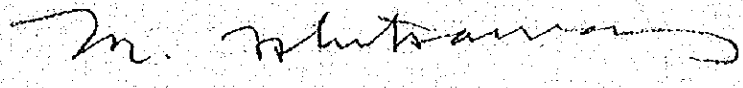
(collection of reports from 17 countries)

ASIA KYOKAI

F O R W O R D

The Regional Workshop Seminar for Administrator of Vocational and Technical Education in South and East Asia was held in Tokyo for the period of 6 July to 25 July of 1959 under the joint sponsorship of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Japanese National Commission for UNESCO with the cooperation of the International Labour Organization (ILO), and seventeen countries in the region participated in this Seminar.

Believing that the reports presented by those countries in the course of the Seminar contained valuable and useful information for further development of vocational and technical education in the region, the Asia Kyokai has undertaken to publish those reports in book form.



MINORU ISHIKAWA
Secretary-General
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LIST OF PARTICIPATING COUNTRIES

AFGHANISTAN

INTRODUCTION

The country of Afghanistan is the land of Afghans, which is situated completely in the north temperated Zone (29.30 & 37.30°) latitude and (60.30° & 74.5°E) longitude. It is an inland with roughly quadridateral in shape. Afghanistan is bounded on the North by Russian Turkestan, on the West by Iran, on the East and South by modern Pashtunistan. The total area of the country is 270,000 square miles with a population of 12,000,000.

The official religion of the people is Islam, but a few people have other faiths also. About 75% of the people are Agriculturists by Vocation. The system of Government in Afghanistan is a Constitutional Monarchy. The country is made up of 13 provinces, with the Headquaters in Kabul, the capital of Afghanistan.

Education in Afghanistan is compulsory for all children of school age. The government is bound to develop education, under the Constitution, and because of the Islamic faith, that all men and women should receive education.

Education throughout the country from primary school up to college is free. School-books, and stationery etc. are supplied by the government. In boarding schools, besides free texts and tuition the students receive free meals, bedding, school uniforms, clothing, shoes and some pocket money. The promising and top students are also having a chance to be sent abroad at State expenses.

The aim of education is to impart literacy and technical knowledge to remove illiteracy from among the people, raise standards of living and to train people to take over and handle national affairs.

In the schools, students get an education to be good Citizens, law-abiding industrious workers and serviceable to the country. According to their aptitute and interests they are put in the nations service. Schools are also imparting education to the Afghan children to develop international understanding and to achieve the common goods of the United Nations Organization and UNESCO.

1. Classification of Schools

(1) Primary Schools

Primary schools cover the first 6 Years of the children's schooling. It is compulsory for all Afghan children of 7 to 14 Years of age.

The objective of primary schools are to avoid illiteracy and to impart elementary knowledge about life. Also to prepare students for secondary education.

(2) Rural Schools

The mountainous feature of the country and the remoteness of the village communities and other things have made it difficult to open regular primary schools. The rural schools are then established to avoid those difficulties. Instructions in rural schools cover a period of three years. The textbooks cover the elementary religion, literacy, writing, reading and basic knowledge of the nation.

(3) Middle Schools

The middle schools consist of grades seven, eight and nine. They prepare students for secondary schools.

(4) Lycees (Intermediate Colleges)

The lycees comprise ten, eleven and twelve grades. The students get education in lycees to the Baccalaureate standard, and are ready to join the University. The schedule in scientific Subjects are as European Lycees. The lycees turn out graduates not only for Universities, but also the qualified students are given chance to go abroad, and could easily join European and American Universities.

(5) Vocational Schools

The Vocational schools in Afghanistan consist of Theological schools the Afghan Institute of Technology Mechanical schools, School for Agriculture, Secretarial schools and industrial schools. Because the main topic in

this paper is vocational education, therefore we will discuss the schools in the later part of this essay.

(6) University

The University of Kabul was established about thirteen years ago. Before the establishment of the University, the Faculty of Medicine, Law and Diplomacy, Science and Letters were in existence and after the establishment of the University of Kabul the following Faculties were added: Women's Theology, Institute of Economics. The graduates of these Faculties receive Bachelors Degree. The Faculty of Medicine gives out Doctor's degree to it's graduates.

2. Vocational Education in Afghanistan

In Afghanistan vocational education is under the Jurisdiction of the Director is in charge of the schools mentioned in item 5 undervocational school. Here we throw light on the technical and industrial schools only and give detailed descriptions of them.

The following table (year 1958) will give an idea of the foundations grade level of schools and the occupational level.

Name & Location	Date founded	Occupational Level	Grade Level
Afghan Institute of Technology A.I.T. Kabul	1951	Junior Technicians	10-11-12
Mechanics School Kabul	1937	Skilled & Semi-Technicians	7-12
Industrial School Kabul	1953	Skilled & Semi-Skilled	7-8-9-10
Mechanics School Khost	1957	Skilled	7-8-9

Name & Location	Date founded	Occupational Level	Grade Level
Mechanics School Kandahar	1957	Skilled	7-8-9
Industrial School Kandahar	1949	Skilled	7-8-9-10
Industrial School Herat	1957	Skilled & Semi-Skilled	7-8-9

At present the number of students in these schools is not very large. It is hoped that in future vocational education would get a well inter-related organization and the numbers of graduates from each school will increase. The Dept. of vocational Education as other dept's of the Ministry gets advice and assistance from foreign sources in developing its program. Austria, Germany and the United States have helped the Vocational Dept. in various areas and periods.

Since the above schools make an important contribution to the vocational education, it is desirable to give a brief description of each.

(1) The Afghan Institute of Technology

As early as 1958 Afghanistan was getting ready to establish A.I.T. In spring 1951 A.I.T. started new classes originally staffed by 5 Americans employed by the Royal Government of Afghanistan. Curricula at A.I.T. have been established to meet the goal of A.I.T. in 1954 Aviation was added. Almost 200 graduates of A.I.T. are helping 15 different institutions in Afghanistan on September 1, 1954 the University of Wyoming through I.C.A. helped A.I.T. in 1954 help was received from UNESCO.

The growth of industries and mechanization in a country requires numbers of trained personnel and technicians. Since about 10 years, because of the rapid development of industries, Afghanistan needed to have enough technicians to operate and maintain the equipment in these industries.

In order to fulfill these needs the Afghan Institute

of Technology was established in 1951 by the Royal Government of Afghanistan for training technicians who could supervise, operate or maintain the industry and also help and act as assistants to professional engineers.

Five Americans, a director, assistant director and 3 teachers, hired by the Royal Afghan Government were among other Afghan staffs in initiating the project.

The Afghan Institute of Technology is a secondary high school. It accepts the graduates of 9th class of other schools, with the stipulation of passing the standard aptitute test of the Afghan Institute of Technology. During the three years of training, students get their education in English Basic Math., Basic Science and Technology in a given field of industry.

Following are the brief statements in Technology offered in the 12th class at the Afghan Institute of Technology:

(a) Electrical Technology

The objectives: this section is to train students to test, diagnose trouble, service and maintain, as well as install electrical equipment in industries.

(b) Civil Engineering

It provides training in the level of senior engineer to the students in the design of construction of highways, bridges, buildings etc.

(c) Mechanical Technology

The academic subject in the class rooms and the practical work in the lab, gives knowledge of the operation and maintenance of machines in an industry or in a shop.

(d) Civil Aviation

The aim of this department is to provide personnal

for meteorological and radio sections of the Afghan Civil Aviation Authority.

After graduation each graduate will have acquired a good command of communication skills in English, Math., Physics, materials and technical subjects in which the student is specializing to the level to enable him to learn further more in the process of his future practical work as an acceptable technician, which is the objective of A.I.T.

In 1953 A.I.T. presented its first graduates to the country and since then 191 graduates have served sucessfully 15 different institutions in Afghanistan. Among the institutions including A.I.T. the following were served by these graduates: Faculty of the Public Works, Ministry of National Defence, Afghan Civil Aviation Authority, Helmond Valley, Ministry of Communications, Sarobi, Faculty of Letters, Silo, M.K.A. Electrical Dept.

I.C.A. has been helpful in organizing A.I.T. both financially as well as morally and educationally. In Sept. 1954 I.C.A. signed a contract with the University of Wyoming to assist A.I.T. The assistance would include advisors, instructors, commodities. Since then, Wyoming University's help is in effect. In 1954 UNESCO also contributed some machinery and equipment.

(2) Mechanic School-Kabul

The school is the first industrial school established in the Ministry of Education. This school was founded in 1937 by the Ministry of Education, helped and advised by a German director and instructors. It was established with the idea of training workers who were needed for the industries. The equipment needed for, school was brought from Germans were employeed by the Ministry of Education to help and supervise the Afghan Staff.

The emphasis is on practical work. The school prepares graduates as skilled and semi-skilled technicians in the following fields: Mechanics toolmaker, foundry worker, pattern-maker metal-smith, electrician, automobile mechanics and plumber, also radio repairmen.

(3) Industrial School-Kabul

This school also puts emphasis on shop-instruction. The graduates of primary schools come to -- this school. Some German instructors are employed. This school was established in 1953. It trains students in the fields of tailoring furniture-making, wood-carving, bricklaying

The students get training for three years.

(4) Mechanics School-Kandahar

The school was founded with the assistance of UNESCO in 1957. It is still incomplete and needs completion in equipment, building and teachers. It trains students in the fields of machine shop, welding foundry and smithy. The German language, besides other subjects is also taught.

Mechanics School-Khost:

Established in 1957. Similar courses as Mechanics school of Kandahar are taught.

(5) Industrial School-Herat.

This school was founded in 1957 by the Ministry of Education. At first semi-official courses were taught to remove the enviorment's needs, later on when the government took it under development, it's atandards were raised to the point equal to Mechanics school and Khost.

Remarks:

Afghan Institute of Technology, Vocational Agriculture and Engineering Agriculture Faculty, follow the American System of Education. The Mechanics & Industrial schools follow the German system. Both systems are agreeable and the comparison between the two has not been determined.

In the past years the vocational schools had a limited number of candidates, but as the various projects (vovernmental & private) at hand and the rapid success of those are assured, the students are interested in vocational training.

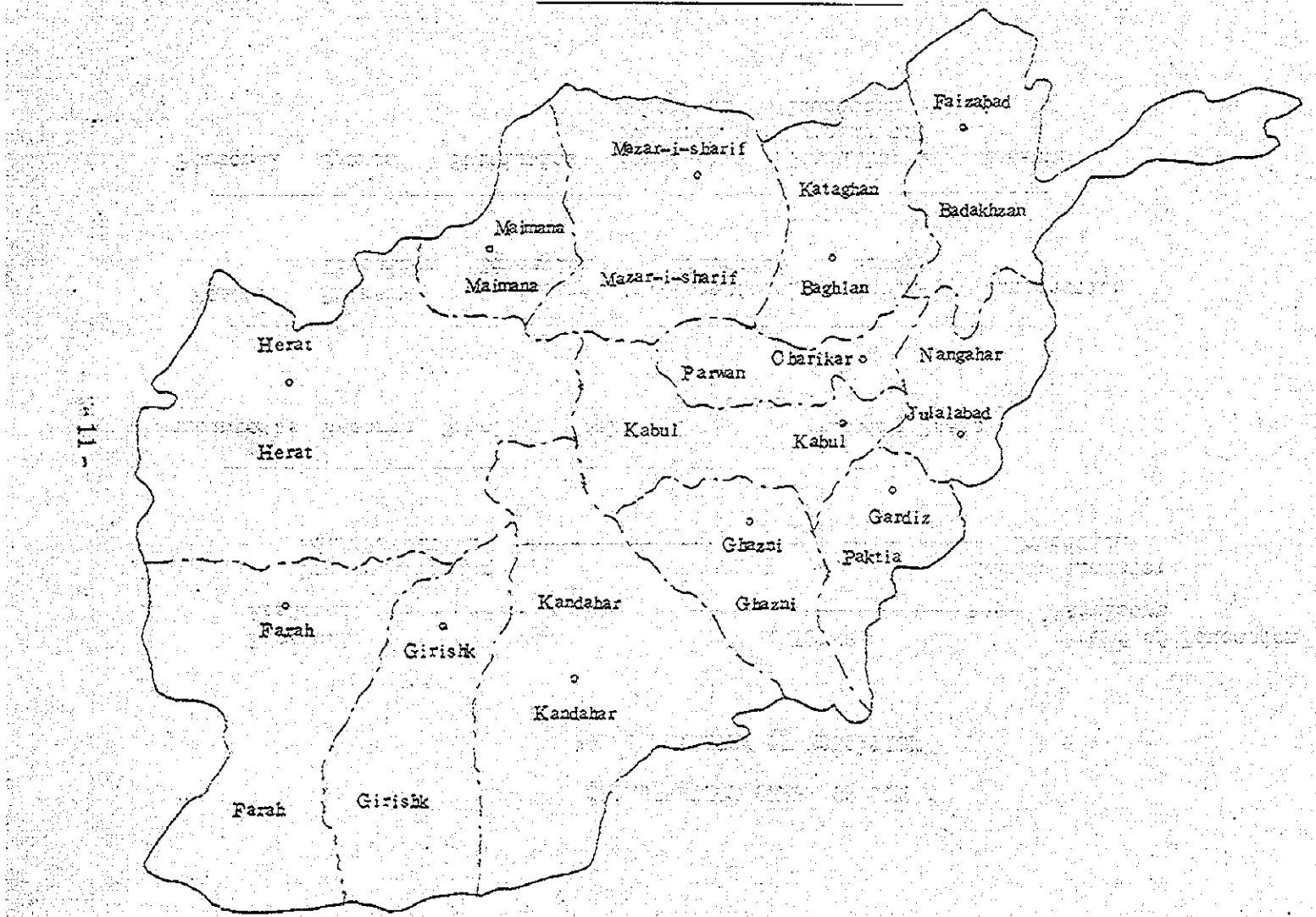
3. Conclusion

Inspite of lack of sufficient teachers, adequate space and buildings teaching materials and good laboratories, there is still hope and reason for optimism to develop a successful vocational program in the schools.

The government has a direct attention on the salary advancement, security and good placement of vocational personnel, because these factors encourage vocational industrial personnel to self improvement and to accept life-long career. Direct-hired foreign technicians and instructors by the Ministry of Education or the United Nations, UNESCO USOM/A, Asia Foundation and other sources help in providing instructors, equipment these are all reasons to foretell that vocational education is in the process of development.

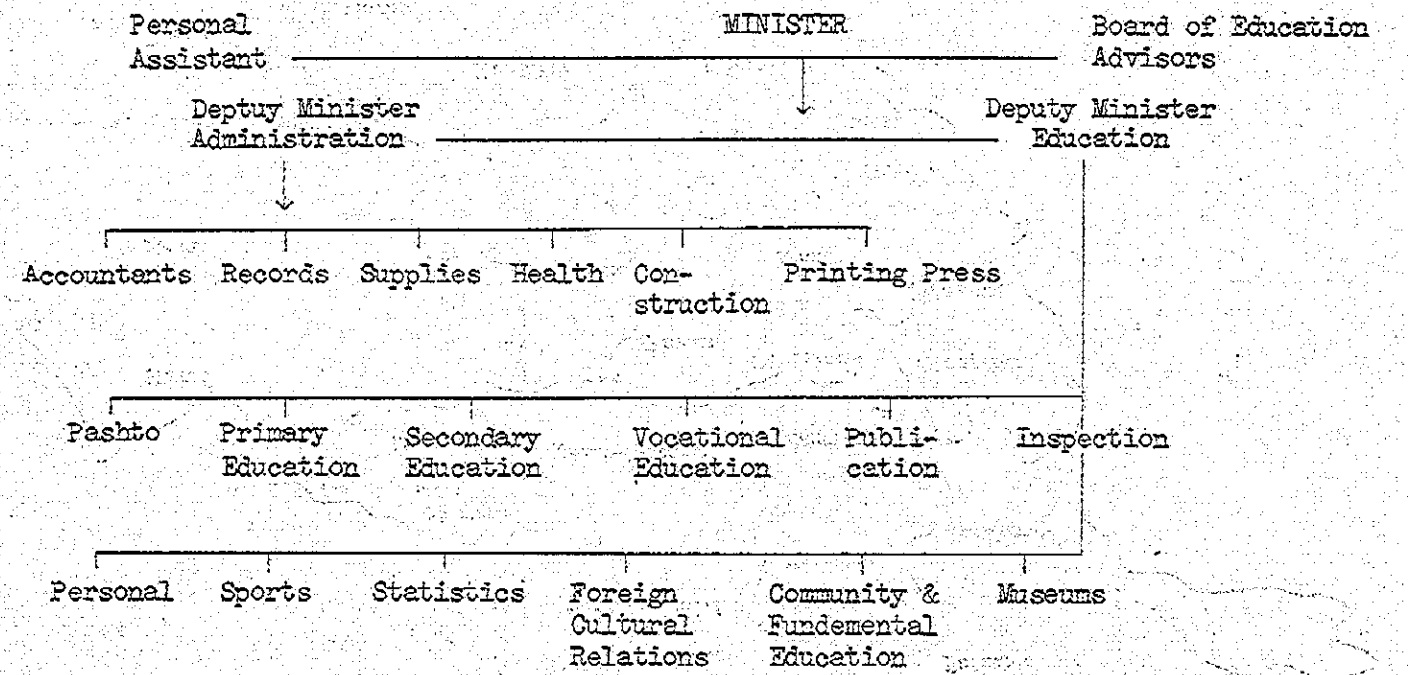
The supply of students and the growth of elementary schools also promising or having enriched vocational progress and self sufficient training of basic skilled workers as well as mechanics for the present and the future of industries.

Bough map of Afganistan



ORGANIZATION CHART OF THE

ROYAL MINISTRY OF EDUCATION



STATISTICS OF SCHOOLS

Administrative Divisions	No. Primary Schools		No. Rural Schools		No. Middle Schools		No. Lycees		No. Vocational Schools	No. Faculties	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls		Boys	Girls
Kabul (Municipal)	21	8			1	1	6	3	10	8	2
Kabul	46		42	3							
Parwan	19	1	50				1		3		
Mazar-i-sharif	21		30								
Kataghan	25	3	47		2		1				
Badakhshan	7	1	37		1						
Maimana	12	2	29		1				3		
Herat	39	2	38			1	1		4		
Farrah	10	1	25		1						
Girishk	11		21		1						
Kandahar	21		40			1	1		3		
Ghazni	13	1	16		1						
Paktia	22		13		1				1		
Mangahar	43	1	58		1		1		3		

NUMBER OF SCHOOLS, TEACHERS, BOYS AND GIRLS STUDENTS YEAR 1958

SCHOOLS	No. of schools		No. of Teachers		No. of Students	
	Boys	Girls	Male	Female	Male	Female
Rural	462	3	462	3	23,725	224
Primary	318	20	2,664	202	105,348	12,022
Middle	10	4	73	61	4,981	1,427
Lycee	12	3	450	195	1,266	299
Vocational	27		356		4,427	

Educational Budget Showing Different

Head of Expenditures Year (1958)

Currency	Ministerial Centre	Primary School	Secondary Middle School	Vocational School	Exp. of Students abroad	Building Construction	Miscl.
Afghanies in Million	13.1	21.2	10	6.5 or 8.2 % of Total	2.5	5	21.2

TOTAL - 80 Million

Monetary estimate of school education year (1954)

Primary School Student 184 Afghanies per year

Secondary School Student 475 " " "

Vocational " Student 1,121 " " "

BURMA

INTRODUCTION

Burma is now on the threshold of a full-scale economic, industrial, agricultural and social renaissance which largely depends upon the thorough training of their fusonal in all fields. Burma is aware of the fact that education in general and technical education in particular are the most efficient means of bringing about such a renaissance, and that this would necessitate the extension of training, the improvement of methods with a view to developing them as an effective means of preparing the individual to become useful citizens able to participate in raising the standard of living and the national income in Burma, and in increasing production through industrialization and the improvement of techniques for exploiting their natural and agricultural resources.

Greatest possible use is, therefore, being made of existing schools and institutions for technical, agricultural and commercial education and vocational training.

A practical bias is introduced into primary education by teaching Handicrafts and School-gardening as a means of strengthening the ties between the child and its community and stimulating his practical interest. A close relation is being developed between the schools and the community, integrating school curricula with fundamental education projects and community development programmes, where these exist with a view to arousing the interest of children and young persons in improving their conditions of life.

Technical-biased classes teaching Industrial Arts and Commercial-biased classes teaching commercial subjects have been and are being introduced in Urban Schools and also Agricultural-biased classes teaching Agriculture and Animal Husbandry have been and are being introduced in Rural Schools into secondary education as a means of getting data for vocational guidance. There are simple educational guidance based on tests, observation and study of the pupils so that by the time they finish each course they can be advised as to which type of education they should follow.

Not only the stages of Technical and Agricultural education have been linked up in continued lines but also the diver-

sification of courses after each stage has been planned with definite aims and objects.

On the Technical Line pupils after passing the Primary School Stage (Fourth Standard Examination) can join Artisan Training Centers, after which they can take up vocations. Pupils after passing the Middle School Stage (Seventh Standard Examination) can join the Technical High School after which they can take up vocations or can proceed to Government Technical Institutes.

On the Agricultural Line pupils after passing the Primary School Stage (Fourth Standard Examination) can join State Agricultural Middle Schools and after passing the "Agricultural Middle School Leaving Certificate Examination" they can continue their studies at the State Agricultural High Schools or take up vocations. After passing the "Agricultural High School Leaving Certificate Examination" they can proceed for further studies for Junior Agricultural Teachership training at the State Training Colleges for Teachers or can join the State Agricultural Institute or can seek for employment in the Agricultural Department of the Government, Boards and Agencies or take up vocations.

In addition, the Australian Government is offering scholarships in technical and academic correspondence (home-study) courses, comprising a wide variety of subjects, under the Colombo Plan, and under the sponsorship of the Government of the Union of Burma.

1. Structure and Legislation

The Education Plan for Welfare State for Burma was drawn in 1952 and implementations were since then made. The Second Four Year Education Plan for the period 1956 to 1960 has been set to undertake, inter alia, two different tasks simultaneously, on the one hand it looks back and plans to consolidate what has been achieved by way of implementing the First Four Year Education Plan and on the other it looks forward and undertakes to carry out expansion programmes.

(A) Objectives of the First Four-Year Education Plan

(1) To ensure a universal knowledge of the THREE R's among

all citizens of the Union;

(2) To ensure the production of a sufficient number of technicians and technologists;

(3) To train and equip young men and women so that they can adequately and efficiently perform their various duties as citizens of the Union;

(4) To eradicate illiteracy and produce men and women who possess the five Strengths; and

(5) To perpetuate Democracy within the Union.

(B) Objectives of the Second Four-Year Education Plan (From Quantity to Quality)

(1) To secure adequate number of fully qualified teachers;

(2) To improve the school curriculum on modern lines for the benefit of the children and in line with the National Economy of the State;

(3) To secure good school text books and to distribute them ffectively to all State Schools.

(4) To give an all-out aid for the improvement of discipline among pupils and teachers;

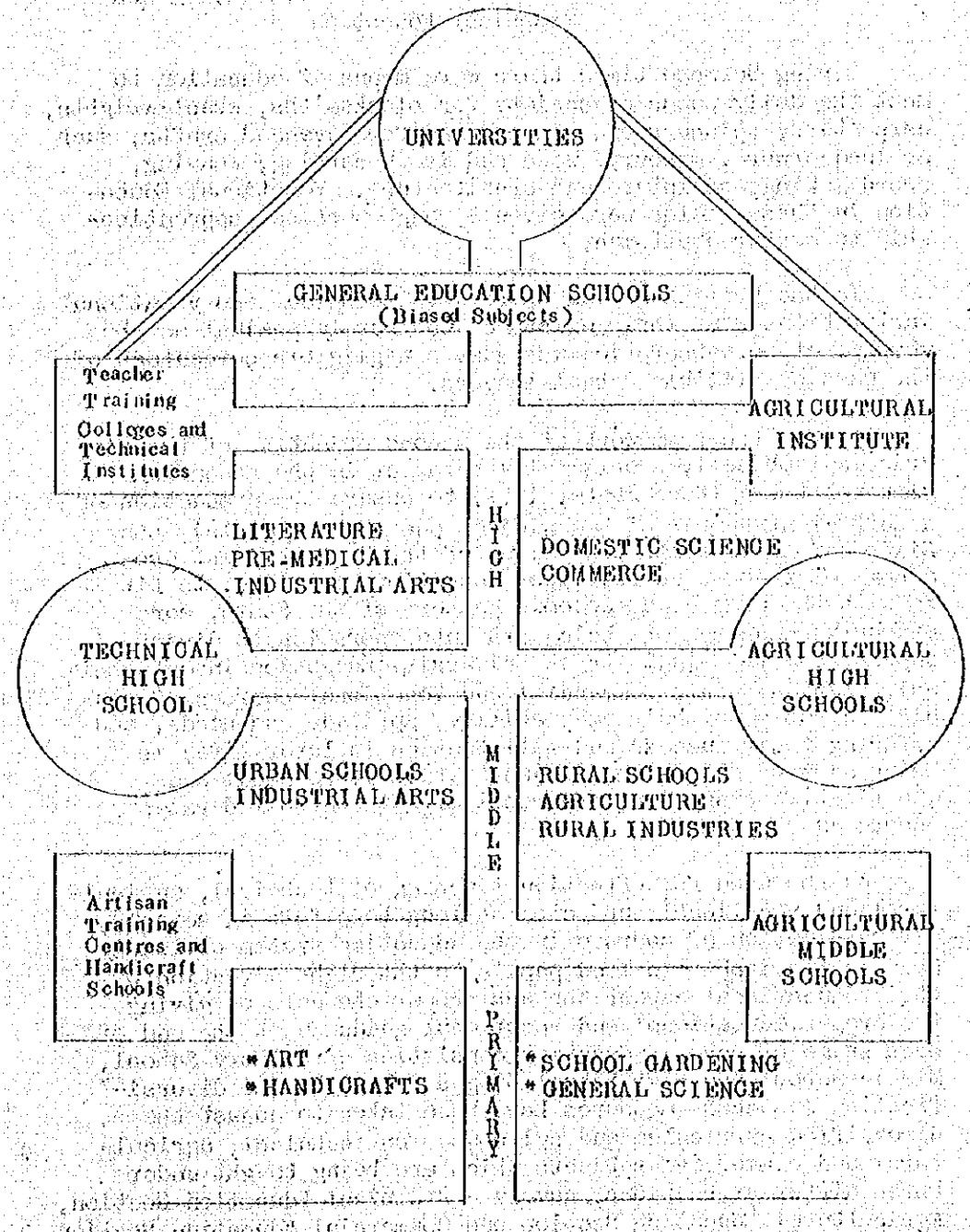
(5) To provide sufficient accommodation, school funiture and teaching apparatus for mounting number of school children;

(6) To scrutinize the number of State High Schools, State Middle Schools and State Primary Schools which were already established, district by district and township by township and to plan for the natural and equitable distribution of State Schools in localities where they are really needed in the coming FOUR years, and to provide not only purely academic education but also technical, agricultural and vocational education for those who have completed their primary, middle and high school education.

(7) To provide diversified curriculum diverting pupils

from the single-track of University Education on to technical, agricultural and vocational courses of studies.

The School-System under the New Education Plan is shown in the following diagram.


UNIVERSITIES
GENERAL EDUCATION SCHOOLS
(Biased Subjects)
Teacher Training Colleges and Technical Institutes
AGRICULTURAL INSTITUTE
HIGH
LITERATURE
PRE-MEDICAL
INDUSTRIAL ARTS
DOMESTIC SCIENCE
COMMERCE
TECHNICAL HIGH SCHOOL
AGRICULTURAL HIGH SCHOOLS
MIDDLE
URBAN SCHOOLS
INDUSTRIAL ARTS
RURAL SCHOOLS
AGRICULTURE
RURAL INDUSTRIES
Artisan Training Centres and Handicraft Schools
AGRICULTURAL MIDDLE SCHOOLS
PRIMARY
* ART
* HANDICRAFTS
* SCHOOL GARDENING
* GENERAL SCIENCE

2. Determination of the needs for Vocational and Technical Education

During Burmese times there were means of education to meet the daily needs of society for blacksmiths, wheel-wrights, carpenters, spinners and weavers and for advanced crafts, such as lacquerware, masonry, wood and ivory carving, weaving, sword making, sculpture and architecture. Vocational Education in these fields were given through personal apprenticeship to master-craftsmen.

In the British Period there were technical and vocational institutions, but their existance was merely nominal as the yearly rate of absorption was just a negligible percentage of the mass of eligible school-leavers.

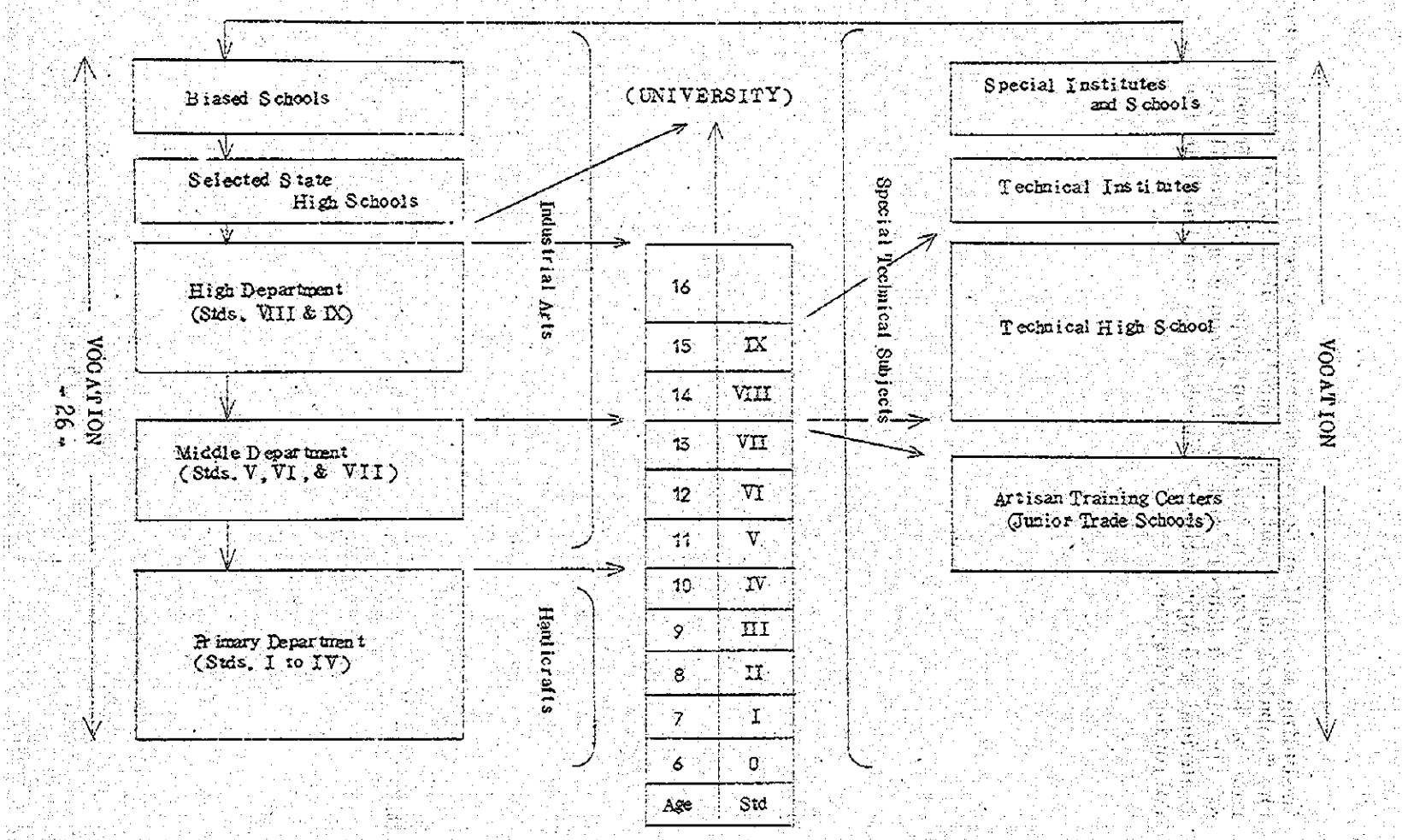
Within the framework of the second objective of the Five Principal Objectives originally held out in the Education Plan for the Welfare State, (i.e. to ensure the production of a sufficient number of technicians and technologists), the Sixth and the Seventh Objectives of the Seventh-Point Programme of the Second Four-Year Education Plan (i.e. to fit in with the projected economic pattern of the State, more effective measures are being set into operation to divert pupils from the single-track University Education into Technical, Agricultural, Commercial and Vocational courses of studies suitable to their age, ability, aptitude and needs, and assuring their success and satisfaction in later life) is being carried out, both for qualitative improvement and quantitative expansion, progressively at controlled rates according to plans.

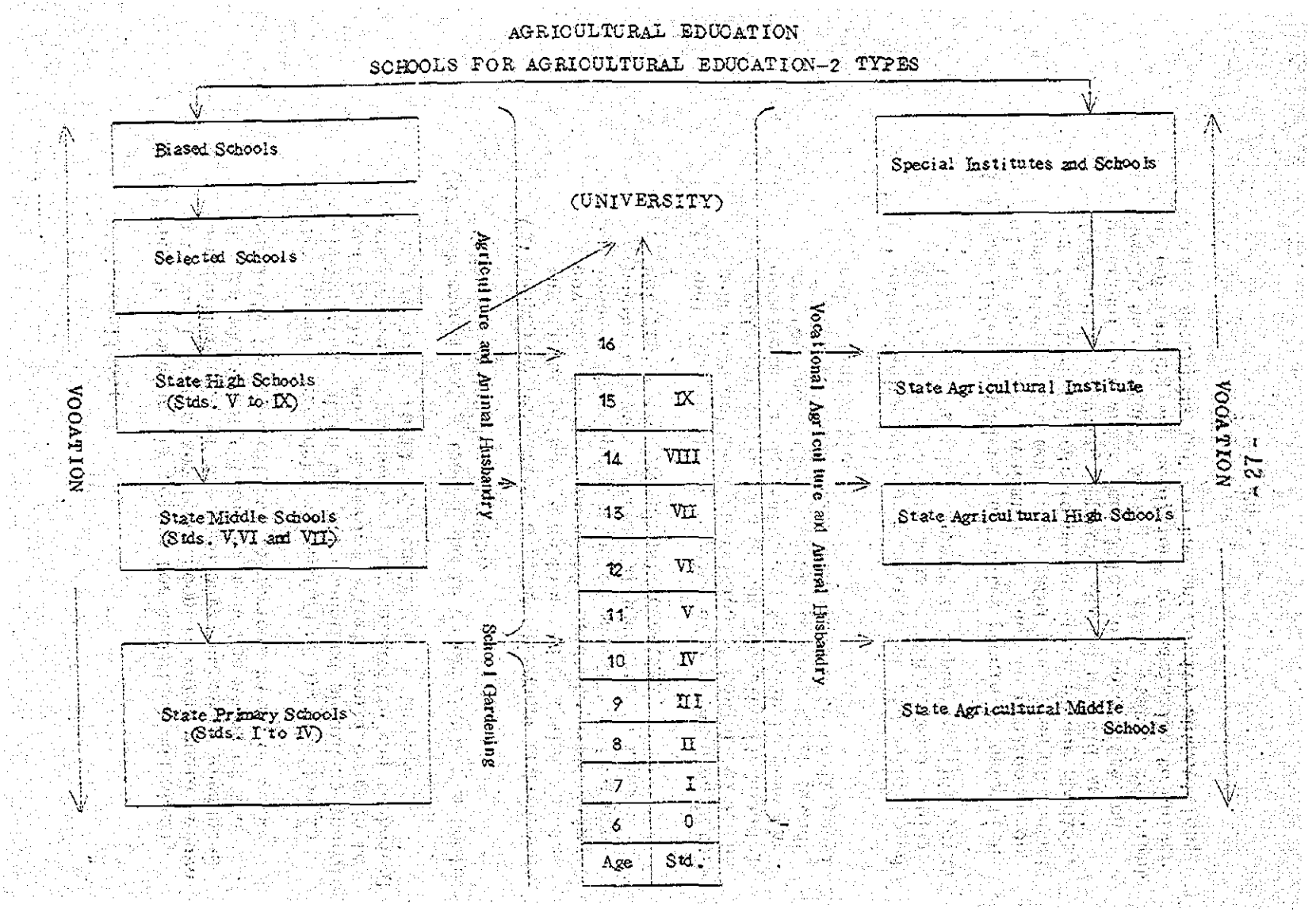
As the need for effective teaching of technical, agricultural and vocational subjects has long been felt in schools, diversification of courses in the education system obviously becomes inevitable to lead pupils to the right direction of their educational career through proper channels by giving the proper educational and vocational guidance at the end of each stage of school education consisting of Primary School, Middle School and High School Stages. To make the diversification a success measures have been taken to adjust the diversified curriculum and syllabuses on technical, agricultural and commercial subjects which are being taught under three different sections, namely - Technical Education Section, Agricultural Education Section and Commercial Education Section,

including Australian Correspondence Scholarship Courses, under the Technical and Vocational Education Division of the Directorate of Education, in two distinct types of State Schools namely Biased Schools and Special Schools and Institutes for Technical and Agricultural Education as mentioned in the following diagrams:

TECHNICAL EDUCATION

SCHOOLS FOR TECHNICAL EDUCATION-2 TYPES




AGRICULTURAL EDUCATION
SCHOOLS FOR AGRICULTURAL EDUCATION–2 TYPES
Biased Schools
Selected Schools
State High Schools (Stds. V to IX)
State Middle Schools (Stds. V, VI and VII)
State Primary Schools (Stds. I to IV)
(UNIVERSITY)
Agriculture and Animal Husbandry
School Gardening
Vocational Agriculture and Animal Husbandry
Special Institutes and Schools
State Agricultural Institute
State Agricultural High Schools
State Agricultural Middle Schools
VOCATION
VOCATION
16
15 IX
14 VIII
13 VII
12 VI
11 V
10 IV
9 III
8 II
7 I
6 0
Age Std.

It is realised:

(1) That in planning the policy for technical education, a rational system should be adopted which would ensure the availability of the necessary number of graduates at each educational level to meet the needs of the community for specialists in various kinds of work.

(2) That Burmese should be the medium of instruction in technical education and all concerned should co-operate towards this end. A special effort should be made to translate and standardize, all scientific and technical terms so as to facilitate their use in Burmese.

(3) That vocational guidance should be provided in schools of general education through.

(a) increased attention to simple handwork and gardening during primary education, with a view to discovering the talents of the students, instilling in them the appreciation of manual work and preparing the more successful students in these activities for vocational education,

(b) including in the curriculum of general preparatory schools vocational activities compatible with the particular conditions of the locality (industrial, commercial or agricultural) in order to pave the way for the gifted students to follow the branch of technical education most suited to their particular inclinations;

(c) establishing guidance centres for students, to advise them on the work most suited to their abilities, and engaging experts to supervise this work.

(4) That higher technical institutes should be established and increased in number in order to provide an opportunity for the more successful graduates of secondary technical schools to pursue their higher studies. In these institutes, emphasis should be laid on practical work while facilities for specialization should be available during the final years. The right of determining the conditions for admission to universities should be left to the university authorities.

(5) That industrialists should endeavour to provide for the technical and social training of young men and women workers in accordance with modern methods and in co-operation with government bodies. Factories, industrial schools and government bodies should co-ordinate their efforts to provide evening or day courses in factories or schools for those in need of training. Attendance at these courses should not entail loss of earnings.

(6) That responsible bodies should organize a permanent system for granting loans to graduates of technical and agricultural schools in order to encourage them to set up their own enterprises whether in commerce, agriculture or industry and help them obtain the ne necessary capital. They should also, subject to certain conditions, allot suitable plots of land to graduates of agricultural schools.

3. Relations between Vocational and Technical Education and General Education, Higher Education Labour Market, Professional associations etc.

(A) At the Primary, Middle and High School levels the following measures have been taken to lay the foundation for future technical and technological education.

(1) More directed teaching of Nature. Study of General Science in Primary and Middle Schools (age 6 to 13)

(2) More directed teaching of General Science and other specialised sciences like chemistry, Physics.

(3) Inclusion of practical subjects such as Gardening and Handicrafts in the Primary Curriculum.

(4) Introduction of vocationally biased subjects in High and Middle Schools by way of providing opportunities for early exploration, and subsequent development, of any latest talents.

(5) Dissemination of occupational literature to give information as to the nature of employments available.

(6) Establishment of two Artisan Training Centres (equivalent of Junior Trade Schools) with a capacity to accommodate 200 pupils a year for a two year course.

(7) Establishment of one Technical High School with a capacity to accommodate 300 pupils a year for a two-year course.

(8) Establishment of two Agricultural High Schools.

(9) Establishment of two Agricultural Middle Schools.

Definite plans have been made for expansion of the above mentioned measures on progressive scale by yearly increase.

(B) At the post-secondary level the following institutes have been organized:

(1) Two Technical Institutes each with a capacity of accommodating 200 students a year for a three year course,

(2) One Agricultural Institute with a capacity to receive 75 students a year for a Two-Year course (planned to make it a Three Year Course)

(C) At the University level, the Faculty of Engineering has been extended to include courses for Mining, Sanitation, Architecture, Electrical and Metallurgy in addition to usual courses for Civil and Mechanical Engineering. The Faculty of Agriculture, the Faculty of Medicine, the Faculty of Education etc. are turning out trained personnel.

The life-blood for regular supply of efficient teachers and lecturers is being fed by sending State Scholars aborad on a very lavish scale.

At the school level the inspectorate has been created to supervise and inspect the work in all the grades of schools, and an additional special inspectorate for Technical and Vocational Education has also

been created to supervise and inspect the work in Technical and Vocational Education.

At the post-secondary level a separate directorate has been constituted, while the University has its own Faculty members.

The Research Division at the Directorate of Education has been organized to introduce educational and vocational guidance work. To prepare the ground, Cummulative Records and other related measures have been introduced.

The second of the Five Fundamental Principles of the Education for Welfare State is to ensure the production of sufficient number of technicians and technologists; to this end, the diversion of pupils from the single track of university education on to technical, agricultural and vocational courses of studies has been made since 1954, and further intensification of the diversified curriculum will be made during the Second Four Plan from 1956 to 1960.

One of the outstanding results of the re-adjustment of the Primary and Secondary School curriculum on more scientific basis in accordance with the Fundamental Aims of the New Education Plan was the introduction of the Technically and Vocationally biased subjects into selected State Primary, Middle and High Schools, these selections being made as model schools, progressively, year by year.

The generous provision of facilities made by the Government of the Union of Burma for the progress of these technical and vocational subjects and the success so far achieved, can be seen from the following table:

Serial No.	Grades of model schools where practical subjects are being taught as bias	No. of such Schools
(1)	State High Schools teaching Industrial Arts -	52
(2) (a)	State High Schools teaching Agricultural and Animal Husbandry -	37
(b)	State Middle Schools teaching Agriculture and Animal Husbandry -	13

(3) State High Schools teaching Commercial Subjects - 2

(4) State High School providing pre-medical classes - 5

(5) State Primary Schools teaching Handicrafts and School Gardening - 250

More model schools of these types will be taken in year by year on progressive scale at controlled rates according to definite plans as these practical subjects are also being taught in many other ordinary schools which are awaiting to be selected.

In addition to diverting pupils from the single-track University Education and its glamour, the following special schools and institutions for vocational education have been set up:

Serial No.	Grades of Schools and Institutions	Number of Schools and Institutions
(1)	Government Technical Institutes -	2
(2)	Government Technical High School -	1
(3)	Government Artisan Training Centres -	2
(4)	Government Handicraft School -	1
(5)	State Agricultural Institute -	1
(6)	State Agricultural High Schools -	2
(7)	State Agricultural Middle Schools -	2
(8)	Teachers Training Colleges -	2
(9)	Teachers Training Institutes -	3

A proposal has been submitted to the Government for opening one State Commercial High School.

Labour Market and Professional Associations etc.

After making:

(a) institution of additional departments staffed with especially trained personnel to carry out guidance work so as to make diversification effective and successful,

(b) provision of adequate facilities for Vocational and Technical Education.

Co-ordination is being made with employing firms and industries, professional associations, boards and co-operations, Government Labour Exchange Control Departments and other agencies for the utilization of the services of the trained personnel so as to equate the supply with the actual demand.

4. Courses offered

(A) Vocational Training for those who have completed the Primary Education

For those older pupils who have completed the Primary School Education, there are educational centres for their vocational training. They are Artisan Training Centres, District Police Training Depot, Nurses Training Classes, State Agricultural Middle Schools etc.

(1) Subjects taught in the State Primary Schools

Subjects taught in the State Primary Schools are:

(a) Burmese

(b) Elementary Mathematics

(c) Social Studies (Geography; History and Civics)

(d) Elementary General Science

(e) Elementary Agriculture

(f) Home Economics

(g) Handicrafts

(h) Creative Art and

(i) Physical Education.

Out of 10,751 State Primary Schools, there are now 250 selected model State Primary Schools teaching handicrafts, Agriculture, Creative Art, and Home Economics. These subjects are taught in many other schools as far as practicable.

(2) Subjects taught in State Middle Schools

Subjects taught in the State Middle Schools are Burmese, English, Mathematics, Social Studies (Geography, History and Civics) General Science, Domestic Science (for girls). Music, Art and Physical Education, Industrial Arts and Agriculture are taught in biased classes of selected Model Schools.

(3) Subjects taught in State High Schools

The subjects taught in the State High Schools are Burmese, English, Mathematics, Geography, History and Civics, General Science, Chemistry, Physics and Biology, Economics of Co-operation, Agriculture, Industrial [illegible], Domestic Science, Art, Elementary Accountancy, English and Burmese Shorthand and Typewriting, Secretarial Practice, Music and Physical Education.

(B) Vocational Training for those who have completed middle school course

After the completion of the Middle School Course, the pupils can join the State High Schools for further studies. But there are other State Vocational Institutions for those who want to have vocational training after passing the Middle School Examination (Seventh Standard Examination.) These training institutions are;

(1) State Agricultural High Schools,

(2) State Technical High Schools,

(3) Pre-medical Classes,

(4) Rural Development Training,

(5) Teacher Training Institutions,

(6) State Survey School,

(7) Police Training Depot,

(8) Commercial Schools,

(9) Midwife and Nurse Training Schools,

(10) Children Welfare Training Institutions, etc.

(C) Further Studies

Matriculated Students can proceed to the Rangoon and Mandalay Universities and other Intermediate Colleges for further studies. But those who have passed the High School Final Examination can join the following educational institutions although they are not eligible for direct admission to the Universities:

(a) Government Technical Institutes, Insein and Mandalay.

(b) Government Veterinary Institute, Insein.

(c) State Agricultural Institute, Pyinmana.

(d) Police Training Institute, Mandalay.

(e) Burma Army Officer Training School, Mandalay.

(f) Public Health Assistants Training Institute, Rangoon.

(g) Teacher Training Colleges, Rangoon and Mandalay.

(h) Government Survey School, Shwebo.

(i) Government Forest School, Pyinmana.

(j) Wireless Training School, Rangoon.

(k) Post and Telegraph Training School, Rangoon.

(l) Nurse Training Schools (for girls)

(m) State Registered Accountancy Classes, etc.

9

(l) Technical Education

Technical Education is given in the following two types of schools:

Biased Schools

Special Institutes and Schools.

As shown on the diagram in section 2.

(a) Biased Schools Technical Education is given in selected urban biased schools.

Handicraft is taught in selected primary schools.

In all the selected State High Schools, Industrial Arts is taught in the Middle and High Departments as biased subject.

Technical Subjects taught in Biased Schools:-

(i) Primary Department

Paper Work

Ceramics

Cane and Bamboo Work

(ii) Middle Department

Paper Work

Ceramics

Mechanical drawing

Woodwork

Metal Work

Cane and Bambo Work

(iii) High Department

Book-binding

Ceramics (Pottery)

Mechanical drawing

Hand wood working

Machine Wood Working

Engineering Workshop (Machine Shop)

Leather Craft

Cane and Bamboo Work

(b) Special Institutes and Schools

(i) Government Technical Institutes

There are two Government Technical Institutes - one at Insein and the other at Mandalay. Successful candidates in the High School Final and Matriculation Examination and the Technical High School Examination are admitted to these institutions on the results of an entrance examination. Only those under 20 years of age are selected for admission and each student receives a monthly stipend of Kyats. 60/- for 3 years. All students are residential.

Subjects taught in the Government Technical Institutes:

The training course in these Institutes is THREE years and the following technical subjects

are taught:

Building Construction Technology

Railway, Highway and Municipal Technology

Machine Tool and Design Technology

Diesel Power and Heavy Equipment Technology

Electric Power Technology

Electronics Technology

Mining Technology

Evening classes and special courses are also conducted for those who cannot attend regular classes of the Institutes and for those who are in need of special vocational training.

(ii) State Technical High School, Rangoon

One State Technical High School has been opened at Rangoon. Pupils passing out from this High School can pursue further studies either in the Universities or Government Technical Institutes. Besides, they can work as apprentices in work-shops and factories.

Only those who are 18 years of age or under, after passing the Middle School Examination can attend this High School.

The pupils selected for admission to this High School after an entrance examination, receive stipends of Kyats 50/- per month.

The course is two years and residential pupils are accepted.

Subject taught

The pupils are taught the matriculation subjects such as Burmese, English, Mathematics, Chemistry and Physics and in addition each pupil has to choose one of the technical subjects mentioned below:

Technical Subjects:-

Radio Mechanics

Electrical Wiring

Automobile Mechanism

Diesel Engines

Machine Shop

Sheet Metal

Welding

Building Construction

Drawing is also taught to all the pupils.

(iii) Artisan Training Centres

There are two Artisan Training Centres (equivalent to Junior Trades Schools) one at Rangoon and the other at Mandalay. Pupils are selected from those who have reached the Middle School stage and each selected pupil receives a Government stipend of Kyats. 50/- per month. The training course is two years and the pupils can take any one subject from the following. Training is given both in theory and practice:

Radio Mechanics

Electricity

Machine Shop Practice

Diesel Engine Repair and Maintenance

Automobile Mechanics

Blacksmithy

Fitting and Welding Practice

Foundry and Moulding Practice

Carpentry

(2) Agricultural Education

Agricultural Education is given in the following two types of schools:

Biased Schools

Special Institutes and Schools

(a) Biased Schools:

Rural State Schools are selected for the teaching of Agricultural Subjects.

(i) School Gardening is concentrated in State Primary Schools

(ii) In selected State Middle Schools, Agriculture and Animall Husbandry are taught according to the prescribed syllabus, (apart from School Gardening.)

(iii) In High Department, Vocational Agriculture and Animal Husbandry are taught according to the prescribed syllabus.

(b) Special Schools and Institutes

In the following Special Institutes and Schools Vocational Agriculture is taught:

State Agricultural Institute

State Agricultural High Schools

State Agricultural Middle Schools

(i) State Agricultural Institute, Pyinmana

Those who have passed the High School Final and Matriculation Examination have the privilege to pursue further studies in this Institute opened from July, 1954.

There are two kinds of students admitted to this Institute:

* Junior Assistant Teachers of State Schools, selected and sent on Deputation Terms by the Education Department for appointment as Senior Assistant Agricultural Teacher in Agricultural Schools.

* Students selected by the Special Board for the award of a monthly stipend of Kyats. 60/- for employment in the Government Agricultural Department.

Subjects taught in the State Agricultural Institute, Pyinmana:

Agricultural Economics

Agronomy

Horticulture

Plant Protection

Chemistry

Farm Mechanics

Botany

Physical Education

Extention Methods

Animal Husbandry

Agricultural Education

English

Regular Field Work

The course is TWO years and the students who have successfully completed the course are conferred Diploma in Agriculture.

(ii) State Agricultural High Schools

Two State Agricultural High Schools have been opened from June, 1956 by the Government to enable the pupils who have passed the Middle School Examination to continue further studies in agriculture:

State Agricultural High School, Myaungmya

State Agricultural High School, Myittha (Kyaukse District)

The course is TWO years and the following subjects on Vocational Agriculture (as Major Subject) are taught intensively apart from the ordinary school subjects such as Burmese, English, Mathematics, Social Studies (History and Geography) and General Science:

Horticulture

Agricultural Botany

Agronomy and Soil Science

Entomology and Plant Pathology

Farm Mechanics

Agricultural Economy

Animal Husbandry

Regular Field Work

(iii) State Agricultural Middle Schools

Two State Agricultural Middle Schools have been opened from June, 1957 by the Government to enable the pupils who have passed the Primary Stage, to study agriculture intensively:

State Agricultural Middle School,
Thegon (Prome Dist)

State Agricultural Middle School,
Shwebo.

The course is THREE years and hence there are three grades. Agriculture and Animal Husbandry (as Major subjects) are taught intensively with regular Field Work apart from other schools subjects such as Burmese, English, Mathematics, Social Studies (Geography and History) and General Science.

Stipends

For those who wish to continue their studies either in the State Agricultural High Schools or State Agricultural Middle Schools, 50 suitable pupils for each school are selected annually on the results of an entrance examination for the award of Government Norminal Stipends.

The rate of Norminal Stipend for the High School is Kyats. 30/- each per month and that of the Norminal Stipend for the Middle Schools is Kyats. 20/- each per month. Tuition is free.

(3) Commercial Education

Commercial Subjects are taught to the Eighth and Ninth Standard pupils in State Central High School, Rangoon, and No.3. State High School, Mandalay. The course is 2 years for both boys and girls and the following commercial subjects are taught:

Burmese Shorthand

Burmese Typewriting

English Shorthand

English Typewriting

Business Organisation and Management (with Shop Work)

Elementary Accountancy

Secretarial Practice

Efforts are being made to open similar courses progressively in more schools of the same grade.

There are also many private commercial schools, institutes and colleges recognised by the Government. Special Commercial Examinations are conducted by the Commissioner of Examinations in addition to the High School and Matriculation Examinations for the Commercial Subjects.

(4) Education by Correspondence

Through the sponsorship of the Ministry of Education of the Government of the Union of Burma, the system of Education by Correspondence was introduced since 1956.

This system of Education by Correspondence is known as "AUSTRALIAN CORRESPONDENCE SCHOLARSHIPS" under Colombo Plan and it is a co-operative effort of the Union Government and the Australian Government through the Australian Embassy at Rangoon.

In accordance with the prescribed rules and regulations, applications from the participants are invited during the month of September every year and selection of suitable applications is done in December. Selected applications are forwarded to the Australian Government by the Union Government with necessary recommendation. The Australian Universities finalised the selection and then only correspondence courses begin. The Inspector of Schools for Technical and Vocational Education, Directorate of Education, does every thing that needs his special attention and supervises the examinations held at Rangoon.

(a) Courses offered

Technical Subjects (Engineering, Electricity, Motor Mechanics, Agriculture, Animal Husbandry, Mathematics, Economics, etc.)

Academic Subjects (English, Mathematics, Statistics, Education, Histrory, etc.

(b) Students

During 1957, out of 137 applications received, 47 suitable applications were accepted and the Australian Universities taught the Students through correspondence medium.

Eighty-one (81) applications were received for the year 1958.

Forty-seven (47) applications have been received for the year 1959.

5. Selection and guidance of students

Admission of students to technical, agricultural and vocational schools are limited to the number needed for each branch, as shown by statistical surveys. Admission to technical schools and institutes are based on the results of general examinations or special entrance examinations and in many cases by interview. Mental aptitudes, tendencies, and physical fitness as displayed in the course of vocational guidance are also to be taken into consideration.

Promotions are based upon the marks obtained by the student throughout the year especially as regards practical subjects, and upon an attendance record of no less than 75% of the total number of school days. Mid-year examinations and the End-of-year examinations are held. Emphasis should be given to practical training of students on the premises in both Technical, Agricultural and Vocational Schools. Opportunities are afforeded for practical work in farms, factories, workshops and commercial firms. Regular co-operation in the planning and assessment of these training courses are maintained between the school authorities and the various

professional bodies in industry, agriculture and commerce.

Curriculum and teaching methods play an important part in the guidance of students.

Curricula and teaching methods:-

Efforts are being made to implement the following fundamental principles. Considerable head-way is being made.

(1) That in laying down the curriculum of technical and vocational education, account should be taken of the needs of the community and in so far as possible of the opinions of those engaged in the public services in this field. Practical training should occupy at least 50% of the total number of prescribed periods of study. Annual provision should be made for secondary technical and vocational school pupils to undergo a month's training in factories, farms, firms or workships.

(2) That technical and vocational school pupils should be allowed to undertake individual or collective projects. The projects might be partially financed by school co-operatives directed by the pupils themselves under the guidance of their teachers, so that the students may receive some training in private enterprise.

(3) That in connection with all technical and vocational subject a due share of practical work should be provided for in the initial stage of study in technical and vocational secondary schools. Later, practical training should be given in only one or two associated fields. The central theme of this training should give due consideration to community needs and employment opportunities open to graduates.

(4) That teachers and experts should participate in setting up the framework of the curriculum. The schools should be allowed to adapt the details and implementation of the curriculum to local needs.

(5) That full attention should be given to the compilation of Burmese technical and vocational books

adapted to the different levels of technical and vocational education. Emphasis should be laid on the provision of facilities for practical study and of the necessary audio-visual aids and teachers should be well trained in their use. Excursions, visits, experiments and the organization of educational and museum exhibitions should be encouraged.

6. Teaching and administrative personnel

(A) Selection and training

For recruitment and training of teachers the following principles are laid down.

(a) That in the recruitment of teachers of technical and vocational subjects, the criteria of selection should be technical, vocational and pedagogical qualifications, physical fitness, ability to undertake field work and to live in harmony with the community.

(b) That the teacher's academic standard at any level should not be less than the High School Leaving Certificate or next higher level. In-servise courses should be provided to enable teachers to complete their technical vocational and pedagogical training.

(c) That the Government should establish complete teacher training systems to undertake to

(i) train instructors and familiarize them with up-to-date technical, practical and pedagogical methods in their respective fields,

(ii) provide training in specialized vocational fields.

(iii) organize periodical refresher courses

(iv) organize theoretical and practical courses to complete the technical or pedagogical training of teachers.

Selection and training of teaching personnel is made by:

The Faculty of Education under the administration of the University of Rangoon. There are THREE grades of training:

(i) Two-year course for those who passed the Intermediate Examination leading to B.A.(Ed.).

(ii) One year course for those who passed the Degree examination leading to Diploma in teaching.

(iii) Those who have passed either B.A. (Ed) or D.T. are allowed to the Bachelor of Education Degree courses in one year.

Training in modern methods of teaching is provided for all subjects.

(2) State Teachers Training Colleges and Institutes

(a) Teachers Training Colleges

Two Training Colleges for Teachers have been opened at Rangoon and Mandalay and the following courses of training are conducted.

1. Primary Assistant Teacher Training Course

2. Junior Assistant Teacher Training Course

(b) Teachers Training Institutes

Apart from the Teacher Training Colleges, there are FOUR Teachers Training Institutes where Training Courses for Primary Assistant Teachers are conducted. These Institutes are in the following big towns:

Moulmein, Meiktila, Bassein, Kyaukpyu.

Academic Qualification required for Junior Assistant Teacherand Primary Assistant Teacher Training:-

Those who have passed the High School Final or Matriculation Examination are eligible for admission to Junior Assistant Teacher Training course (ordinary or special). Special course means the course for Industrial Arts or Agriculture. For special Industrial Arts Teacher course, preference is given to those who have passed the Technical High School Leaving Examination of State Technical High School and for Special Agricultural Teacher Course, preference is given to those who have passed the Agricultural High School Leaving Examination of State Agricultural High Schools.

Those who have passed the Middle School Examination are eligible for admission to Primary Assistant Teacher Training Course.

Selected students are awarded a stipend of Kyats. 60/- each and they are to serve in the State Schools as Junior Assistant Teachers for at least 3 years or as Primary Assistant Teachers for at least 2 years.

All students in these institutions are residential.

(3) Government Technical Institutes and State Agricultural Institutes

Government Technical Institute, Insein is giving training to selected Junior Assistant Teachers sent on deputation by the Education Department to become Senior Assistant Teacher in Industrial Arts and State Agricultural Institute, Pyinmana, is giving training to selected Junior Assistant Teachers sent on deputation by the Education Department to become Senior Assistant Teachers in Agriculture.

(4) Training abroad

The Government of the Union of Burma is sending State scholars abroad annually for futher studies on Technical, Agricultural and Vocational subjects. Some selected scholars also have been and are being sent abroad through the scholarship or fellowships awarded by the Unesco, USEFB, the Colombo Plan etc.

(B) Status of Personnel

(1) Personnel trained at the Faculty of Education, University of Rangoon, will start with the appointment as Senior Assistant Teacher or Deputy Inspector of Schools or State Middle and High School Headmasters with the status of the Burma Educational Service-Junior Grade with the prospect of promotion to the Senior Grade as Headmasters of State High Schools or Administrative Officers.

(2) Personnel trained at Teachers Training Colleges and Institutes will get appointments as Junior Assistant Teachers and Primary Assistant Teachers in the Burma Educational Service-Junior Grade with the prospect of becoming Headmasters of State Middle Schools or State Primary Schools.

(3) Personnel trained at the Government Technical Institute or State Agricultural Institute will get appointments as Senior Assistant Teachers or Assistant Lecturers in Technical Subjects or Agriculture at these Institutes or at the State Technical High School or State Agricultural High Schools or at State High Schools, in the Burma Education service - Junior Grade with the prospect of getting promotion to the Senior Grade posts of teaching and administrative line.

(4) Personnel with training abroad and with foreign degrees generally may start with special appointements in the Burma Educational Service-Senior Grade as Headmaster of ordinary or special State High Schools, Technical High School, Agricultural High School, as Lecturer in Technical or Agricultural Institutes and Colleges or as Assistant Administrative Officers under the Directorate of Education with the prospect of becoming Burma Educational Service-Selection Grade Officers and so on.

7. Building and Equipment

Burma has to confront an acute shortage of school buildings owing to damage caused by the War and owing to unprece-

dented demand for more education by a nation whose schooling has been disrupted by the war. Though a good number of new school buildings had been completed, the shortage still exists and many schools have to be run in temporary buildings. Only the buildings and equipment for two Government Technical Institutes, one Agricultural Institute, one Technical High School and one State Agricultural High School can be taken as up-to-date and adequate; others are still in need of improvement or reconstruction.

For Industrial Arts there are only two General Workships of modern type which are to be taken pride of. In other schools, the socalled workships have to be opened in an ordinary class room of the main school building or in a temporary shed or basha hut worth about Kyats. 2500/- which were deteriorating as time goes on.

There are no separate buildings for agricultural classes in biased schools which have be held in ordinary class rooms. Poultry Sheds, pig-sties etc are however, provided for practical work in many schools.

Furniture is definitely in-adequate. Requests have been made to the District Education Officers concerned to allot funds for provision of furniture required in Industrial Arts Shops and Agricultural laboratories.

As for equipment, tools and apparatus, though still inadequate, a good collection has been made through local purchases made from the contingent allotments.

Museums and showrooms started recently in the schools and in the Office of the Inspector of Schools for Technical and Vocational Education are being filled with a good stock of collections of various types of articles and educational toys made mostly by the pupils themselves.

8. Text-book and Documentation

Shortage of text-books, exhorbitant prizes of these text books in consequence of the War and necessity to remove the social and economic hindrances to provision of equal educational opportunities favoured the initiation of a scheme to loan approved text-books free to pupils. A separate branch

Text-book Loan and Distribution Division has been organized under the Directorate of Education to take charge of the scheme.

When Burmese once and for all occupies its place of honour, by becoming an official language and the medium of instruction in schools, the need for text-books published in Burmese is keenly felt. Efforts are, therefore, being made to publish text books on Technical, Agricultural, Commercial and Vocational Education, in Burmese for pupils teachers and libraries through the Burma Translation Society and other publishers.

Central Curriculum Committee

The curriculum, the most effective tool in Education, was tackled first. Central Curriculum Committee at the Directorate of Education was formed with 36 District Curriculum Committees affiliated to it. The Central Committee, in the light of its own views and of the suggestions received from the District Committees, keeps the curriculum under constant observation for revision or modification. The Curriculum Development Officer takes charge of the branch.

There were no text-books available as yet for Industrial Arts. Efforts are however, being made to get suitable text-books for this subject through the Burma Translation Society.

Text-books on Agriculture have been written and prescribed for various classes of the Middle Department and High Department of State High Schools. Some have been printed in Burmese and are put into use in many schools. A sufficient number should be made available and proper distribution should be made on loan under the Text-book Loan and Distribution Division of the Directorate of Education.

9. Audio Visual Education

Appeal to serve organs is an aid to understanding and memory. Pupils endowed with "abstract" intelligence can learn from books without much difficulty; those endowed with "concrete" intelligence but not with abstract must hear and see for themselves to learn. Audio-Visual aids serve this purpose. This educational films are shown to pupils and school

broadcasts are given regularly on various subjects of the curriculum. However, there is a need for provision of much more up-to-date audio-visual aids, projects, film strips and slides and machines and equipment for Technical and Vocational Education.

14 A Special Officer is appointed in charge of Audio-Visual Education and he is assisted by Special Inspectors and Supervisors.

10. Inspection, Control and Administration

The Government is aware of the value of local initiative which could only develop only through local self-government and responsibility. While, therefore, adopting the centralised administration, decentralization, are set afoot. Decentralization of executive authority is a policy constantly pursued and it is taking place slowly but surely on progressive stages.

To cope with the expanded educational provision, four separate directorates are set up, one each for:

(1) General Education

(2) Teacher Training

(3) Technical Education

(4) Text-Book Production

The Director of Education has two Assistant Directors one for administration and the other for finance. Very recently the post of Director of Text-book Productions has been converted into one for the third Assistant Director to be in charge of academic affairs. He is further assisted by three administrative officers, one for High Schools, one for Middle Schools and one for Primary Schools, who are responsible for the administration and control of the schools under their respective charges. To perform field work and for expeditious disposal of cases as a concrete step towards decentralization, there are 36 District Education Officers one each for 36 districts, again assisted by 154 Deputy Inspectors of Schools, each in charge of one or two townships according to their

sizes. To perform creative work and to carry out administrative duties, there are 8 Divisional Inspectors of Schools, each in charge of a division. In addition there are two special Inspectors of Schools for Science, two Inspectresses of Schools for Domestic Science assisted by 47 Deputy Inspectors. There is also one special Inspector of Schools for Technical and Vocational Education assisted by an Assistant Inspector of Schools for Technical Education. One Assistant Inspector of Schools for Art of Schools or physical Education assisted by 14 Deputy Inspectors of Schools are also appointed. 14

The Director of Teacher Training is directly in charge of the training of teachers for secondary schools, primary schools and for special schools and institutes. There are Training Colleges and Institutes under his charge. He is to conduct also In-service training courses, refresher courses, seminars and special classes on curriculum and methods.

The Director of Technical Education is directly in charge of Technical Education at the Technical Institutes, Technical High School, Artisan Training Centres, Handicraft School and is responsible for the conduct of evening classes and special courses on technical education.

The Inspector of Schools for Technical and Vocational Education under the Director of Education is placed in charge of the control, inspection and supervision of Technical, Agricultural and Commercial Education in schools and institutes under the control of the Director of Education with the additional responsibility of conducting courses on Education by Correspondence under Australian Correspondence Scholarships of the Colombo Plan and of supervising the special technical schools. The Inspector with the assistance of an Assistant Inspector exercises a central administration on the work to supervise the execution of the general educational policy, to establish curricula for the various levels of Technical and Vocational Education and formulate training programmes in accordance with decisions taken by the higher authorities.

Technical and Vocational schools are given sufficient authority to allow their good functioning and the simplification of administrative procedures, especially in matters of finance, administration, admission of students, the selection of technical studies suited to local needs, the purchase of

raw materials etc.

11. Finance

In view of the need for Technical and Vocational Schools financial allocations for Technical and Vocational Schools are being increased in accordance with the requirements by the Government through the Ministry of Education and Director of Education.

The allocations made for the financial year 1958-59 on Technical, Agricultural, Commercial and Vocational Education are as follows:

(1) Director of Education

(a) Director of Education

(i) Pay and Allowance	272,000
(ii) Contingencies	130,000
(iii) Stipends	130,000
Total	532,000

(b) State Agricultural Institute, Pyinmana.

(i) Pay and Allowances	140,000
(ii) Contingencies	40,000
(iii) Stipends	40,000
Total	220,000

(c) State Agricultural High Schools

	Myaungmya	Myittha
(i) Pay and Allowance	81,000	80,000
(ii) Contingencies	10,000	10,000
(iii) Stipends	20,000	20,000
Total	111,000	110,000

(d) State Agricultural Middle Schools

	Shwebo	Thegon
(i) Pay and Allowance	28,000	26,000
(ii) Contingencies	5,000	5,000
(iii) Stipends	10,000	10,000
Total	43,000	41,000

(e) Inspector of Schools for Technical and Vocational Education

(i) Contingencies for Biased Schools - K. 50,000

(ii) * State Agricultural High Schools

a. Myaungmya K. 10,000

b. Myittha K. 10,000

* State Agricultural Middle Schools

a. Shwebo K. 5,000

b. Thegon K. 5,000

(2) Director of Teacher Training

(a) State Training Colleges for Teachers

	Rangoon (Kanbe)	Mandalay
(1) Pay and Allowances	226,500	180,800
(2) Contingencies	67,000	54,500
(3) Stipends	354,000	286,000
Total	647,500	521,300

(b) State Training Institutes for Teachers

	Kyanknyu	Bassein	Moulmein	Meiktila
(i) Pay and Allowances	44,800	45,100	68,000	40,800
(ii) Contigencies	23,000	20,000	20,500	8,000
(iii) Stipends	120,000	20,000	120,000	-
Total	187,800	85,100	208,500	48,800

(3) Directorate of Technical Education

For Technical and Vocational Education

(a) Government Technical Institutes

	Insein	Mandalay
(i) Pay and Allowance	293,000	161,000
(ii) Contingencies	100,000	40,000
(iii) Engineering Stores and Equipments	60,000	40,000
(iv) Stipends	250,000	120,000
Total	703,000	361,000

(b) State Technical High School, Rangoon

	Rangoon
(i) Pay and Allowance	220,000
(ii) Contingencies	70,000
(iii) Equipment and Stores	15,000
(iv) Stipends	200,000
Total	505,000

(c) Artisan Training Centres (Rangoon and Mandalay)	
(i) Pay and Allowance	169,900
(ii) Contingencies	30,000
(iii) Equipment and Stores	40,000
(iv) Stipends	180,000
Total	419,900
(d) Handicraft School, Rangoon	
(i) Pay and Allowances	27,700
(ii) Contingencies	3,000
(iii) Equipment and Stores	6,500
(iv) Stipends	18,000
Total	55,200

12. Statistics

Statistics showing the number of schools number of pupils, number of teachers etc. are as follows:

A. Number of Schools, Institutes, Colleges, etc. as on 30th September, 1958

1.	State Primary Schools	(1) Ordinary	10861
		(2) Biased	197
2.	(a) State Middle Schools	(1) Ordinary	500
		(2) Biased (Agricultural)	12
	(b) State Agricultural Middle Schools		2

3. (a) State High Schools (1) Ordinary 268

(2) Biased (i) Technical 48

(ii) Agricultural 33

(iii) Commercial 2

(b) State Technical High School 1

(c) State Agricultural High Schools 2

4. Handicraft School 1

5. Artisan Training Centres 2

6. Government Technical Institutes 2

7. State Agricultural Institute 1

8. State High Schools with Pre-Medical Classes 5

9. State Teachers Training Colleges 2

10. State Teachers Training Institutes 4

(1) High Department

Pupils. { 9th Standard 32208 1.86%; 8th Standard 24395 1.41% } 56603 - 3.2%

Teachers. { Headmasters 269; Senior Assistant Teachers -1874

(2) Middle Department

Pupils. { 7th Standard 67694 3.99%; 6th Standard 61050 3.50%; 5th Standard 77080 4.47% } 205824 - 11.95%

Teachers. { Headmasters 435
Junior Assistant Teachers. 4854

(3) Primary Department

Pupils. { 4th Standard 150360 9.31%
3rd Standard 208652 12.11%
2nd Standard 254586 14.78%
1st Standard 847336 49.77% } 1460934-84.82%

Teachers. { Headmasters 10754
Primary Assistent Teachers 22600

A. Total number of pupils { Male 964038
Female 759323 } - 1723361

B. Total number of teachers { Male 29108
Female 12845 } - 41953

(4) Special Subject Teachers

Physical Education 641
Art 368
Industrial Arts 36
Agricultural 43
Commercial 10
Domestic Science 39
General Science 12

(5) Number of pupils taking Industrial Arts or Agriculture in Biased Schools in 1958-59

Serial No.	Standard	Number of pupils Taking Industrial Arts	Taking Agriculture	Remarks
1	Fifth	5685	3427	Pupils are to take either Industrial Arts or Agriculture in these biased schools
2	Sixth	4438	3013	
3	Seventh	4640	3222	
4	Eighth	543	1636	
5	Ninth	-	824	
	Total	15306	12122	

(6) Number of pupils taking Commercial Subjects in Biased Schools in 1958-59

Serial No.	Subject	Standard	Number of Pupils Male	Female	Total
1	Burmese Shorthand	Eigth	127	24	151
		Ninth	17	9	26
2	Burmese Typewriting	Eigth	127	24	151
		Ninth	31	13	44
3	English Shorthand	Eigth	31	13	44
		Ninth	43	2	45
4	English Typewriting	Eighth	31	13	44
		Ninth	36	7	43
5	Business Organisation and Practice,	Ninth	27	3	30
6	Elementary Accountancy	Eigth	41	-	41
		Ninth	-	-	-
7	Secretarial Practice	Eigth	31	13	44
		Ninth	6	2	8

(7) Number of pupils in State Agricultural Middle Schools in 1958-59

Serial No.	School	Number of pupils First Year	Second Yr.	Third Yr.	Total
1	State Agricultural Middle School, Shwebo.	50	49	-	99
2	State Agricultural Middle School, Thegon (Promo Dist)	33	37	-	70
	Grand Total -	83	86	-	169

(8) Number of pupils in State Agricultural High Schools in 1958-59

Serial No.	Schools	Number of pupils First Year	Second Year	otal
1	State Agricultural High School, Myaungmya.	50	33	83
2	State Agricultural High School, Myittha. (Kyaukse District)	38	45	83
	Grand Total	88	78	166

(9) Number of students in State Agricultural Institute, Pyinmana in 1958-59

Serial No.	Type of students	First Year	Second Year	Total
1	Stipendiary	44	32	76
2	Junior Assistant Teachers (on Deputation)	18	17	35
3	From Shan State	2	2	4
4	From Kachin State	3	3	6
5	From Chin Special Division	2	-	2
	Grand Total -	69	54	123

(10) Number of students in Government Technical Institutes in 1958-59

Serial No.	Institute	First year	Second year	Third year	Total
	A. Government Technical Institute, Insein,				
		215	150	137	502
	B. Government Technical Institute, Mandalay				
		150	48	58	265
	Grand Total -	365	198	195	758

(11) Number of pupils in State Technical High School, Rangoon

Serial No.	Type of student	First year	Second year	Total
1	Electrical Wiring	31	31	62
2	Radio Mechanics	29	26	55
3	Building Construction	33	23	56
4	Diesel Engines	32	26	58
5	Automobile Mechanism	35	30	65
6	Machine Shop	36	22	58
7	Sheet Metal	24	19	43
8	Welding	21	18	39
	Grand Total -	241	195	436

(12) Number of pupils in Artisan Training Centres in 1958-59

Serial No.	School	First year	Second year	Total
1	Artisan Training Centre, Rangoon.	89	64	153
2	Artisan Training Centre, Mandalay	45	35	80
	Grand Total	134	99	233

(13) Number of students in Faculty of Education, University of Rangoon

Serial No.	Courses	First year	Second year	Total
1	B. Ed.	48		48
2	Diploma.	43		43
3	B.A. (Ed).	100	102	202
	Grand Total	191	102	293

(14) Number of students in State Training Colleges and Institutes for Teachers

Serial No.	Type of Institution	Type of Teachers						Total
		J.A.T.	P.A.T.	I.A.T.	Agri.T.	Art T.	P.E.T.	
1	State Training College for Teachers, Rangoon	143	271	13	20	4 38	2 46	182 355
2	State Training College for Teachers, Mandalay.	152	291			20	41	152 352
3	State Teacher Training		1335					1335
	Grand Total	295	1897	13	20	62	89	2376

(15) Number of pupils in the Pre-medical Classes of State High Schools

Serial No.	Schools	Number of pupils		Total
		First Year	Second Year	
1	State Central High School, Rangoon	62	57	119
2	No.1. State High School, Mandalay	44	35	79
3	No.1. State High School, Moulmein	29	24	53
4	No.1. State High School, Bassein	27	27	54
5	No.1. State High School, Kyaukpyu	20	16	36
	Grand Total -	182	159	341

13. Conclusion

In spite of her concerted efforts to improve education, the Union of Burma still has justifiable demands to meet and problems to solve. With a view to meeting this challenge with courage, determination and vision, the Government of the Union of Burma appointed the Education Enquiry Committee in June, 1957. It has been charged with the task of making a thorough review of the existing educational problems and drawing a long term comprehensive plan for further improvement of education. The Committee has enjoyed the privilege of receiving the advice of outstanding educators from China, Denmark, Holland, India, Israel, Japan, U.S.S.R., U.K. and U.S.A. The Report of the Committee is now in the process of preparation. It is expected that radical changes in the existing system of education will be proposed by the Committee to make decisive improvement in Education.

C A M B O D I A

Actually, Technical Education in Cambodia is still in an embryo stage because it was almost non-existent until 1945. There existed only one school, the vocational school of Phnom Penh, which is designed only to train subordinate officers in industry. After Cambodia gained her independence, many schools have been established to provide the country with technical personnel in different formations necessary for the national economy. For this purpose, the Direction of Technical and Vocational Education was established in 1958, attached to the Ministry of National Education. It is directly run by the Ministry.

1. The National School of Arts and Crafts

Established in 1957, it is the institution of industrial engineering education to train technicians in the many branches of public administration and of private enterprises. One section of engineers will be organised in this school.

The apprenticeship center is also attached to this institution and aims at training workers qualified for a certain number of professions of industry and of crafts.

(A) The National School of Arts and Crafts properly so called

(1) Duration of education

Education is divided into two terms, its duration is 4 and 7 years respectively. Studies are approved by the diplomas of "Certificate of Industrial Education" and "Technical Baccalaureat".

(2) Applicants - Admission

The student, at age of at least 18 years, who has completed his primary education and possesses the Certificate of Complementary Primary Studies is admitted through the entrance examination.

The lateral examination is also provided for the students of special preparatory class for the admission to the 2nd class of industrial school among the candidates from the 3rd class of the Modern school and

"Lycée" and College.

(3) Form of studies

The institution admits the boarders and day-students.

(4) Specialities to be taught

The specialities to be taught are:

-General mechanics (Ajutage by hand, mechanic-tools, Forge);

-Joinery and cabinet work;

-Sheet of metal;

-Electricity;

-Automobile;

-Radio (Section is going to be formed in September 1959)

-Industrial design and design of building.

(5) Employment of students

The students who have completed their studies are immediately employed through the school according to their aptitudes and capacity.

(B) The Apprenticeship Center

(1) Duration of studies

The apprenticeship center generally requires three years of studies. At the end of third year they take the examination for "the Certificate of Vocational Aptitude".

(2) Applicants - admission

The applicants are admitted through the entrance examination, without any limit of age, among the candidates who have completed the 5 years of primary education.

(3) Form of studies

Boarders and day-students.

(4) Specialities to be taught

Actually the Center consists of only two sections:

-Cut and manufacture

-Shoemaking

The other sections will be formed according to the needs of national economy.

2. The National School of Commerce

(1) Purpose

This school established in 1953 is the public institution to train executive personnel and officers in commercial and industrial enterprises in the country.

(2) Duration and form of studies

It is divided into three degrees:

1st degree:- to train the direct executive and subordinate personnel in an economic and commercial domain, based on the entrance examination for the candidates who hold, at least, the Certificate of Primary Education.

Studies require 2 years and are approved by the "Certificate of Vocational and Commercial Aptitudes".

2nd degree:- to train the personnel of secondary stage of economy and commerce, opening the entrance examination for the people who have completed the 1st term of secondary education. (10th year of studies).

It is equally provided for the old students holding the diploma of 1st degree with two years' experience in the commercial establishments or in a public service.

The candidates who possess the 1st part of Baccalaureat are admitted officially.

Studies require 2 years and are approved by the Certificate of Economic and Commercial Education.

3rd degree:- to train the superior stage of economy and commerce as well as the commercial attachés, opening the entrance examination for those who have completed the 2nd term of secondary education.

The candidates who possess the 2nd part of Baccalaureat are admitted officially.

The first laureat of second degree who has 14 on an average to graduate, holding the diploma of the same degree as Baccalaureat, is equally admitted without examination.

The candidates who have the diploma of 2nd degree, but not having 14 on an average, nor the 1st part of Baccalaureat can also try the entrance examination.

Duration of studies is 3 years. At the end of 3rd year they take the examination for the diploma of Higher Commercial Education.

3. The Course of the training of Assistant-Chemists

(1) Purpose

Established in 1958, the course is designed to train technicians for the laboratories of different services both private and public in this country.

(2) Duration and Form of Studies

The duration of course is 2 years. At the end of 1st year they take the examination for the "Certificate of Manipulator", and at the end of 2nd year, the "Diploma of Assistant-Chemists".

(3) Admission

The entrance examination is provided for the candidates who have completed their 1st term of secondary education.

4. Technical college of Kg Cham

It is going to be established in September 1959. This institution will provide specialised workers in the different branches of industry.

(1) Duration and Form of Studies

Education requires 4 years and the examination for "Certificate of Industrial Education" at the end of 4th year.

(2) Specialities to be taught

The specialities to be taught are as follows:

-General mechanics;

-Joinery and cabinet work;

-Sheet of metal;

-Electricity;

-Automobile

-Radio

-Industrial design and design building

The other specialities will be formed according to the needs of country.

(3) Admission

The students are admitted through the entrance examination provided for the candidates who have completed their 6 years primary education, and hold the Certificate of Primary Education.

5. The Technical School of Agricultural Education

The school of 1st and 2nd degree of agricultural education was established by the Ministry of Agriculture.

6. The Vocational Schools

The Ministries of Public Work and of Telecommunications have also trained technicians in the following two schools:

-The school of conductors of public work.

-The school of apprentice of railroad.

C E Y L O N

1. Introduction with Brief Historical Review

Vocational and Technical Education, as understood, now, is a recent development in Ceylon. But Vocational Education of a type has been known for a long time. The acquisition of vocational skills in Ceylon has been through more or less traditional handing on of skills from father to son and mother to daughter and is founded partly on caste, customs and the social structure. The method of apprenticeship as understood in modern industry has not been practiced in Ceylon till recent times.

The history of Vocational and Technical Education, interpreted in the modern sense, probably, dates back to the last decade of the 19th century. A school had been established for the training of technicians for the Railway, Survey, Public Works and Postal Departments. By 1907 this school for technical trainees was known as the Technical College and in that year a committee recommended that those who had passed through the College should be preferred for appointment to technical Departments*. The Technical College established for this purpose extended its activities in various directions and by 1942 had developed into the main centre for the training of technicians and craftsmen. The State Council accepted reorganizational proposals for this College in 1942 and a new department under a separate head was created. Among the reorganisational proposals were the following requirements:-

(1) The College should offer courses leading up to London University Degree in Engineering and the Associate Memberships of the Chartered Institutes of Engineering.

(2) Day and evening courses shall be offered for the training of sub-professional and sub-technical grades such as foreman, overseers, signalmen, inspectors, draughtsmen and evening courses shall be provided for the artisans.

(3) All theoretical instruction in those with technical training has to be centralised at this College and Government Technical Department were to modify their

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* See page 18 - Report of the Special Committee on Education.

schemes for imparting technical training accordingly*.

In 1950 the University Faculty of Engineering was inaugurated and the responsibility for the University Course in Engineering was transferred from Ceylon Technical College to the Faculty of Engineering**.

The Ceylon Technical College continues to provide courses for all the Junior Engineering grades ("middle" grades) as well as courses of study and training for the artisan and craftsmen level***.

In addition to the programmes of training at the Technical College, programmes of work designed to meet the needs of technicians and tradesmen have been initiated in various departments. 3 such programmes are of special significance.

(1) The programmes of training organised by the Labour Department and Cottage Industries Department.

(2) The programmes of training arranged by the Ministry of Transport at the Basic Technical Training Institute.

(3) The programmes of training organised by the Technical Training Institute of the Gal Oya Development Board.

In 1951 and in the years immediately following it, the entire problem of practical and technical education in Ceylon came in for critical study by the Ministry of Education and a

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* See Administrative Report of the Ceylon Technical College 1944/48.

** The University of Ceylon was established in 1942 by upgrading to University status the University College and the Medical College. The University College itself had been established in 1921 by the transfer of courses from the Government Technical Schools. See Report of the Special Committee on Education, Page 20, 21.

*** The full scope of the College in 1959/60 is indicated in the handbook of the Department of Engineering of the Ceylon Technical College 1959.

number of specialist advisers, made available under the Colombo Plan, reported on this subject. The advisers came from U.K., Australia, New Zealand and Canada. On the basis of these studies, the Ministry of Education has organised a development programme in Vocational and Technical Education which will lead to the establishment in the provincial capitals of a number of (9) Junior Technical Schools, the establishment of a "School of Practical Technology" near Colombo, a Trades School in Colombo, College of Commerce, Colombo, Training College for Technical Teachers, Katubedde, College of Technology. In addition the Department of Education has initiated a programme of introduction of educational handicrafts into the school curriculum.

Of the proposed Junior Technical Schools one has been established; 2 others will function in the near future. Further the Engineering Department of the present Ceylon Technical College will be transferred to the Institute of Practical Technology in the near future. The major problem that has been confronted has been the lack of experience and instructors trained to man these institutions.

Programmes relating to Apparenticeship training were the subject of study in 1947 and attempts have been made to implement some of the recommendations. The position with regard to the Apprenticeship training programmes and their supervision remains in such a condition as to demand further attention.

At present technologists and professional engineers are trained almost exclusively by the University of Ceylon in the Faculty of Engineering. The Junior Engineering grades (middle grade) and the artisans are trained at the Ceylon Technical College and the Junior Technical School in Galle. Some technicians and craftsmen for specialised requirements are also trained by the Gal Oya Development Board at the Technical Training Institute, Amparai; by the Basic Technical Training Institution, Ratmalana; by the Labour Department and by the Cottage Industries Department.

2. Outline of the Administrative Structure with Details of Administrative and Advisory Committee, School Background, etc.

As far as Vocational and Technical Education is concerned the Ministry of Education is primarily responsible for the development of Vocational and Technical Education in the country. The Ceylon Technical College Department which administers the Ceylon Technical College, the School of Practical Technology, the Junior Technical Schools etc. is a Department under this Ministry. The Director of the Ceylon Technical College Department is the officer directly responsible to the Ministry of Education for the organisation of Vocational and Technical Education in the island. The Education Department (which is another Department under the Ministry of Education) controls pre-vocational Education and organises educational handicraft activities and allied pre-vocational work in the schools. The direction of this programme is in charge of an Assistant Director Technical Education. The Assistant Director Technical Education is in charge of the organisation of Science, Agriculture and pre-Vocational Education in the Secondary schools.

While the primary responsibility for Vocational and Technical Education lies with the Ministry of Education, certain limited fields of Vocational and Technical training are directly controlled by other Ministries and Corporations. The Ministry of Labour has several programmes involving the training of craftsmen and techniciens under its supervision. The Ministry of Transport has an institution for the training of skilled workers for various services associated with it. The Department of Industries has some activities which involve the training of craftsmen, but this is limited largely to the Cottage Industries area. The Ministry of Cultural Affairs has a "College of Fine Arts" under this direction. The Gal Oya Development Board which controls development of the "Gal Oya Valley Project" has a Technical Training Institute designed to meet its needs.

There is no specific body at a departmental level whose assignment is the co-ordination of work in all these spheres.

All children are required to attend schools until the age of 14. Normally this means that they complete the work of the primary school (through the 5th Standard or grade) and the Junior Secondary School (throught the 8th Standard or grade). Those who are qualified may go on to Senior Secondary School for additional 2 years' and possibly even to a higher school education programme; the Technical schools and

the University. Education at all stages is free, even up to, and including professional training at the University level.

A peculiarity of the Ceylon school system as it existed sometime back was the use, side by side, of 3 languages - English, Sinhalese and Tamil. Although the majority of the population understand only Sinhalese and four-fifths of the children attend Sinhalese schools the best equipped and staffed schools in the island were schools which used English as the medium of instruction. This was the result of the educational system which was developed under a Colonial administration when Government business was transacted exclusively in English. Changes have been effected to replace English by the mother tongue of the child. While this change is being effected, it is necessary to note that for sometime to come successful. Vocational Education at the higher levels will be associated with an ability to use both English and the mother tongue on account of limitations of teaching personnel.

In relation to the school background the following statement from the Report of a Mission organised by the International Bank for Reconstruction and Development at the request of the Government of Ceylon and published in September 1952 is relevant. Referring to the defects in the school system the Report says, "Of these the most serious are a lack of close relation between the knowledge on the part of the pupils and their needs in later life, the stress on memory rather than ability to use the knowledge acquired, and a teaching staff that by modern standards is inadequately prepared for its job." These defects were reported on by the Mission and they have come in for study. An intensive programme of development is now being pursued.

A feature of this development programme which is significant from the point of view of Vocational and Technical Education is the active development of Handicraft education and Science education in the Secondary School. In 1943 a Special Committee on Education reported as follows:-

"A second major defect in our educational system is its excessive uniformity. While it is essential to have a considerable degree of uniformity in the primary stage of education, differentiation becomes essential in the post-primary stages according to the capacity of the pupils, and inclina-

tions and the needs of the country. This is not exhinited, however, in our system of education which is purely academic in character and bears little relation to practical aspects of life. Though we do not agree that education should be conditioned by the prospects of employment and do accept the view that every child should receive the type and degree of education for which he is most fitted, it does not follow that all post-primary education should be of one type and should be almost completely divorced from the needs of the pupils after they leave school."

While it is difficult to say that this undesirable feature has entirely disappeared it is true to say that many of the activities which have been developed with enthusiasm during the last several years are designed to counteract this tendency and create a functionally more suitable school system and one which provides a suitable basis for a modern well-organised programme of Technical and Vocational Education.

The introduction of Handicrafts into the school curriculum was preceded by a careful analysis of the problem by competent advisers from U.K., New Zealand, Australia and Canada and it has largely been effected with aid from these 4 countries under the C-Plan Technical Cooperation Scheme. The Science development programme is being worked out with direction from U.N.E.S.C.O. and from the assistance from International Cooperation Administration of the United States of America. The consolidation of these two development programmes should provide the necessary basis for a progressive Vocational and Technical Training.

APPENDIX

A. TOTAL NUMBER OF PUPILS IN GOVERNMENT AND ASSISTED SCHOOLS

Primary	Kindergarten (upper & lower)	- 695,872
	2nd Standard.	- 258,654
	3rd Standard.	- 224,343
	4th Standard.	- 190,164
	5th Standard.	- 155,980
Junior Secondary	6th Standard.	- 123,200
	7th Standard.	- 95,340
	8th Standard.	- 77,557
Senior Secondary	Senior School Certificate (Preparatory)	68,416
	Senior School Certificate.	- 100,795
	Higher School Certificate (Preparatory)	7,955
	Higher School Certificate.	- 3,920
	Other classes.	- 848
	Total	2,003,044

B. Percentage on National Budget spent on Education. - 17.33%

Percentage on National Budget on Vocaticcal and Technical Education 0.2%

Costs to pupils - All education is free, including University Education.

C. Type of courses offered - See annexures:

a. Ceylon Technical College Prospectus.

b. Galle, Junior Technical School Prospectus.

c. Technical Training Institute, Gal Oya.

d. Basic Technical Training Institute Prospectus.

D. Schools for Vocational and Technical Education.

a. University course: University of Ceylon.

b. Junior Engineering Courses: Ceylon Technical College.

(School of Practical Technology, Katubeddo)

c. Trades Courses: Ceylon Technical College.
Galle, Junior Technical School.
Basic Technical Training Institute.
Technical Training Institute.
Labour Department.

E. DATA OF NUMBERS OF PUPILS IN THE UNIVERSITY, CEYLON TECHNICAL COLLEGE AND GALLE JUNIOR TECHNICAL SCHOOL

1958-59	1st Yr.	2nd Yr.	3rd Yr.
Junior Technical Officers	- 80	36	
Preliminary Course for Draughtsmen Apprentices. (one-year course):	35		

1858-59		1st Yr.	2nd Yr.	3rd Yr.
Surveying & Levelling (one-year day course):	-	6 (full time day)		
Engineering Appentices (part time day course):	-	24	7	
Institute of Electrical Engineering (Part 2):	-	29		
Building Construction Swabasha.	-	12	11	3
Evening Engineering courses (Mechanical):	-	31	19	16
Electrical Engineering.	-	40	9	7
Municipal Engineering	-	19	30	17
Structural Engineering.	-	26	15	4
Surveying & Levelling.	-	1	6	10
Building Construction.	-	10	7	33
Architecture.	-	15	5	6
Builders' Quantiti s.	-	3	14	
Departmental trainees				
Irrigation Learners.	-	8	29	
Village Cultivation Officers.	-	10		
Vocational Trades:				
Vocational (day courses)				
Workship Practice	-	16	8	
Motor Mechanism (English)	-	40		

1858-59		1st Yr.	2nd Yr.	3rd Yr.
Motor Mechanism(Sinhalese)	-	38		
Evening Vocational Courses Carpentry drawing.	-	22	17	7
Workshop Practice-Fitting.	-	24		
-do- -Pattern	-	22		
-do- -Machine	-	10		
Printing.	-	24	13	8
Radio Servicing.	-	40		
Electric Wiremen (English)	-	27		
-do- (Sinhalese)	-	26		
Plumbing.	-	38		
Junior Technical School, Galle.	-	40	8(metal work) 9(wood work) 8(Motor Mech.) 10(Elect. wiring)	

F. NUMBER OF STUDENTS IN THE FACULTY OF ENGINEERING UNIVERSITY OF CEYLON

1st Year	-	60
2nd Year	-	60
3rd Year	-	-
Civil Engineering	-	32
Mechanical "	-	9
Electrical "	-	11
4th Year	-	
Civil Engineering	-	19
Mechanical "	-	3
Electrical "	-	9
Total	-	203

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G. SELECTED REFERENCES

1. "Publication No.62" - (Ministry of Education "Technical Education" London. HMSO 1956 (CMD 9703) - referred to in U.N.E.S.C.O. Publication, "Educational Studies and Documents" No.27.

2. Report of the Special Committee on Education (Sessional Paper 24 of 1943).

3. Administrative Report of the Department of Education.

4. Administrative Report of the Ceylon Technical College.

5. Administrative Report of other Government Departments.

6. Report on Apprenticeship training (Sessional Paper 16 of 1947).

7. Sessional Paper 34 of 1907.

8. Report of a Mission organised by the International Bank for Reconstruction and Development at the request of Government of Ceylon and published in September 1952.

9. Ceylon Year Books.

REPUBLIC OF CHINA

1. Introduction

Taiwan has been known internationally as Formosa. It is an island located approximately 100 miles off the China Coast. It is about 240 miles long and 90 miles wide at its greatest width, and covers an area of some 14,000 square miles.

Some Chinese moved to Taiwan as early as during the Sui Dynasty (581-618 A.D.) The island became an integral part of the Chinese Empire during the Yuan Dynasty (1206-1368 A.D), and had remained a part of China until the Dutch Fleet invaded and occupied it in 1624. The Dutch ruled over Taiwan a little less than forty years, and in 1661 General Cheng Cheng-kung, known to the Western people as Koxinga, recaptured the island from the Dutch and used it as a base against the Manchus in his attempt to restore the Ming Dynasty. The Manchus conquered the island in 1638, and made it a province of China in 1886.

Taiwan became a colony under the Japanese upon the conclusion of the Sino-Japanese war in 1895, when the island was ceded to Japan. Then in 1945 at the conclusion of World War II, Taiwan was returned to China and became a province of China. With the withdrawal of the Chinese National Government from mainland China, Taipei, the largest city on the island, became the capital of China on December 8, 1949.

There were some six million people in Taiwan by the end of World War II. The latest census indicates the total population of approximately ten million, which shows an increase of fifty percent in the past fourteen years. The immense increase came as a result of the withdrawal of the National Government to Taiwan and also of the high birth rate that is estimated at 4.3 percent annually.

The courage and efforts of the Chinese Government, both Central and local, in coping with the problems arisen from the ever-increasing demand for schooling are indeed marvelous. Today one out of six persons in Taiwan is in school. A total of one and one half million or 94.61 percent of all children of school are (from 6 to 12 years of age) are receiving basic education in the island's primary schools. The total enrollment of all secondary schools, academic and vocational, public and private, has amounted to 270 thousand; and the total

college enrollment of the current year is 26 thousand.

There are 105 vocational schools in Taiwan at present, of which 43 are vocational-agricultural schools, 23 are vocational-industrial, 24 are vocational-commercial, 8 are vocational-homemaking, 3 are vocational-nautical, and 4 are practical nursing and midwifery. The total enrollment of the current school year is 69,932 which is about one third that of the academic middle schools.

There has been a rapid change in philosophy of vocational education in Taiwan in the past few years. The technical type of training which helps the young people to enter employment as "staff" members has gradually lost its prestige, while the practical type of training which helps the young people to become farmers or skilled workers has gradually gained support from the public. This change has been brought about through the cooperative efforts of the Chinese and American educators. It is going to have far-reaching influence upon the Chinese culture as well as economic reconstruction of the Nation.

When the Education Office of the U.S. Mutual Security Mission was established in 1952, one of the first problems presented by the Chinese Government for consideration was that of Taiwan's vocational schools. It was felt by the Chinese education authorities that these schools were below standard in equipment and facilities and that this deficiency was largely responsible for the complaints of industry about the quality of instruction received by the students. A short-term consultant from the Pennsylvania State College was brought to Taiwan in 1952 to study the situation and to propose an orderly approach to the problem. In his report this consultant suggested a program which would simultaneously develop a teacher training institution and demonstrate in the vocational schools a modern program of vocational-industrial education.

In fact, in 1952 most vocational-industrial schools in Taiwan were "vocational schools of engineering". Departments within the schools were identified as engineering departments, such as department of mechanical engineering, electrical engineering, chemical engineering, civil engineering, and the like. Teachers the vocational-industrial schools were recruited in large part from engineering colleges and there was

a tendency for them to develop courses similar to courses they have completed in engineering colleges.

Pursuant to the consultant's report, an ICA-financed contract between Taiwan Normal University and The Pennsylvania State University was negotiated to have a Department of Industrial Education established in the former institution with the latter institution furnishing technical advice and assistance to accelerate the development of the Department.

The Department was established in the spring of 1953, and it began to offer both vocational-industrial and industrial arts teachers training programs. In August of 1954, a demonstration program was set up at one of the island's vocational-industrial schools to include a few all-day trade preparatory courses and cooperative training.

In October 1953, an industrial occupational survey was made to determine the needs for working force of the industries. As the survey indicated the definite and urgent need for skilled craftsmen of different trades, seven vocational-industrial schools in addition to the demonstration school started unit trade training programs in 1955.

The national intent of China to industrialize will require large numbers of capable young workers to participate in production jobs, and shortage of skilled workers has become a serious matter that hinders the progress of industrialization. This explains why the unit trade training programs within the vocational-industrial schools are most liked by the industries in Taiwan. There is already a trend indicating that the patterns of the established unit trade training programs within the eight schools will be followed by the other schools as soon as they have facilities to do so.

Very much the same is the change that has happened in vocational-agricultural education. The purpose of vocational-agricultural education, as the name suggests, is to convert students into competent modern farmers so that they may be established in farming, or work in local agricultural organizations, after their graduation. It has been a long-time practice, however, that the students, upon graduation from a vocational-agricultural school, seldom go back to the farms. Instead, they go up to the next higher level of educational institution.

Starting in 1954, some changes in curricula and instructional materials were begun in a few vocational schools of agriculture. The new programs emphasize comprehensive training in the knowledge of farming instead of specializing in a single subject. There had been eight subjects in the standard curriculum of the junior vocational-agricultural school, which was issued by the Ministry of Education: Agronomy, Horticulture, Animal Husbandary, Agricultural Products Processing, Soil and Fertilizers, Plant Pathology and Entomology, Meteorology, and Genetics and Plant Breeding. In the new curriculum, the original eight subjects are simplified into: Agriculture, Farm Mechanics, and Farm Practice. In pretty much the same way, some of the new senior vocational-agricultural schools are no longer divided into several departments, and the subjects of agronomy, horticulture, animal husbandary, forestry, processing of farm products, farm mechanics, and agricultural meteorology are included in one integrated curriculum. In the third year, if facility permits, two or three selective subjects may be added to meet local requirement.

There are two technical institutes in Taiwan that are supposed to offer training for technicians. Actually both institutes are junior engineering colleges, and they offer courses very much comparable to those offered in the engineering colleges. Three years ago, there came a consultant from the United States to make a study of the Taipei Technical Institute, and he proposed for a change in the overall operating philosophy and practice of the institution. No action has been taken, however. Recently there have been talks again to make certain modifications in the operation of the Taipei Technical Institute to serve as a model of vocational-technical education in Taiwan. A survey of the engineering and technical jobs, which has been scheduled to be completed this year, will help to identify the needs for engineers and technicaians in Taiwan. Future development of technical education on this island will certainly be based on the findings of this survey.

In summary, Taiwan's vocational and technical education has been undergoing a rapid change, a change for the better. Among the different phases of vocational and technical education, vocational-industrial education is taking the lead in the change, and there has been enough evidence already to warrant further development along the changed direction. Success of vocational-industrial education has also served to encourage

changes in the other phases of vocational and technical education.

2. Structure and Legislation

(A) Administrative Structure and School System

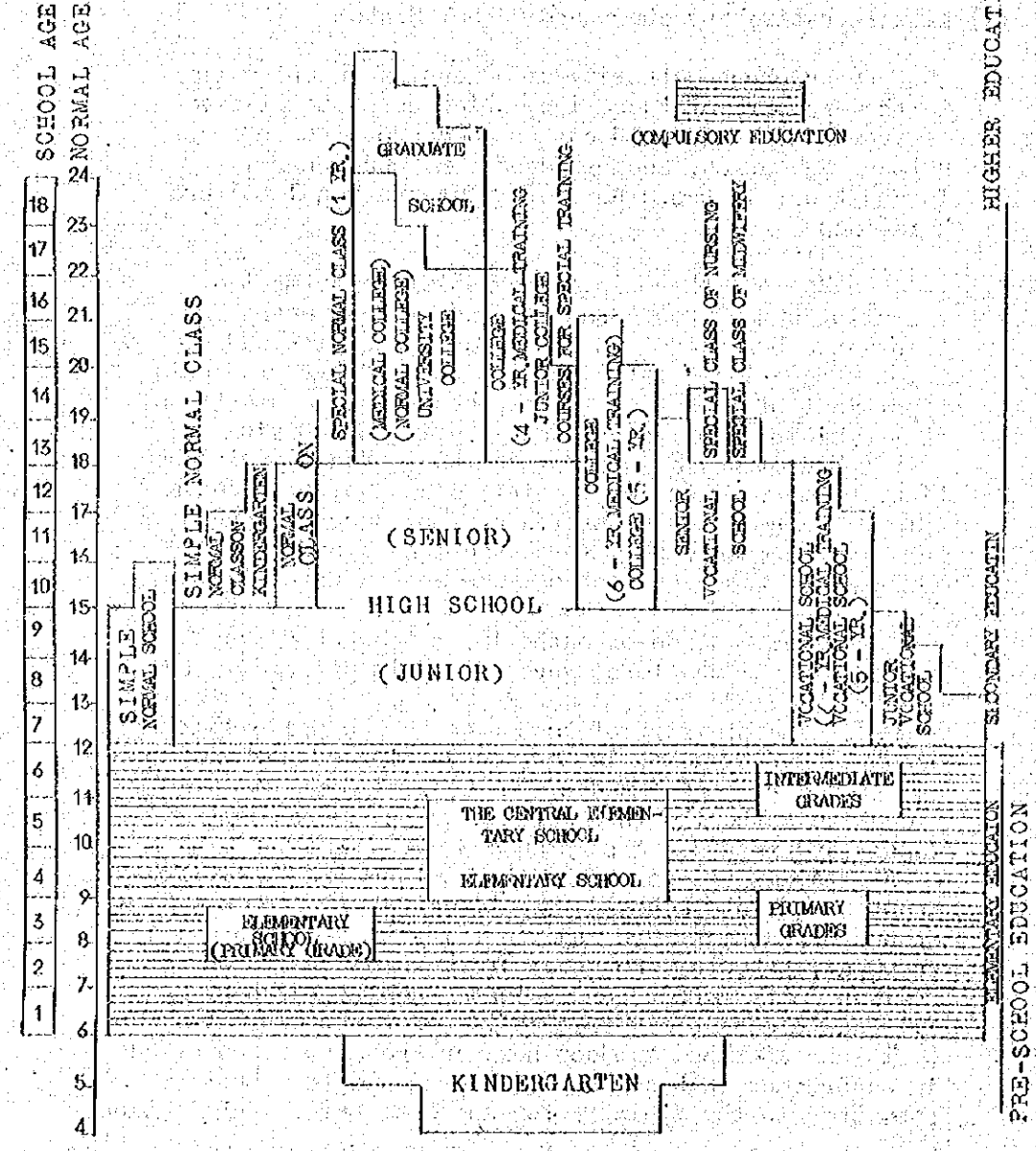
The highest authority of education in China lies in the Ministry of Education, which consists of five departments: Higher Education, Secondary Education, Primary Education, Social Education, and General Affairs. In addition, it has a Bureau of International Cultural Relations.

In Taiwan, there is a Provincial Department of Education under the Taiwan Provincial Government and twenty-two bureaus of education of the cities and prefectures respectively. The organization of the Provincial Department of Education follows about the same pattern of the Ministry of Education by having six Divisions: Higher Education, Secondary Education, Vocational Education, Primary Education, Social Education, and General Affairs. The city and prefectural bureaus of education have most commonly only three sections: Secondary Education, Primary Education, and Social Education.

The demarcation of authority between the Central Government and the local governments is defined in the Constitution of the Nation. As far as education is concerned, the Ministry of Education is the policy-making agency. For example, matters concerning educational system should be legislated by the Central Government while executive authority is delegated to the provincial and local governments. Also standard curriculums for schools of all levels are issued by the Ministry of Education. Even the private schools have to abide by these standards. Standard textbooks are used in the primary schools and secondary schools. For soem of the subjects, such as English, mathematics, and science, school teachers are allowed to have their free choice of textbooks. The textbooks of these subject however, have to be complied in accordance with certain standards and they must be submitted to the Ministry for approval before publication.

The following chart shows the prevailing school system.

CHART OF THE PREVAILING SCHOOL SYSTEM



(B) Brief Description of Legislation Concerning Vocational and Technical Education

The Chinese vocational education law was promulgated by the National Government on December 17, 1932. Following are some important articles of the law:

"All vocational schools should aim at the following six objectives:

(1) Training for health

(2) Training for good citizenship

(3) Cultivation of laboring habit

(4) Training for vocational skill and knowledge

(5) Cultivation of spirit of service, and

(6) Cultivation of creative spirit."

"Vocational schools are classified into junior vocational schools and senior vocational schools."

"In the junior vocational school the youth are taught some simple knowledge plus production skills so as to equip them to pursue an occupation; in the senior vocational school the youth are taught more advanced knowledge and skills so as to equip them for practical production and management ability and also to provide them with the foundation for advanced study."

"Junior vocational schools recruit graduates of primary schools; courses offered in junior vocational schools may vary from one to three years in length."

"Senior vocational schools recruit graduates of junior middle schools; courses offered must be three years in length. They may also recruit graduates of primary schools, but the courses offered must then be either five or six years."

"Vocational schools will not collect tuition fees."

"Establishment of private vocational schools should be encouraged, but their programs must be submitted to local educational authorities for approval before operation."

"Vocational schools are generally classified into four categories, namely, vocational-agricultural, vocational-industrial, vocational-business, and vocational -home-economics; vocational schools of other categories may be established to meet local needs."

"Vocational schools offer instruction of forty to forty-eight hours per week; time allotment for vocational subjects should be approximately thirty percent, that for general subjects should be twenty percent, and that for practical work should be fifty percent."

Regardless of the provisions in the vocational education law, unit trade training programs have been set up in recent years to create future skilled workers to meet the ever-expanding need of Taiwan's industries. Educational authorities have been most enthusiastic in promoting the unit trade programs. It is expected that new laws and regulations will be adopted in the future to serve as guideposts for the development of vocational education to meet the changing needs of the Nation.

3. Determination of Needs for Vocational and Technical Education

(A) The 1953 Industrial Occupational Survey

In October 1953, an industrial occupational survey was conducted by a selected group of vocational-industrial school teachers under the sponsorship of the Taiwan Provincial Department of Education. This was indeed the first scientific survey of the needs for vocational education in the history of China. The survey was completed in February 1954.

As a result of this survey, unit trade courses for ten occupations have been set up in eight vocational-industrial schools scattered all over Taiwan. These include courses to create machinists, electricians, electronic equipment repairmen, auto-mechanics, carpenters,

pattern-makers, foundry men, plumbers, printers, and sheet metal workers. Each of those courses trains youth who, after entering employment, will become skilled wrokers.

(B) The 1958 Industrial Occupational Survey

A second industrial occupational survey was conducted in 1958, and it took four months to be completed. Based upon the experiences gained in the first survey this second survey was made and accomplished to a far more satisfactory degree than the first one.

The working procedure of this second survey may be briefly outlined as follows:

(1) A piloting group of three experienced surveyors was first organized to collect basic information needed for the survey and to make preliminary plans for the survey.

(2) An advisory committee of the survey was formed including 23 government and private organizations to furnish pertinent information needed for the survey and to give advice on objectives and methods of the survey. The Ministry of Education took the leadership of the advisory committee.

(3) Detailed plans were then made by the piloting group and submitted to the advisory committee for revision and approval.

(4) 124 surveyors were selected and given a training course of four days to familiarize them with the objectives and methods of the survey. Most of the surveyors were either vocational school teachers or senior students of the Department of Industrial Education of Taiwan Normal University.

(5) The surveyors then made a door-to-door survey and collected pertinent data and sent back to the piloting group.

(6) The piloting group evaluated and tabulated the data.

(7) Uncertainties and unrevealed facts were checked and re-surveyed by surveyors at different localities following the directions of the piloting group.

(8) The piloting group tabulated, compiled, and published the final report.

Following are some of the highlights of the findings of the 1958 industrial occupational survey:

(1) In 1719 manufacturies covered in the survey there were 134,500 skilled and semiskilled workers, 37,867 unskilled laborors, and 23,670 staff members (white-collar workers).

(2) 639 skilled and semiskilled occupations have been identified by the survey. A dictionary of these occupations has been compiled and published, including a short description of each of the job tile found in the survey. This dictionary, insofar as it is the first one published in China, has proved to be most useful in both guidance programs and vocational education. It is also a great help to the industries for their personnel work.

(3) The survey indicated desirable changes and adjustments in the unit trade courses offered in the schools.

(4) The survey revealed the needs for training of many semiskilled jobs in a relatively short period of time (from a few weeks to a few months). And as a result of this survey, the Department of Education of the Taiwan Provincial Government has taken initiative to start an out-of-school youth training program, which is now growing very rapidly in schools and industries all over Taiwan.

(5) The survey revealed that the technical courses of industrial chemistry, mining and metallurgy, and junior civil engineering do not meet the needs of Taiwan's industries satisfactorily. It was therefore recommended that these courses be offered in technical institutes on a higher level.

(C) A Survey of Engineers and Technicians

In Taiwan there are three engineering colleges and only two technical institutes. For a long time it has been the feeling on the part of the educators and industrialists that engineering education should not be allowed to expand without more and better vocational-technical programs. However, there is no statistics of the exact needs of engineers and technicians for the Nation. It has therefore been proposed by the Chinese Engineers Association to conduct a survey of the needs for the various kinds of engineering and technical jobs in Taiwan. Actually the accomplishments of the 1958 industrial occupational survey helped encourage and promote such a proposal.

About the same procedure as described above for the 1958 industrial occupational survey will be followed in the survey of engineering and technical jobs, and a piloting group of the new survey has been organized. The survey is underway.

(D) A Complete Survey of All The Occupations in Taiwan

In order to study the trend of occupational changes, a complete survey of all the occupations in Taiwan has been under careful study. Plans of such a survey are being made at the Department of Industrial Education of Taiwan Normal University. Because of its immense magnitude the survey will take two years of time to be completed.

4. Relations Between Vocational and Technical Education and General Education

(A) Exploratory Courses

In the Chinese primary schools, courses of practical arts are offered to the boys and girls of the fifth and sixth grades. It is stipulated in the standard curriculum issued by the Ministry of Education that 90 minutes should be alloted each week to the pupils of the two grades. Curriculum materials of practical arts may be varied in different localities to suit different needs. Practically all the primary schools offer instruction in handicraft and some horticulture activities. How much these early

activities in practical arts are related to the development of the child's attitude is a problem worth much studying.

In the Chinese middle schools boy students are required to take a course in industrial arts and girls are required to take one in home-making. On the junior middle level, industrial arts is provided with two hours a week for the first two years, and home-making is provided with two hours a week for the first year, three hours for the second year, and one hour for the third year. In the senior middle schools, again, industrial arts is required for the first two years at two hours a week, and home-making is required throughout the three years with three hours a week for the first two years and one hour a week for the last year. Both of these courses have exploratory functions as their chief objectives.

It is specified in the standard curriculum issued by the Ministry of Education that all junior middle schools offer scout training to both boys and girls. Included in the scouting activities boys are taught simple work in general metal, electricity, and wood, and girls are taught basic skills of home-making. This kind of basic training certainly will be usefully related to the later vocational life of the youth. Although there is no good coordination between scouting and industrial arts or homemaking in many of the schools, scouting has been pretty successful in most rural schools, where practical arts courses are very much neglected.

In the past few years, attention has been focussed at the development of the so-called community schools on both the elementary and secondary levels with the belief that education has the power to improve community life. In these community schools special emphasis has been laid upon practical courses in agriculture, industrial arts, business, and homemaking to train the youth to use both their hands and brains. The courses which vary from school to school depending upon local needs are determined by a committee composed of the teaching staff of the school, local industrial leaders and technicians.

With the cooperation of the U.S. Mutual Security Mission to China and the Pennsylvania State University the

Chinese Government is mapping out a long-range plan for the development of industrial arts education in the Chinese middle schools.

(B) Recruitment Plans of the Vocational Schools

As has been stated above, the Chinese vocational schools are on two levels, namely, the junior middle and the senior middle levels. The junior vocational schools recruit primary school graduates, and the senior vocational schools recruit junior middle school graduates or equivalents. Entrance examinations are used throughout in screening students. The traditional examination is but a knowledge test on Chinese, English, mathematics, natural science, and social science.

It is here seen that general education serves the basis of vocational education. Some progressive educators, however, do not feel satisfied with the quality of general education, especially from the angle of vocational education, and they stress the importance of organized vocational guidance programs in the middle schools. Courses of vocational guidance have been offered in Taiwan Normal University to furnish professional training to prospective teachers who are supposed to shoulder the responsibility of undertaking the guidance job in addition to giving instruction in the traditional way. It is expected that vocational guidance will play an important role in Chinese middle schools in not far future.

5. Relations Between Vocational and Technical Education and Higher Education

In China, vocational and technical education is terminal in character; that is to say, graduates from vocational and technical programs are not encouraged to do advanced study on the next higher level. However, channels are always open for all students of vocational and technical programs who, for one reason or another, want to go on to the next higher school. There is, however, a restriction: vocational school graduates are only allowed to select a course that bears some relations to his former course of training.

It has long been a practice in China that all secondary graduates who want to go up to college must be able to pass an entrance examination, which in most cases is highly competitive. The examination ususlly consists of five major subjects, namely, Chinese, English; Mathematics, Science, and Histroy and Geography. In a free competition system it is not difficult to see that the average vocational school graduate does not compete favorably with the academic middle school graduate, because of differences in their background of training.

Although no college courses bear any direct relationship with any of the vocational programs on the secondary level, it has been found, nevertheless, that once a vocational student is admitted to the college, he can usually maintain a good scholastic record. This is especially true with engineering students who have a background of vocational-industrial education. This fact seems to indicate that the vocational and technical courses on the secondary level can contribute to the success of engineering students. A more reasonable explanation of this fact calls for more and better industrial arts programs in academic middle schools, especially for those boys who intend to go to an engineering college.

There are two technical institutes in Taiwan, both on the level of higher education. One of them recruits both junior middle schools and senior middle school graduates, and the other recruits senior middle school graduates only. Courses in the technical institutes for the senior middle school graduates are either two or three years in length, and those for junior middle school graduates are five years in length.

Channels are also open for the technical institute graduates to do advanced study in an engineering college. It is stipulated by the Ministry of Education, however,, that a student who has completed three years of study in a technical institute will only be recognized as having completed an equivalent of two years of college study, if he is transferred later to an engineering college. The student must also be able to pass an examination held by the college authority before the transfer is admitted.

6. Relations etween Vocational and Technical Education and Labor Market

Prior to 1953, all of the vocational schools on the secondary level were offering courses of technical type. The Chinese vocational law stipulates that in the junior vocational middle school the youth should be taught some simple knowledge plus production skills so as to equip them to pursue a gainful occupation. The same law stipulates that in the senior vocational middle school the youth should be taught more advanced knowledge and skills so as to equip them for practical and management abilities and also to provide them with the foundation for advanced study. (cf. Section II)

The Taiwan Provincial Government used to help the vocational school graduates in placement by employment examinations. The screening process by such examinations became more and more strict and the numbers selected decreased each year, as job opportunities decreased. This fact indicated something wrong with the technical curricula of the secondary vocational schools.

It was the 1953 industrial occupational survey (cf. Section III) that revealed the needs in Taiwan's labor market, the needs for skilled workers of the various trades. It was revealed in the same survey that most industries did not welcome junior technicians graduated from the secondary vocational schools. As a result of that survey, unit trade courses were introduced in the vocational industrial schools in Taiwan.

As a further step to ensure close coordination between the labor market and school, the eight schools have organized advisory committees to give advice and assistance to the development of their educational programs. Qualified people from the local industries, both from the management and labor, are invited to serve members of the advisory committees.

The schools also took every possible opportunity to bring their programs to the attention of the public. One of the most interesting affairs that have been introduced since 1957 is the skill contest among the selected representatives from the various schools. Skilled craftsmen of the industries are invited by the schools to serve judges of these contests. This is really an effective way to bring about closer relation-

ship between vocational education and the labor market, not to say the other benefits that can be produced from the contests.

7. Relations between Vocational and Technical Education and Professional Associations

There are three professional associations in existence in the field of vocational education. These are: The Chinese Vocational-Agricultural Education Association, The Chinese Vocational-Industrial Education Association, and The Chinese Home Economics Association.

The Chinese Vocational-Agricultural Education Association was organized in August 1957, and has a total of 380 members. Its main activities are to promote better coordination among the agricultural schools, to push for welfare measures for teachers of the agricultural schools, to exchange and share experiences of good teaching methods, and to promote an organization of the "Future Farmers of China", which so far is not in existence yet. Ever since its inauguration, the Association has published a monthly newsletter distributted among its members.

The Chinese Vocational Industrial Education Association was formed in February 1958, and has a total of 273 members. Its main activities are to promote cooperation between industry and education, to hold seminars for improvement of teaching methods, and to develop better and closer fellowship among its members. The Association has published twenty three text and reference books to be used for vocational teacher training and for vocational-industrial education.

The Chinese Home Economics Association was organized in August 1958, and it has a total of 113 members at the present time. Its main activities are to promote fellowship among its members, to sponsor seminars and general sessions of various kinds, etc. The Association has made an application to be affiliated with the American Home Economics Association.

8. Selection and Guidance of Students

It has been pointed out in Section IV that the traditional method of selection of students for vocational programs is through an entrance examination which is no more than a knowledge test on Chinese, English, mathematics, natural science, and social science. The entrance examination is usually highly competitive. For a few vocational schools that enjoy a relatively high prestige, only one out of six applicants may be admitted through the entrance examination. For most of the vocational schools, however, the rate of selection is way below that of the academic middle schools in the same community. This is due to the fact that most parents still prefer having their children enrolled in an academic program. Partly responsible for this situation is probably the ineffectiveness of the vocational schools in the past, which resulted in very low percentage of placement of their graduates.

To the surprise of many educators, the newly introduced unit trade programs have begun to attract more and more youngsters, who, contrary to many people's belief, prefer to take "blue-collar" jobs. The pay scale of many industries to their skilled workers probably serve the best incentive for the young generation. For example, many of the vocational-industrial school graduates of unit trade courses are paid better than their teachers right upon entering employment. In contrast with those vocational school graduates of technical courses who can neither go up to the college nor find a job, there is little wonder why more and more youngsters prefer unit trade to technical training.

It was also pointed out in Section IV there is no well organized vocational guidance program in Taiwan's schools yet. Industrial arts could serve an excellent exploratory course, especially on the junior middle level. Industrial arts education is being rapidly developed in many of the middle schools; but as far as guidance function is concerned it has been carried out to a very limited degree. Much remains to be done in this field of education in Taiwan.

Most of the schools do not have a guidance program to help their students with their placement to an extensive degree. It has been the Taiwan Provincial Government that

used to hold employment examination for screening students to be assigned to government industries. The practice of employment examination has been stopped since 1958, and it becomes necessary for the school administrators to shoulder the responsibility of placement of their graduates. In the year of 1958, placement service was rendered by the principals and their staff in the eight schools that offer unit trade type of training. Last year, over ninety percent of the graduates of unit trade programs found jobs, very soon after graduation, which shows the placement service was functioning well.

So far there is no follow-up or adjustment service offered in any of the schools for their graduates. Nor is there any other government or agency that renders this type of service. It is generally recognized by the educators that follow-up service for new graduates can not be overemphasized; but it is not done by any of the schools yet.

9. Courses Offered

(A) Vocational-Industrial Schools

Two types of courses are offered in Taiwan's 23 vocational-industrial schools, namely, unit trade courses and technical courses. Only eight out of the 23 schools offer unit trade type of training, while the rest offer technical type of training.

In the eight schools, a total of 34 unit trade training courses are offered to train future workers of the following 12 occupations: Machinist, Electrician, Electronic Equipment Repairman, Auto-mechanic, Carpenter, Pattern-maker, Foundry man, Plumber, Printer, Sheet metal worker, Cabinet maker, and Draftsman. Of the eight schools, the largest offers seven courses, and the smallest offer only two courses. Local needs determine the number and nature of the courses offered in the schools.

In the other fifteen schools, the following technical courses are offered: Chemical analysis, Junior civil engineering, Industrial chemistry, Mining and metallurgy, Junior mechanical engineering, Mechanical drawing, Junior textile engineering, Fashion design, Tree felling and

timber sizing, Television broadcasting, Bamboo and Wood handicraft, Metal and stone handicraft, and Carving. Needless to say, not all of the fifteen schools offer the same courses.

(B) Technical Institutes

There are two technical institutes in Taiwan, the Taiwan Provincial Taipei Technical Institute and the Private Tatung Technical Institute, both on the level of higher education under the Chinese educational system.

The Taiwan Provincial Taipei Technical Institute offers both five-year courses and three-year courses. For the five-year courses the Institute recruits junior middle school graduates; for the three-year courses only senior middle school graduates can be eligible applicants.

The following five-year courses are offered by the Institute: Mechanical engineering, Electrical engineering, Chemical engineering, Mining and metallurgy, Civil engineering.

The following three-year courses are offered by the same institute: Mechanical engineering, Electrical engineering, Chemical engineering, Civil engineering, and Textile engineering.

The Tatung Technical Institute, which is a privately operated institution, offers three courses, all of two years in length: Mechanical engineering, Electrical engineering and Industrial management. This institution recruits only senior middle school graduates.

Strictly speaking, both of the technical institutes in Taiwan do not offer true technical training courses; what they are trying to aim at is to give all-round engineering courses in fewer years than the regular engineering college.

10. Teaching and Administrative Personnel

(A) Selection and Training

There are three teacher training departments, all established within the past few years, devoted to teacher education for vocational schools. First of these is the Department of Industrial Education established in February 1953 in Taiwan Normal University. Second is the Department of Home Economics Education of the same University, which was established in August 1953. And the third one is the Department of Agricultural Education established in August 1955 in Taiwan Agricultural College.

Both shop and related subjects teachers of vocational-industrial schools are trained in the Department of Industrial Education of Taiwan Normal University. Applicants for the shop teacher training program must be skilled workers, with six or more years of trade experience, and graduates of a senior middle school. The applicants must be able to pass a two-stage entrance examination before they can be admitted. The first stage of the examination includes an academic test, which is a popular type of entrance examination of all Chinese colleges. The second stage includes a performance test of the specific skill which the applicant is expected to teach in future. The shop teacher training program is a one-year course, and the main emphasis of training is placed upon professional subjects to acquaint the prospective teachers with philosophy and methods of vocational-industrial education. Upon the completion of one year of successful study, the trainees are issued a standard certificate qualifying them to teach a given shop course in a vocational-industrial school.

Ambitious shop teachers may not feel satisfied with the one year standard certificate, and may want to work for a bachelor's degree so that in future they can be promoted to some important administrative jobs of vocational education. To help these teachers gain more college credits, summer sessions are conducted by Taiwan Normal University as one of the in-service teacher training programs.

Skill-upgrading is another form of in-service training program for vocational shop teachers. Supervised by the same university, shop teachers are sent to the different industries according to their own will to brush up their acquired skills during summer vacations. The skill-upgrading program was first tried out in summer of 1957 and it has been carried out with success ever since.

The related subjects teacher training program offered at the Department of Industrial Education is a regular four-year curriculum leading to the bachelor degree of education. Any senior middle graduates including vocational school graduates can be applicants for this program. Experiences gained in this program so far, however, have shown that students from academic middle schools do not benefit as much from the program as those from vocational-industrial schools. Therefore, provisions for entrance to this program have been revised to admit only vocational-industrial school graduates who have had two years wage-earning experience in industry.

The Department of Home Economics Education of Taiwan Normal University recruits only female senior middle school graduates. It offers regular four-year teacher training program, leading to the degree of bachelor of education.

The Department of Agricultural Education of Taiwan Agricultural College offers two teacher training programs: a regular four-year teacher training program, leading to the degree of bachelor of education, and a one-year farm shop teacher training program. Applicants to the regular four-year program may be any senior middle school graduates. The one-year farm shop teacher training program is somewhat similar to the shop teacher training program of vocational-industrial education. Applicants to this program must be vocational school graduates showing evidence of basic manipulative skills in machine shop or electricity.

Administrative personnel of vocational and technical education do not require special preparation, although feelings have begun to develop among the educational circles that professional training for these people is a prerequisite to ensure success of vocational education.

Most of the persons that are holding administrative positions of different levels, however, are either graduated from teacher training colleges or have received some form of in-service training to better qualify them as administrators.

(B) Status of Personnel

As has been pointed out in the second section of this report, there is a Division of Vocational Education in the Taiwan Provincial Department of Education. This Division takes charge of all administrative responsibilities of all vocational schools in Taiwan and does all coordination in between the schools, while the three teacher training departments as stated above give professional directions to the development of the different phases of vocational education. In charge of the Division of Vocational Education of the Provincial Department of Education is the director, who is appointed by the Commissioner of Education who, in turn, is appointed by the Governor of the Taiwan Provincial Government.

Each vocational school is headed by a principal, who is either appointed or approved by the Commissioner of Education. Principals of the provincial vocational schools are appointed by the Commissioner of Education; that of the city- or prefecture-run vocational schools are recommended by the local governments and approved by the Commissioner; that of the private vocational schools are recommended by the boards of trustees and approved by the Commissioner.

Principals of the vocational schools have full authority to employ or discharge their teaching staff. In all secondary schools in China, teachers are employed on contract basis the average length of such contract being one year.

Teachers are a little better paid than the average government employees. However, they are lowly paid as compared to the employees of most private enterprises. Usually private schools pay their teachers a little better than the public schools. In most schools shop teachers are paid better than teachers of general subjects or related subjects. Today, in the public vocational

schools, the average shop teacher's monthly salary is around one thousand dollars, Taiwan currency (36 Taiwan dollars = 1 U.S. dollar). It must be pointed out that the living cost is not high in Taiwan, and also that the teachers as well as government employees are safeguarded by extra allowances in addition to their regular salaries. Such allowances include rice, salt, vegetable oil, and fuel for the teacher or government employee and his or her family. Besides, all public school teachers and government employees have been covered in a new insurance policy sponsored by the Government to protect them from wants that arise from giving birth to a child, medical care, death, etc. In consideration of all these, it is easily seen why most teachers stay happily on their jobs.

11. Buildings and Equipment

Most of the public vocational schools in Taiwan today had been operated by the Japanese Government before 1945 when Taiwan was under Japanese control. When Taiwan was returned to the Chinese at the conclusion of World War II, most school buildings were in a fairly good condition, but most equipment was already too old to be of much value. Today many old buildings have been remodeled, and many new buildings have been erected; old equipment has been mostly replaced by up-to-date equipment, either imported or locally made.

In the past few years, U.S. aid to Chinese Government has contributed very much to the development of vocational education in Taiwan. Take vocational-industrial schools for example, For the eight schools that practice unit trade type of training, U.S. $2,114,000 have been spent for equipment and tools up to the end official year 1958; and $25,652,000 of Taiwan currency have been used to supplement the Chinese Government appropriations for shop construction, purchase of locally-made tools, and expenditures for in-service training for shop teachers.

It is generally recognized by both the educators and lay public that vocational education is by nature of the most expensive type of education and that money spent in this type of education may be practically considered as a form of capital investment from which economic returns can be expected.

The Chinese Vocational Education Law stipulates that the Ministry of Education shall issue standard list of equipment and tools for the various vocational courses. Actually the Ministry has not taken action in this respect; and most people engaged in vocational education do not think it wise that equipment and tools be standardized.

12. Textbooks and Documentation

For the technical courses offered in the vocational-industrial schools, the Ministry of Education issued in 1952 standard curriculums for the five courses: Junior Electrical Engineering, Junior Mechanical Engineering, Junior Civil Engineering, Mining and Metallurgy, and Industrial Chemistry. Different textbooks for each of the courses are available. They are all compiled in accordance with the standard curriculums.

There is no standard set up for the unit trade courses. Teachers are encouraged to make trade analyses and design their own curriculum materials. Since 1957 a curriculum laboratory was established within the Department of Industrial Education of Taiwan Normal University to help teachers of the vocational-industrial schools develop instructional sheets for the various unit trade courses. Up to date instructional sheets for the courses of machine shop, electricity, electronic equipment repair, auto-mechanic, and printing have been prepared at the laboratory and distributed among the schools that offer these courses. These instructional sheets include mostly job sheets, operation sheets, and information sheets. Since Taiwan is not large there is not much difference in trade practice in the different communities. Therefore it is possible, and even desirable, for the different schools to have standard trade analyses, from which curriculum materials are developed.

Course contents for related instruction for the unit trade programs has been quite a controversial issue ever since the introduction of the programs. Only recently some American textbooks have been translated into Chinese to serve as guides to teachers that give related instruction of the different courses. Also a few books have been compiled and edited by Chinese educators to be used as text and reference books for related instruction. The Chinese Vocational Industrial Education Association has undertaken the job of compilation and translation of these textbooks. (cf. Section VII)

H O N G K O N G

Introduction

Hong Kong is geographically small and vocational and technical education for commerce and industry as described in this paper applies to the Colony as a whole.

The responsibility for vocational education and training is shared between employers and government with a contribution of value from certain charitable bodies which provide vocational education as part of their efforts to assist the under-privileged. In general, however, industry provides for craft training through apprenticeship and other training schemes, and, in some cases, the related technical instruction, while government provides technical and vocational education in its own institutes and also provides a measure of financial assistance to others. The general arrangement is shown in Appendix I.

1. The Structure of Vocational Education and Training

(A) Apprenticeship

Industrialization in Hong Kong is comparatively advanced and this, together with the progressive views of many employers regarding apprenticeship, contributes to the efficiency of artisan training in the Colony. Both the western and Chinese schemes of apprenticeship exist and both obey the law that no child under 14 years of age may be employed in any industrial undertaking.

Under the Chinese system of apprenticeship, recruitment of new apprentices is based on kinship with an existing employee of the firm. The length of training varies with the craft but continues until the apprentice has completed the agreed period and has reached the standard of competence required. In some trades, a trade test determines promotion to artisan grade. The conditions under which apprentices work and learn their skills vary considerably from trade to trade and from factory to factory.

Under the Western system of apprenticeship, firms usually recruit their apprentices through some form of examination so as to ensure that the new employee has a reasonably good general education. These lads receive craft training in all branches of their trade and most employers encourage their apprentices to attend evening classes for related technical instruction. Their fees are paid by the employer and their progress is carefully observed by the firm's apprentice supervisor or welfare officer who works in close collaboration with the Principal of the Technical College. In fact, the system of craft apprenticeship followed by the Western type engineering firms, the public utility companies and the engineering departments of Government, adheres closely to the system followed in the United Kingdom.

(b) Vocational Training in Factories

A number of industries have schemes for the training of machine operatives, the scope and methods used showing a wide variation. The textile industry, which employs a large proportion of the labour force in Hong Kong, has probably the best organisation. In the weaving and knitting factories, which constitute the older branches of the industry, training may last from two to four weeks, according to the degree of skill required and is usually given in one process only. It consists either of watching an experienced operative at work, followed by practice under guidance, or simple instruction followed by practice on the machine until a degree of proficiency has been obtained.

The spinning industry is more modern and recruitment and training are more formal. Applicants may undergo an aptitude test and, if successful, receive three to six months' progressive training in one process. When a satisfactory standard is reached, the learner goes on to production and full rates of pay.

At some mills, opportunities are given for workers to attend classes in general education and in technical subjects. A two year training programe initiated by one large firm which has both a spinning and a weaving section provides for two classes, one class for students of School Certificate standard who can be trained as junior maintenance and shift engineers and a second class of lower

standard for youths who serve as apprentices and eventually become machine tenders and fixers. Training is both practical and theoretical. Practical instruction, under expert direction, includes machine-shop work, erection and dismantling of machinery and an understanding of its construction and operation. Classroom lectures are given by senior members of the mill staff and qualified teachers engaged from outside and include instruction in mechanical and electrical engineering, machine drawing, mathematics and textile technology, English and Chinese. Senior students spend half day in the classroom and half in the mill. For the apprentices, the classroom standard is less advanced and rather more time is spent in the mill.

(C) Vocational Education

(1) Post-secondary Institutions

The structure of vocational education in Hong Kong also corresponds approximately to that of the United Kingdom.

At the apex of the pyramid is the University of Hong Kong which, in its Department Engineering, provides degree courses in civil, mechanical and electrical engineering. These courses, being at technological levels and not strictly vocational, are not referred to further in this paper. Immediately below the University comes the Government Technical College with fulltime and part-time day and evening courses for artisans and technicians, but with a small part to its work at technological level. Classes in commerce subjects, both full-time and part-time are also available at the College.

Another institution providing vocational education at technician level is the Far East Flying Training School which is privately operated and trains youths in aircraft maintenance.

(2) Trade Schools

At this level, the principal institutions are the two trade schools operated by the Salesian Fathers which provide craft training for artisans. These are

the Aberdeen Trade School and the Tang King Po School. The former trains carpenters, mechanics and electro-mechanics but is in process of adding a secondary technical school stream. The Tang King Po School trains tailors, bootmakers and printers.

(3) Miscellaneous trade training

The Department of Agriculture, Fisheries and Forestry provides short courses in navigation and engineering for fishermen and training for young farmers, all these courses being very practical and taught in the medium of Chinese. A number of private trade and technical schools which vary widely in size and efficiency offer vocational training courses, such as automobile repair, radio servicing, commercial subjects and needlecrafts. Some of these are full-time day courses but most of the classes meet only in the evening. A number of schools operated by religious bodies provide vocational training as part of their charitable efforts to provide pre-employment training for the under-privileged. These classes are run by such organisations as the Salvation Army and provide trade training in tailoring and dress-making, carpentry, boot-repairing and automobile repair.

(4) Secondary Schools

At the secondary level of education there are two Government and three subsidised technical schools which provide a general education together with a strong bias to technical subjects.

The Ho Tung Technical School for Girls provides a 5-year secondary technical education intended to train girls for nursing, commerce, industry, and housewifery.

The Victoria Technical School for boys provides a 5-year course which combines general subjects with instruction in woodwork, metalwork and technical drawing. The curriculum is designed to give a good knowledge of English, a sound basis of experimental science and some skill in the use of tools for woodwork and metalwork.

The Aberdeen Trade School and the Tang King Po School, although trade schools, have now instituted secondary technical school streams to prepare the boys for apprenticeship and the Hong Kong School Certificate examination, taking the new technical papers in addition to the usual general subjects.

The Po Kok School has both primary and secondary sections and provides in the secondary section a large proportion of vocational education, principally in needlecrafts and book-keeping.

A number of secondary grammar schools provide training for commerce in their upper forms. This applies principally to the girls' schools, many of which have a Commercial Sixth Form in which shorthand and typewriting are taught.

(5) Primary Schools

All new Government primary schools include woodwork and handicraft rooms. Trained instructors teach the boys the early principles of woodwork and the girls are taught housecraft, which includes needlework and allied crafts.

2. Determination of the Needs for Vocational Education

Long term planning is difficult in Hong Kong because of the fluctuations in trade and industry and, to some extent, in population. In recent years, industrial development has made great strides and, although all raw materials must be imported, manufactures how considerable ingenuity in adapting production to changes in markets. This makes it difficult to forecast futre needs for artisans and technicians.

In 1951, the Government set up an Investigating Committee on Technical Education and Vocational Training and, as part of its enquiries, this Committee made detailed investigation in 1952 into the numbers of young men and women for whom trade and technical training should be provided during the next few years. Questionnaires were sent to all the major firms in the Colony and the replies were collated to provide estimates of future needs. This gave useful information as to the types

of courses likely to be required during the next few years and the probable enrolment in such courses. On a smaller scale, local firms estimate their requirements for trainees over a period of, say, three to four years in advance and a similar system is followed by Government departments. In general, however, there is no periodical assessment made of the future needs of industry and commerce for technically trained staff and artisans.

The provision of new and additional courses for vocational training at the Technical College is based upon the Report of the Committee referred to above and upon the recommendations made from time to time by the Standing Committee on Technical Education and Vocational Training which was set up by Government in 1953 to keep under review the users of technical education and vocational training through the Colony.

In addition, close co-operation over many years with commerce and industry enables useful estimates of future requirements for trained staff to be made. Advice on such matters is also provided in efficient measure by the various Advisory Committees of the College. There is one such Committee for each Department of the College, comprising representatives of the industries concerned who are, therefore, well placed to advise on future needs for courses of instruction and the number of students which the labour market is likely to absorb.

3. Relationships of Technical Education

(A) General Education

All Government primary schools in Hong Kong provide, in greater or lesser degree, some instruction in woodwork, housecraft and handicrafts. They are equipped for this purpose with specially designed rooms and specially trained staff to teach these subjects. In many government primary schools, the teaching of woodwork in the upper forms and the work undertaken comes almost within the category upper forms and the work undertaken comes almost within the category of vocational training in that the instruction is given by craftsmen and the skills learnt are those employed by artisans. The smaller private schools, possessing neither the accommodation nor the

staff trained to teach handwork, less frequently undertake this work but their number is becoming less as the accommodation provided in government schools increases.

At the secondary school level, only a few boys' schools have woodworkshops and none have so far installed metalwork shops. Those which are equipped for woodwork are staffed by skilled instructors and the standard of work attained is, generally speaking, of a high level. An increasing number of pupils are able to pass the Hong Kong School Certificate papers in woodwork each year.

Domestic science and needlecrafts are taught in most girls' secondary schools but as a part of general education rather than as vocational training. In the upper forms of some of these schools, commercial subjects including shorthand, typing and book-keeping are tau ht and fall within the category of vocational education in that the girls proceed directly to employment as secretaries or clerks after leaving school.

A close relationship exists between the secondary technical and trade schools on the one hand and the Technical College on the other. Indeed, until recently the secondary technical school for boys formed part of the Technical College and the separation of the administration has taken place only because their geographical separation is now too great to permit efficient control under one Principal. Nevertheless, close liaison continues and many boys who complete the Victoria Technical School course enrol for higher technical education at the Technical College. Similar liaison links the Technical College and all other technical institutions to provide a continning awareness of the facilities offered and to facilitate the enrolment into the Technical College of pupils from technical secondary and trade schools.

(B) Higher Education

There exists at present no direct path whereby students at secondary technical schools or at the Technical College can secure admission to the University of Hong Kong but pupils at the schools and the College can attempt the University matriculation examination as private students and, if successful, become eligible for selection

for admission. Technical College students also qualify themselves by examination and by selection for admission to universities in the United Kingdom, Canada, Australia and the United States of America.

(C) Professional Association

The principal professional association for engineers in Hong Kong is the Engineering Society and liaison between this body and the Technical College is maintained through representation of the Society on the Standing Committee on Technical Education and Vocational Training and also on the Technical College's Advisory Committee and the various Departmental Trade Advisory Committees of the College. Other important professional associations are also represented on these committees by members of such bodies as the Royal Institute of Chartered Surveyors, the Royal Institute of British Architects and the Institutions of Mechanical and Electrical Engineers. Students of the College are encouraged to qualify for membership of appropriate professional institutions in the United Kingdom, such as the Institution of Mechanical Engineers, Institution of Electrical Engineers and the Institute of Builders by attempting the graduate membership examinations of those bodies.

4. Selection and Guidance of Students

(A) General

As yet, guidance of students into vocational or technical training or into appropriate employment with part-time education is in the embryo stage in Hong Kong but first plans for a Career Masters Association were made in 1958. One of the purposes of this Association will be to assist its members to provide pupils with vocational guidance.

(B) Secondary Technical Schools

For entry into secondary technical schools, applicants for admission must first sit for the Joint Primary VI examinations which conclude the primary school course. Those who are successful at this examination are allowed to opt for the type of secondary school preferred, either