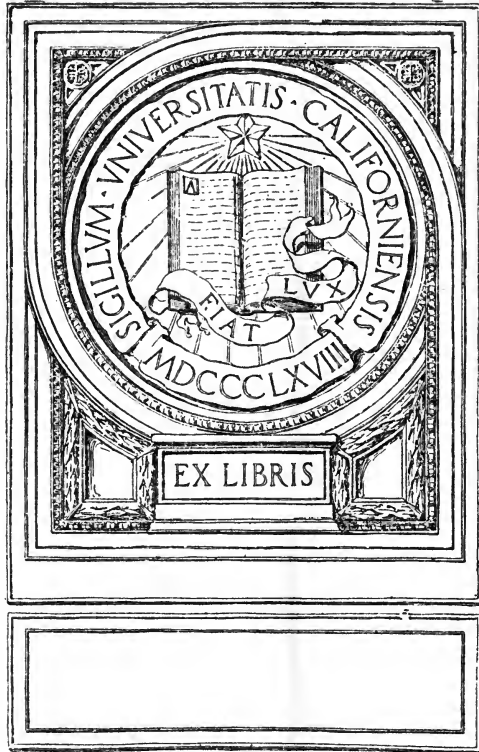


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BUREAU OF EDUCATION

INDIA

PAMPHLET No. 7.



FACILITIES FOR INDIAN STUDENTS IN AMERICA AND JAPAN

BY

R. K. Sorabji, M.A. (Oxon), Bar.-at-law.



CALCUTTA
SUPERINTENDENT GOVERNMENT PRINTING, INDIA

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This pamphlet has been compiled by Mr. R. K. Sorabji with a view to affording advice and assistance to Indian students who may desire to complete their education in America and Japan. Mr. Sorabji, in selecting his material, has been guided by his considerable experience as Secretary of the United Provinces Advisory Committee of Indian students, and the compilation was made originally for distribution in the United Provinces only. It would however, it was thought, be useful to students in other provinces also and it is therefore included in the series published by the Bureau of Education.

As stated in the preface to the first volume of this series, the views stated are those of the writer.

DELHI;
January 1920.

}

H. SHARP,

*Educational Commissioner
with the Govt. of India.*

Introduction.

This does not in any way profess to be original work. It is merely a compilation of information drawn from various books and records. The main object was to meet the needs of students in the United Provinces who constantly make requests for information about education in the United States and Japan. This pamphlet may not give information required by students all over India, but I have endeavoured, as far as possible, to meet all the questions that have been asked me in the United Provinces. My gratitude is due to the Hon. Mr. H. Sharp, C.S.I., C.I.E., for the ready permission he gave me to use the Library of the Government of India's Bureau of Education, and to Mr. G. R. Kaye, Curator of the Bureau, for the facilities he has most courteously afforded me in the accomplishment of my object.

As a result of all I have read, I am quite convinced that it is unwise for students to proceed to the United States, as so many of them wish to do, with only fifty or sixty rupees per mensem to depend upon. The hope of making money in the vacations is possible of realisation, but not to such an extent as to cover all educational and living expenses over and above the rupees fifty or sixty. A student requires from £150 to £200 a year in the United States, and the very least he can do with is £100 a year, if he wishes to earn the balance, *i.e.*, an Indian student cannot hope to earn more than £50 in his vacations. But of course a student going to a foreign country, and having so many new subjects to prepare, ought to be able to devote his whole time to study and recreation, and ought not to be hampered by the need of earning even a part of his way. I have not in any of the works I have perused, discovered that institutions in the United States will recognise Indian qualifications for the purpose of admission. A student desiring to have recognition accorded to his qualifications, had best state his case to the institution he wishes to enter and, through the Secretary of the Advisory Committee of his Province, make his plea for special treatment.

It should be noted that any foreigner entering the United States must show that he has a certain amount of money with him.

This pamphlet only deals with scholastic institutions and not with firms that may take apprentices. It will be seen that the courses in the various branches are not easy, though the education given, especially

in the State-aided colleges and universities, may be cheaper than in Great Britain.

The standard of admission to the Universities is certainly high, and it is not easy to see how, apart from special treatment, students who have not attended an American secondary school can gain admission to an American university.

The facilities afforded for all branches of technical education in Japan, and the cheapness of it, might prove a great temptation to Indian students, but it must not be forgotten that the candidates for admission to the various institutions are far in excess of the vacancies, and, when that is the case, the ordinary standards of admission give place to a competitive examination in which Japanese students are more or less bound to do better than Indian students, in that the competitive examination is in accordance with the teaching in Japanese schools. The short courses offered by various institutions are likely to be of use to Indians. But, as in the case of education in America, Indian students must disabuse their minds of the idea that forty or fifty rupees a month will carry them through. They will require at least from £100 to £150 per annum if they wish to take advantage to the full of the opportunities offered them in Japan. They must also remember that all teaching and lectures are given in Japanese, so that an Indian student must acquire that language before he can derive any advantage from Japanese institutions.

R. K. SORABJI, *M. A. (Oxon.)*,
Secretary, Advisory Committee for Indian students,
United Provinces.

UNITED STATES OF AMERICA.

1. University Colleges.

In order to understand what is necessary to gain admission to an Admission. American college, it is first necessary to grasp the meaning of the term "Unit".

A "unit" represents a year's study in any subject in a secondary school; and a student is supposed to accomplish four units in a year. In four years he will therefore accomplish 16 units.

Now a college, for the purposes of admission, looks to these sixteen units.

Throughout the West and Middle West, a student bringing a satisfactory statement from the Principal of his school (especially if it be a well known school), as to the amount and character of the work he has done during the four preceding years, *i. e.*, as to his sixteen units, is admitted into college without further examination. In the East the colleges insist on an examination based on the units. Certain institutions have combined and formed a College Entrance Examination Board. A student passing the examination set by this Board is admitted to any of the colleges belonging to the Board. There are other colleges again which prefer to set their own entrance examinations. A unit is not the same as a subject. A subject may count as more than one unit. English grammar and composition, for example, count as $1\frac{1}{2}$ units, English literature as $1\frac{1}{2}$ units, English history as 1 unit, ancient history as 1 unit, elementary French as 2 units, elementary algebra as $1\frac{1}{2}$ units, and so on. Some subjects count as half units.

Having seen generally what is required for admission to colleges, it might be well here to consider some of the colleges and universities.

Harvard University.

Harvard is the oldest American University. It is situated in Cambridge, Massachusetts. It maintains a high standard. It has two systems of admission:—

(a) Examination in $16\frac{1}{2}$ units.

- (b) A statement as to the work done in a secondary school during four years—showing work in languages, science, mathematics, history—together with an examination in a foreign language, mathematics or science, and one other subject.

Degrees.

Undergraduates study for the A. B. or S. B. degrees, *i.e.*, Bachelor of Arts or Bachelor of Science. It is a course which may be accomplished in 3, 3½ or 4 years. Then there are several *post graduate* courses, *e.g.*,

Law.—A three-year course (LL.B.)

Medicine.—Four years (M. D.) and a further year, at option, to obtain a Doctorship in Public Health (D.P.H.)

Dental.—Three years (D.D.M.) (An undergraduate may be admitted to this course.)

Mining, engineering, forestry, architecture and landscape architecture.—Two years' course.

Business Administration.—Two years' course.

Master of Arts.—One year's post graduate study.

Doctor of Philosophy.—Two years' advanced study (post graduate). And there are also other degrees.

Cost.

Roughly the cost of living (including tuition) would be £200 per annum.

Yale University.

Admission examination covering 16 units. Subjects: English, Latin, French or German, algebra, plane geometry and four additional subjects to be selected by the candidate.

Degrees.

B. A. degree.—Four years.

In the Sheffield Scientific School connected with the University, the following degrees may be taken :—

Bachelor of Philosophy.—Three years.

Master of Science.—Two years (post graduate).

Civil Engineer.—Five years.

Mechanical Engineer.—Five years.

Engineer of Mines.—Five years.

Electrical Engineer.—Five years.

M. A.—Two years' post graduate work.

Ph. D.—Three years post graduate.

Then there are special schools :—

Special
schools.

School of Forestry.—A post graduate course—*M. F.* in two years.
Graduates in forestry from other universities might obtain
the *M. F.* in one year.

School of Medicine.—Admission granted to those who have done
two years' collegiate work including science.
M. D. in four years.

School of Law.—Post graduate. *LL. B.* in 3 years.
The expenses would be about £200 a year.

Cost.

Princeton University.

Admission.—1. Examination in all subjects.

2. For candidates of exceptional ability, secondary school
record, and examination in four subjects.

A. B.—(*Bachelor of Arts*).—(Classical requirements).—Four years. Degrees.

Litt. B.—(*Bachelor of Literature*) (non-Classical).—Four years.

B. S. (*Bachelor of Science*).—Four years.

C. E. (*Civil Engineer*).—Four years' technical study ; but a graduate
may prepare for it in two years.

E. E. (*Electrical Engineer*).—After two years of graduate study.

A. M. (*Master of Arts.*)—One year's post graduate study.

Ph. D. (*Doctor of Philosophy.*)—Two years' post graduate study.

Expenses—£150 to £200.

Cost.

Cornell University.

It has excellent schools of agriculture and engineering.

Admission.—15 units.

A. B.—Four years.

Degrees.

B. Chem.—Four years.

LL. B.—Four years.

B. S.—Four years.

C. E.—Four years.

M. E.—Four years.

M. D.—Four years.

It is less expensive than the other universities mentioned.

Cost.

It would be possible to go on enlarging the list of universities, but the four quoted give a very fair idea of the requirements for admission, length of course, and expense at an American university.

Schools of Medicine and Pharmacy.

Schools of
Medicine and
Pharmacy
generally.

It might be well here to say a few words about the schools of medicine and pharmacy. The typical medical departments of the best universities require for entrance a four-year high school course, including two years of Latin, and sufficient German and French to enable the student to read in those languages.

The schools are excellent, with ample provision for laboratory and hospital experience. There are post graduate courses devoted to advanced study and research. The Doctorship of Public Health (a post graduate degree) deserves special mention. Harvard has an excellent course in tropical medicine.

Pharmacy.—The larger universities offer courses in pharmacy leading to three different degrees :—

Graduate in Pharmacy.—Ph. G.

Pharmaceutical Chemist.—Ph.C.

Bachelor of Pharmacy.—Phar.B.

The entrance requirements are the same as those for other departments.

A two-year course leads to the Ph.G. Three years for Ph.C. This degree is intended for those who wish to enter the commercial field of pharmaceutical chemistry, or food and drug analysis. The degree of Bachelor of Pharmacy requires three years' study. There are also various higher degrees obtainable.

One State has passed a law requiring that all practitioners in dentistry should hold a medical degree ; but in most places it is possible to acquire a degree in dentistry in three years.

Normal Schools.

The profes-
sion of Teach-
ing.

Teaching.—Normal schools for the training of elementary school teachers have long existed. But the schools of education, whose aim is to prepare High School Principals, Teachers, Supervisors, etc., are new and peculiar to the United States. The typical school of education offers a four-year course leading to a Bachelor's degree in education.

The course usually combines three distinct elements :—

1. General training in the arts and sciences.

2. Specialization in one or two subjects which the candidate proposes to teach later.
3. Instruction in the theory and practice of teaching.

Emphasis is laid on educational psychology, the history and philosophy of education, and the organisation and management of schools. There are opportunities for observing skilful teaching, and practising it under supervision.

A glance at the provision made by the University of Chicago in its School of Education will show what is possible in this course.

Admission.—15 units.

Bachelor's degree.—Four years.

Kindergarten Certificate.—Two years.

Manual Arts Certificate.—Two years.

Home Economics and Household Art Certificate.—Two years.

2. Technical Schools.

These may be divided into—

- (a) Technical schools upon private foundations.
- (b) Technical schools supported in part or wholly by national or State appropriations.
- (c) Technical schools or departments connected with colleges and universities.

Technical
Education.

These institutions vary greatly, but they have certain points in common.

1. They require for admission a preparation equivalent to that given in a secondary school.
2. They require four years' residence in order to qualify for the Bachelor's degree.
3. They lay great stress on laboratory work done in fully equipped laboratories.
4. In addition to the technical work they have studies of a more general character, *e. g.*, English languages, economics, history.

Some of the technical colleges have been adopting the co-operative plan, or Sandwich system. The student divides his time between the college and the industrial establishment in which he can earn a wage. The Land Grant Act (the so-called Morrill Act) of 1862, for the endowment and support of at least one college in each State where, in

addition to other subjects, agriculture and mechanical arts should be taught, gave a great impetus to the teaching of applied sciences.

(a) Technical Schools on Private Foundations.

Technical schools on private foundations.

The *Reusselaer Polytechnic Institute* at Troy, New York, is the oldest technical institution. It has now become more especially a school of civil engineering. It gives the degrees of C. E. in engineering, and B. S. in general science.

The *Worcester Polytechnic Institute* in Worcester, Massachusetts. The distinctive characteristic is the large use of laboratories and workshops. In the former the students construct and place on the market splendid machines, many of them invented by themselves or their instructors.

There are five main courses, each requiring four years' study—mechanical, civil, electrical, sanitary engineering, and general science.

There are forty scholarships available.

The *Stevens Institute of Technology* at Hoboken, New Jersey. It gives an education in mechanical engineering, especially with regard to locomotives and steam engines.

The *Case School of Applied Science* in Cleveland, Ohio. It has eight courses—civil, mechanical, electrical, and mining engineering, physics, chemistry, architecture and general science. The B. S. degree may be taken in any of these, in four years. The M. S. may be acquired in a further year.

The *Rose Polytechnic Institute in Terre Haute, Indiana*, *The Armour Institute of Technology at Chicago*, *The Clarkson School of Technology, Potsdam, New York*, are similar institutions.

(b) Technical Schools supported in part or wholly by the State.

Technical Schools partly supported by the State.

There are 36 of these, and they are bound to give courses in scientific agriculture, and military instruction.

The States used their grants under the Morrill Act in various ways. Some founded purely agricultural colleges, as Michigan and Iowa. Some founded two institutions, one for agriculture in a purely farming community, another for mechanical arts. Others again used their grants towards universities in the broadest sense, with technical and agricul-

tural branches. Four Mining Institutes were formed with this State-aid : *Colorado, New Mexico, South Dakota State Schools of Mines,* and the *Michigan College of Mines*. They offer a very thorough training with practical experience in mines. Of the State-aided schools of technology, Massachusetts is the oldest. It is possible to pursue a broader course at the Massachusetts Institute than at any of the other separate technical schools. It offers 13 different courses in all branches of engineering, architecture, chemistry, biology and general studies.

Mining

Purdue University at Lafayette, Indiana, is really the technical department of the State University. It offers four courses : mechanical and electrical engineering, agriculture, general science (four years) and pharmacy (shorter course). Each leads to the B.S. degree.

(c) The Technological Schools connected with Colleges and Universities.

Some of the best technical institutions are connected with the colleges and universities. They vary from the small college which has added a technical course to its art courses, to institutions like the Columbia University with eleven distinct courses, Cornell with ten, and the University of Illinois with seven.

Technical
Schools con-
nected with
Colleges and
Universities.

The Sheffield Scientific School at Yale is the oldest. It is more (what its name implies) a scientific than a technological school. The courses include civil, mechanical and electrical engineering, chemistry, agriculture, natural history, mineralogy. The admission is far harder than at the separate institutions already mentioned. Practically only graduates are admitted and it is a three-year course.

The Lawrence Scientific School at Harvard is an integral part of the university. The requirements for admission are as high as at Yale. There are eleven distinct courses. It has an unsurpassed library, museum and laboratory.

The John C. Green School of Science at Princeton University, The Towne Scientific School of the University of Pennsylvania, Union College of Washington University, and various others have similar courses. *Columbia University* possesses the most elaborately organised scientific department of any private university.

Of State Universities *Illinois, Minnesota and Wisconsin* are the leaders in technical education.

The expenses per annum for a technical education would be from £150 to £200 a year.

3. *Agricultural Education.*

Agriculture.

Michigan State Agricultural College, opened at Lansing, Michigan, was the first of its kind. *Maryland* was the next State to found such a college, near Washington. *Massachusetts* next opened one at Amherst. *Pennsylvania* completed the list of such agricultural colleges prior to the Morrill Act. After the passing of that Act twenty-six colleges undertook the teaching of agriculture as they were obliged to do on accepting a grant under the Act. In fifteen States there are agricultural colleges which are a part of the State University.

In ten colleges and universities, established upon a private foundation, agricultural courses are offered. *Cornell* offers the most extensive opportunities for education in scientific agriculture. Harvard and Yale, while offering an agricultural course, lay great stress on forestry.

Admission to
Agricultural
Institutions.

The general feeling is that as agricultural education is intended to help the rural classes, the standard for admission must not be too high. Generally speaking, in the South and West, the standard required would be the same as that demanded for admission to a first class high school. At some colleges where they require a higher standard they maintain a preparatory department. The universities generally require the same standard as that for admission to other departments, unless the candidate does not want to take a degree, in which case he gains easier admission.

Recently the agricultural colleges made out the following list of subjects for a standard entrance :—

Physical geography; United States history; arithmetic, including the metric system; algebra to quadratics; English grammar and composition, together with the requirements of the New England Association; plane geometry; one foreign language; one of the natural sciences; and ancient, general or English history.

Usual course.

The course in most colleges is a four-year one, and leads to the B. S. or B. Ag. degree.

Short courses.

In many cases there are short two-year courses which do not lead to a degree. Several institutions allow a man to take a very short course in a single subject. These brief courses are generally offered in the winter when farm work is not pressing; and they are open to all mature applicants, irrespective of academic qualifications. Thus, at

Cornell it is possible to take a 12-week course in agriculture and dairying, and a single term in forestry; and at Michigan Agricultural College a 12-week course in chemistry, a six weeks' course in beet sugar production, dairy-husbandry, etc., are possible. In the full four years' course there are naturally differences in the various institutions. In dry areas, for example, a good deal of attention is given to the study of irrigation; in corn growing districts more attention is paid to corn culture, and so on. Elementary agriculture is taught a good deal in the schools.

There are various courses in *forestry*. The University of Minnesota Forestry gives a degree—B. S. in forestry in four years. Ohio, Michigan, Iowa, Washington and many other universities have four-year courses.

4. Education in Commerce.

At first, youths who wanted a business training could only obtain it by being apprentices in firms, where they slowly and laboriously learnt such methods of business and book-keeping as the particular firm understood. Next, private schools were opened, and finally 2,000 modern business schools have come into being.

The Private Commercial School.—In spite of the more modern institutions, the private schools originally started still hold their own, and train numberless boys and girls, men and women. At first they taught only book-keeping and penmanship, but now they have added commercial arithmetic, commercial law, correspondence, business forms, typewriting, shorthand, etc., to their courses.

These are really trade schools and prepare a man in a short time to earn his living.

The Public High School.—The commercial training in these schools has not been satisfactory. It was begun because so many boys left school early in order to enter private commercial schools. The public schools therefore began a commercial course in order to keep the boys longer at school.

But since 1900 matters have improved, and separate high schools of commerce have been established. In these schools commercial subjects take the place of classical studies, and the course is a four-year one. But Philadelphia and New York had an improved plan. They thought it was not sufficient to have ordinary school subjects with commercial subjects superadded, but that the whole course should fit

a man for his business, and to grapple with the new needs of commerce. *New York City High School of Commerce* has a five-year course.

First year.—English, German, Spanish or French, algebra, biology, business knowledge and practice, drawing, physical training, music.

In the following four years certain subjects are compulsory, others elective.

The University School of Commerce.—*The University School of Commerce.*—Harvard University has a school of business administration, but Yale is conservative and makes no provision for commerce. The universities in the West provide greater facilities than the universities in the East.

New York University (School of Commerce, Accounts and Finance). B. C. S. in three years.

University of California.—B.S. in four years.

University of Cincinnati (College of Commerce), Bachelor of Commerce in four years.

University of Pennsylvania (Wharton School of Finance and Commerce).—B.S. in economics in four years—Certificate in 2 years.

These and several other universities have undergraduate courses.

Other universities again have post graduate courses.

New York University began evening classes in Commerce, and Pennsylvania, Denver and other Universities have followed the example. No other country offers such a wide range of commercial education.

5. *Trade Schools.*

Trade Schools. This account would not be complete without some reference to *Trade Schools*. These are intended to be markedly practical. They do not require a high standard for admission. They devote a much larger percentage of time to the development of special skill and speed, and to the giving of actual shop experience in methods of production, than to the consideration of the related theory, knowledge, and art. The pupil must definitely decide what occupation he means to follow before he enters. Generally the age for admission is sixteen. The length of each course is two years, but a student can finish in a shorter time if he show special aptitude. In trade teaching each pupil is a class by himself, and he may advance as quickly as he chooses. The charges are a few dollars per mensem. There are such trade schools in New York, Philadelphia, Milwaukee, Portland, Boston, Worcester, Bridgeport, etc. Almost any trade can be learnt in these schools.

6. Conclusion.

To sum up, it ought to be noted that the colleges and institutions are residential. America does not know the system of affiliated and examining institutions so familiar in India. The ideal of education in America is to train and develop the best latent capacities of the student; to help him not only to prepare for his professional or industrial life, but also to be a good citizen. The first two or three years are devoted to general knowledge, specialisation coming after that; or, in some cases, after graduation. Each course terminates in an examination usually set and graded by the Instructor himself. Each course is passed absolutely independently of all other courses. The student's daily work and progress are considered for the purposes of passing him in the examination. Great stress is laid on work in laboratories. These are superbly equipped. 'Science with practice' is the motto of one of the State technical schools. Certain colleges and universities excel in teaching certain subjects. The following table will give some indication of the best institutions for particular subjects:—

Methods of Education.—Columbia, Chicago, Vanderbilt.

Agriculture.—Illinois, Wisconsin, Ohio State, Cornell, Iowa State College, Pennsylvania State College, California, Michigan.

Forestry.—Yale.

Chemistry.—Yale, Johns Hopkins.

Physics.—Yale, Chicago, Johns Hopkins.

Bacteriology.—Chicago, Yale.

Botany.—Chicago, Wisconsin, Harvard, Johns Hopkins.

Zoology.—Columbia, Harvard, Illinois.

Industrial Chemistry.—Massachusetts Technological Institute, Iowa State College, Illinois Mellen Institute.

Engineering.—Massachusetts Technological Institute, Iowa State College, Illinois, Columbia, Cornell.

Medicine.—Chicago, Cornell, Columbia, Harvard, Johns Hopkins.

JAPAN.

School System in Japan.

The school system in Japan provides

- (a) General ;
- (b) Special ;
- (c) Technical

education. Each of these is subdivided into primary, secondary and higher education.

General
education.

General Education.—The general education does not prepare pupils for any particular course in life, but simply enables them to develop into good average citizens. The schools in the primary grade are called elementary. Secondary schools in this branch merely give a higher general education, and are divided into Middle schools for boys, and high schools for girls.

In the high schools proper pupils are prepared to go on to the Imperial Universities if they desire to do so.

Special
education.

Special Education.—Special education, as its name implies, is intended to prepare students for professions : law, medicine, music, etc. It is graded like general education.

Technical
education.

Technical Education.—Technical education comprises the knowledge necessary for farmers, artisans, merchants, etc.

There is the B grade (primary education)—supplementary technical schools, apprentices' schools, technical schools; the A grade (secondary education)—technical schools of secondary grade; and higher grade of a more advanced type of commercial, technical, agricultural and forestry courses.

Universities.

Universities.

The Imperial Universities are declared to have for their objects "the teaching of such arts and sciences as are required for the purposes of the State, and the prosecution of original research in such arts and sciences."

Each consists of a University Hall for the purposes of research, and colleges for the purpose of instruction.

Tokyo Imperial University.—The Tokyo Imperial University consists of a University Hall and six colleges—law, engineering, literature, medicine, science and agriculture.

Kyoto Imperial University.—The Kyoto Imperial University consists of a University Hall, a college of law, two colleges of medicine (one in Kyoto and one in Fukuoka), a college of literature, a college of science and engineering.

Tohoku Imperial University.—The Tohoku Imperial University has a University Hall and colleges of agriculture science. Other colleges are to be founded.

Kyushu Imperial University.—The Kyushu Imperial University has colleges of engineering and medicine.

Admission to the colleges.—Candidates must have completed the preparatory course of three years at one of the higher schools; or must pass an entrance examination. This latter is chiefly for foreigners, as most Japanese will have been at a school. When the number of vacancies is less than the number of applicants a competitive examination is held for admission.

Pupils for special courses.—Besides “students” who do the regular courses, “pupils” are admitted who desire to study only special subjects. When a student is admitted he is required to take the prescribed oath, to pay an entrance fee of 4 shillings, and to sign his name in the college register. He must also present a written declaration, in prescribed form, signed by one or more sureties who are responsible for him in all college matters.

Subjects studied in the three years’ course at the Japanese higher schools.

The following subjects are studied in the three years’ course at one of the Japanese higher schools, and will give some idea of what is required for the entrance examination held for foreigners :—

Morals,
 Vernacular,
 Chinese Classics,
 English,
 German or French,
 History (Japanese, Eastern, general),
 Logic,
 Psychology,

Elements of Law,
Political Economy.

For students who are intending to take engineering, agriculture, science, or medicine at the universities, mathematics or scientific subjects are substituted for some of these.

In the colleges, literature or science, both theoretical and applied, is taught.

Length of Course.—The length of course in the colleges of literature, science, engineering, agriculture is three years.

Medicine	.	.	four years.
Pharmacy	.	.	three years.
Law	.	.	four years.

Each college of the Imperial Universities has an elective course for those who wish to take up only one or more subjects, *i.e.*, not all the subjects of the course. The university year begins about September 11th, and ends on July 10th. There are generally three terms in each year. Kyoto has only two terms in the year.

The University Hall.—The University Hall is an institution in which minute researches in literature, science and art are carried on, and into which graduates of the various colleges are admitted. If any person who is not a graduate of any of the colleges wishes to be admitted to the Hall, he must undergo an examination at the college to which his subject of study belongs, or one conducted by the Committee of Examiners.

Length of Research Course.—The length of the course of investigation is:—

- Five years at Tokyo ;
- One or more years at Kyoto ;
- Three to five years at Tohoku.

A student of the University Hall carries on his investigation in one special subject under the guidance of a Professor ; at the end of the course he prepares a thesis, and, if he passes, a degree is conferred on him.

In the colleges of medicine, science and literature of the Tokyo Imperial University there are post graduate courses lasting two years.

Special Colleges.—Institutions other than those belonging to the Imperial Universities have been founded, to give instructions in special subjects.

The admission is the standard reached by boys in the middle schools, and girls in the high schools. There are special colleges, of law, medicine, literature, languages, sciences, arts, music, etc. The length of course of study is generally three years, in medicine four. Some of these schools are established by Government, some by cities, some by private individuals. The standard of education is not so high as in the Imperial University colleges.

3. *Technical Education.*

After the Japan-China war of 1894-95, the facilities for technical education in Japan were greatly increased and were still further developed after the war with Russia in 1904-05. Technical Education.

By the Technical School Ordinance of 1899, technical schools were divided into :—

Various Technical Schools :—

- (a) Technical Schools (including apprentices' schools).
- (b) Agricultural Schools (including sericulture, forestry, veterinary medicine and marine products).
- (c) Commercial Schools.
- (d) Nautical Schools.
- (e) Supplementary Technical Schools.

Higher Technical Education.—The object of the higher technical education is to give those intending to engage in agricultural, technical, and commercial pursuits a more advanced knowledge of arts and sciences. The subjects taught are :—

In special Agricultural Schools.—Agriculture, forestry, veterinary medicine.

In the Special Technical Schools.—Mechanics, dyeing, weaving, ceramics, applied chemistry, electricity, marine engineering, naval architecture, architecture, civil engineering, mining and metallurgy, designing and brewing.

In the Special Commercial Schools.—Practice in all matters connected with commercial undertakings.

Length of School Course.—The length of the course in special technical schools is 3 years, but there is a special post graduate course of one or two years for those who wish to continue their study.

In some of the commercial schools there is a preparatory course lasting one or two years. Special technical schools and special commercial schools have an elective course for those who are in business or who have graduated in a secondary technical school, or who want to study only one or more subjects.

Admission to Higher Technical Schools.—Graduates of middle schools, or persons possessing similar attainments, are admitted. But where the number of candidates is greater than the number of vacancies, a competitive examination is held.

Amongst candidates seeking admission to the elective course, preference is given to those possessing practical experience.

Technical Schools of Secondary Grade.—The object of these schools is to give those intending to engage in business the instruction they need in the industrial arts, commerce and agriculture.

Subjects.—These are divided into :—

- (a) Technical Schools ;
- (b) Agricultural Schools ;
- (c) Schools of Sericulture ;
- (d) Schools of Forestry ;
- (e) Schools of veterinary medicine ;
- (f) Schools of marine products ;
- (g) Nautical Schools ;
- (h) Commercial Schools.

In addition to special subjects the following regular subjects are taught :—

Morals, Japanese, mathematics, physics, chemistry, drawing, gymnastics.

Length of Course.—The length of course is three years, but it may be lengthened according to local circumstances. Some schools have preparatory courses of not more than two years' duration. There is a special course for those engaged in business who want to study one or more subjects. There are also post graduate courses.

Admission to Second Grade Schools.—Candidates for the regular course must be graduates of a higher elementary school with a two years' course, and must not be less than 14 years of age. Candidates with an equivalent education are also admitted. Candidates for the preparatory

course must be graduates of an elementary school, or have, at least, equivalent attainments. Candidates for the special courses need only be engaged in business and have an elementary education. Where the number of candidates is in excess a competitive examination is held.

Technical Education of a Special Kind—Primary Grade.—This ^{Primary} covers a large number of schools of different kinds with different ^{grade.} standards of admission, and includes apprentices' schools.

Apprentices' Schools.—The object of apprentices' schools is to ^{Apprentice} instruct those wishing to become workmen in arts and sciences so as to ^{schools.} fit them to become good workmen.

Other Technical Schools.—The object of the other technical ^{Other schools.} schools of a special kind, in this primary grade, is to help those intending to engage in business with knowledge essential for their various lines.

Subjects.—There are schools of :—

- Wood work ;
- Metal work ;
- Mechanics ;
- Dyeing and Weaving ;
- Lacquer work ;
- Printing ;
- Embroidery and sewing ;
- Ceramics ;
- Paper-making ;
- Bamboo work ;
- Artificial paper making.

There are regular as well as special subjects taught. There are also schools in this primary grade for :—

- Agriculture ;
- Sericulture ;
- Agriculture and forestry ;
- Marine products ;
- Commerce ;
- Industrial Arts.

Length of Course.—In the apprentices' schools the length of course varies from six months to four years. In other technical schools of a special kind the length of course is three years.

Admission.—The qualifications for admission vary in each school—the lowest qualifications being the education given in an ordinary elementary school, and the candidate must not be less than twelve years of age.

Supplement-
ary schools.

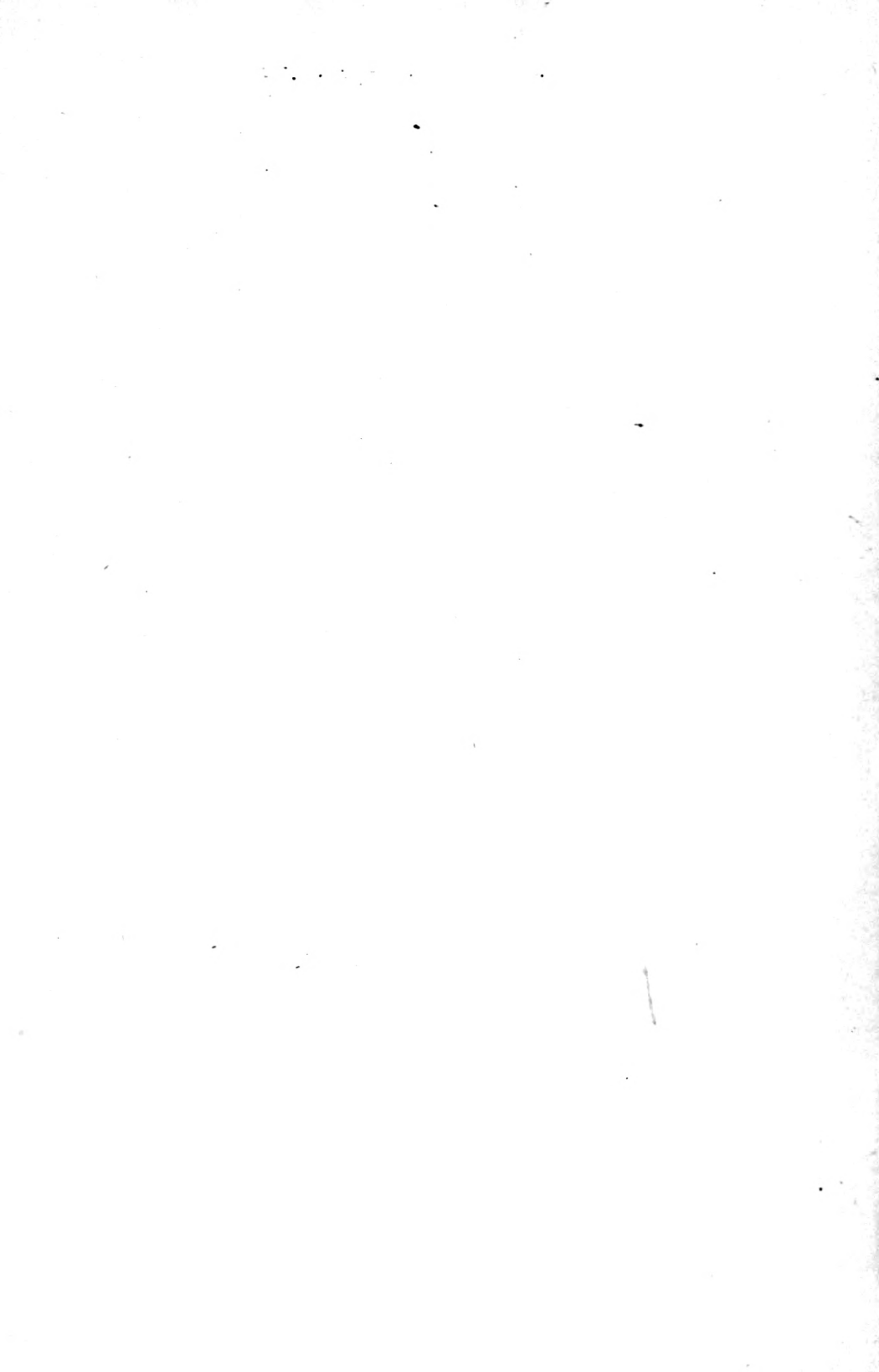
Technical Supplementary Education.—The object of the supplementary technical schools is to furnish persons engaged, or about to be engaged, in business, with the knowledge and skill essential to their particular occupations and at the same time to give supplementary lessons in general education.

Length of Course.—They vary greatly as to length of course, hours of teaching, etc. Some of them have evening classes.

Admission.—Almost any one of the age of 12 and over is admitted.

Subjects.—Morals, Japanese, arithmetic and other subjects are taught in addition to technical and commercial subjects.

Generally speaking a student ought to have from £100 to £200 a year in Japan.



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