SESSIONAL PAPER No. 191d

CHAPTER X: THREE BOROUGHS IN LANCASHIRE.

A summary of the provisions made for technical instruction in three towns in Lancashire is given as illustrative of what is done in boroughs of relatively small population.

Barrow-in-Furness is a shipping and manufacturing centre with a population of 63,000. It has shipbuilding works, large docks, steel and iron works, engineering shops, foundries, etc.

Accrington lies 23 miles north of Manchester. Its principal industries are cotton spinning, weaving, calico printing, and the manufacture of textile machinery. There are coal mines and quarries in the neighbourhood. It has a population of 45,000.

Widnes is a town of 31,500 population situated 13 miles from Liverpool. It is a centre of manufacture for alkalis, etc.

SECTION 1: BARROW-IN-FURNESS.

The following information and suggestions were kindly furnished to the Commission by Mr. George Grace, Principal of the Municipal Technical School, after conference with the Staff of the School.

THE PROVISION AND TRAINING OF TEACHERS FOR TECHNICAL SCHOOLS.

The problem of providing the best kind of teacher for Technical Schools is not one which can be solved by one method alone. The subjects usually taken in these schools vary so much in their nature and in the kind of qualification necessary for their successful exposition, that it is advisable to consider the problem under at least two heads.

(*a*) Certain subjects, of which Mathematics is the most important, require clear thinking and thorough methods of teaching rather than extensive technical knowledge. Generally the best teachers are those who have been trained to the teaching profession, but whose tastes lead them to take an interest in the industrial applications of their subject.

The only assistance needed by these teachers is in the collection of the right type of example needed for technical purposes, and occasional assistance by some one with fuller technical knowledge.

(*b*) Other subjects such as Machine Drawing, Technical Electricity, Building Construction, etc., which deal mainly with technical knowledge, are best taught by men having considerable experience.

This is especially true of the advanced classes. Even here, however, it is necessary to recognize that successful instruction must be based on the scientific principles underlying the subject, and it is essential that the teacher should have a thorough grasp of these as well as of the empirical knowledge to be gained in the shop.

Very few of these men are likely to make successful teachers without some training in teaching method. Where possible they should spend some time working under an experienced teacher who should hear the lessons given by them and have authority to criticize or suggest improvements in method.

To take men straight from shop work and let them commence teaching without some training is likely in most cases to end in disaster.

At the same time it must be borne in mind that there are exceptional cases where men seem to have the ability to teach well without any such training.

Also, that more skilled teaching is necessary for elementary students than for those more advanced, and that a man with the requisite technical knowledge may make a good teacher for advanced classes who might be unsuitable for a class of beginners in the same subject.

THE INTRODUCTION OF MACHINERY INTO TECHNICAL SCHOOLS.

For such schools as the Barrow Technical School, where students are engaged in actual shop work during the day, it was unanimously agreed that there was no need for further school instruction in shop methods.

The function of the school should rather be instruction in the scientific principles underlying the industry in which the boys were engaged, and training in clear thinking, than in giving further practice in the manual part of their profession.

The head of our Engineering Department was head master in a "Trade School" in Ireland in which boys were taken immediately on leaving an ordinary Elementary School and given instruction in the underlying principles of their trades (Building Trades and Engineering), including instruction in working methods. He speaks highly of the result. It was found that the boys after passing through such a training were more useful when they entered their apprenticeship, and learnt their business more quickly. (The masters appreciated them enough to commence them with 10s. per week instead of 4s. or 5s.) He was also definite on the point that this kind of instruction did not mean "teaching them their trades in school," and that it needed supplementing by some kind of apprenticeship.

WHAT TECHNICAL SCHOOLS CAN DO TO ASSIST IN SOCIAL REFORM.

It is not felt that technical schools could deal directly with this problem. Students suitable for acceptance in a technical school are not likely under any circumstances to become abjectly poor. Indirectly, however, it was felt that a good technical school could render incalculable service in raising individuals of ability from even the poorest classes into positions where their talents could be of great service to the nation.

For the bulk of the poorest classes, however, the question was one for schools of a different type, nearer the ordinary Continuation School than the Technical.

If attendance at these schools be made compulsory, and boys kept under strict discipline until 16 or 17, it would be a great service in preventing the growth of the unemployable class.

The aim of the schools, however, should rather be towards the improvement of general intelligence and keeping the boy under rigid discipline than to the imparting of technical instruction which would be of little service to him.

It was felt by the meeting that one of the causes of poverty and failure in life was the number of blind-alley occupations which do not train the boy for any position suitable for an adult, and which leave him too much to his own devices during the years from 12 to 16, when his habits are being formed, and when he needs very careful supervision and advice.

Several of the staff who have spent most of their lives as workmen, are of the opinion that much of the trouble in England is due to the impossibility of finding regular work for everybody under anything like pleasant conditions, and that no system of education can do anything to remedy this.

Evening Schools.

The work of the Evening Schools in various parts of the town has been so arranged as to provide the preliminary instruction required by all Students before they attend the classes in the Science, Technological, or General Divisions of the Technical School.

In future it is intended to confine the instruction in the Technical School to more advanced work than is done in the other Schools, and the Committee strongly recommend young students to properly qualify themselves by attending an Evening School before joining the Technical School.

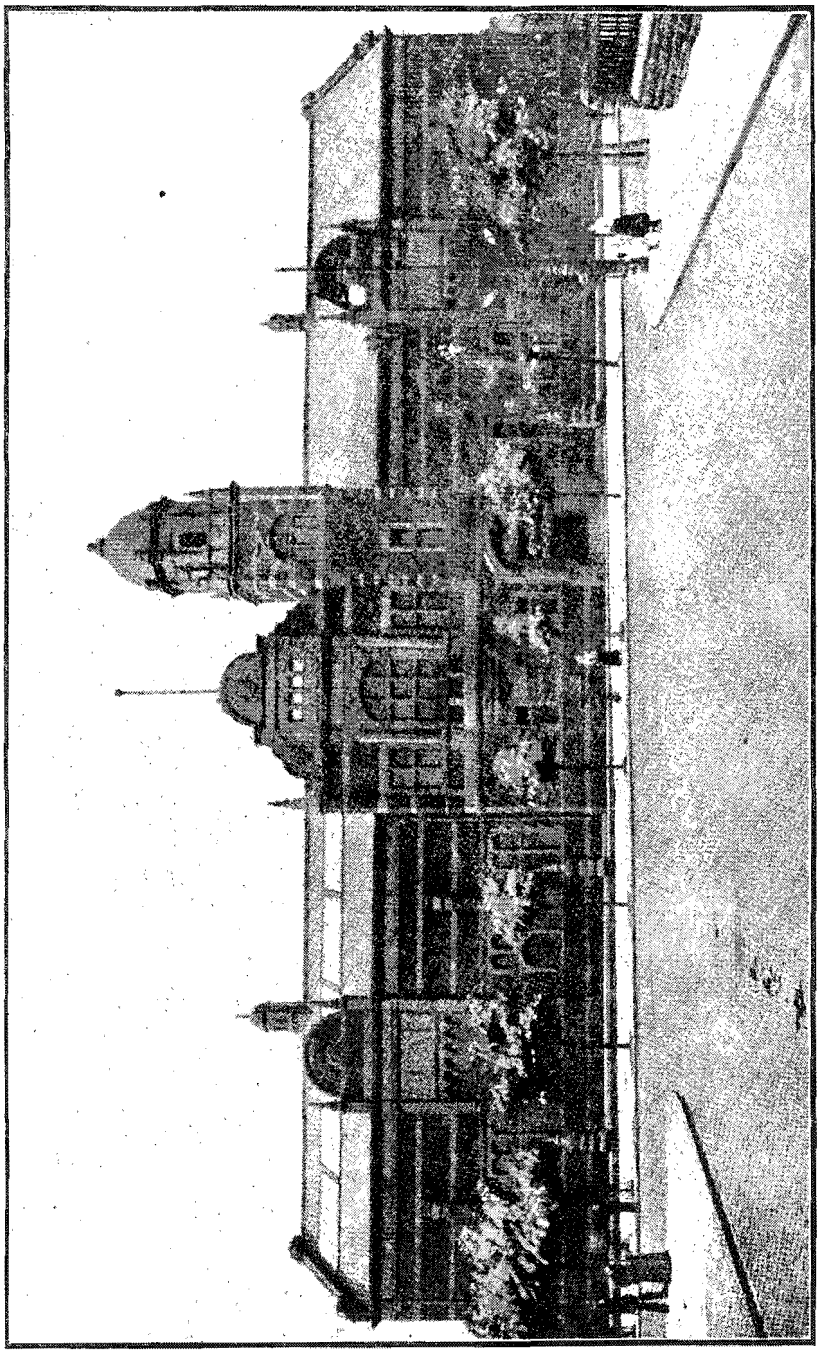
No pupil, attending a day school which receives grants from the Board of Education, will be admitted to any of the Evening Classes.

Fees must be paid in advance, and Students, who are admitted at a reduced fee, by joining a Course, will be expected, if they cease attending any of the Classes, to pay the amount of the reduction which has been allowed.

THE TECHNICAL SCHOOL.

The Curriculum comprises courses of instruction in Art, Science, Technology and General subjects, conducted under the Government Board of Education, the City and Guilds of London Institute, the Union of Lancashire and Cheshire Institutes, and the Royal Society of Arts.

The Classes are carried on mainly with a view to enable artisans—including apprentices, journeymen, foremen, draughtsmen and others—engaged in the principal industries of the town and district (shipbuilding, engineering, and the various building trades) to obtain such technical instruction in Science and Art as will prove useful to them in their respective trades or professions, and also conduce to their general intellectual improvement and advancement.



TECHNICAL SCHOOL: BARROW-IN-FURNESS.

The instruction given also affords suitable preparation for candidates for National Art and Science and Whitworth Scholarships, Royal Exhibitions, etc., and several of the Classes meet the requirements of Teachers and others preparing for the London University Matriculation and other public Examinations.

As satisfactory progress depends upon the work done by the Student himself, special importance is laid on the amount and regularity of Home Work, and any Student who refuses to do Home Work may, at the discretion of the Principal, be dismissed from the School.

Sections of Technical Instruction.

The work of the Technical School is carried on in seven sections:—

Section I.—School of Arts and Crafts;
Section II.—Mechanical Engineering;
Section III.—Naval Construction;
Section IV.—Electrical Engineering;
Section V.—Building Trades Classes;
Section VI.—Chemistry and Metallurgy;
Section. VII.—General.

Each Section or Department is under a competent Head, with Assistants for the various divisions; *e.g.*, the Department of Mechanical Engineering has divisions for Machine Construction and Drawing, Practical Mathematics, Mechanics and Mechanical Engineering, Heat Engines, Practical Steam, and Metallurgical Chemistry.

There are courses for 5 years, and advanced classes beyond the fifth year.

An outline of the Mechanical Engineering Course is given for its own sake, and also because it is typical of the thoroughness and comprehensiveness of the work covered by the other departments of the school.

The classes are held in the evening from 7 to 9.30 o'clock.

Mechanical Engineering Course.

The elementary stages of the subjects connected with Mechanical Engineering have been arranged in Group Courses, which indicate the order in which the subjects should be studied. These courses occupy three evenings per week.

A Group Course Certificate is awarded to Students who fulfil certain conditions. This Certificate is recognised by the Liverpool University as equivalent to part of their Engineering Course. Students holding it are allowed certain concessions if they afterwards attend the University.

In the Advanced Stages each Student is allowed to choose his own programme, but must submit it to the Principal for approval.

First and Second Year Courses.

Arrangements have been made to take these in the following Evening Schools in the town:—Secondary School, Vickerstown School.

Third Year Course.

No Student will be admitted to this Course who cannot show that he has a sufficient knowledge of the subjects taken in the first and Second Year Courses.

The following subjects must be taken:—

Practical Mathematics—Stage I.
Mechanics and Practical Mechanics—Stage I.
Machine Drawing—Stage I.

The following is an outline of the *Syllabi of Subjects:*

PRACTICAL MATHEMATICS.

Stage I.

Arithmetic.—Revision of contracted methods, rough checks and the application of geometrical methods of calculation.

The use of logarithms.

Mensuration.—Areas of rectilinear figures and circles. Parts of circles and irregular figures such as indicator diagrams.

Surfaces of cones, cylinders, etc.

Volumes of regular solid forms, and the applications of mensuration to practical problems.

Algebra.—Elementary algebra to simultaneous equations with practice in manipulation of formulæ, such as found in engineering pocket books.

Trigonometry.—The meaning and use of the trigonometric functions. Solution of simple triangles.

Squared Paper.—The use of squared paper to solve problems where quantities are connected with one another according to simple laws.

Interpolation. Curves of percentages, etc.

Text-Book.—Saxilby's "Introduction to Practical Mathematics," 2/6.

MACHINE DRAWING.

Stage I.

The construction, proportions, etc., of simple machine parts, such as riveted joints, bolts, nuts and screws. Simple couplings for shafts, pistons, etc.

The geometrical constructions used in mechanical drawing and the accurate use of instruments.

The preparation of working drawings and tracings, according to ordinary drawing office methods, the examples being chosen with the view of gradually developing the student's knowledge of projection.

Each student will be expected to provide himself with a Sketch Book in which to enter sketches and notes. He will also be expected to make dimensioned sketches from actual parts of machines and models, and from these sketches to prepare complete drawings to scale.

NOTE.—Students should consult the Teacher before purchasing Drawing Boards or Instruments for this Class.

TEXT BOOK.—Machine Drawing by T. & T. G. Jones, Book I., 3s.

APPLIED MECHANICS.

Problems in simple statics.
Centre of gravity. The lever. Principle of work.
Simple machines and the applications of the principle of work and principle of moments.
Mechanical advantage and efficiency.
The laws of dry friction on horizontal and inclined planes.
Simple cases of tension and compression. Hooke's law. Elastic limit, etc.
The use of measuring instruments, micrometers, and other gauges.
Common engineering materials, their properties, common uses, etc.
TEXT BOOK.—Duncan's Applied Mechanics for Beginners, 2s. 6d.

PRACTICAL MECHANICS.

Stage I.

A Special Laboratory has been fitted up for experimental work in Mechanics, so that each Student shall be able to perform simple quantitative experiments and demonstrate the elementary principles of Mechanics, such as:—

Resultant of a number of forces acting at a point.
Conditions of equilibrium on an inclined plane.
The laws of the lever.
The laws of dry friction.
The effects of tension, compression, torsion and bending, Strength of wires of different material.
The relation between the work put in and that given out in screw jacks, cranes, pulleys, etc.
NOTE.—Students attending this Class must keep proper Laboratory Note Books, and submit these periodically to the teacher for correction.
This requirement is not optional on the part of Students, but an essential condition of entrance to and continuation in the class.

Fourth Year Course.

Students may be admitted to any of the subjects in this course if they can shew a satisfactory knowledge of the work taken in the corresponding subjects of the Third Year Classes.
The following subjects must be taken:—
Practical Mathematics, Intermediate Stage.
Mechanics and Practical Mechanics, Intermediate Stage.
Machine Drawing, Intermediate Stage.
Any Fourth Year Student who is not sufficiently advanced may take a Stage I Class in any subject instead of the above.

PRACTICAL MATHEMATICS.

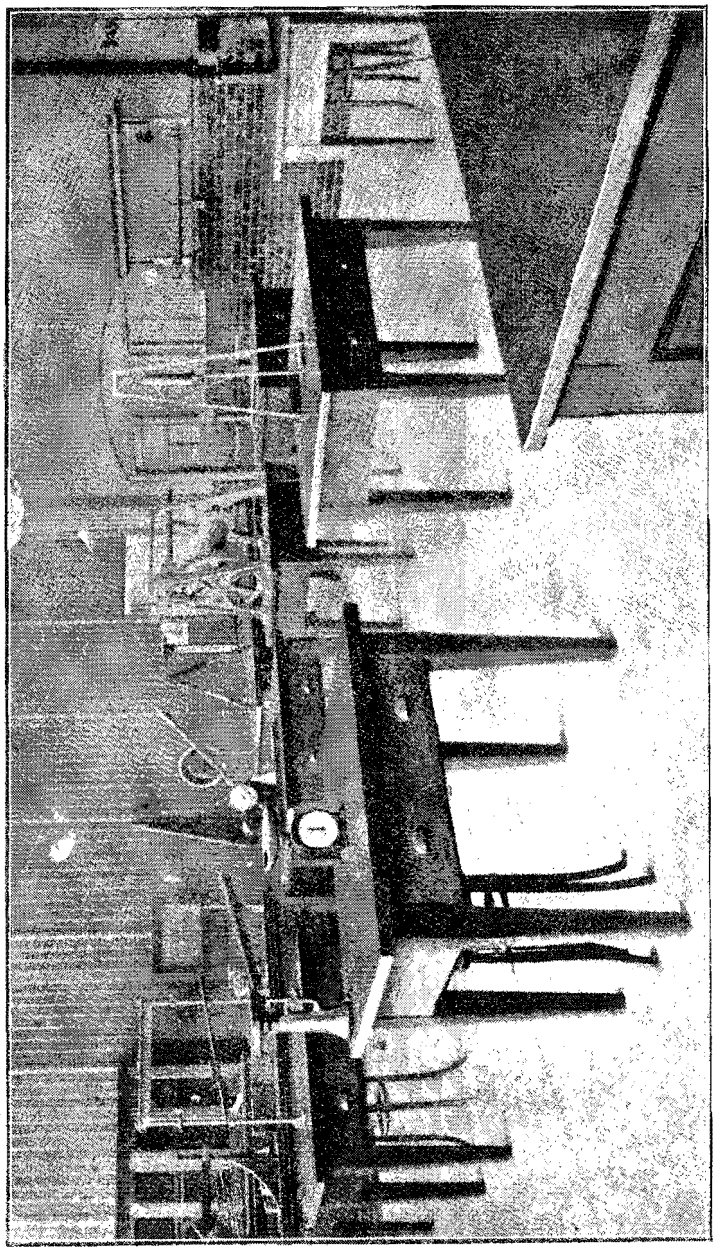
Intermediate Stage.

Practice in the use of logarithms, especially in difficult cases of negative and fractional indices.
More difficult problems in mensuration.
Determination of volumes of irregular solids by method of sections.
Algebra to quadratic equations. Partial fractions.
Practice in the use of trigonometrical formulæ, and simple cases of the solution of triangles.
Measurement of angles in radians. Measurement of angular velocity.
Use of accurate drawing in the solution of problems, especially when measured drawings can replace complicated calculation.
The use of squared paper for more difficult curves.
Full investigation of straight lines and simple cases of maxima and minima. Laws of form ax^n. $a+bx^2$, $a+bx+cx^2$, etc.
Determination of mean values, areas, etc.
TEXT BOOK.—Saxilby's Practical Mathematics, 6/6.

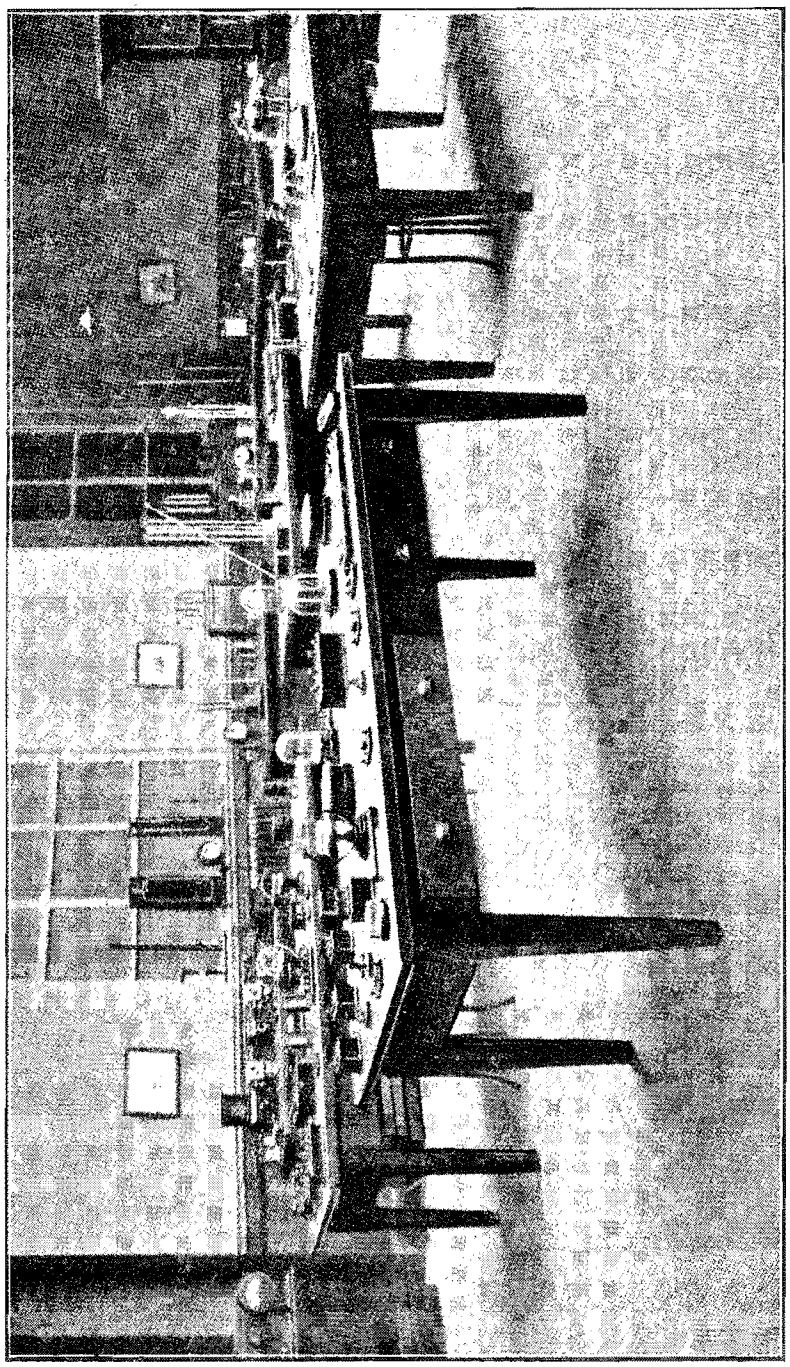
MACHINE DRAWING.

Intermediate Stage.

In this class more difficult work in Machine Drawing will be attempted, including more difficult Geometrical Constructions used by draughtsmen, such as:—
Double curves. The projection of curves in three dimensions, such as on the headstock of a lathe. Projection of a screw on a cylinder.
Also lessons will be given on the construction and proportion of more complicated machine parts, such as:—
Bearings and pedestals, couplings and clutches; the teeth of wheels, Bevel wheels; the construction of crossheads, eccentrics, pistons etc.
Students will be expected to provide themselves with accurate drawing instruments and note books, and to submit their drawings and sketches periodically for the inspection of the teacher .
The Prizes in these classes will be given for the best set of work done during the session.
TEXT BOOK.—Machine Drawing by T. & T. G. Jones. Book I., 3s.



TECHNICAL SCHOOL: MECHANICS LABORATORY.



TECHNICAL SCHOOL: ELEMENTARY ELECTRICAL LABORATORY.

MECHANICS.

Intermediate Stage.

Revision of Third Year's Work.
Statics of four and more forces acting at a point. Funicular polygon and its application.
More difficult cases of parallel forces.
Fuller investigation of friction between dry and lubricated surfaces.
The transmission of power.
The study of mechanisms such as toggle joints, quick return motions, epicyclic trains, etc.
Elementary cases of tension, compression and torsion, etc.
The properties of the chief materials used in engineering.
Hardening, tempering, annealing, etc.
Elements of Dynamics, Potential and Kinetic Energy, Energy Rotating Fly Wheel.

PRACTICAL MECHANICS.

Intermediate Stage.

Continuation of Third Year's Course, with more difficult experiments in Statics, Friction, Tension, Torsion, Bending, etc.
Experiments with inclined planes, epicyclic trains, toothed gearing, etc.
Experiments in Dynamics.
Hydraulics: Discharge from orifices, over weirs, down pipes, etc., effect of bends.
Hydraulic jack.

Fifth Year Course.

Students may be admitted to any of the classes in this course if they can show a satisfactory knowledge of the work taken in the previous courses.
The following subjects must be taken:—
Practical Mathematics—Stage II.
Machine Drawing—Stage II.
Heat Engines and Practical—Stage I.
Any Fifth Year Student who is not sufficiently advanced may take an Intermediate Stage Class in Mathematics or Machine Drawing.

PRACTICAL MATHEMATICS.

Stage II.

Further practice in the use of logarithms and other mathematical tables.
Evolution from more difficult formulæ.
The trigonometrical ratios of one angle, including the solution of right angled triangles.
Use of squared paper for investigation of $y = ax^n$, $y = ac^{bx}$, etc.
Graphic solution of equations. Determination of laws from experimental data. Substitution of linear for more complex laws.
More difficult mensuration.
Rate of increase. Simple differentiation. Maximum and minimum values. Easy integration.
TEXT BOOK.—A Course in Practical Mathematics. F. M. Saxilby. Longman's, 6/6.

MACHINE DRAWING.

Stage II.

In this class Students attempt a series of drawings illustrating the construction in detail of some fairly complicated piece of machinery, such as a small marine engine or locomotive.
The drawings made are finished and fully dimensioned as if for shop purposes. Each Student has the opportunity of learning not only the preparation of drawings in pencil, but of making finished tracings suitable for reproduction.
A prize is offered by the Committee for the best set of drawings done in this class.
By the kindness of Messrs. Vickers, an Air Compressor has been erected in the School, which Students have the opportunity of measuring and drawing.
TEXT BOOK.—Low and Bevis's Machine Design.

HEAT ENGINES.

Stage I.

The fundamental principles of physics on which a scientific knowledge of steam and other engines must depend.

Thermometry. Calorimetry. Capacity for Heat. Specific heat. Latent heat. Total heat of evaporation, etc.

Fuel and the heat of combustion of fuel.

The properties of steam. Boyle's law. Use of steam tables, etc.

General description of steam engines and the details of their construction, *e.g.*, cylinders, pistons, crossheads, cranks, eccentrics, etc.

The action of the slide valve, and the effect of lap, lead, etc.

The indicator and meaning of the diagrams taken by it.

Boilers, their construction and simple calculations about them. Common fittings.

This course will be illustrated by specially prepared diagrams and lantern slides taken from modern engines.

TEXT BOOK.—Duncan's Steam and other Engines. 5s.

PRACTICAL STEAM AND HEAT ENGINES.

In this Course Students perform for themselves the experiments described in the Theoretical Lessons, including:—

Simple experiments in Thermometry and Calorimetry.

Determination of Boyle's Law. Relation between temperature and pressure for steam, etc.

Determination of calorific value of fuels.

Investigation of Indicator Diagrams, including use of planimeters.

Study of motion of parts of an engine, including the effect of altering the lap and lead of a slide valve, reversing gears, expansion valves, etc., by means of moving models.

A small portable engine and boiler and a petrol motor have been arranged in the basement for experimental purposes, and will be used for determining B.H.P., I.H.P., coal and petrol consumption, etc.

TEXT BOOK.—Duncan's Steam and other Engines. 5s.

ADVANCED CLASSES IN MECHANICAL ENGINEERING.

These Classes cover most of the work required for the Stage III. Examination of the Board of Education, the Honours Examinations of the City and Guilds Institute in Mechanical Engineering, the London B.Sc. (Engineering) and the Institute of Civil Engineers' Examination.

Students who have passed through the work of the Third, Fourth, and Fifth Year Courses satisfactorily are allowed to choose a programme to suit their particular circumstances.

PRACTICAL MATHEMATICS.

Stage III.

No student is admitted to this class who does not shew a sufficient knowledge of the work done in Stage II.

Syllabus.

The use of approximate formulæ and their derivation.

Partial Fractions. Imaginary and Complex Quantities.

Knowledge of limits in such cases as $\frac{\sin x}{x}$

Determination of values of sin x, cos x, e^x, and log x, using series.

More advanced Trigonometry, including the addition formulæ and the solution of triangles.

Theorems relating to areas and volumes of solids and surfaces of revolution.

Graphic methods of finding centre of gravity and moments of inertia.

Plotting of functions $y = a \sin (cx+d)$, etc.

Harmonic motion, Fourier's Series. Harmonic analysis. Vector Algebra. Scalar and Vector products.

Further work in differentiation and integration.

Simple differential equations.

Problems in differential and integral calculus and their application to Engineering.

TEXT BOOK.—A Course in Practical Mathematics, F. M. Saxilby (Longman's), 6/6.

MECHANICS AND MECHANICAL ENGINEERING.

Stage II.

This subject is divided into two sections, viz.: "Strength of Materials" and "Machines and Hydraulics."

Students may take either section, or both, during the same session.

Graphic Statics—

Including the determination of centres of gravity and moments of inertia by graphic methods.

Strength of Materials—

Tension, Torsion, Compression, Bending, and Shearing considered in detail. Application of principles to the design of riveted joints, beams and girders, etc.

Strength of thin shells and of thick cylinders as used for hydraulic presses.

Behaviour of materials when tested. Fatigue, elasticity and elastic limits. Deflection of beams.

Reinforced concrete. Struts and pillars. Arches. Strength and stiffness of springs.

Students are recommended to take the Advanced Laboratory Course in connection with this class.

Machines—

Problems on velocity, acceleration and force.

Mechanisms, Belts, Ropes, Chains, Links, Wheel Trains, etc.

Friction of Screws, Rollers and Belts.

Dynamics of rotating bodies and application to fly wheels, governors, and the balancing of engines.

Effect of a blow, reciprocating motion and vibration.

Harmonic motion and torsional rigidity.

Hydraulics—

Flow of water over notches and in channels.

Effects of friction in pipes, etc.

Hydraulic machinery, lifts, presses, pumps, turbines, jacks, etc.

TEXT BOOK.—D. A. Low's Applied Mechanics (Longman's), 7/6.

Students are recommended to take the Advanced Engineering Laboratory Course in connection with this class.

MECHANICS AND MECHANICAL ENGINEERING.

Stage III.

Graphic Statics—

Resultant of forces not in one plane. Force diagrams for roof trusses and built-up girders.

Strength of Materials—

Testing of materials, influence of shape of test pieces. Impact and other tests.

Beams and Girders—

Relation between bending movement, curvature, slope and deflection. Continuous girders. Riveted joints.

Struts—

The Euler, Rankin and Gordon formulæ. Eccentric loading.

Retaining Walls—

Reinforced concrete beams and struts. Masonry and metal arches.

ENGINEERING LABORATORY.

The Engineering Laboratory, which is well equipped for experimental work in Mechanics and Engine Testing, is open on Monday, Wednesday and Friday mornings from 9 to 12 and Wednesday, Thursday and Friday evening from 7 to 9.30. The work done may be selected from the following:—

Testing of materials in tension, compression, torsion, shear and bending.

Deflection of beams fixed at the ends. Continuous beams.

Determination of B.H.P., I.H.P., water and fuel consumption, etc., of steam and petrol engines.

Calorific value of solid and liquid fuels.

Dryness, fraction and quality of steam.

Balancing of rotating masses and other dynamical experiments.
Flow of water over weirs and through orifices.
Friction of water in pipes, etc.
No student is admitted to this course who does not show sufficient theoretical knowledge of the subject to benefit by the experiments.

HEAT ENGINES.

Stage II.

Students in these classes should have done, or be doing, Practical Mathematics at least equal to the level taken in the Stage II Class of that subject.

Properties of Steam and Gases—
The application of thermo-dynamics to Heat Engines. Calculation of mean effective pressure in Single, Compound, Triple and Quadruple Expansion Engines.
Determination of dimensions for cylinders. Limits of useful expansion. Cylinder condensation.

Engine Mechanism—Slide valve diagrams. Effect of lap, lead, advance, etc., link motions. Radial gears.
Governors and fly wheels. Variation of effort on crank. The balancing of simple engines.

Design—Types of steam engines and Internal Combustion Engines. Arrangement and construction of details.
Construction and action of turbines.
Types of boilers, their construction and details of fittings.
Combustion and calorific value of fuels.
The course is illustrated by lantern slides of modern engines, details, etc.

Stage III.

The Properties of Steam and Gases in general—Including more advanced examination of engine cycles. The behaviour of steam in the cylinder and gases in internal combustion engine.
Entropy and entropy diagrams.

Engine Mechanisms—Valve motions, problems on valve and valve gear design. The balancing of engines. Curve of crank effort. Acceleration and inertia effects. Governor problems. Balancing by arrangement of cylinders.
Indicators and indicator diagrams. Compound engine diagrams and their relation.
Engine and boiler testing. Balance sheet for engines.

Design—High speed engines. Corliss and trip gears. Locomotives. Turbines. Gas, Oil engines and Producers.
Lancashire, vertical, tubular, marine and other boilers. Boiler fittings.
This course is illustrated by a specially prepared set of lantern slides.

MACHINE CONSTRUCTION AND DRAWING.

Stage III.

The course of study arranged in this stage comprises a series of examples of the application of the ordinary formulæ in use for the proportioning of machine details—strength and proportion of riveted structures—shafting under tortional and bending stresses—belting and other methods of transferring energy.
Graphic methods of dealing with the mechanism of the steam engine. The design of cycloidal and involute teeth. Physical properties of materials. Special mechanism adopted in the construction of machine tools—cams— quick returns in cutting tools, etc.
Students are assumed to be conversant with the geometrical problems involved in machine drawing, as in this stage more than ordinary knowledge of projection is insisted on.

METALLURGICAL CHEMISTRY.

This class has been arranged specially to supply advanced Engineering Students with some knowledge of those parts of Chemistry and Metallurgy which are of most importance in Engineering.
Each evening's work consists of one hour's lecture, and one and a half hours in the Laboratory.

Chemistry—Objects of Chemistry. Chemical action. Elements. Compounds. Symbols, Formulæ. Equations, etc.

The laws of chemical combination.

Commonly occurring elements, especially those used in engineering, such as carbon, sulphur, phosphorus and silicon; their chief properties and uses.

Acids, Gases, Salts, etc., used in engineering chemistry.

Air and Combustion, rusting and oxidation in general, and means of prevention.

Metallurgy—The scope of Metallurgy, physical properties of metals. Metallurgical terms and processes.

Furnace types. Refractory materials.

Fuel—Calorific power and intensity: Wood, coal, coke, oil, gaseous flues, etc.

Producers and producer gas, etc. Regenerative systems.

Blast furnace waste gases, their cleaning, composition and general uses.

Coke Ovens and their bye-products.

Pyrometry.

Water—Its composition, usual impurities, hardness, scale in boilers. Softening processes and their objects. Causes of pitting and erosion in boilers.

Iron—The ores of iron. Preparation of ores and extraction of the metal. The Blast furnace, its structure and working. Composition and grading of pig irons. Influence of impurities, i.e., carbon, silicon, manganese, sulphur, phosphorous, etc. Cast and malleable iron. Wrought iron, its preparation, uses and properties.

Steel—Definitions and classification of steel. Ordinary processes for making steel. Composition and mechanical properties of typical varieties. Hardening, tempering, annealing, etc.

Non-ferrous Metals used in the Foundry—Copper, zinc, lead, tin, antimony, nickel, cobalt, aluminum, manganese, etc. Their ores, extraction, properties and uses.

Common Alloys—Composition of brasses, bronzes, gunmetal, bearing metals, etc. Their relation between composition and properties.

SECTION 2: ACCRINGTON.

THE EVENING CONTINUATION CLASSES.

The Education Committee of the Borough have established Evening Classes at six centres in the Day School buildings. The courses are for two years. There are also preparatory courses for those who are not qualified to go on with the Technical, Commercial, or Domestic Courses.

The classes are held from 7 to 9 in the evenings three times a week.

Those who have taken these evening classes are prepared to go on to the classes at the Municipal Technical School.

MUNICIPAL TECHNICAL SCHOOL.

The objects of the School are to give, by carefully arranged courses of Study, a thoroughly practical knowledge of Drawing, Painting, Design, and Modelling, especially in their application to the professions and trades of the district, so as to furnish useful training to those who intend to work as Architects, Designers, and Craftsmen.

In addition to this, it is the object of the School to assist those who desire to make Art a part of their general education; and also to give facilities to those wishing to follow Art as a profession, or to include it in their general qualifications as Teachers in Primary, Secondary, or Art Schools.

SUBJECTS OF ART INSTRUCTION.

ELEMENTARY.

Freehand, Model, Geometry, Perspective, Light and Shade, Design, and Modelling.

Industrial Art Course, in connection with the Examination Scheme of the Lancashire and Cheshire Institutes.

ADVANCED.

Design.—Textiles, Wall-papers, Stencils, Furniture, Lithography, Metal Work, Wood-carving, Plaster Work, Gesso, Embroidery, Printed Cottons, etc.

Life Class.—Drawing, Painting, Figure Composition.

Modelling.—Ornament, Figure, Designing in Relief.

Architecture.—Design, Decoration, History and Development, Building Construction.

Painting.—Interiors, Flowers, Still Life.

Textile Design Class.—A special course of instruction is arranged for students attending the Weaving Classes.

Painting and Decorating.—Special Class for drawing examples of Historic Ornament. Setting out walls and ceilings. Designing for stencils.

Advanced students take Decorative Painting with the pencil as distinct from Stencilling.

Craft Work.—Pottery, Tiles, Metal Work, Mosaic, Gesso Work, Embroidery, Weaving, Practical Painting, Decorating and Sign-writing, Jeweller's Work.

Systematic Courses.—Extending over 4 or 5 years are given in Applied Art, Architecture. Painting and Decorating, Sculpture, Plastering, Cabinet making, Photography.

SCIENCE AND TECHNICAL COURSES.

These are given during five years in the evenings in the following subjects:—

Applied Mechanics, Building Construction, Cotton Spinning, Cotton Weaving, Coal Mining and Surveying, English, Experimental Physics and Mechanics, Heat Engines, Human Physiology, Hygiene, Inorganic Chemistry, Machine Construction, Magnetism and Electricity, Organic Chemistry, Plane and Solid Geometry, Practical Drawing, Practical Mathematics, Practical Mechanics, Plumbing, Pure Mathematics.

Four or five year courses are given in: Mechanical Engineering, Electrical Engineering, Chemical Industries, Building Trades, Plumbing Trades, Textile Trades (Cotton Spinning and Weaving), Coal Mining.

There are also courses in Domestic subjects, Commercial subjects and Natural Sciences.

SECTION 3: WIDNES.

The educational scheme for the borough includes Evening Continuation Classes and courses at the Municipal Technical School. The Education Committee makes the following statements in its announcement:

In order to gain any sound knowledge of a Technological subject, or of any special branch of Science, it is necessary that other allied subjects be also studied.

In all cases a preliminary knowledge of Elementary Mathematics, Geometry, General Science, and English is essential before attempting any one of the special branches. Past experience has shewn that a disregard of this preliminary knowledge has been the cause of much disappointment to both teacher and pupil; consequently, in order that all pupils attending these classes may have the opportunity of obtaining the maximum benefit in the limited time available, the scheme of work at the Technical School and Continuation Schools has been carefully co-ordinated and systematised.

Furthermore, Courses of Study, extending over 3, 4 or 5 years, and bearing upon the trades and industries of the Borough, have been organised. Students will be required to take the Course most suitable to their trade or profession, and to their standard of previous attainment; and also to take three classes where provided in the selected course. Only in very exceptional cases will they be allowed to take individual subjects, by permission of the Principal. As a general rule, students will be expected to have passed through the Evening Continuation School before entering the Technical School, or to show evidence of a standard of instruction equivalent to that of the Preliminary Technical Certificate of the Union of Lancashire and Cheshire Institutes.

Students who have passed the examination at the end of the First Year's Course may proceed to the Second Year's Course in the department which they select. Teachers hold an entrance examination in their respective classes at the commencement of the Session, and stude nts obviously unfitted to benefit by the classes they have chosen are transferred to a more suitable Course.

Facilities are given, in most of the Courses, for practical work, but attendance at the corresponding Theoretical Classes is compulsory.

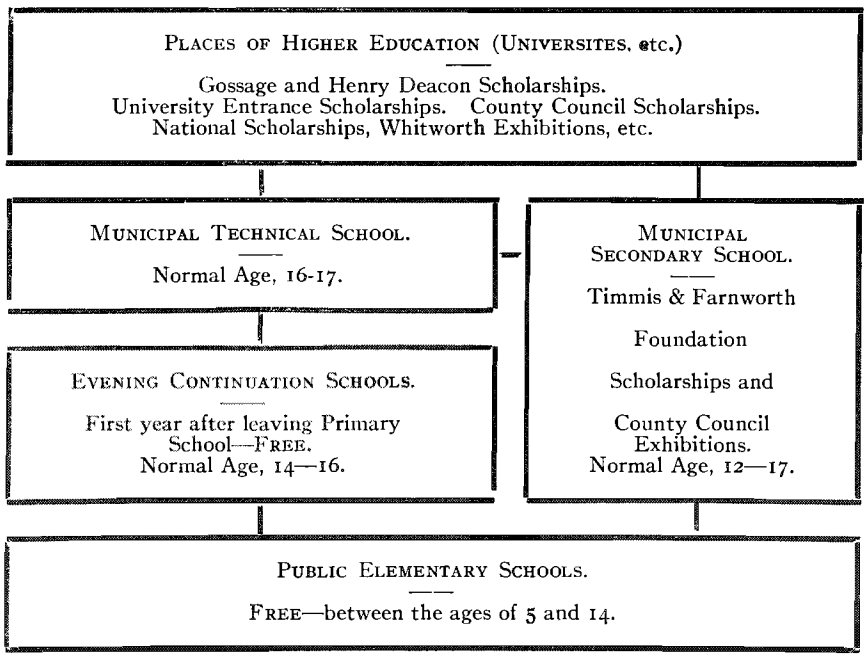
Miscellaneous Classes have been established in Ambulance (Men and Women), Cookery, Dressmaking, Elocution and Voice Production, English, Esperanto, French, Horticulture, Pure Mathematics, Millinery, Needlework, Principles of Teaching, Physiology, Singing (Elementary and Advanced), Theory of Music, Welsh, to meet the needs of adult Students who desire to take up the study of some subject of a recreative character, or to extend their general knowledge. Students of full age, who do not hold Works Vouchers, may attend one or more of these Classes at their option.

While no Classes have been specially arranged to suit Civil Service Examinations, it will be found that many of the Classes will form a very suitable preparation for the same. The Principal will be happy to give any advice to any students desiring to enter the Civil Service.

The following diagram illustrates the provision made in Widnes for free and assisted Education at Day Schools and Evening Schools up to the age of 19.

The facilities offered make it possible for a boy or girl leaving the Elementary School at 13 to proceed to the Secondary School and thence to the University at the age of 18 or 19.

Those unable to attend the Secondary School may, after passing two years in the Evening Continuation Schools, proceed to the Technical School for 4 years and thence to the University, Manchester School of Technology, Royal College of Science, or other place of Higher Technical Education.



When a subject is taught in two or more stages, students are require to have worked successfully through the lower stage before entering a class in a higher stage of the same subject.

As a general rule, *industrial students* will be required to take a course of subjects, and attend 3 evenings per week, and will not be allowed to join for one subject only.

MUNICIPAL TECHNICAL SCHOOL.

I.—COMMERCIAL COURSE.

Accountancy and Banking, Arithmetic, Commercial Book-keeping, Commercial Correspondence, Commercial Law, Economics, English (Commercial), French, Geography, Shorthand, Typewriting,

II.—CHEMICAL INDUSTRIES COURSE.

Alkali Manufacture, Chemistry, Physics, Practical Mathematics, Metallurgy, Laboratory Curator.

III.—MECHANICAL ENGINEERING COURSE.

Applied Mechanics, Geometry and Hand-sketching, Heat Engines, Machine Construction, Practical Mathematics, Magnetism and Electricity.

IV.—METAL PLATE COURSE.

Geometry, Metal Plate Work.

V.—FOR ARCHITECTS, BUILDERS, CARPENTERS AND JOINERS.

Building Construction, Carpentry and Joinery, Practical Geometry, Practical Mathematics, Staircasing and Handrailing, Builders' Quantities, Graphic Statics, Land Surveying.

VI.—FOR BRICKLAYERS AND MASONS.

Brickwork and Masonry, Building Construction.

VII.—FOR PAINTERS AND DECORATORS.

Painting and Decorating, Drawing and Design.

VIII.—ART CLASSES.

Antique, Freehand, Geometrical, Light and Shade, Model and Perspective Drawing, Plant Form and Design.

MISCELLANEOUS CLASSES.

Ambulance, Cookery, Dressmaking, Elocution, English, Esperanto, French, Horticulture, Mathematics (pure), Millinery, Needlework (Art), Principles of Teaching, Physiology, Singing, Theory of Music, Welsh.

EMPLOYMENT REGISTER.

The Committee do not undertake to find employment for students, but many firms make enquiries at the School when in need of employees. Students desiring employment or advancement should therefore see the Principal and leave with him particulars of their qualifications, etc. He will then be pleased to inform them of any suitable vacancy which may come to his knowledge.

PRIZES AND REWARDS FOR STUDENTS.

As it is desirable that prizes shall take the form most beneficial to the students, those who obtain them have the option of choosing books on Scientific, Art, Technological, or other subjects approved by the Principal, or a part or whole of the net value may be taken in instruments or tools, which will be directly useful to the winners in their subsequent studies.

CHAPTER XI: DRAWING, DESIGN AND ART.

SECTION 1: ROYAL COLLEGE OF ART, SOUTH KENSINGTON, LONDON.

This institution, founded in 1837 with the definite purpose of encouraging the study of art in relation to industry and manufactures, is primarily intended for the Training of Art Masters and Mistresses for the United Kingdom and for the instruction of students selected by competition in the Art examinations of the Board of Education. Other students are admitted when there is room for them on payment of fees. There is no age limit for students. Candidates upon admission are placed in the upper or lower division of the school according to their proficiency.

Students go under two categories: (a) those who are passing through the course of teacher-training with a view to obtaining the "Full Associateship," and (b) those who are specializing in one or the other of the four schools of the college with a view to obtaining a "Schools Associateship."

These four "schools," or departments are as follows:— (1) Architecture; (2) Ornament and Design; (3) Decorative Painting: (4) Sculpture and Modelling. The instruction is so arranged that the students may pass through the courses in all these four schools or any one or more of them. There are also "craft classes" for students of design.

Each student on entering the College takes a preliminary course in Architecture, unless already qualified in that subject, with a view to impressing upon him the unity of the arts in their decorative aspect. The rest of the period of study follows one or more alternative courses. Students intending to become teachers take a full course covering the work of all four schools; and students such as National Scholars, for whom a shorter and more specialized course is suitable, spend the whole of their time, after the introductory term, in one department.

Full Associateship.

This entitles to the use of the initials "A.R.C.A (London)" and is granted to students who have studied in the College for at least six terms, spending at least one term in each "School" and not less than four terms in the upper division of one or more schools of the college; or who have obtained a first-class certificate in the upper division of one of the schools and a first-class in the lower work, or a second class in the upper division of each of the four schools, or who have executed a composition for a given decorative subject to the satisfaction of the "official visitors."

Candidates for Full Associateship (other than holders of Royal Exhibitions, National Scholarships, Free Studentships, and Special Studentships, who are

admitted without being required to submit works or pass entrance tests) must submit a folio of drawings in architecture, sculpture, painting and ornamental design, the latter including a sheet of letters in good Roman capitals. If these drawings are accepted, candidates must pass test examinations in three out of four subjects: (a) Architectural drawing— a small object selected from the museum, 12 hours allowed; (b) Sculpture—a model in clay of the mouth of Michael Angelo's "David," 6 hours; (c) Painting—drawing in charcoal—from life, of the head, hand and foot, light and shade being indicated, 9 hours; (d) Ornament and design—drawing from memory of piece of foliage such as oak, ash or lime.

Schools Associateship.

This is granted to students who spend four terms in the College, one being in the School of Architecture and at least three terms in the upper division of the school in which the student specializes; or who obtain a certificate in Architecture and the school certificate in the upper division of the school in which they specialize; or who have executed a composition for a given decorative subject to the satisfaction of the visitors.

Candidates for Schools Fellowships must submit works as follows:—(*a*) For the School of Architecture:—a measured study in pencil of an ancient building to scale: also mouldings full size; also some ornament with the perspective sketch of the same. (*b*) For the School of Ornament and Design:—six drawings from nature or architecture, of which two must be careful pencil drawings of flowers and foliage; also a sheet of lettering. (*c*) For the School of Decorative Painting:—drawing in charcoal of antique figure, broad masses of shade only to be indicated; an anatomical study in charcoal of the same figure about one-third life dimensions; life-sized drawing in charcoal from life of the head and arm, broad masses of shade only to be indicated. (*d*) School of Sculpture and Modelling:—drawing from antique, from life, and anatomical rendering in pencil. Examinations or tests of candidates follow these lines.

Craft Classes.

Students of the Upper Division are selected for instruction in one or more of the following subjects or of such others as are from time to time included in the work of the College:—Etching and Engraving, Stained Glass, Tile Painting and Pottery, Writing and Illuminating, Tapestry Weaving and Embroidery, Stone and Marble Carving, Furniture Decoration, Wood Carving and Gesso work, Metal work and Enamelling.

The primary object of the Craft Classes is to afford students an opportunity of becoming practically acquainted with the capabilities and limitations of the materials in which their designs would be carried out. Before entering any of these classes, students must either be students in the related School of the College, or have already passed through that school.

In the School of Design and Crafts, practical workmanship in different classes is taken concurrently with the general drawing work of the studio, and

every advanced student of design will be expected to make himself proficient in the technique of one craft.

Craft Classes are already established in the subjects named above. All advanced students of Design are expected to specialize their studies with a view to perfecting themselves in one branch of art and coming into touch with special forms of industry. With that object they may be required to attend the demonstrations of the Craft Classes, and to engage in practical work of a certain number of subjects. Such special knowledge will be equally valuable to the teacher and the designer. Every student of design is required to make series of careful studies in the Museums.

The following subdivisions are suggested, but there may be some interchange of studies:—

I. Decoration, stained glass, mosaic, tapestry, etc., involving figure composition.
II. Cabinet work, house decoration, pattern painting, stencils.
III. Pottery and porcelain design, majolica, etc.
IV. (*a*) Printed stuffs, wall papers, etc.; (*b*) textiles, embroidery, lace, carpets and damasks.
V. Gold and silversmith's work, jewellery, enamelling, etc.
VI. Modelled and carved ornament, in stone, wood and plaster, Gesso work and gilding.
VII. The book and its decoration, illustrations, borders, type, initials, title pages; illumination and lettering, wood engraving, photographic reproduction, lithography, etching; bookbinding, cloth covers.
VIII. Metal work in wrought and cast iron, lead, brass, etc.

As far as possible students of the 5th year are afforded facilities for getting into touch with manufacturers.

Etching and Engraving Course.—Students in this class are required to work practically at one or more of the following methods of engraving, viz. Etching, Aquatint engraving, Line engraving, Mezzotint engraving, Steel-facing and plate printing. Tools and materials are provided.

Stained Glass Course.—The students being already trained draughtsmen and painters, the teaching is mainly directed towards the acquirement of a knowledge of the craft, and especially of craft limitations as affecting design and execution. The actual technique of painting and lead-working are therefore taught in the ordinary class lessons, and the direction and application of them in the special weekly lecture or demonstration.

Pottery Course.—The object of this class is to illustrate in a simple and inexpensive manner principles and facts relating to the making and decorating of Pottery—enabling students to design, make shapes, and decorate them, with a knowledge of the requirements of this important industry.

Other Courses.—There are also courses in writing and illuminating, embroidery and tapestry weaving, marble and stone carving, furniture decoration, wood carving and Gesso work; metal work and enamelling.

The number of students in the College at any one time varies from 180 to 200, in addition to the few who attend as external students for the etching and craft classes only. About half of them come from London, or from the urban areas of three large industrial counties—Yorkshire, Lancashire and Stafford-

shire. The remainder come in small numbers from other counties, and occasionally from Scotland and Ireland and other parts of the British Dominions. From time to time a foreign student is admitted. The age range of the students is a wide one, extending from 15 to over 40.

The total cost of the establishment is about £13,320, and the fees received amount to about £800.

Recommendations of Departmental Committee.

An investigation was made into the work of the Royal College by a Departmental Committee appointed by the Board of Education at London, and their recommendations in 1911 were:—

(1). That the training of designers for the manufacturing industries should be specialized, and this work undertaken by provincial colleges of art, each devoting special attention to the needs of the dominant local industry, associating representative manufacturers and artisans belonging to such industry.

(2). That these provincial colleges should be conducted as departments of colleges which deal with the practical and scientific as well as the artistic sides of such industries.

(3). That when such system of provincial colleges is established, the relation of the Royal College of Art to them should be that of a school of advanced studies only, providing courses of one or two years' duration adapted to the individual needs of its scholars and in close relation to the Victoria and Albert Museum.

(4). That the training of teachers of art, wherever undertaken, should be conducted under conditions involving a higher standard of general or technical as distinct from artistic attainments, and including an adequate pedagogic preparation.

(5). That Universisites should be encouraged to provide suitable degree courses for intending artists, architects, and teachers of art.

Exhibition and Competition for Designers.

The Committee anticipated that the recommended changes would rather add to than detract from the importance of the Royal College, because as a post-graduate college in close touch with art schools throughout the country it would have for the first time a well-defined position as the culminating point of the whole system of industrial art training in England.

There is annually held at the Royal College of Art in London a competitive exhibition from art schools throughout Britain, which gives evidence of constant and substantial progress in all lines of industrial art. Some of the provincial schools of art are doing remarkably well, and have become so strong that it has been proposed to discontinue the exhibition from the provincial schools, and to specialize on the work of the Royal College itself.

It appears from the report of the Departmental Committee that there is keen competition for designers among manufacturers of the innumerable articles of personal wear and domestic plenishing which constitute the staple of that section of British trade which is in any way dependent upon art, and also among the large furnishing and decorating houses. Designers who are thoroughly competent from the trade point of view can command liberal salaries. At present the needs of the industries are met in various ways; many designs are supplied by architects or other artists who have turned their attention to industrial art; many are purchased, expecially in the textile centres in and about Manchester and Bradford, from French designers. Thus the Calico Printers' Association,

who spend £37,000 a year in designs, maintain 16 designers in full work in Paris as well as 38 in London. Designs prepared in England supply the Indian market; those from Paris the markets of England, Europe and America. The Wallpaper Manufacturers' Combine is said to prefer German designs for technical adaptability, and French ones for artistic skill. Some British firms which employ regular designers train them in their own drawing offices, while others find a supply in the local schools of art.

Course in Teaching.

The instruction given at the College in methods of teaching relates to the art instruction recognised by the Board of Education as given in elementary schools, also Schools of Art for advanced and Honors Examinations, and for the National Competition. Students who enter the College with the intention of becoming teachers attend lectures given by the Principal on methods of teaching, and, as part of their training, give instruction in the College under his direction. The period of training given in the methods of teaching is spread over the whole course of a student's college career, and is intended to fit the student on leaving to become a teacher and to grapple with the various points that may arise in dealing generally with art instruction as above described.

The teaching power of each Student in Training is taken into account in awarding Travelling Scholarships and other prizes; and any Student in Training who does not show a capacity for teaching is not allowed to remain in the College as such.

The lectures treat of the following subjects:

I. The history of drawing as a means of education: the works of Rousseau, Pestalozzi, Froebel.

II. The necessity for the Art Master making himself acquainted with the system upon which pupils have been taught before entering the School of Art.

III. Review of the subjects taught in the School of Art and examined by the Board:—(*a*) Division of the teaching between lectures, class work and individual instruction. (*b*) The life class, not an end in itself; its relation to other branches of work. (*c*) The limitations of paper work and the beginning of craft work. (*d*) Craft Classes: their relation to the classes for design, the general work of the School, and to manufactures. (*e*) The mistake of neglecting general education in the Art Student.

IV. An analysis of the system of instruction in the Royal College of Art.

V. School Management:—(*a*) Furniture, fittings, &c. (*b*) Arrangement of class rooms, casts, school museum, library, photographs, &c. (*c*) The Head Master; his duties to his Committee, his staff and his students. (*d*) Necessity for the staff continuing their studies, or practising some special branch of art. (*e*) Schools of art and their influence—(1) on the locality generally; (2) on manufactures and industry. (*f*) The relations between Schools of Art, Technical Schools, and Art Classes.

VI. Foreign methods compared: Primary and Secondary Schools, and Schools of Art in France, Germany, and Austria-Hungary. The Ecole des Beaux Arts and the Ecole des Arts decoratifs et d'Art industriel, Paris, and their influence.

Awards.

The following awards are tenable at this College:—

A Royal Exhibition worth £60 a year for three years, and free admission to lectures and instruction in approved College.

A National Scholarship worth £60 a year for three years, free admission to lectures and one or more Craft Classes, and such instruction in one of the Schools of the College as may be approved for the scholar. As a student of the College a holder of either of the above may become eligible for Royal College of Art Scholarship, 30 shillings per week and free tuition.

A Free Studentship admits for two years to lectures and instruction in one of the schools of the College.

Holders of the three foregoing awards have free transportation to and from London.

Local Exhibitions, to which the Local Education Authority contributes not less than £25, and the Board of Education not more than £25.

Art Teachers selected for Special Studentships, £60 a year and free instruction in courses to which they are nominated.

Four Junior Scholarships of £15 each and free tuition for one year only, to students who show special merit in their work during the session.

A Travelling Scholarship of £50 may be awarded annually in each School of the Upper Division, to the best student who has been at least four terms in the College, has spent one term in the School of Architecture (unless previously qualified in that subject), and has been at least three terms in the Upper Division of one or more Schools.

Students in receipt of maintenance allowances, who are specialising in one or two Schools of the College, may be allowed in their last term to do their own work in afternoons either in College or outside, and to take advantage of opportunities of establishing relations with manufacturers and others engaged in practical work.

Prizes of approved books, certificates of merit and a special prize of the value of £5 may be granted to students who show conspicuous ability.

Literary Course.

All students are required to attend the lectures of the Literary Course, to write essays on various subjects connected with the lectures, and to attend the French or Italian Classes held by the Lecturer, unless they already show a competent knowledge of either of these languages.

Lectures are delivered on Crafts, with special reference to the collections in the Victoria and Albert Museum, and on Costume, Armour, etc. The general history of Art is dealt with in a four years' course of lectures.

All students are required to attend the classes held by the Lecturer for the discussion of the subject matter of the lectures and for the revision of the students' notes.

Every student of the College is expected to execute a pictorial or decorative figure composition once a month as home work; the subjects are selected from the literature of the period which is being studied in the lectures. The compositions will be hung in order of merit and criticised by the Professor of Painting and Mural Decoration.

SECTION 2: VICTORIA AND ALBERT MUSEUM.

The South Kensington Museum was opened in 1857 by Queen Victoria and the Prince Consort, to whose foresight the whole scheme was largely due. In 1897 Queen Victoria laid the foundation stone of the Victoria and Albert Museum, which was opened by King Edward in June, 1909. Grants of money are made each year from Government funds for the acquisition of objects, and many very valuable gifts and bequests have been added to the treasures of this Museum.

The Circulation Department of the Museum supplies art schools and museums throughout the United Kingdom with the finest specimens of textiles, wallpaper, jewellery, pottery, and industrial art in its various phases. The unique and ample resources of the Victoria and Albert collection are drawn upon for the supply of some 200 art schools and nearly 100 permanent museums. Where but single specimens of articles exist or the articles themselves are too precious, replicas of them are made by a staff of skilled art workers employed in connection with the Museum.

Groups of students of the Royal College of Art study at appointed times in this Museum, under the guidance of the instructor of the Division in which they are working.

CIRCULATION DIVISION OF MUSEUM.

One of the primary objects, when the South Kensington Museum was originally founded, was the assistance to be given to the various Art and Industrial centres of the country by means of loans of objects and designs. From the earliest times this object has been kept in view, and loans are now made to Museums, Exhibitions, Schools of Art, and Art Classes in England, Scotland, Ireland and Wales.

Loans to Permanent Museums and Exhibitions.

Many of the cities and towns of the country have large permanent Museums and Art Galleries, and in connection with these application is made to the Authorities of the Victoria and Albert Museum for a loan of cases of art objects, such objects to comprise those which may be of use for design purposes for the various industries carried on in these centres. Such Museums after being inspected by the Authorities receive on loan floor cases (generally 4 in number) of art objects, which objects are changed every 12 months. For temporary Exhibitions similar objects are also lent, but naturally only for a shorter period. At the present time the Board are lending to no less than 95 permanent Museums.

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Loans to Schools of Art and Art Classes.

In the Circulation Division of this Museum there have been brought together nearly 10,000 frames of reproductions of art objects, in plaster, wood, metal, etc., together with designs—originals and copies—in connection with all the branches of industrial art; they are available for loan to the various art centres.

In connection with these loans, the Art Masters themselves, some weeks previous to the opening of their respective schools, call upon the Officers in charge of the Division, and consult with them as to the class of objects which could be lent. The Art Masters are then enabled to choose the various framed examples for themselves, each Master selecting according to the special branches which he is proposing that his students shall study during the ensuing term. Lists having been made of such selections, these are sent to the Schools of Art in the various parts of the country early in September and remain on loan for 3, 6 or 9 months, when the whole of them are returned to South Kensington.

There are also available for the use of the Masters, various series of lantern slides suitable for lecturing upon the industrial arts, together with a Library of advanced Art books.

Money Grant in Aid.

Parliament in 1881 voted a sum of £1,500 to be expended by the authorities of the Victoria and Albert Museum towards the purchase of reproductions, in plaster or by electrotype or other process, of objects illustrating architectural, ornamental, and other decorative Art, in sums amounting to not more than 50% of the purchase price of such objects as were approved by the authorities.

This vote is still continued annually, varying in amount from £750 to £1,500.

By this means the Committees of local Museums have been enabled to gradually build up sections of various Arts and Crafts, etc.

This system of aiding Museums by money grants has been carried on until the present time, and has been the means of encouraging the Local Museum Authorities in the improvement of and addition to their Museum of objects of Art.

SECTION 3: ART INSTRUCTION UNDER LONDON COUNTY COUNCIL.*

The scheme of work in schools under the London County Council is carefully organized with a view to giving proper instruction in art from the beginning of the subject in the Infant Departments to its development in the very specialized work of the great Art and Technical Art and Craft Schools and Colleges. Young children spend the maximum time at this subject compatible with their general education, and those showing ability receive special attention. Any child showing marked talent has its art education developed along practical

*Condensed from paper by Mr. A. C. Christie, Chief Inspector.

lines, without neglecting its general education. Children on leaving school are encouraged to attend evening classes, and through these to pass to more advanced studies, which latter must be so arranged as to co-ordinate the claims of art, commerce, manufactures, and above all, education. Such is the problem, in the solution of which the Council is constantly adapting its machinery to new circumstances.

In Elementary Schools—lower, intermediate and higher—all children spend a stated time each week in drawing, either under their ordinary teachers (who are required to have some knowledge of this subject), or under specialists giving their whole time, who take the classes in succession in a specially equipped room. In some schools a "peripatetic" art teacher takes classes of the best children on certain days, thus ensuring special teaching for those children who can profit by it.

Drawing in Infant and Elementary Schools.

The work of the infants' schools is often very bright and interesting, showing wonderful observation and imagination. As much work as possible in all classes is done from nature, simple and familiar objects being used, and drawn from sight and memory, the latter work forming an important part of practice. Drawing to scale from measured objects, geometrical drawing and elementary design are also included. In some Elementary Schools careful modelled work from plants, shells, etc., is done, of which photographs are shown, and there is also a small selection of typical sets of drawings made in connection with the wood and metal work manual training workshops of Elementary Schools.

Drawing is taught in the "special schools" for children mentally or physically defective, and is regarded as a useful subject for this type of child, much interesting and intelligent work being done. Scholarships giving free education and travelling expenses are awarded annually to crippled or deaf and dumb children, tenable at Art or Trade schools, thus enabling such children to learn a trade suited to their capacity and health.

Special scholarships are awarded by the Council to clever pupils who proceed to Art and Craft schools, and a certain number go on to Secondary Schools.

Teacher Training.

The majority of these scholarship holders intend to take up teaching. The Secondary School art course is but a poor equipment for art teaching, and many students take a further course and pass the Board of Education examinations, either from the Training College or from Evening Classes or special School of Art classes.

Special classes are held during the winter for elementary school teachers, and are attended by large numbers, women teachers especially appreciating them. These classes particularly appeal to the teachers of infants' departments and boys' and girls' schools, a careful series of studies being made from plants and real objects in colour, chalk and charcoal, and a certain amount of design and copying being taken, in addition to elementary drawing.

The permanent and "peripatetic" teachers are well fitted for their work, being Associates of the Royal College of Art, or holding the Art Master's certificate. Many are professional artists or designers who spend four or five mornings or afternoons a week teaching. Some of them have charge of evening continuation art classes.

Evening Art Classes.

These are of two kinds—the ordinary "drawing" class for children and young people in business, preparatory to more advanced work; and the evening Art Centres, at which the work is fairly advanced, many of them being largely attended. The work covers all the elementary School of Art subjects, with a few craft subjects such as embroidery or wood-carving, and the object is to provide for students between the age of 14 and the time of their taking up some definite line of work in one of the Evening Art or Technical Schools. They are held in Elementary Schools, and thus form a link with the Day School, making it easier to draft the children into them. Once they have acquired the habit of evening study, they go on to the Art and Craft Schools. All evening courses are closely co-ordinated, and the Art Centres and drawing classes brought into close connection with the schools to which they send their more advanced students.

Art Work in Secondary Schools.

Secondary Schools in Great Britain are not necessarily supplementary to the Elementary Schools, but rather parallel to them, only going on further and being intended for children of a better social position. They are differentiated by the fees charged. Schools are specially organized to provide commercial, technical or craft education. The art work in Secondary Schools is somewhat similar to that of Elementary Schools, but of much wider scope. A great deal of very interesting work is in progress, sometimes frankly experimental. The syllabus of all types of Secondary Schools includes drawing from plants, from nature and natural history specimens, and from all kinds of objects, in pencil, colour, chalk, and pen and ink. The boys do special exercises in drawing and geometry in connection with their wood and metal work, and the girls sometimes do embroidery from their own designs, made under the Art Master's supervision, the art class work and needlework being co-ordinated.

Drawing from prints and photographs or casts of ancient tiles, tapestries or carvings is practised; photographs of architecture and sculpture are looked at, drawn and discussed; and exercises in lettering are done from Roman and Gothic models. This work is sometimes co-ordinated with literature, selected passages being written out and decorated, but writing has not yet come under the supervision of the art teacher. Simple geometrical designs are worked out and coloured, and more elaborate designs, either conventional or with naturalistic or floral ornament derived from models in museums, are produced in considerable quantities. Original illustrations of literature lessons are attempted

and little figure sketches from life, of fellow pupils, are made in pencil or colour. In short, the child is introduced to as much Nature as may be, and encouraged to see what is interesting in ancient Art, both from the artistic and historical point of view, this part of the course being sometimes closely co-ordinated with history.

Schools with Artistic Bias.

Most schools have a properly equipped art room, in many cases excellently furnished, and containing carefully selected photographs, casts, and coloured reproductions, collections of shells, butterflies, etc., and plentiful flowers and foliage, an admirable and most stimulating environment.

In some of the boys' schools, the drawing syllabus shows a distinct technical bias, and includes architectural or machine drawing, more stress being laid on it than in schools of the commercial type. Some Secondary Schools, not of a general technical type, provide a course in some definite craft for boys who are for the most part scholarship holders from the Elementary Schools. Such schools as the one for cabinet-making give boys not only a considerable general knowledge of the craft, but also of actual practical work. Their general education is made subservient to the special subject, attaining a practical value and interest thereby that are remarkable. There is a special school on the same lines for silversmithing, and similar schools for girls prepare them for dressmaking and upholstery.

These technical schools are very interesting from the Art point of view, for here a large number of young people take a practical interest in a definite form of Art; placed at a susceptible age under well-trained teachers who are not only skilled craftsmen, but thoroughly conversant with the requirements and practices of trade, such instruction provides a very valuable preliminary education for an apprentice or learner in a workshop. Usually the student, on leaving the day school, continues his studies in one of the evening Technical Art Schools.

Art and Craft Schools.

The work of the Art and Craft Schools and Colleges is very varied. Their classes are rather sharply divided into day and evening courses, attended for the most part by different students. Although some day students stay for evening work, the great majority of evening students are employed in the crafts or arts in which they seek further instruction, and the teachers usually are also engaged in the crafts, being carefully selected men, not only competent in their crafts, but to teach design. The classrooms, equipped like workshops, are decorated with casts, photographs and other reproductions of ancient and modern work. In all craft classes the traditions of design are preserved, and students encouraged to look out the work of old masters preserved in museums, churches, etc. The Council awards prizes for the best sets of museum studies submitted, these serving as useful examples to other

students in schools or workshops. This craft or trade side of Art has claimed the very careful attention of the Council for some years, and there are evening classes in a very large number of subjects. Besides the schools devoting themselves to one branch of work, such as building, photo-engraving, and lithography, all Schools of Art have trade, technical or craft classes. Whenever any concentration of a trade in a given locality renders it possible, a school dealing with that work alone is provided.

A large number of scholarships of different values are awarded each year in the Art and Craft schools. The awards are made on actual work done during the session, in order to avoid the evil effect that preparation for a set examination would have upon vitality and individuality.

In the Schools of Art, painting and sculpture are taken by whole-time day students attending courses of several years, who are prepared for careers as painters, sculptors, decorators, teachers, book-illustrators, and the like. There are also plenty of evening classes for life drawing and modelling, and for other School of Art subjects, attended by craft students who can only spare the evenings.

A few typical Art Schools in London are briefly noted in the following pages.

CENTRAL SCHOOL OF ARTS AND CRAFTS, LONDON.

This School at Southampton Row, near the British Museum, was established in 1896 by the London County Council to provide instruction in those branches of design and manipulation which bear on the more artistic trades. The Principal is Mr. W. R. Lethaby, F.R.I.B.A., Professor of Design in the Royal College of Art.

Admission to this School is, within certain limits, only extended to those actually engaged in handicraft, and every opportunity is given to students, to specialise in relation to their own particular calling. The school is intended to supplement, rather than supersede, apprenticeship by affording to students, engaged in the typical London art industries, opportunities for design and practice in those branches of their craft which, owing to sub-division of processes of production, they are unable to learn in the workshop.

The instruction given falls into the following main groups:—

Architecture and the Building Crafts, including architectural drawing and design, lectures on history of architecture, building construction and structural mechanics. Practical courses in stone and wood carving and lettering, iron work, bronze casting, etc., are associated with this section and with the Modelling School.

Silversmiths' Work and Allied crafts, including silversmithing, large and small, goldsmiths' and jewellers' work, diamond mounting and gem setting, art metalwork, chasing, repoussé work, engraving, die-sinking, design, modelling, metal-casting, enamelling and later, electro-deposition and gem-cutting.

Day Technical School for Boys preparatory to the Silversmiths' and Allied Trades.

Book Production, including book-binding, typography, black and white illustration, writing and illumination, lithography, woodcuts and wood engraving, miniature painting, etching and mezzotint, and courses of lectures arranged with a view to bringing into closer relationship the various branches engaged in book production.

Day Technical School for Boys, preparatory to book production (Printing binding, etc.)

Cabinet Work and Furniture (third floor), including cabinet work, inlaying and marquetry, polishing, upholstery, wood carving and gilding; also design for furniture, workshop drawing, workshop arithmetic, perspective and interiors.

Metalwork for Cabinet Makers.—Facilities are given in connection with the class in *Art Metalwork* to those students who require to design and carry out handles, scutcheons, hinges, etc., for their work.

Drawing, Design and Modelling, including Life and Painting on China. This group is in close relation to all the other groups.

Needlework, including dressmaking, embroidery, etc. Tapestry and silk weaving are added if sufficient applications are received.

Stained Glass Work, Mosaic and Decorative Painting, including painting in tempera, etc.

THE ROYAL FEMALE SCHOOL OF ART.

Incorporated with the Central School of Arts and Crafts.

This school, established in connection with the Board of Education at Queen Square, Bloomsbury, in 1842, was transferred to the London County Council in 1908.

The course of study is intended to train young women who wish to obtain their livelihood in some branch of Art or Art Craft, or to become Art Teachers in Art Schools, Secondary, Elementary, or Private Schools.

Students are thoroughly prepared for the examinations of the Board of Education in May and June, for Elementary Certificate, Art Class Teachers' Certificate and Art Masters' Certificate, Examinations in Drawing, Perspective, Anatomy, Design, Painting, Drawing from the Antique and from Memory, Life, Modelling, Ornament and Figures, etc.

Two Pupil Teacherships are awarded annually, of the value of £15 and free tuition.

Free Studentships for one year are granted to all students who obtain the First Certificate, Art Masters' or Art Class Teachers' Certificate.

Students are prepared for admission to the Royal Academy Schools by careful study from the Antique and Life, and for the Entrance Examinations of the Royal College of Art, South Kensington.

Day classes in Arts and Crafts cover work in addition to the above, in Black and White and other illustration; Lithography, Writing and Illuminating; Miniature painting; Etching and Mezzotint; Carving and Gilding; Embroidery; China painting.

Visits are made to the Victoria and Albert Museum, South Kensington, under the guidance of teachers, and lectures on various subjects connected with artistic crafts are delivered during the winter months.

THE SCHOOL OF PHOTO-ENGRAVING AND PHOTOGRAPHY.

FLEET STREET, LONDON.

This School costs the London County Council nearly £3,000 a year to maintain. It is open only to those engaged in some branch of the photo-mechanical, photographic, designing, lithographic, engraving, printing and illustrating crafts. There is no provision for amateurs. It supplies cuts to the 6 Printing Schools in London, but does no commercial work, and must not even prepare plates for the County Council. It is the only School of its kind under the London County Council, but there are other similar schools at Manchester, Liverpool, Leeds and Glasgow.

The Courses of Study cover Block Proving, Elementary Photography, Photographic Copying, General Lithography, Map and Plan Drawing, Transfer Writing, Design, Lettering, Drawing, and all Photo-Mechanical Processes.

The Equipment is all first-class. The aim of the School is to acquaint students with all appliances used in good establishments, so that various machines, all arriving at the same result, may be seen in operation.

The Art section of the school should be of especial service to those artists engaged upon work for reproduction, as students in these classes have the privilege of having selected work reproduced, and every opportunity is afforded them of obtaining a knowledge of the various processes and their limitations.

Unemployed members of the craft register at the Labour Exchange and then come to this School to improve themselves, without fee, while waiting for a job.

There is a Sketch Club, the boys doing the work at home, and having it criticized once a month by some distinguished artist.

A large book of finely-executed specimens was obtained by the Commission at this School.

CAMBERWELL SCHOOL OF ARTS AND CRAFTS.

This School is carried on by the London County Council in a beautiful building erected by Mr. Passmore Edwards, and is strong in artistic work in Jewellery, Typography, Bookbinding and Illustration, Architectural Design, Modelling, etc.

Here about 600 evening students and half that number of day students are taught by experts.

Fifty printing apprentices attend for two afternoons weekly, the employers paying for their time and the School recouping their travelling expenses.

A feature of special comment by our Commission was the teaching of special drawing and design in the evening class in typography, pupils being taught to draw letters in pen and ink and arrange them in tasteful orders, and also to design simple ornaments. This work has great effect in giving printers ability to set "display "type to advantage.

SECTION 4: PROVINCIAL SCHOOLS OF ART.

The work of students of Provincial Art Schools goes to London for the National Competition. The Headmaster is supposed to send nothing up for competition but what he considers work of excellence. At one time everything done was sent up, but now all preparatory work is excluded and only specially picked work is allowed to go.

The prizes go to individuals, the institution not getting the credit; but the awards substantially influence the grant from the Government. In a measure the variableness of the amount depends on the competition. A Government Inspector resides in the district and may visit the Provincial School any day in the year and make inspection. There is also a rather serious inspection triennially when half a dozen Government officials go down for a few days and see the actual work going on in the schools. Formerly the grants were paid on the basis of what the pupils did under examination. Now block grants are paid on the general character of the work of the School.

The work of Schools of Art, in the opinion of Mr. Haywood Rider of Leeds, has undergone an enormous change, mainly in making the work more practical—what is called Craft Work. These schools are just beginning to make themselves what they were really intended to be when started 60 or 70 years ago. Formerly everything was done on paper, and the Government seemed to think the work would find its way from the schools into the industries through that channel. It did not do so. Work today must be actually practical, and if such work is not taught from the beginning, the student will not attend. There is so much competition that if not shown that his trade will be influenced he will take no interest in it.

Value of Art School to Industry.

Schools of Art are now recognized on every hand as a very important item on the industrial side, and their use is recognized by everybody as helpful in every way to the general public and manufacturers; this Mr. Rider could observe was increasing every day.

The substance of further information obtained by "conversation" with Mr. Rider is as follows:—

There is no line of demarcation between students who come for efficiency in the fine arts, such as painting and sculpture, and those who come for application of beauty to crafts. The number of students in fine arts is gradually decreasing; and because the practical spirit is in the air, the fine art type of student does not exist today as he did in large numbers 10 or 15 years ago.

The authorities in charge of these Art Schools feel that they are chiefly responsible for the development and maintenance of the esthetic sense in their communities. There must be some responsible person to see to questions of taste and good design, as these cannot be got in many cases from men of general training. The question of taste ought to rule very largely in all Art work in a new country like Canada, which it will affect more than it would an old country like England, which, because of its traditions, has to be always looking back and not forward. Those who are responsible for Canadian Art must be very keen in watching for the development of taste.

Mr. Rider thought there was not enough dwelling on the past in order to maintain a high standard of taste. We must go to the past and dig up the best and make use of it. That is so on all hands. On the question of taste it would be better for Canadians to keep their money in their pockets than to encourage any form of art that would lead to anything that was not really sound. He did not know whether the Dominion would get a lot of art that it would be better without—very vicious and very nasty—or whether they would get something worth having to put into the Canadian industries. This was really the most important aspect of the whole problem. Better shut out art altogether than give way in the matter of taste. "Better keep your money in your pockets than spend it on bad art; that is all devilish".

(1) INDUSTRIAL ART IN LEEDS.

The entire scheme of art instruction in Leeds is logically arranged, from primary to professional work, and is very strong throughout in insistence on fundamental principles and sensible practice; close relation to industries; correlation of exercises, material and methods towards industrial utility combined with beauty. Manual training, Botany and Nature Study are utilized for and permeated with instruction in the principles of Art. The teachers have evidently ability as well as enthusiasm, while the Principal of the Central School of Art, Mr. Haywood Rider, A.R.C.A. (London), has a merited reputation for exceptional strength of character and tenacity of purpose.

Great importance is attached to the course of instruction in the Preparatory and Branch Art Schools. In the former (held three evenings weekly) the study is based on examples having vitality and interest, so as to stimulate and encourage beginners to further progress. These courses lead to more advanced instruction in Art and in the allied crafts as given in the Central School of Art. Students are not allowed to produce works for the adornment of their homes or the delectation of their friends. They are expected to follow a course of serious study which will serve as the ground-work for their future advancement in Art and its applications to industry.

The connection of the art work in Branch Schools with that of the Central School of Art is aided by occasional special exhibitions of advanced art or craft work in the latter, and by lectures and demonstrations by the Principal and teachers of the Central School which students in Branch Schools are allowed to attend.

Examples of advanced work done by pupils in the Central School are loaned to Branch Schools so that high ideals and a high standard of accomplishment may be constantly before the students. By bringing out clearly the connection between the Branch and Central Schools it is hoped that students may realize and appreciate the possibilities of advancement in Art Work offered to them, and that by thus securing definition of aim and continuity of purpose distinct benefit may accrue both to the individual and to the city.

Central School of Art (Leeds).

This school, devoted to the training for art application to industries, plans in every possible way that all study shall lead to some useful and practical end. In order to accomplish this, every facility is provided, so that side by side there shall be not only study in Principles, Draughtsmanship and Design, but that these shall be applied in a practical way in the Craft Studios of the School to the various Art Handicrafts and Industrial Arts.

Students are desired if possible to take up some branch of Craft Work so that they may realize the application of their particular studies to practical work. The importance of a thorough understanding of both the design and craft sides cannot be too highly estimated, and it is only by a knowledge of craftsmanship that the artist can hope to design suitably to the purpose in hand.

In the case of Cabinet-making, Bookbinding, and other technical subjects, the aim is to give the student a thorough grasp of every part of his trade or craft.

The Departments are: Architectural, Design, Modelling, Life Drawing and Painting, School of Instruction in Primary Drawing, and Various Craft Schools.

The curriculum embraces all the requisite subjects in these six Departments, and in conjunction with them equipment and instruction are provided for the following Crafts:—Bookbinding, Cabinet-making, Embroidery and Lace, Enamelling and Jewellery (including Repairs), Lithography, Mural Decoration, Pottery, Painters' and Decorators' work, Metal work, Wood and Stone Carving, Illustration work (all modern processes), Wrought Iron work.

Practically no qualifications in regard to ability to actually draw are required on the admission of students. As a rule the school does not get them under 13 or 14, and nowadays people can draw passably the preparatory things. Students aged 17 or 18 who do not have that ability are admitted. There is no entrance test by examination; students are on trial for three months, and if they show no artistic ability they are then turned away.

Night students pay 7s. 6d. a term for three terms a year. In some instances fees are paid by employers, who will act generously if they see that the school can help their people practically; at present about 36 pupils are having their fees paid.

Instructors, Craft-work, Exhibitions, etc.

The instructors are successful craftsmen who have had teaching experience. Mr. Rider considers them of little use if they are simply craftsmen. Their

teaching power is helped by the experience they gain at the school, for as the students do not require much discipline, and their general art training is sufficiently advanced, they only need the technique to be shown them. A technical man always works alongside the design master and the general masters. The Comission found that the teacher-in-training in iron work had been awarded a travelling scholarship by the Leeds Committee, after he had won a prize in London, and had thus been enabled to go to Spain, where there is a great deal of beautiful iron work *in situ*.

In the jewellery department young girls, just emerging from the elementary schools, were doing fine work from their own designs.

The printing department is well equipped, having 200 point-type faces, and 2 tons of lead altogether, all this being on loan from Haddon & Co., type founders. Lectures are given to 300 printers in the Assembly Hall.

Art pupils submit designs to employers, and profit financially by exhibitions. Clay-modelling pupils have to copy a cast, and in a specified time make a cast from it for educational purposes. The various departments design Christmas cards, which are printed and sent out to people in the district likely to be interested in the school and to help it.

The support of the School of Art began with the art-loving people, backed by the Government, but now the municipality are responsible in every way, and they are very steady in support, sympathy and interest; yet in actually carrying out much of the detail work there is always a certain section of art-loving people who do a big share.

Mr. Rider, referring to the National Exhibitions, said he did not think the winning of scholarships had any influence on the management to exclude students other than those specially bright.

The lithographic has been developed a good deal in Leeds; the standard has been raised by the Art School. The Jewellery department of the school is very strong; so with bookbinding. The Art School authorities have many talks on the question of designing furniture on simple and artistic lines for workmen's homes, showing how it can be done cheaply and yet tastefully.

TRAINING OF TEACHERS, RESEARCH, ETC.

Special courses, running two hours twice a week for two years, are given to teachers who are to take art classes in the Elementary Schools of Leeds. The teachers pay fees, and appreciate it better, there being twice as many applications as can be taken, and a better quality of work done. The better the teacher is qualified, the better chance he has of work. In exceptional cases an increase of £5 or £10 is given for all-round ability. One teacher from each school is selected, and thus the influence is spread to all. A teacher taking an Art Course at this school would be the leading one in a conference on Drawing, and thus the influence of the school is reflected all through the city.

The Leeds School of Art cost in 1911, £4,825, of which £2,737 was for salaries. Against this the Government grant was £1,680, local rates £1,713, and fees from pupils £1,295. Of the latter sum, students themselves paid only

£478, the Leeds Education Committee gave (in scholarships) £795; the balance came from other public bodies.

There is a growing use of this school as a research laboratory by manufacturers for fine designs for things they are making. Only the day previous to the Commission's visit Mr. Rider had a designer in a firm of textile printers come for an assistant, and it is a regular thing to receive applications for either designers or workpeople.

Advisory Committees in every trade are in close touch with the school and behind the regular departments; they are made up of employers, foremen and actual workers in shops, each representative being selected by his colleagues. These Committees meet with the Board as often as required.

This School of Art has assisted in the development of existing industries, and both employers and workpeople show by backing it up that it is a great help to them.

West Leeds High School.

The art work in this school is conducted by Mr. F. G. Boase, A.R.C.A., who co-operates with Mr. Osborne, the Manual Training teacher, and together they produce very fine results, all the wood work being saturated with artistic ideas.

Mr. Boase said he never had any trouble in handling the pupils, although he gets 400 every week, because they find the work so interesting. He has never yet had to turn one out of school for inattention or bad conduct.

Mr. Boase keeps constantly on exhibition on the wall of the art room fine specimens of work by the Old Masters, and gets the boys to bring prints. Pupils' work is also selected, and the best specimens are shown on the walls. He also arranges for the art critic of the "Yorkshire Post" to conduct the students through the art galleries and talk to them about the pictures, and when the boys return they give a report on what they have seen. Art compositions by the boys are put into a MS. magazine conducted by them. Between 300 and 400 specimens of home work are done spontaneously, no marks being allowed for this.

This school gets 8 scholarships for the Leeds Central School of Art; then students go from there to the Royal College of Art in London. Eight former students are now employed in the arts.

Art work is related to needlework by close consultation with the teacher of that department, and Mr. Boase keeps in personal touch also with the evening school.

MANUAL TRAINING DEPARTMENTS.

Mr. Osborne uses "models" at first in order to give control of the hand, and for foundation work, but he does not insist upon absolute accuracy; to do so he says, would be to deaden feeling, and what he wants is spontaneous action. He relates the wood work to the activities of the school by making articles the school needs, and relates it to the home by allowing the children free play. He is strong on art.

Mr. Osborne appoints one boy as foreman over 6, and they do a great deal of communal work. The tools are kept in lockers, to which the boys have keys; the tools include surveying instruments, sight markers, etc. The boys were making aeroplanes at the time of our visit.

(2) MUNICIPAL SCHOOL OF ART, MANCHESTER.

The objects of this School are to give, by a system of carefully considered and varied courses of study, with due regard to the bent and capacity of individuals, a thoroughly practical knowledge of Designing, Drawing, Painting and Modelling, more especially in the various forms of their ornamental application in association with Architecture and the technical conditions of manufacture. It offers not only a useful elementary training to those without previous knowledge of Art but also a helpful system of study sufficiently complete to be valuable to both designers and craftsmen, as well as to those who desire to pursue design in its more strictly graphic and pictorial directions. A further object is to assist those who desire to make a knowledge of Art a part of their general education; also to give facilities for the training of persons who intend to adopt Art as a profession, or to include it in their qualification as teachers in public elementary or other schools.

The Courses of Instruction comprise an Elementary Course, Painting, Modelling, Figure Drawing, Painting and Composition, Architecture, Design, Classes in Art Craftsmanship, Metal work, Enamels and Jewellery, Wood Carving, Embroidery and Stained Glass. Both Day and Evening Classes are held.

Museum of Art and Handicraft.

A Museum in connection with the School, founded by a gift from the profits of the Manchester Royal Jubilee Exhibition of 1887, comprises three large rooms equipped with characteristic objects of artistic skill or handicraft, either original or in fine reproductions. This fine collection is at the service of the students and public, and forms a Library of Applied Art such as is not available to the students of other Provincial Schools. The three rooms are designated as the Textile Court, Gothic Court and Italian Court. The first contains a tapestry designed by Sir Edward Burne-Jones and executed by William Morris, a typical collection of Turner drawings, cartoons for stained glass windows, Greek vases, glass, reproductions of early work, medals, coins, etc., and other art treasures. The Italian Court contains illustrations and specimens of Italian Art; the Gothic Court, casts and reproductions of early Runic Crosses, Gothic Architecture, and similar work. There are also collections of majolica ware, pottery (ancient and modern), glass, Chinese porcelain, Japanese colour prints and bronzes and other Oriental work, as well as specimens of famous modern pottery such as Wedgwood, etc., and modern textiles.

LIBRARY LECTURES, PRIZES, ETC.

There is a reference library and reading room.

Series of free illustrated Lectures are delivered to craftsmen, teachers and others during the session. Such subjects are treated as:— Art Education in Elementary Schools and Schools of Art; its relation to general education and industries; the functions of a School of Art Museum; the art of the craftsman in various kinds of craft work; the training of the craftsman; relation of the art school to the workshop; Drawing as a means of vivid illustration, and its application by the teacher.

Design is taught in its technical applications; plants and animals are studied in their relation to design, and drawn and coloured from nature for design. There is a course in Furniture and Interior Decoration. Special courses are given on Saturday mornings to teachers in elementary schools; Marble Carving is taught to advanced students.

There are numerous prizes in all departments, and Scholarships are also awarded, one being a Travelling Scholarship. These scholarships are provided partly by private gifts, partly by the Board of Education, and partly by the Governors of the Royal Manchester Institution.

(3) ART TRAINING IN LEICESTER.

The Art Department of the Leicester Municipal Technical and Art Schools is well equipped, staffed and managed.

This school has worked for some years by teaching and lectures to raise public interest in Civic Art. Keeping in mind the recently passed Town Planning Act, it hopes through students preparing as architects and builders to develop good taste which will manifest itself in the building of chimneys, bridges, terrace houses, allotment garden houses, lamp and tramway poles, and the like. It is considered possible under the new Act to do much towards conserving desirable things and preventing undesirable planning and building. The School keeps a sharp eye on changes in the locality, and calls attention to alterations contemplated in the neighbourhood of the School in the hope of developing these, as well as the approaches and surroundings of a proposed new park pavilion, into striking and beautiful points of interest. Attention is also drawn to the increase of aggressive advertisements which have in many cases destroyed the beauty of the town, neutralizing the esthetic effects of the fine architecture, besides being poor in design and causing untidy litters. These things, the Principal points out, dull public interest in civic betterment and discount private efforts to improve the city's appearance.

The continued endeavour to focus the art work on practical issues has given additional life and value to the courses of study in each department of the School. Without losing sight of the value of preparatory, and to some extent of academical exercises, the educational opportunities afforded by processes of practical work have been developed.

Special Museum Features.

The School Museum is a special feature here. The practice is for the examples, and framed specimens exhibited in the school corridors, to be used to illustrate a particular subject, such as the history of sculpture and architectural ornament. Beginning with Japanese work, a series of photographs and casts illustrates the development of sculpture up to the present time. A pamphlet with notes on the exhibition was printed and circulated. Apart from the value to the general art student of these annotated and easily understood picture sequences, a large number of the general public visited the exhibition, and thus their taste was improved. A large number of drawings done during the summer vacation by students of Secondary Schools, forms part of the exhibit at the Museum.

About 800 pupils of city schools visited the exhibition, and one or more members of the Art School staff went around with them and in an informal way helped to make clear the interest attaching to the exhibition. On one occasion the exhibition consisted of a collection of exercises selected by the Japanese Government for the purpose of showing art work in the various grades of the Japanese schools: this work being different from that done in Leicester was useful for purposes of comparison, and as illustrative of technique was perfect within its limits. The school has also had the benefit of a selection of designs and studies which had been awarded medals and prizes in London at the National Competition of Schools of Art. Besides drawings and casts, this selection included industrial work of various kinds, and the students thus had an opportunity of seeing what other centres were doing and of appreciating the standard to which the work had been raised.

An illustrated pamphlet was issued containing drawings made by students of the school relating to the Leicester Coat of Arms, notes being added by an expert in heraldry. These notes and drawings have long been wanted by printers, painters, etc., who use copies of the Borough Arms.

Courses in Close Relation to Trade.

The courses of study are arranged so as to follow in a definite manner such local industries as lend themselves to the influence of the school, and there is evidence of the beneficial influence it has had upon them. An important factor is the connection existing between certain local trade organizations and the school.

The complete course of training given in the Lithographic Artists' class, after a careful selection of boys, well taught in the elementary schools, leads to the supply of apprentices who, by reason of their training, will improve the general standard of the work.

Steps are being taken to secure youths who have a good school education to become compositors and printers in order to compete with the recent distinct advance in artistic printing evident in the productions which American and German firms are now offering in England.

The curriculum provides educational facilities for students who can be divided into three groups—Art workers, teachers, and students who take Art as part of their general education. Suitable courses of study are arranged, varying in a convenient manner for such local industries as can be dealt with at the school. There is an Art Course for Secondary School pupils, also one for those who have left school. Courses are given in all these subjects in Evening Classes. In connection with the Art schools, there are many scholarships given, in some cases supplying free tuition, in others involving maintenance running from 5s. to 25s. per week.

The pupils correlate design in connection with the trades. Engineering and boot and shoe students in the Technical School, in the same building, take some freehand drawing. Sign painting is treated as a speciality.

Specimens of printing and lithographic work from this school are very fine.

Metal work, embroidery, architecture, modelling, stonegraving, letter cutting, painting and decorating and sign writing, wood engraving and furniture design are all effectively dealt with.

Art education is given to the pupils through processes of practical work.

(4) BRADFORD SCHOOL OF ART.

The objects of the school are; (1) To train students who desire to follow the profession of artist, architect, designer or teacher of art. (2) To train students who are engaged in, or intend to follow some art trade or craft. (3) To give a general art education, as a means of culture. The school emphasizes the application of art to local industries, especially textiles.

The day course for artists, designers and teachers includes: freehand, model, geometry, perspective, light and shade; painting, design; drawing, painting and modelling from the human figure; drawing and painting flowers, and adapting them to the purposes of design.

The classes for the Training of Teachers include lectures on methods of class teaching.

The Architectural Course is arranged in conjunction with the Department of Engineering, and includes drawing and sketching from casts and objects; drawing architectural details, such as mouldings, windows, doorways; perspective; measuring buildings of architectural importance; study of historic architecture, Greek, Roman, Byzantine and Romanesque, Gothic, Renaissance and Jacobean; architectural design; geometry; building construction; mathematics; physics; levelling and surveying; graphic statics. Students are trained for the R.I.B.A. examinations.

Artistic Trade or Craft Classes.

The Day Course for Students, who are apprenticed to or who intend to follow some art trade or craft, includes drawing, modelling, design, and special instruction in the practical part of some particular trade, including textile design (the practical part being taught in the Department of Textile Industies),

painting and decorating, wood-carving, lithography, metal work, furniture, plaster casting, etc. Most of these classes are taught by teachers who have a practical trade experience of the craft. Students may be apprenticed to an outside firm and attend half days during the week, or may learn the whole of the craft in this School, working half day at drawing and design and the other half at practical work. The classes are free, but students must give evidence of ability before being admitted. At first only students employed in the trade were admitted to these trade classes, but sometimes the attendance would fall as low as 5 pupils, hence the door was thrown open; but if craftsmen fill the capacity of the class they always have first chance.

Evening Class students engaged in an art trade take courses intended only to extend the knowledge gained in office and shop work, this course being necessarily more restricted than the day course.

All students in Textile work at the Technical College come here for instruction in design. Students from Secondary Schools attend for instruction in Art.

The Principal of the School is Charles Stephenson, A.R.C.A. (London), Gold Medallist and Travelling Scholar of Royal College of Art; Royal Academy, Antwerp; joint author of Text Books for "Geometric Construction" and the Principles of Artistic Design, viz. "Ornamental Design for Woven Fabrics." The Staff has teacher specialists and lecturers on Figure Drawing and Composition, Architecture, History and Design, Decorative Art, Textile Design, Embroidery, Wood and Stone Carving, Lithography (theory, artist and machine courses), Photo-lithography, Chromo-lithography, Typography, theory and practice; Cabinet work (lecture and practical.)

There are practical workshops in Cabinet-making, Painting and Decoration, Typography and Lithography.

Courses in Lithography.

In chromo-lithography the course extends over 3 years. The first year is spent entirely at the School of Art; then the student should become apprenticed to the trade, and may continue to attend the School of Art one half of each day for two years. For the remaining period, or last 3 years of his apprenticeship, he should attend the School of Art at least three evenings per week. All necessary material, including a large selection of lithographic stones, is provided for use of students in the practical class.

The Evening Course is so planned that it will serve both for apprentices and those who have passed through their apprenticeship. An additional feature is introduced into this class by making use of the new Photo-Lithographic section. The artists' tone and colour work is reproduced by photographic processes and made ready for the lithographic printer. In this way the artist is able to see the result of his work done by this method. All necessary material, including a large selection of stones, is provided for the use of students. The work done will be proved in the machine class, thus enabling the students at any time to see the result of their work.

These classes in practical lithography, machine printing and photo-lithography being entirely technical ones, only such students are admitted as are engaged during the day time as apprentices or journeymen.

A number of boys in the lithographing department are sent by their employers, who pay them for the time spent in school.

Students must take a full course and pass an examination in each subject before being permitted to enter the following year's course, exceptions being allowed only in case of advanced students, who may take special subjects only.

To meet the requirements demanded by changes and advancements taking place in the lithographic trade, both as regards the artist and the printing departments, the class in photo-lithography gives students in these two departments the advantage of studying the combination of both processes. A photographic studio has been arranged alongside of the lithographic rooms, containing exposing room and dark room, the former fitted with a large half-tone camera and screens, two special arc lamps for exposing and printing, and apparatus for wet and dry negative making. The developing room is fitted with three tanks and other necessary apparatus. Only the older students and journeymen lithographic printers with practical trade experience are allowed to do practical photographic work.

The lithographic workshop is provided with a power press, several hand litho-presses, a copper-plate press, and all other necessary appliances required for the practical working of a lithographic workshop. The class is taught by demonstrations on the power press, and by individual students making practical experiments on the hand presses, also by occasional lectures on methods of procedure, the nature and quality of materials used, and various uses to which they can be put.

Courses in Typography.

In Typography the course is divided into 3 years. Only compositors' apprentices and past-apprentices are admitted. The class room is furnished as a workshop, and contains type of all varieties for high-class printing and display work, also press and all necessary material. Theory and practical work are combined into one course, and students taking the practical work are also required to attend the theory lectures. The courses cover (1) composing for book and job work; (2) press and machine work (single cylinder), manufacture and care of inks; imposing stereotype plates; treatment of paper before and after printing; keeping stock; folding, stitching, stabbing and sewing, etc.; (3) machines—two-revolution, perfecting and rotary; typesetting machines; book-keeping for printers; general management, estimating, etc.

Students are urged to take a course of freehand drawing with the design class, to enable them to sketch out their own designs for display work; also to attend an evening class for grammar and composition, these being most essential subjects for a compositor to understand.

Painters and Decorators.

In Painters' and Decorators' work, the Apprentice Class, only for day students over 14, is for the purpose of training, in the technique and art of the trade, youths intending to become apprentices to the trade. The class is free to such a student, who enters directly from a day school and is taught both the art and craft of the trade by attending the special Painter-Decorators' Class during the whole of the day for one year.

Students passing the course satisfactorily easily obtain places in the best shops in the city, as applications are constantly made for apprentices. After obtaining a place as apprentice a boy may, if his master consents, continue at school one-half of each day and three evenings per week, working the other half of each day in his master's workshop.

All students must attend the Evening Classes three evenings per week throughout their apprenticeship, and are permitted to continue as Free Students.

The course consists of instruction in painting, graining, marbling, lettering, gilding, designing for decoration, stencil cutting, drawing. The class work is carried on in a large and well equipped workshop, the wall space of which is used by the students for practical work.

The Evening Class is open only to those working in the day time as apprentices or past-apprentices. Students must take the full course, which comprises lectures on tools and brushes; pigments, oils and varnishes; painting, distemper, paperhanging, gilding, bronzing, graining, marbling, staining, decoration, sign-writing, etc. The course covers three years.

One feature observed by the Commission was the painting and decorating and applied design instruction, the work being very remarkable.

Cabinet Makers' Course.

The Cabinet Makers' Course is conducted in a room fitted up as a workshop, having benches, cabinet makers' tools, and all accessories. The class practises cabinet making in all its branches, and is given opportunity of seeing practical illustrations of sound, well-made and artistic furniture. Each individual has the advantage of carrying out all operations under the supervision and guidance of a thoroughly competent cabinet maker. Students who purchase their own wood are allowed to retain the examples made by themselves.

The course covers,—lectures and practical work in the use of tools, forming various joints and processes, veneering, marquetry work, qualities of woods and best method of handling, storing and treating them; methods of making out "cutting orders" or writing off lists of wood quantities from drawings; making "laths" or boards, with details for use in "setting out"; name, purpose and relative standard sizes and proportion of each article and variety of furniture, with description of technical terms as applied to different parts; names and meaning of historical styles or periods of furniture, and method of fixing date of any given example; cabinet metal work of various kind

different uses and methods of fixing; the suitable introduction of glass into furniture, and correct methods of fixing plate, mirrors, lead-lights, etc., tiles, marble, etc.; full course in drawing and designing.

NOTES OF INTEREST.

In the Life Model room there is an inverted arc system of lighting combined with an adjustable light operated on a circular hanging rail and directed to the model. This system is used only in two other places in England.

It was found that the Secondary Schools supplied pupils directly to the crafts through the School of Art. The Principal assists students to obtain employment.

It is clearly stated that this is an Applied Art School, applied to modelling, typography, painting and decorating, wallpaper, metal work, woodcarving, life modelling, lithography and textile work. The work of the students on designs for textiles was particularly good.

The students in the Evening Class of Textile Design attend one evening per week, the fee being included in that of the Department of Textile Industries. The subject taken is Artistic Design for Textile Fabrics. The students in all departments appeared attentive and interested.

The Principal said he believed not in teaching geometry as such, but in "doling it out" to the various groups as they were at their own work.

In regard to Wood Carving, it was mentioned that the demand for wood carvers dropped when mission furniture came in, but the Atlantic liners had saved the situation, as they require so much carving.

SESSIONAL PAPER No. 191d

SCOTLAND.

CHAPTER XII: OUTLINE OF THE EDUCATIONAL SYSTEM.

SECTION 1: INTRODUCTORY.

In educational matters every country has a tradition as well as a history and a reputation. In Scotland the educational tradition is admirable, although Scottish leaders themselves are not slow to state that its excellencies have been exaggerated.

As early as the 16th century there was a marked example of class legislation in connection with Scottish education. It provided that the eldest sons of well to-do freeholders should attend school until their knowledge of Latin was reasonably perfect. Younger sons, the daughters of the well-to-do, and all children of the poor were left out of consideration.

The tradition that every locality in Scotland has had a good parish school for centuries does not tally with the facts. Even one hundred years ago only about one-fifth of the children in Scotland attended schools.

Since that time education has always been comparatively easy of attainment. A convenient school for all was at least the ideal, and there have been plenty of educational endowments to meet the case of the capable but poor scholar. These features have been preserved and made more effective, and now there is ample provision of Elementary Schools where education is free, and bursaries or scholarships to assist any 'youth of parts' to go through the Secondary and even the University courses. Taking in Government grants and private endowments, the sum of about £150,000 is paid out annually for scholarships

Education Democratic, Practical and Graded.

Education in Scotland from the Parish Schools to the Universities has always been democratic in its administration. The people control educational matters locally by the exercise of the franchise and nationally by means of their Parliamentary representatives.

The tradition agrees with the facts in that education in Scotland has always been practical. Importance has been attached to vocational education. As an example, navigation was taught in the schools of the chief seaport towns for more than a hundred years. The existing system has preserved and enlarged this feature. Instruction preparing for crafts and trades may now be obtained in Supplementary Courses and Continuation Classes, and afterwards at Central

Institutions which include Technical Colleges, Agricultural Colleges, Colleges of Domestic Science, Art Colleges and the Universities.

Education in Scotland has always been graded. From very early times there have existed the Elementary School, the Grammar or Secondary School for higher education, and the University. The so-called educational ladder has been preserved, but its top is no longer in the classical University for the learned professions only; it now reaches from the Primary School to industrial, technical and professional training for nearly all occupations.

At the present day the Scottish system aims at preparing the child both for individual effort and social duties. Its exponents claim that it provides for both of these and does not admit predominance or exclusive right to either. It regards them as complementary in a life that is neither egoism extended nor pure altruism.

Enlargement of Areas.

There is some agitation at present in the direction of extending the area of each School Board. Those who favor this claim that the nation should aim at being educated as a whole, and not at being an aggregation of more or less educated parishes. Poor parishes have difficulty in meeting the cost of elementary education, to say nothing of being able to provide education of a secondary character. On this ground there is urged a strong claim for the relief of the ratepayer from the school rate. Another argument, in favor of this enlargement of the administrative areas, is that thereby it is probable that the best men would be more surely induced to come forward and act on the School Boards. There is the usual reluctance of the more capable men to come into official life unless the part they are called upon and have opportunity to play is itself important and relatively large.

The Route of Evolution.

Prior to the Reformation the large number of schools attached to the Monasteries and Houses of the various Religious Orders was supplemented by a general system of parochial schools. With the Reformation a renewed impetus was given. John Knox in his 'First Book of Discipline' formulated a system of education by which a liberal scheme of instruction was to be provided in every parish at public expense. This scheme formed the basis of various Acts, the most notable of which was the 'Act for Settling of Schools,' passed by the Scots Parliament in 1696. This Act made general the establishment of a school and the appointment of a schoolmaster in every parish. The landowners of the parish were required to provide the school and to contribute to the salary of the teacher, and in the towns and cities the magistrates had the management and patronage of the schools. Side by side with the accommodation thus supplied there continued the schools of the churches and other voluntary agencies. This composite system persisted till 1833, in which year education grants voted by Parliament first became available for public education. It

may therefore be said that the system originated as a local organization, and that not till a comparatively recent date did it receive the central support and control, which in new countries mark the beginning of an educational system.

Creation of School Boards.

In 1872 the importance of local activity and local support was again formally recognized. In that year the great Education Act for Scotland was passed, by which local education authorities were created and power to levy a rate for the support of the schools was given. In every parish and burgh a School Board was formed, and to these Boards were transferred most of the existing schools. The revenue out of which the schools were supported came from (1) grants from Parliament, (2) fees and endowments, (3) local rates. Complete management was vested in the School Boards subject to the control of the central Education Department. A certain number of Church Schools, mainly those of the Roman Catholic and Episcopal Churches, remained outside this public system, but continued to receive grants from the Central Authority (now the Scotch Education Department).

Since 1872 various Acts of Parliament have extended the scope of the Education Authority, and enlaged the conception of general education. The most important is the Act of 1908, under which provision is made for medical inspection, feeding and clothing of necessitous children, establishment of employment bureaux, and expansion of the system of Secondary and Continuation Class education.

SECTION 2: SCOPE OF THE SYSTEM.

The system here outlined is in essence that which exists today. There are 970 School Boards which manage 2979 public schools and employ 16,678 teachers of various grades; also 352 so-called 'Voluntary' Schools (9 Church of Scotland, 1 United Free Church, 57 Episcopal Church, 220 Roman Catholic Church, 65 Undenominational), with 2,383 teachers. In all about 825,000 children are dealt with. The teachers in the public schools are appointed on professional qualifications only, and without any denominational test; in the voluntary schools they generally conform to the denomination concerned.

There is annually expended on this composite system about £2,560,000; of this, £17,000 is derived from endowments, £836,000 from rates, £49,000 from voluntary contributions, £44,000 from fees and books sold to children, £1,594,000 from Treasury grants, and £20,000 from other sources. Up to the age of 14, at which compulsory attendance ceases, education in the Board School is free.

Along with this must be taken into account the work of the Universities, dating from 1411.

Obligations and Powers under Act of 1908.

The most recent legislation—Education (Scotland) Act, 1908—conserves the main functions of the fundamental authorities for education in Scotland viz., the system of 'Parish Schools' and School Boards, so dear to the heart of Scottish parents, who have long been conspicuous for their jealous care of the educational interests of their children; consolidates the important developments of recent years; and provides a basis for further progress in response to new or newly-appreciated needs of the times. The Act assimilates the School Board franchise to that of the Parish Council and gives additional facilities for the combination of existing School Board districts into larger areas. Boards are now enabled to unite the whole or a portion of their territory with adjacent districts of another Board.

The Boards are empowered (1) to deal directly, instead of through Courts as formerly, with parents who prove neglectful in the matter of school attendance of their children, it being the duty of every parent to provide efficient education for his children who are between 5 and 14 years of age; (2) to institute prosecution of parents for lack of cleanliness, food or clothing of children, and where necessary to supply such lack out of school funds; (3) to ensure sufficient care of destitute and neglected or defective children by provision of food, clothing and lodging; (4) to regularize times of entering and leaving school by adopting 'fixed dates;' (5) to guide and advise young people as to their future careers in life, thus avoiding the easy temptation to casual labor; (6) to co-operate with employers in securing for future workers the best possible industrial training; (7) to require attendance up to 16 years of age at day school or continuation class, or partly at each, as a condition of granting school exemption certificates at the age of 12; (8) to prosecute parents and those who employ such young persons during hours required for such continued education under orders or by-laws of School Boards *re* continuation schools, the penalty on such employers, and on parents who conduce to such offences, being up to $5 for the first and $25 for subsequent offence; (9) to provide out of school funds for meals at cost, lodging of pupils near school, conveying them to school, or paying the travelling expenses of teachers or pupils to or from their homes in out-lying parts. The School Boards deal also with the following matters: care of defectives in special schools; compulsory attendance extending to 16; supplying school books and stationery to pupils; employing medical officers and nurses and providing appliances for medical examination and supervision of pupils; maintaining or combining with other bodies to maintain any agency for collecting and distributing information as to employments open to children on leaving school.

Effect of Act of 1908.

The scope of the new Act is well summarized in a circular from the Department showing its general effect in extending the influences and enhancing the interest attaching to the work of School Boards:

Heretofore that influence and interest have been largely restricted to dealing with children under 14. They will be so no longer. In many respects the three or four years that immediately follow the period of compulsory attendance are the most critical in a pupil's life, and for the

proper use of these a more clearly defined responsibility will henceforth rest upon School Boards. In future the individual citizens who undertake this responsibility will find ampler scope for the exercise of their administrative talents. The development of secondary and technical education under a more elastic system than has up till now been possible, the more perfect organization of continuation classes, the selection of young people who deserve to be guided and, where necessary, assisted by bursaries in their progress towards the universities or the central institutions for the teaching of science, of art, and of agriculture,—these are some of the duties that will lie to the hands of School Board members. Their successful discharge will call into play the highest qualities of skill and discretion.

Burgh and County Committees.

These Committees on Secondary Education, established for certain areas under this Act, are composite bodies, consisting in the main of representatives of the various School Boards of the area, with additional members representative of the managers of the Intermediate and Secondary Schools of the district (whether School Board or voluntary schools) and of County and Burgh Councils. Even in the sphere of Primary Education these Committees are capable of discharging highly useful duties, for it is evident that certain educational services cannot always be properly or economically organized on the basis of individual School Board areas, such as provision for medical inspection of school children, supply of expert teachers of special subjects that lie outside the competence of the ordinary staff of a small school, etc. These Committees do not for the most part exercise any functions of direct management, and may best be regarded as organs of co-operative action on the part of School Boards.

Provincial Committees.

Still other educational services transcend the province even of Burgh or County Committees, such as the training of teachers for the service of the schools, not of any particular district, but of Scotland as a whole. This service till recent times was discharged almost exclusively by Church organizations. But in 1905 the Presbyterian Churches consented to transfer their functions and interests in the matter to Provincial Committees instituted in connection with each of the four Scottish Universities, and containing representatives of School Boards within a given "Province," as well as of the University of the "Province," and of other bodies interested in the training of teachers. After the constitution of the Burgh and County Committees, already referred to, the Provincial Committees were reconstituted on the basis of these Committees.

The Governors of the "Central Institutions" exercise functions analogous to those of the Provincial Committees, and like them contain for the most part representatives of the various Burgh and County Committees of their "Province."

Nomenclature.

The educational system administered by these various bodies, so far as general education is concerned, uses a classification of schools based solely on distinction of curriculum. The term 'Elementary,' as defined in the English Education Act of 1870, is not strictly applicable to any class of school in Scotland.

The term 'Higher Grade' connotes a school receiving grants under the Code, and is therefore restricted in application. The term 'Higher Class' comes originally from the Education Act of 1872, and is mainly of historical interest, having no necessary relation to the character of the work done in the schools so designated.

The nomenclature used is the following:—

Primary School.—A school, or a department of a school, giving an education based upon English to pupils who are, as a rule, below the age of 14. A Primary School may contain individual pupils, or small sections of scholars, who are being instructed on the lines of an Intermediate School.

Intermediate School.—A school providing at least a three years' course of instruction in Languages, Mathematics, Science, and such other subjects as may from time to time be deemed suitable for pupils who, on entering, have reached the stage of attainment in elementary subjects indicated in Article 29 I. of the Code.

Secondary School.—A school providing at least a five years' course of instruction beyond the Qualifying stage (Article 29 I. of the Code).

Functions of Various Schools.

An Intermediate School corresponds generally to a Higher Grade School, but there are some Higher Class Schools which may fall into this category.

A Secondary School corresponds generally to a Higher Class School, but there are some Higher Grade schools which have developed, or in suitable circumstances may be expected to develop, a complete Secondary School course.

An Intermediate School should retain its pupils until at least the age of 15-16, and the normal attainments of the pupils at that age should be those indicated by the Intermediate Certificate.

A Secondary School should retain its pupils till at least the age of 17-18, and no pupil who has not qualified for the award of some form of Leaving Certificate, or for one of the alternative technical or commercial certificates, can be held to have completed the course satisfactorily.

Though the education of the Intermediate School is of the nature of Secondary (as distinguished from Primary) Education, the choice of subjects and the relative importance to be given to them at various stages of the curriculum may properly vary within certain limits, according as the school is one providing a three years' or five years' course. The curriculum of each type of school should be so arranged as to present, at the age at which pupils normally leave, a certain unity and completeness.

On the other hand, it is important that as between the Secondary School and the various Intermediate Schools of the same district there should be no unnecessary divergence of curriculum in the earlier stages, so that transference from the one to the other may not be impeded.

Specialized Education of Adolescents.

This system of general education is supplemented by provision for the specialized education of adolescents and adults under the regulations of the Continuation Class Code, culminating in the work of the specially selected Central Institutions (Technical Colleges, Agricultural Colleges, Schools of Art,

etc.) whose function is to focus the work of the Continuation Classes and to provide the highest possible instruction in the arts and sciences underlying the practice of skilled occupations.

The successful working of this system postulates arrangements for securing a supply of well-educated and thoroughly trained teachers, adequate to the needs of the schools—in itself a task of no inconsiderable magnitude.

SECTION 3: PRIMARY EDUCATION.

The most important function of School Boards is still that of providing (along with the managers of voluntary schools) for the primary education of children between 5 and 14 years of age. To this end the labours of hosts of teachers are directed, and for this purpose by far the larger portion of the growing expenditure upon education is incurred. The prevailing conceptions as to the scope and purpose of Primary Education have undergone considerable modifications in recent years, very largely as a result of the gradual raising of the school age. At no time has Primary Education been regarded in Scotland as simply a matter of instruction in Reading, Writing, and Arithmetic, and at the present time less than ever is it so regarded. The problem is how to use the various subjects of instruction so as to develop all the faculties of the child, to elicit his sympathies, regenerate his impulses, cultivate his faculty of observation, exercise his intelligence, and improve his powers of expression. This is a high and difficult art, demanding for its exercise thoughtful, devoted and well-trained teachers. Provided the art be skilfully exercised, proficiency in Reading, Writing, and Arithmetic will be secured as a matter of course, as an incidental result, within the usual limits of school life in the case of normal children. But to aim at this incidental result principally or directly may well be to stultify the whole educational process without securing more than an evanescent, because mechanical, proficiency in the subjects on which instruction has been concentrated.

Still, for practical purposes, Reading, Writing, and Arithmetic may be taken to be the main subjects of instruction in the Primary School curriculum. All the others are to be regarded as auxiliary—valuable for the discipline they afford and the variety of means they offer for exercising the intelligence of the children, rather than for the amount of positive knowledge or of proficiency acquired, even though that may be considerable.

The auxiliary subjects are:—Nature Knowledge, Geography, History, Physical Exercises, Singing, Drawing, and (for girls) Sewing. The three first-named may and ought to be made to subserve in large degree the purposes of the main instruction in English and Arithmetic, and instruction in the former class of subjects need in no way interfere with the attainment of due proficiency in the latter. Drawing, if properly taught, is a valuable instrument for Nature Study, and may indeed be reckoned as part of the same subject. Other subjects, *e.g.*, Physical Exercises and Singing, while less intimately allied with the main instruction, are essential concomitants of it, while Sewing is an art in which some degree of expertness must be acquired during school life if it is to be acquired at all.

Supplementary Courses.

A notable educational development of recent years has been the attempt to add reality to the work of the Primary School in its later stages by setting aside some time for the consideration of what has been already learned in its practical bearing on the probable future occupation of the pupil and the employment of his leisure time. That is the special function of the 'Supplementary Courses' to which it is desirable that one or, if possible, two years should be given before the close of the period of general education.

The Supplementary Course is a Scotch institution with a close resemblance to the *cours complementaires* in France. It prepares directly for industral training. It is the most advanced work of the Primary School, and is designed for pupils who leave school at 14. Under the Act of 1908 the School Board may fix dates for children entering and leaving school, these being chosen with the approval of the Central Authority, viz., the 1st of August, February or April next after the child's 5th birthday for entering; and corresponding ones at the age of 14 for leaving.

From the time of entering to about 7 years of age, the child remains in the Infant Department; then from 7 to 12 there are five main stages. At 12 he passes the qualifying examination and goes to either Supplementary Course or Secondary work.

There is no distinction between Elementary and Secondary work before 12 years of age. The 6th and 7th year course is the same in all types of school, the idea being that if you are going to build higher, you will have a better foundation all along. The bulk of opinion is in favor of deferring specialized instruction till after 12.

Selection of Course.

At the age of 12 a notice is sent to parents asking them what course they desire the child to follow. If a child is to leave at 14 it is better for him to take the Supplementary Course, then his artisan or commercial training in the evening schools, at which the Board has power to keep him till 17. The integral difference between these two plans is that in the Supplementary Courses no new ground is broken; what training is given is through English literature, and the pupils' work is consolidated; *e.g.*, arithmetic is technical—'graphs' and the like. Generally speaking half the time is given to manual work; the boys have 5 hours drawing and manual instruction and the girls have full housekeeping, including household arithmetic and account-keeping. They go out in turn to buy provisions to be cooked as the day's work, and they also have dressmaking and other things.

If a boy had taken the Supplementary Course and then changed his mind, he would really require to go back to the beginning of the Higher Grade course, and though he might then go a little faster he would be handicapped almost to the extent of the time he had spent. He would not lose much, however, in his powers of observation and reasoning. On the science side the work in the Continuation

Classes follows that of the Supplementary Course. After two years of the latter and two years of evening technical work a lad would be as well equipped for the particular kind of artisan work to which he was going as if he had had the three years' science course of the Intermediate School.

To Serve the Largest Number.

The Supplementary Course meets the needs of the many. As a matter of fact there are only very few cases of boys changing from one course to the other, chiefly because the schools are very fortunate in having the right men to advise the parents, so that only those who are quite sure of not being able to keep the boy at school after 14 send them into the Supplementary Classes. Out of about 7,000 going out yearly in Glasgow probably 2,000 have not reached the Supplementary stage, but the by-law passed under the Education Act requires that they shall make it up before 16. The difficulty is that where boys are working in factories and shops, the number of hours, including education, must not exceed the limit stated in the Factory Act. Hence some employers are rather inclined to say that if there is any restriction as to hours of labour they will take nobody before 17. Others pay their apprentices sixpence a week additional for each certificate they get, so that some of these boys earn fourteen shillings who would ordinarily be getting only ten. One of the main objects of the by-law is to improve the attendance at day school, and in time it is expected that those who do not attend will be so much handicapped in getting employment that the effort will be made to keep them at school till 14. Only those who do not attain a certain standard come under the by-law, and the parents begin to appreciate it already.

Pupils who have satisfactorily completed the course of the Primary School, including attendance for at least one year at an approved Supplementary Course, are granted the 'Certificate of Merit'.

While there is no doubt that in many of the Supplementary Courses good work is being done, there is still need of improvement, specially in the direction of the future work of the pupil in Continuation Classes. At present too many come forward to Evening Classes with little of the special training that the Supplementary Courses are designed to secure.

In the Supplementary Classes pupils receive special instruction in that which preceedes the trade they have to learn. If the boy is to follow any given line of work he gets practical training in the use of good tools. If he is going into ironworking he does not learn in the Supplementary Classes to become a mechanic, but he gets training in the use of ironworking tools, and is given experience in order that he may know the meaning of materials, tools, plans and drawings.

During the year 1910, 60,683 candidates were approved by the Inspectors for enrolment in Supplementary Courses or Higher Grade Departments.

Some idea of the progress in advanced work in the Primary Schools during recent years may be gathered from the fact that whereas in 1900 the number of these schools was only 162, with an average attendance of 3,282, in the next ten years the number of schools increased to 1,945 with average attendance 43,287.

DEPARTMENT'S SUGGESTIONS FOR SUPPLEMENTARY COURSES.

The supplementary instruction is to a certain extent specialized, and the Scotch Education Department indicates the nature of the specialization in some Specimen Supplementary Courses. It is expressely stated that these courses are mainly suggestive and cannot as a rule be satisfactorily overtaken in their whole extent by pupils who leave at 14; it is expected, however, that they will be carried out in such a way that the pupil can continue them without any essential change of method in the more advanced Continuation Classes.

The following are the differentiated lines of work suggested:—

Preparation for commercial pursuits. (Commercial Course.)

Preparation for manual occupations and trades. (Industrial Course.)

Preparation for rural life. (Course for Rural Schools.)

For girls—Preparation for domestic duties. (Household Management Course.)

Navigation is also suggested for Seaboard Schools.

Their Main Objects.

But school work, says the Department, has for its end and aim objects more important than preparation in the narrow sense for any particular occupation. It should aim at producing the useful citizen, imbued with a sense of responsibility and of obligation towards the society in which he lives. It should render him—so far as the school can do so—fit in body and alert in mind, and should prepare him for the rational enjoyment of his leisure time, as well as fit him for earning his living. These are ideals, no doubt; but they are ideals towards which the school should constantly strive. It follows that instruction in certain matters of general import should in all cases be combined with, and should even take precedence of, the instruction special to each of the courses of the preceding paragraph.

With regard to the special instruction to be given in the several Supplementary Courses, it is not intended that such instruction should attempt to take the place of that kind of knowledge which can only come from the daily practice of some particular occupation. But this instruction, rightly given, should make that practice more intelligent, and should remove certain difficulties from the way of the learner. It should be sufficiently general in scope to make it profitable even for those who for one reason or another will not follow in after life the particular group of occupations which has been kept mainly in view.

Developing Self Reliance.

The Department recognises that great differences will exist, particularly between town and country schools, as regards facilities for the formation of such courses. In considering the problem, the position of the small rural school taught by one teacher has been kept in mind. In such circumstances class teaching of

the small number of pupils who have reached the Merit Certificate stage is clearly out of the question. The Department does not regard this as being, in certain respects, any real disadvantage. It has been frequently noted as one of the defects of the large town school, with its minute sub-division of classes, that the pupil is left little leisure to think for himself, and that the habit of depending upon the instructions and explanations of the ever-present teacher is apt to become ingrained. Whereas, in the opinion of not a few experienced observers, the country lad, as compared with his contemporary in a town school, shows towards the close of his school career greater intellectual resources. This is due not so much to inherent mental ability or to any superiority in the teaching, as to the fact that the aid of the teacher not being always available, he has been forced by circumstances to think for himself. It is clearly desirable, in the case of a pupil who is to be more or less his own master at 14, that there should be in school a period of preparation for this state of semi-independence, during which transition period he shall be regarded not as a pupil of a class, but as a student studying, under direction, certain subjects for ends which he himself in some degree realises and desires.

Not merely should self-reliance in study be fostered, but a sense of responsibility should be inculcated, by giving the pupil at this stage some authority as regards conduct in the playground, and the minor matters of discipline, as well as a position of honor in exercises common to the school, such as drill. The boy at this stage tends to acquire a sort of authority among his schoolmates, and it is most important that this natural influence should be enlisted on the side of law and order, rather than that it should be driven, as it easily may be, into opposition. There seems to be no reason why it should not be turned to account in Primary Schools, as it frequently is in Secondary Schools, as an instrument in the development of character, and in the fostering of a healthy school spirit.

Individual Study Directed to Practical Ends.

Whether in town or in country, whatever the opportunities for collective instruction may be, the Department desires that the distinguishing note of the work of the pupils in the Supplementary Courses should be individual study directed to practical ends. The object should be, not so much to impart information to the pupil, as to exercise him in obtaining for himself from sources within his reach, and setting out, in an orderly manner, all necessary facts relative to a given topic.

Great use may be made of the daily newspaper as a starting-point of such investigations. For instance, having made an analysis of the shipping returns for a given port the pupil may ascertain the general character of its trade; look up in an atlas the various places mentioned in the shipping list; make note of their relative position and distance; gather from school geography, gazetteer, or encyclopædia certain information as to the more important of them; and finally set forth in well digested and orderly form the information obtained. He may proceed to make a similar investigation for another port, and institute

a comparison; or he may be referred to the sources of accurate information as to the total exports and imports of a place and be asked to make an analysis of these over a series of years. Similarly, historical allusions in the leading article or elsewhere in the newspaper may be made the occasion for reference to such sources of information as are to be found in the school library, and for a certain amount of collateral reading of authorities, the results of which should be embodied in *precis* form. All this is not matter for formal and regularly recurring lessons in geography or history, but for individual investigation extending over, it may be, several days. The newspaper will also be useful in other ways. Its various articles will afford material for exercise in *precis* writing; difficulties of vocabulary will give occasion for frequent and useful reference to the dictionary; above all, perhaps, the market reports will furnish a body of material for exercises in calculation much superior to the cut and dried examples designed to illustrate the rules of a text-book, while their perusal may be made the occasion of acquiring much incidental information of practical value.

By means such as these a sense of actuality may be given to the work and a spirit of initiative cultivated in the pupils. The examples given are not intended as directions to be implicitly followed; it is much more important that individual teachers should exercise their ingenuity in devising for themselves the best means they can for achieving the essential objects aimed at.

SECTION 4: INTERMEDIATE AND SECONDARY EDUCATION.

The immense impulse which the passing of the Act of 1872 gave to Primary Education made its effects felt within a very few years upon Intermediate and Secondary Education also. In course of time the original provision for higher education was supplemented by the development in connection with favourably situated Primary Schools, of secondary departments which have become the Higher Grade Schools of to-day. While a large proportion of these are satisfied with providing a broad basis of general education on Secondary School lines for pupils who are to leave school about the age of 16, a small number are staffed and equipped upon a scale which enables them to give a complete Secondary Education parallel to that offered by the older endowed schools and Higher Class Public Schools. As a consequence it is now possible to consider the supply of centres of higher education as reasonably complete.

SECTION 5: CONTINUATION CLASSES.

Duties and Powers of School Boards.

Remarkable activity has been shown in the endeavor to discharge the new duties placed upon School Boards by section 10 (1) of the Act of 1908 as regards the establishment of classes for further instruction of young persons who have left school, with a view to their future usefulness as workmen and citizens. The

number of centres for Continuation Class instruction is now over 1100. Sec. 10 is as follows:—

10.— (1) Without prejudice to any other power of a school board to provide instruction in continuation classes, it shall be the duty of a school board to make suitable provision of continuation classes for the further instruction of young persons above the age of 14 years with reference to the crafts and industries practised in the district (including agriculture if so practised and the domestic arts), or to such other crafts and industries as the school board, with the consent of the Department, may select, and also for their instruction in the English language and literature and in Gaelic-speaking districts, if the school board so resolve, in the Gaelic language and literature. It shall also be their duty to make provision for their instruction in the laws of health and to afford opportunity for suitable physical training.

(2) If it is represented to the Department on the petition of not less than ten ratepayers of the district that a school board are persistently failing in their duty under the foregoing subsection, the Department shall cause inquiry to be made and may call upon the board to institute such continuation classes as appear to the Department to be expedient, and, failing compliance, may withhold or reduce any of the grants in use to be made to the board.

(3) It shall be lawful for a school board from time to time to make, vary, and revoke by-laws for requiring the attendance at continuation classes, until such age not exceeding seventeen years as may be specified in the by-laws, of young persons above the age of 14 years within their district who are not otherwise receiving a suitable education, or are not specially exempted by the school board from the operation of the by-laws; and that at such times and for such periods as may in such by-laws be specified. Such by-laws may also require all persons within the district having in regular employment any young person to whom such by-laws apply to notify the same to the board at times specified in the by-laws, with particulars as to the hours during which the young person is employed by them:

Provided that no young person shall be required to attend a continuation class held beyond two miles measured along the nearest road from the residence of such young person.

(4) Sections 185, 186 and 187 of the Public Health (Scotland) Act, 1897, shall apply to by-laws made under this section as if they were herein re-enacted, with the substitution of the Department for the Board and of the school board for the local authority.

(5) If any person fails to notify the school board in terms of any such by-law in regard to young persons employed by him, or knowingly employs a young person at any time when his attendance is by any such by-law required at a continuation class, or for a number of hours which, when added to the time required under any such by-law to be spent at a continuation class, causes the hours of employment and the time so spent, taken together, to exceed in any day or week, as the case may be, the period of employment permitted for such young person by any Act of Parliament, he shall be liable on summary conviction to a penalty not exceeding 20 shillings, or in case of a second or subsequent offence, whether relating to the same or to another young person, not exceeding 5 pounds.

(6) If any parent of a young person by wilful default, or by habitually neglecting to exercise due care, has conduced to the commission of an offence under the immediate preceding subsection, or otherwise to failure on the part of the young person to attend a continuation class as required in any such by-law, he shall be liable on summary conviction to the like penalties as aforesaid.

Advanced Work by County Committees.

A small number of County Committees have taken active steps towards the organization of technical instruction within their area, including the preliminary step of appointing a special organizer. In this connection the systematic scheme of the Renfrew County Committee is cited as worthy of imitation. The scheme aims at a concentration of advanced work at certain central points, these centres being in turn affiliated with the Central Institutions. It comprises one feature of unusual interest, the first of its kind, a graded Rural Course extending over three years, and leading on to a study of Agriculture and Agricultural Science. All the way through the instruction is given a 'rural' bias, so that the country student feels himself specially provided for as much as the town artizan is in an industrial course.

For further particulars of the work of County Committees, including plan of co-operation between the Fife Committee and the School Boards, see Chapter XVI on organization in County of Fife.

Progress in Continuation Class Work.

The stimulus given to the institution of Continuation Classes by the Act of 1908 was demonstrated during the year 1910. Probably the change of procedure by which Continuation Class authorities were requested to submit to the Department a definite programme of work, some distance in advance of the opening of the session instead of after the session had started, had something to do with this. The change has been found profitable in several ways. (1) It helps to make the Continuation Class question a live one the whole year round, managers requiring early in the summer to prepare their plans for the autumn. (2) It calls upon managers themselves to determine their coming programme —after a careful survey of the needs of their area—rather than to leave the programme to be decided by the demands of intending pupils on enrolment night. (3) It gives time for the discussion of subjects of general application, *e.g.*, organization, affiliation, etc., before the detailed proposals come up for examination.

The completed statistics for 1909-10 reveal the fact that 127,687 individual students were included for grant, as against 108,813 in the session 1908–9. Comparing these figures with 78,171 in 1901–2 (the first year of the operation of the Continuation Class Code) it is evident that a substantial increase in the provision for after-school instruction has been attained, and there is reason to hope that the steady progress shown will be well sustained.

In 1910–11, 593 local authorities successfully conducted Continuation Classes, as compared with 550 in 1909-10. The premature closing and abandonment of some 150 centres (mostly in rural districts), conducted by 65 School Boards, resulted in only 1,121 centres coming to fruition, as compared with 1,055 in 1909–10. Continuation Classes all over the country are urgently in need of assistance by way of loan of specialist teachers. Often Boards are unable to include in the curriculum provided for young people the more attractive subjects of instruction, *e.g.*, Cookery, Woodwork, Physical Exercises, etc., because no teacher is available. When a regular rota of such teachers is forthcoming, it may be possible to hold together more securely many rural classes which now lead a precarious existence.

Teachers for Continuation Classes.

In the expectation of a much more widespread provision of Continuation Classes than exists at present, and in view of the prime importance of having these classes in all cases taught by fully qualified specialist teachers, rather than by members of the day school staff who may possess only a limited qualification in the subject, County committees are urged to take up on their own initiative the question of the appointment of a staff of such specialist teachers for Continuation Class work, particularly in agricultural districts, whose services would be lent out to various Boards on condition of a contribution proportionate to the service rendered in each case.

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COMPULSORY ATTENDANCE AT CONTINUATION CLASSES.

There is evidence that this subject is engaging the attention of a rapidly increasing number of School Boards throughout the country. It is very satisfactory to note that no objections were lodged with the Department to compulsory by-laws passed by Boards, and that they appear to have worked smoothly. In some cases the application of the by-laws is restricted to persons under 16 who have failed to pass the qualifying examination—a very modest requirement indeed but one which yet makes a useful beginning. In other cases it is found that the clause requiring attendance at Continuation Classes, up to the age of 17 years, extends to young persons who have failed to reach the standard of education implied by two years' attendance at a Supplementary or Intermediate Course. In all cases a clause is inserted to permit of the School Board granting exemption from the operations of the by-laws in any particular case—an indispensable condition and one which should provide sufficient security against any cases of individual hardship which may arise.

SECTION 6: DEPARTMENTAL SUGGESTIONS TO SCHOOL BOARDS.

The Scotch Education Department issued a circular (426) on 27th August, 1909, in connection with the foregoing important matters, directing the special attention of all School Boards to the new and exceedingly important duties placed upon them by section 10 of the Act of 1908, and requesting their careful consideration in connection with all proposals for the forthcoming session of Continuation Class work.

The Department sets out by stating that a certain amount of moral training had been given and a certain modicum of instruction in Reading, Writing and Arithmetic (and incidentally in other subjects) imparted in the hope, apparently, that the education so given would be of material assistance to the child in its future occupation, whatever that might be, and that he or his parents might be trusted to turn it to good account. Up to the passage of the Act of 1908, however, it had been no part of the statutory duty of a School Board or other public body to take cognizance of the period of adolescence and re-enforce parental control when most needed, but actually weakened from natural causes; to guide, inform and advise young persons as to choice of occupation; to ascertain what further systematic instruction was needed to increase their efficiency in occupations and make them more useful citizens; or to see to the actual provision of suitable means of further education. Though sporadic, and in large measure unsystematic, efforts have been made by many School Boards to provide such instruction, generally speaking they had felt no responsibility for providing education for young persons over 14.

EXTENT OF CONTINUATION CLASS WORK.

Experience in other countries as well as Scotland shows that instruction and control and discipline of adolescents is a matter of State concern, and it

is a tribute to the soundness and efficiency of Scottish educational traditions that the momentous experiment in this direction is to be made first of all in Scotland. The legislation has indicated generally certain lines which this further education should follow:—(1) The maintenance and improvement of the health and physique of young people; (2) the broadening and refining of their interests and sympathies by the influence of good literature; (3) equipping them with a competent knowledge of some craft, industry or occupation which offers a reasonable chance of providing a means of livelihood in their adult years; (4) the inculcation of the responsibilities and duties, as well as rights and privileges, of communal life.

Improvement to Come Gradually.

The task now imposed upon the educational authorities of the country will require the whole-hearted efforts of a generation not less active in educational endeavor than that which has brought the working of the present Education Acts to something like fruition.

The first step is to ensure that all School Boards shall provide, in rudimentary form, at least, some part of that instruction called for by the Continuation Class Code. That part which bears upon industrial training will require the services of teachers specially qualified; but as a beginning, School Boards should provide for young persons who have left school the form of instruction prescribed for Supplementary Courses of the day school. Such instruction must be rearranged and to some extent broken up to meet the conditions of Continuation Class work, but every School Board in the country may reasonably be expected to provide this instruction with their existing staff, though many have hitherto not attempted to do so, although the Government grant under the Continuation Class Code enables managers to recover three-fourths of their outlay upon maintenance.

Supplementary Courses Prepare for Continuation Classes.

The foundations of all Continuation Class instruction should be laid in the Supplementary Courses of the day school, and some course of the kind outlined in the Code should be placed within reach of every day school pupil between 12 and 14, either in his own or a neighbouring school. Much greater attention than at present should be given to the development of the practical work prescribed, much greater pains taken to adapt the instruction to the probable future occupations of the pupils, and vigorous efforts made to ensure that a much smaller proportion of pupils leave the day school without something approaching to two years' experience in Supplementary Course work. This of itself will probably imply in very many cases some overhauling of Elementary Class curricula and systematic enforcement of regular school attendance at an earlier age than is at present customary.

Importance of Supplementary Courses.

The Qualifying Examination is, of course, the passport, not merely to Intermediate and Secondary Schools, but also to Supplementary Courses. The importance of the latter has not yet been fully realized by all managers, and still less by all parents. Consequently, of the 60,683 scholars who successfully passed the Qualifying stage (together with 2,141 who were accepted as showing equivalent attainments) during 1910, a considerable number drifted into the first year of the Intermediate Course without having any genuine intention of remaining to the end. Steps are being taken, both by local managers and by the Department, to try and cope with this undoubted waste by diverting the stream into its proper channel—an end which will never be satisfactorily attained until Supplementary Courses are placed in a position of equal dignity with the earlier years of the Intermediate Curriculum. In the circumstances, it would not be fair to draw any deductions from a comparison between the large number who enrol as Intermediate scholars and the comparatively small proportion who complete the course creditably. Looked at y itself, indeed, the number of those who gain the Intermediate Certificate is far from being unsatisfactory. Last year the total was 4,093. In 1910 as many as 1,088 Leaving Certificates were gained—a figure considerably in advance of anything that had previously been reached.

Object of Supplementary Courses.

The duty of a School Board under the Act of 1908 is not merely to provide necessary opportunities for making good the defects of previous education, but to take steps to ensure that all young people of their district shall have received that general preparation for the duties of life which it is the object of the Supplementary Course to supply. This object will be attained most completely and economically, especially in the rural districts, by encouraging, if not requiring, a certain limited attendance during the winter months at ordinary Supplementary Classes of pupils over 14 who have not already completed 2 years' attendance at such courses.

The essential idea of Supplementary Course work is that of individual study under direction rather than that of class instruction. These older pupils should have individual lines of study marked out for them, to be followed up very largely at home, the teacher being called on for explanation of difficulties and review of work done, as was the custom in olden days in the rural schools of Scotland. These centres of instruction will be visited at regular intervals by specialist teachers competent to advise and direct students in subjects requiring expert knowledge or skill beyond the resources of the ordinary school staff.

DEVELOPING PUBLIC OPINION.

In more populous districts, particularly in industrial centres, the equivalent of Supplementary Course instruction will probably be provided more conveniently in classes distinct from those of the day school. The disadvantages attaching

to Evening Class instruction are so grave in some cases as to make it doubtful whether they do not outweigh the advantages. It is hoped that School Boards in such districts will make a strong effort, by conferences with employers and otherwise, to cause public opinion to regard attendance at suitable Continuation Classes as part of that instruction in trade or industry which an employer is supposed to provide for employees in trades where there is a regular system of apprenticeship, and therefore as nominally falling within the regular hours of employment.

Co-operation of Employers and Employed.

It is even more important to create among employers in those industries in which there is no semblance of an apprenticeship, and in which the labor of adolescents is too often no preparation for independent livelihood in adult life, a sense of responsibility for the future of young persons in their employment.

It is obvious that bylaws passed by School Boards under the Act of 1908 requiring attendance of young persons under 17 at Continuation Classes, (the times of such attendance to be deducted from the maximum number of hours of daily or weekly employment, as prescribed for any industry by Act of Parliament) must be largely inoperative unless supported by public opinion. School Boards in industrial districts have no more important or pressing task than the fostering of a movement for the better use of the years of adolescence as a preparation for adult life. To accomplish this, School Boards must associate with themselves representatives of employers and employed, and must join hands with every agency for industrial efficiency and social welfare. They must also adapt their classes to the exigencies of particular employments, both as to periods and nature of instruction.

Voluntary or Compulsory Attendance.

The Department proceeds to ask whether it is possible on a basis of voluntary attendance to reach the class of young persons who have little instinct for self-improvement and are least willing to exchange the freedom of the streets for the discipline and comparative restraint of even the most attractive Continuation Classes. They also question whether there may not be an even larger class who will accept a certain measure of compulsion without demur and profit by or even enjoy attendance at Continuation Classes when attendance is required of them, who, if left to themselves, lack sufficient energy or resolution to resist other attractions. Lastly they ask whether it is possible on any system, whether voluntary or compulsory, to rescue youths from "blind-alley" occupations and give them a training which will afford better chance of regular employment in adult life, unless the hours of casual labour are restricted and regulated so as to admit of the necessary teaching being given.

Analysis of Occupations.

For the proper consideration of these questions, the first requisite would seem to be the annual compilation of a register of young persons between 14 and (say) 18 not attending schools, with an analysis of occupations followed by them. Each group of occupations followed must be closely studied to discover the sort of instruction most suitable to those engaged in it, not merely for present efficiency, but for future power. It is important also to consider the times at which and the manner in which instruction may best be given, having regard to the exigencies of the particular employment.

By such a system of Continuation Class instruction, resort to compulsion may be rendered unnecessary, and if not, a School Board which has exhausted all efforts at organization on a voluntary basis will be able to appeal with greater confidence for the power of compulsion which the law now allows. When compulsion is resorted to, it should be limited in the first instance to those who have not received the minimum of supplementary instruction before leaving the day school.

The register referred to would be valuable in ascertaining the extent to which young persons are profiting by present educational opportunities, and also in making out another section—that relating to the maintenance of Employment Bureaux.

It is urged that all Continuation Class instruction should be intensely practical, in the sense that it must be regulated by the purposed future of the pupil, as it is obvious that a wise choice of that future by individuals is of vital interest to the whole community. Further that arrangements should always be made for the instruction of students in English, in the laws of health and duties of citizenship, and opportunity should also be offered for suitable physical exercises.

Teachers Should Know Occupations of Pupils.

Thorough knowledge on the part of School Boards of the occupations actually entered upon by young people when they pass from the Day School is not only an essential pre-requisite of any sound system of Continuation Class organization, but is needed by teachers as a directing influence in ordering the work of Supplementary Courses for children who have not yet left school. Teachers in charge of these courses exercise an important if not determining influence upon the choice of occupations by their pupils, and it is essential that in this work they should have the assistance and support of a properly constituted agency established for the purpose of aiding children leaving school in their choice of future employment, such as the Act of 1908 empowered every Board to establish.

Rural Education.

Schemes for development of work of the Agricultural Colleges in rural districts are progressing satisfactorily, their main objects being to place at the disposal of the farming community the benefits of experience and research of College Staffs,

and to link up with the College organization the agricultural and horticultural work done in various schools and classes in the College districts. These ends are being attained chiefly by the appointment of (*a*) a College organizer for each county or group of counties comprised in the College area; (*b*) additional dairy and poultry instructresses; and (*c*) in the case of the crofting districts comprised in the area of the Aberdeen College, special crofter instructors. These extension schemes have developed in considerable measure up to the date of this Report. The formation of local advisory committees to assist staffs of Colleges in organization of extension work has the hearty approbation of the Department.

SECTION 7: CENTRAL INSTITUTIONS.

The Central Institutions may be said to form the crown of the Continuation Class system. The following is a list of such Institutions at work in 1909-10:—

Aberdeen and North of Scotland College of Agriculture.
Aberdeen, Robert Gordon's Technical College.
Dundee Technical College and School of Art.
Dunfermline College of Hygiene and Physical Training.
Edinburgh and East of Scotland College of Agriculture.
Edinburgh College of Art.
Edinburgh, Heriot-Watt College.
Edinburgh, Royal (Dick) Veterinary College.
Edinburgh School of Cookery and Domestic Economy.
Glasgow and West of Scotland College of Domestic Science.
Glasgow and West of Scotland Technical College.
Glasgow Athenæum Commercial College.
Glasgow School of Art.
Glasgow Veterinary College.
The West of Scotland Agricultural College.
Leith Nautical College.

These Institutions continue to grow steadily in importance and usefulness. The normal goal of students entering the Institutions is the diploma awarded on the completion of a four years' course by a committee of assessors, including a person of eminence in the profession to which the particular diploma course has relation. By means of co-operation between the Central Institutions and School Boards the work performed in courses under Division III. of the Continuation Class Code is linked up with the higher work in the Central Institutions, and steady progress in the perfection of this system of co-operation is being effected year by year.

Influence of Central Institutions.

Fortunately there are many districts in Scotland where the question is not how to meet a minimim requirement such as that of the Supplementary Course, but rather how to organize technical instruction relating to industries

so as to provide in the completest way possible for the industrial requirements of the district. In some sections, recent progress in Continuation Class instruction has been very remarkable, both as regards numbers in attendance and in proportion of students who carry their studies to a really advanced stage. In such districts the Central Institutions have exercised a direct influence upon the whole, and gradually all purely elementary work has been eliminated from these institutions, which have been linked up with subsidiary centres throughout the whole district, the work at the latter being recognized as *pro tanto* equivalent to work done at the Central Institution.

Increasingly vigorous efforts have also been made to interest both employers and employed in the work, inducing the former to give all possible facilities and encouragement to employees to attend the classes. This process of co-ordination and affiliation is most advanced in classes for subjects which naturally connect themselves with the Technical Colleges, but in Industrial Art also the advance has been considerable.

Agricultural Colleges, though of more recent foundation, are rapidly occupying their special field of operation. For each County or group of Counties within the "Province" of the College a highly skilled instructor has been or will be appointed to give advanced instruction at suitable centres, whenever sufficiently qualified teachers can be found to exercise an influence upon School Gardening and Nature Study classes of the primary school, so as to make them an effective introduction to the special study of agriculture; and generally to act as agent of the College in bringing home to the farming community in every possible way the results of agricultural research and experience. It is hoped that a similar course may be followed in the case of the Central Schools of Cookery and Housekeeping, Colleges of Domestic Science, etc.

The total grants to Central Institutions from the Department for 1909-10 were (*a*) from Parliamentary Vote, £39,208 and (*b*) from Education (Scotland) Fund, £34,797. For 1909-10 the total maintenance expenditure of Central Institutions (including 5 recognized as such since passing of Act of 1908) was £123,321. This expenditure was met by (a) receipts from students' fees, (b) the Department's grants referred to above, and (c) contributions from local resources, including Endowments,

It is not considered necessary here to give extended or detailed information concerning the work of the several Central Institutions. General information, to the extent that may be useful in Canada, is given in the report on Edinburgh and Glasgow, in regard to some Central Institutions.

THE UNIVERSITY GRANTS.

A Parliamentary Grant of £42,000 is made annually to the four Scottish Universities. The expenditure out of these grants is not accounted for in detail to the Treasury, nor are unexpended balances surrendered at the close of the financial year. The grant is made under Section 25 of the Universities (Scotland) Act, 1889. In addition, the Universities receive £30,000 annually from the Local Taxation Account under Section 2, Subsection (2) of the Education

and Local Taxation Account (Scotland) Act, 1892. Thus a sum of £72,000 per annum is received by the Universities from Parliament and is administered by the University Courts in accordance with the ordinances of the Commissioners under the Universities Act, 1889.

The Scotch Education Department does not control these moneys in any way, but under Section 16 (1) (*b*) of the Education Act 1908, the Secretary for Scotland (the representative head of the Education Department) administers grants to the Universities from the Education (Scotland) Fund. (See above.)

The following table shows for 1908-9 the number of students and the allocation of the Parliamentary Grant of £72,000.

	Grants.	*Number of Students.*
Edinburgh	£25,920	3,286
Glasgow	20,880	2,699
Aberdeen	14,400	970
St. Andrew's	10,800	585
	£72,000	7,540

SECTION 8: HOW EDUCATION IN SCOTLAND IS FINANCED.

Sources of Income.

The money by which all these various educational institutions are financed may be said to come from four main sources, viz:—

(1) Treasury Grants derived from taxation.

(2) Receipts from local rates.

(3) Endowments and receipts from investments of corporate bodies.

(4) Fees of pupils or students.

The public at large provide (1) and (2), the former to the central government, the latter to the local rating body. No. 3 is derived from particular bodies or individuals who have felt the importance to the country of a proper provision of education. No. 4 is a receipt directly from the beneficiary and bearing an approximate relation to the amount of the benefit received.

The contribution of the public under the first head flows as part of general taxation to the Treasury. The amount required is voted annually by Parliament, or is allocated specifically under various Acts of Parliament. The details of distribution to the various managing bodies are, with the exception of the University grants and the grants to reformatory (industrial) schools, administered by the Scotch Education Department. Under the second head the School Boards levy (through the Parish Councils) local rates of various amounts according to the needs of the area controlled by the Board. The amount so raised is what is required in supplement of grants from the central body and other revenues, to meet the current expenditure of the year in question.

(1.) CENTRAL FUNDS.

The Parliamentary and Science and Art Grants.

There is voted annually by Parliament for Public Education in Scotland, including the Science and Art Grants, a sum which is administered by the Scotch Education Department. In 1909-10 the amount granted was £2,147,291.

This total may be subdivided as follows:—

1.	Administration of the Central Offices of the Scotch Education Department and Audit of School Board Accounts	£ 22,320
2.	Inspection	41,482
3.	Grants for elementary education	1,759,394
4.	Grants for Continuation Classes, including Central Institutions and Secondary Education	166,500
5.	Grants for Training of Teachers	142,392
6.	Maintenance of the Royal Scottish Museum	15,203

It will be seen that, of the total, administration takes about 1 per cent, inspection about 2 per cent, elementary education 82 per cent, continuation classes and secondary education about 8 per cent, training of teachers about 7 per cent, and the Museum less than one per cent.

(A) The Education (Scotland) Fund.

This fund, constituted by the Education (Scotland) Act, 1908, amounting in the aggregate to about £500,000 a year, now "pooled" and distributed as per Act of 1908, consists of: (a) Residue Grant; (b) Grants-in-Relief of local taxation before the Act of 1908; and (c) similar moneys assigned by the Treasury to Scotland as a whole in consideration of corresponding demands which the sister countries made upon the National Exchequer.

The first charges upon this Fund are for such educational purposes as cannot be considered a proper charge upon the resources of any one district, *e.g.*

(1) Expenses of inspection and examination in connection with Secondary and Intermediate Schools, so far as unprovided from Parliamentary votes;

(2) Universities, if they can make out good cases for aid;

(3) Central Institutions (in respect of either capital or maintenance expenditure) when the benefits are spread over the country as a whole; including Technical Colleges, Colleges of Agriculture, Schools of Art, etc.;

(4) Maintenance of National Institutions and payments to Provincial Committees for the training of teachers;

(5) Retiring allowances to teachers if superannuation scheme authorized by the Act of 1908 is established; and any other educational expenditure approved by the Department.

The method of financing Central Institutions is this: From the total expenditures (first approved by the Department) deduct income from fees and find

total deficit; ask Board to state proposed expense for next year; after deducting from this the income from fees, pay the balance from two different sources—half from Imperial Exchequer, half as divided between (a) Local Authorities and (b) The Education (Scotland) Fund. If a Central Institution has certain endowments, the Department takes them to save this latter Fund.

Under this plan the Department aids Art, Commercial, Veterinary, Navigation and other special schools.

(B) District Education Fund.

After above general charges are paid, the balance of The Education (Scotland) Fund is broken up into District Funds. The Districts (subject to combination if found desirable) comprise 33 counties and the 6 largest urban school-board areas, viz., Edinburgh, Glasgow, Aberdeen, Dundee, Leith and Govan.

The distribution among these 39 districts is made to School Boards in accordance with schemes of allocation prepared by the Department and so framed as to give greater aid to those districts in which per head of the population the burden of expenditure on educational purposes approved by the Department is excessive as compared with the valuation of the district. That is, the money is to be allocated upon a principle which takes account both of the relative cost of education and of the relative wealth or poverty of the district to which the distribution is to be made, as well as population.

In the application of the District Funds the principle applied is that the first charges on the Fund prevail: that is, all expenditure on the general educational services of the district, such as are not properly referable to any one School Board area, ranks as a first charge.

The existing Secondary Education Committees are utilized in applying District Funds. In every instance the School Boards of the district are largely represented on these committees, which may, therefore, be expected to perform a useful function in relation to all those forms of education which it may be beyond the resources of single School Boards to deal with.

The following items are prominent among the first charges on the District Fund:—

(1.) School Boards which have established Intermediate or Secondary Schools are to be recouped for reasonable expenditure incurred in respect of pupils drawn from surrounding parishes. Only so far as a school of this type is a central school serving not merely the parish but the district will it receive financial assistance from the District Fund.

(2.) Similar provision applies to Continuation Classes of an advanced character "providing further instruction for pupils who have left school" also to endowed schools under due safeguards. (In 1910 the Department paid about £112,000 to Continuation Schools.)

(3.) The District Bursary Scheme enables duly qualified pupils in each and every part of the district by means of bursaries or otherwise, to obtain education at a recognized Intermediate or Secondary School; or at a Supplementary Course of three years; or, where deemed expedient, at an Agricultural College, a Tech-

nical College or other Central Institution, or at a University or Training Centre or Training College.

(4.) Payments may be made to the Committee in aid of travelling expenses and maintenance of special teachers whose services can be placed at the disposal of School Boards for instruction in technical subjects such as Agriculture, Horticulture, Physical Training, Cookery, etc.

(5.) One half the cost incurred by each School Board in providing medical inspection and supervision of pupils attending schools within their districts.

(6) Grants-in-aid up to one half of capital expenditure of any kind, such as provision of schools or rooms for physically and mentally defective, blind or deaf mute children; for school gardens, laboratories, rooms for cookery, laundry etc., workshops, equipment for the use of travelling teachers or others employed by the committees.

(7.) Such further sums as the Department may approve for the promotion of education within the district generally.

Relief of Rates.

After providing for the aforesaid payments and for the approved expenses of the Committee, the balance is to be distributed to the School Boards and managers of State aided schools within the district as an addition to the "fee grant", i.e., in relief of their ordinary expenditure.

The Department calls upon every Board to exercise the "critical function" of watchfulness as regards the first charges paid out of each District Fund, and to exert all legitimate influence to secure that no money is expended for district purposes without a reasonable assurance of adequate return. The chief end of this "critical function" is to insure the efficient and economical administration of the District Fund as a whole; and incidentally it cannot fail to have a high value as tending to foster the interests of individual Boards in the larger concerns of the district. This function extends also to the corresponding charges on the Education (Scotland) Fund itself—a circumstance which brings the several Boards into more direct and living contact with every element of importance in the educational fabric of the country.

Bursaries.

Secondary Education Committees have not been slow to avail themselves of the opportunity given by the Act of 1908 to make payment out of the District Fund of such sums as they deemed necessary to enable properly qualified pupils to proceed from Primary to Intermediate or Secondary Schools. The expenditure upon bursaries from District Funds alone during the year ending 15th May, 1910, was £84,800. If to this be added an approximate expenditure upon bursaries of £65,000 from separate Endowment Funds administered by the Committees or by the Governors of the Endowments, a total of £149,800 is reached.

Expenditure of this kind is a necessary corollary of the system of Secondary Education which it is sought to establish, and in the more sparsely populated

parts of the country it is the only feasible alternative to providing at great cost a greatly increased number of Secondary Schools. The sum stated is so large, however, that in some cases at least it is feared that it has been in its essence either a subsidy to the parent or a means of indulgence to the pupil rather than a *bona fide* outlay upon the means of education, as intended.

A committee on Secondary Education, or the School Board or Secondary School may establish and maintain hostels for Junior Students, Bursars, or other pupils attending Intermediate or Secondary Schools; and if after careful management a deficit should occur, it may be paid out of the District Education Fund with the approval of the Department.

(2) LOCAL FUNDS.

Finances of the School Boards.

There are in Scotland 970 popularly elected School Boards, and they administer locally in the parishes and burghs the primary system of public education. In addition, they manage Secondary Schools, Junior Student Centres and Continuation Classes. The facts and figures given below only deal with institutions managed by the School Boards, and in each type a considerable number of cases are not within the public system. The School Boards may, however, be taken to represent approximately the Primary system; and the Continuation Class system in so far as the latter is below the Central Institution standard.

The work done by the School Board system involves the education in Primary Schools of about 803,800 pupils on the register; in Intermediate Schools about 22,400; in Secondary Schools about 10,000; and in Continuation Classes about 100,000 young persons. Besides these there are the candidates for the teaching profession in the Junior Student centres.

These figures give an approximate idea of the volume of the work in which the moneys noted below are expended.

Income of School Boards.

The total income of School Boards for the year ended 15th May, 1909, was £3,649,416, and the expenditure £3,747,947. These amounts do not include balances. The income was made up as follows:—

1.	School fees and books sold to pupils	£ 96,999
2.	Grants from Scotch Education Department	1,543,287
3.	Grant under Local Taxation (Customs & Excise) Act, 1890, and Education and Local Taxation (Scotland) Act, 1892	51,172
4.	School Rates	1,427,707
5.	Loans	452,175
6.	Income from Endowments	16,922
7.	Other receipts	61,154
		£3,649,416

Expenditure of School Boards.

The total is £3,747,947, made up as follows:—

1.	Election of Boards	£ 14,746
2.	Salaries of Administrative Staff	83,781
3.	Salaries of Teaching Staff	2,050,522
4.	Sites and Buildings	483,942
5.	Printing, postage, etc	22,548
6.	Books, apparatus, stationery	106,525
7.	Rents, rates, etc	114,564
8.	Furniture, repairs, etc	121,358
9.	Fuel, light, cleaning	179,936
10.	Interest on and repayment of loans	473,897
11.	Other expenses	96,128
		£3,747,947

Finances of other Local Bodies.

The finances of the Secondary Education Committees, the Central Institutions and the Universities have already been dealt with in so far as seems necessary for the purposes of this Report.

CONSPECTUS OF EDUCATIONAL ORGANIZATION IN SCOTLAND

SESSIONAL PAPER No. 191d

CHAPTER XIII: CONVERSATION WITH SIR JOHN STRUTHERS.

Information obtained from "Conversation" with SIR JOHN STRUTHERS, *Chief Secretary for Education for Scotland.*

DEPARTMENT OF EDUCATION AND NATIONAL SYSTEM.

There was a common Department of Education for both England and Scotland to administer grants which were given for purely Elementary Education as long ago as 1837; but as the system advanced and education widened and the amount of money spent became more important, Scotland in 1866 was separated from England and got her own grants from the Exchequer for Scottish education.

A word about the Scottish National System of education is essential, because all preparation for advancement in industry and commerce runs back to the fundamental question of primary education. Without a sound general education it is hopeless to do anything to build up Technical Institutions.

Scotland has probably the oldest National system of education in Europe—a school in every parish, whose ideal was to enable the better pupils to fit themselves for the University, the entrance standard of which was low. Amid changes and troubles that system of Parish Schools, in charge of men fit to prepare selected boys for the University, has endured till now, though in several respects it became inadequate as time went on. It was supplemented in recent years, the modern state of things beginning in 1872, when an Act was passed establishing for every parish a School Board elected by the people, and charged with the duty of providing sufficient schools and means of education for the people of the parish. Essentially each of those School Boards is an independent body.

COMPULSORY ATTENDANCE.

In Scotland all pupils must stay at school till they are 14. The School Board has certain power in individual cases to dispense with that requirement in cases of pupils over 12; but the Act of 1908, on which the Boards are acting very well, suggests that if a pupil is let away at 12 it should be made a condition that he returns to school part of the year, say in winter time in the rural districts, or attends Continuation Classes in the evening in towns till 16. So instead of stopping altogether at 14 they go on till 16 at least; and under the Act of 1908 every School Board has power to make attendance at Continuation Schools compulsory till 17. The Boards hesitate about putting it in force at once, but a number have proposed compulsion, and it is working quite satisfactorily. A good many others, Edinburgh for example, are thinking about it. Glasgow has already proposed modified compulsion as a first step in that direction.

Act of 1872.

Under the Act of 1872 the Parish Schools and Burgh Schools continued and hundreds of new schools were established because the Act introduced compulsory education up to a certain stage.

There was really no separation between Secondary and Elementary Education; every parish did its best to give both. In some parishes there was no Secondary Education; in some there was a great deal. Anything approaching systematic provision for Secondary Schools was in towns or burghs; though the rural parishes taught a few selected pupils Latin, Greek and Mathematics more or less in the schoolmaster's spare time. As time went on what might be called a separate system of Secondary Schools was evolved by agreement and discussion, and that movement culminated in the Act of 1908.

Act of 1908—Secondary Education Committees.

The Secondary Education Committees instituted by the Act of 1908 are part of a plan to do things which each School Board cannot be expected to do for itself. The Committee is really a co-operative union of the School Boards of the district.

There is a Secondary Education Committee for each of the six largest towns, then one for each county. This Committee is composed practically of representatives of the School Boards of both districts. The Committees are composed in various ways. Those School Boards which maintain a Secondary School have a right to direct representation; others which have no Secondary School combine in districts and elect so many representatives, and there are members, to a small number, added from the County Council.

Stress Upon Conditions for Health.

The Act of 1908 lays great stress upon the health conditions of schools and children. Children who enter school will be medically examined, and re-examined at definite intervals, and special examinations will be made of all children reported by the teachers; the object of all this being to build upon the system of education measures for promoting the health of the country. Defective children found are set aside, and special education provided for them. If children come to school dirty, neglected and filthy, the School Board has power to summon the parent and ask the reason, and if not satisfied that the parent has been doing all he could, the Board can prosecute, and meanwhile take the child in hand. If satisfied that the parent has done what he could, and that the condition arises through insufficient means, then they have to feed and clothe that child till the parent is in a position to do so—the object being to make health considerations a much more important element than hitherto in the education of children, whether general or vocational—to make sure that the arrangements do not conflict with proper health conditions.

School Boards—Functions and Powers.

The Department has not taken away the original powers of the School Boards, which they hold as fundamental, because they want parents to be able to say that they have a direct voice in choosing the teacher most suitable for the district, and in controlling to a certain extent the education of their own parish.

The school is always under the control of the Local Authority, which engages the teacher and takes all responsibility for the buildings. It gets grants from the Secondary Education Committee, but more or less on a fixed basis according to expenditure that has to be approved by the Department, and the Committee can remonstrate either way.

If a School Board fancied some apparently eccentric and absurd scheme of education, it would be at liberty to carry it out in its schools, and by law the Department could not do anything; but of course it does exercise enormous influence by giving grants to School Boards if they do certain things, and a School Board would have to carry out those absurd and eccentric courses entirely at its own expense, by means of a rate levied upon the parish. If a course of education does conform to the Department's regulations, then the Board get probably 50% of the whole cost; so that naturally there is a strong inducement to follow what everybody would think a proper course. The Department has a veto, but at the same time the Local Authority is independent in this matter and in fact has very considerable freedom in varying its courses of instruction within the Department's general regulations to suit its particular view. The Department tolerates all sorts of things by way of education in a particular parish, though they may think them unreasonable. It would be perfectly hopeless to thrust anything on the parishes on the ground that it would benefit the locality, if the School Board did not approve of it. In such cases the Department could only go on reasoning and hammering at them, but doing it in a reasonable spirit, with a little humour now and again. (Sir John added that he sometimes thought the Scotch were the only people in the world who appreciated humour).

Suggestion for Canada.

Sir John remarked that Canada, having no State Church, afforded a fine opportunity for what might be called an "Established Schoolmaster" in every Township—not to be simply a teacher, but to take charge of the general education of a place and see that the standard of culture was kept up in that district. He had observed also that a majority of Canadian teachers were women; and while he had the highest admiration for women teachers, especially in junior classes, experience in Scotland had shown that it was absolutely essential for satisfactory education to have a man in every parish who is more or less in charge of education in the district, and who sets a standard.

Vocational Instruction and General Education.

The feeling has been growing for ten or twenty years in favour of vocational instruction, that is, for direct application of education to some individual means of earning a livelihood, whether profession or trade. Yet even now the great subject of education in Scotland is general education; and though they are advancing very rapidly in the direction of special education, they regard the soundness of their Elementary and Secondary Education as the most important object they can possibly have in view, and that anything else done must be entirely subsidiary to that. Yet a feeling has been growing that general education may be too general; that when a boy leaves either Elementary or Secondary Schools he is going to earn his living in some particular way, and therefore it is well that in school his mind should be directed towards the kind of knowledge likely to be useful in his future occupation.

That is provided for both in Elementary and Secondary Schools. At 12 years average children are supposed to have completed what might be called a purely Primary Education; to have had good sound instruction in Reading, Writing, Arithmetic, some knowledge of Geography and History, some practice at Drawing, and some knowledge of Nature Study. For children who have not left the Day School at 12 there are courses classified roughly as Commercial, Industrial, Rural and Girls' Courses in Household Management; and in every school of any size which takes pupils beyond 12 the aim is to have one or more of those courses according to the size of the school and the nature of the locality. Those courses are making very great progress, and are very much appreciated. They are given by the regular teacher, and large town schools generally have sufficient teachers who have specialized in one or other subject to provide the necessary instruction in these Supplementary Courses more or less completely. In the country districts of course this cannot be so, and the County Committee is supposed to come to the rescue and provide a special staff of teachers of different subjects who will circulate through the county according to proper arrangement.

In the case of apprentice boys and girls in town shops, the difficulty of dealing with the employer is very great. A good deal of progress is being made in Edinburgh and Glasgow in the way of getting employers to make special arrangements for day classes, but substantially the continued education of those who have gone to work in towns is provided in the Evening Classes, which are connected with the Secondary Institutions.

Vocational Training and Special Occupations.

The almost universal notion in Scotland is to give a boy the best general education possible as long as he will remain at school, and then let him go into the particular line of life he is to follow. Once he knows what further knowledge he needs, let him come back and make special arrangements for instruction; but so far as he has to acquire technical skill (manipulative skill), he would do that far better while earning his bread in remunerative employment.

There is another function that a school can fulfil in that connection. In very many industries specialization prevails to a remarkable extent, and an apprentice may be working for years at only a little snippet of the whole thing, so that as to manipulative skill he is perfect, but he has not an all-round knowledge of his business. Such training is defective, and technical classes could supply what he does not know about it technically, as many of the Scottish institutions do. For example, in the Glasgow and West of Scotland Technical College there are classes for boiler-makers and every occupation of the district, in which the instruction is not merely theoretical but practical—not practical in the sense that a boy is trained to become a boiler-maker before he is a boiler-maker; but when he is a boiler-maker they say, "Now, here are certain things you want to know about the business, more or less theoretical, and there are certain other things you ought to be able to do". Then by arrangement with the trade they provide classes in the day-time, in the evening, in the morning, at all sorts of times.

If the grocers, for example, said they would like classes for the instruction of their hands, the Technical College would consider it, see what sort of attendance they might expect, invite two or three leading men in the industry, both employers and workmen, to join with some of the governors of the College in forming a Special Committee for a class of that character. Then they would search about for suitable instructors, and start a class in the College. That would happen in a lesser degree in Intermediate Centres, such as Kilmarnock, and Hamilton, but could not be got in the smaller villages.

Trade Instruction.

The West of Scotland College in Glasgow has a system of trade instruction worked out probably as well as anywhere in the world. It is not a system of preparing boys before they leave school for some industry; it supplements the workshop with instruction which the shop does not give, either theoretical, or it may be mechanical, in so far as the boy has been restricted to a small part of his trade.

The shipbuilders have arranged for some of their apprentices in the College. The apprentice works for a year; then they let him off to attend the Technical College in the winter, the employer paying his wages; then he goes back and works at shipbuilding in the summer. That goes on for three or four years and in the final year they let him go to College a full year without going to the workshop at all. They pay him according to arrangements made by individual firms. Many have gone the length of paying the apprentices' wages for the full time, even though they may have been out of the workshop for a whole year.

Continuation Classes by School Boards.

What are called Continuation Classes had been in existence in Scotland for a generation, but as a rule flourished only in larger centres of population, which was very natural, because the classes were usually held in the evening

and difficulties of evening instruction in the country were patent. The Act of 1908 allows Boards to hold such classes in the afternoon or daytime, and suggests that in rural districts the pupils should attend the ordinary Day Schools in the afternoon, say through the winter months, but instead of being put into a class and taught along with other pupils, should be regarded as students studying on their own hook, the schoolmaster giving them advice and assistance at such times as he can spare. It is really reviving an old practice in Scotland, when farmers' sons and such people, who had long left school and were working on the farm, attended for two or three months in the winter time and studied their own particular subject—land surveying, improving their arithmetic, or anything they had a fancy for, the schoolmaster being at hand to give them what assistance they wanted.

The Act has brought a tremendous increase in the number of School Boards that have started Continuation Classes or made arrangements for the further education of children; and the Department hopes, by the usual kind and persistent pressure and reasoning, to get this practice made practically universal. These courses are largely in the evenings, but in the rural districts the day-time is possible and desirable because of the farm work in winter, where special arrangements can easily be made to allow pupils off.

Continuation Classes by Employers.

Scotland has a fair number of instances, not very many, of individual firms starting Continuation Classes and continuing them on their own responsibility. They get a grant from the Department, but bear the deficit of expenditure which the Local Authority would have to bear. If it is recognized as being a proper institution, with proper teachers, etc., and if the Local Authority offers no objection, the Department gives a grant.

The North of Scotland Railway Co. maintain Continuation Classes in connection with their railway shops at Inverary, and do not call on the Local Authority to contribute anything. In the case of that railway school the Department pays roughly three-quarters of the expenditure.

All the Department's grants are paid to the managers of the schools, not to the Local Authorities, and it is for the Department to decide whether the school was one deserving State support. Whether it was under the School Board or under a body of private managers was immaterial; but as a matter of courtesy and good arrangement the Department always consulted the Local Authority as to the necessity for the school and as to why they did not take it up themselves.

Vocational Training in Secondary Schools.

In reference to vocational training in Secondary Schools, Sir John said he was speaking more of what he hoped they would have than of what had been actually achieved, because of the very, very strong trend in favour of general education in the Secondary Schools, and the difficulty of getting them to arrange a special course for entrance to any particular kind of institution other than

a University. Yet in a fair number of centres the possibility of pupils going to the Technical College is being kept in view.

The stimulus for the establishment of a Technical Class is very often supplied by the people; it depends a good deal on the district. The School Board or the Secondary Education Committee has part of this duty, and lastly the Department and its Inspectors, who make sure that this matter is being considered. The latter form a very useful means of getting matters considered by the local people. The 67 Inspectors—28 full Inspectors and 39 assistants—cover a population in Scotland of about 4,500,000. The Inspector is the responsible person to whom all instructions are conveyed. The 28 inspectorates are arranged in four groups. There are now three "Provinces" and it was necessary for special reasons to make the North West Highlands a special district.

Specialized Courses in Secondary Schools.

In the Secondary Schools the principle of general instruction is strong, and they do not admit any specialization until pupils have got the Intermediate Certificate, at about the age of 15 or 16. Till that age every pupil is following the general course. Of course there is a certain amount of latitude, English being the all-important subject. The course includes also instruction in another language, ancient or modern, according to choice. Mathematics, History, Geography, Science and Drawing are the other five main subjects. After pupils have obtained the Intermediate Certificate the Department asks the Secondary School to propose any more specialized course, such as they think best suited for their pupils in view of their future occupation. Of course the majority of the pupils who stay on in a Secondary School to the age of 15 or 16 have in view a University course. The great bulk of the instruction, even after that stage, is on the same old University lines; but a certain number aim at going to a Technical College to prepare for engineering and such like professions, or to Agricultural Colleges; and if a school has a staff and equipment for it they will make a special course suitable for those pupils.

In the case of girls the Department very strongly presses the formation of special courses for those beyond 15 who have the Intermediate Certificate, to prepare them for managing a house in every way, Cookery, Laundry Work and what is called Housewifery forming the basis of the course. They always have English. They probably go on with a modern language which they have already studied, and according to their taste will continue Drawing or take up Music. They like to stay from 15 to 18. A good many take that three years' course, though a good many drop off after two years.

In all towns of very considerable size there is instruction in Woodwork for boys over 12. In the country districts there is a much greater diversity. It is a case of slowly getting teachers qualified, or of one county being more active in that direction than another. But the goal which it is believed will soon be reached, is to have Woodwork for boys of 12 and upwards as a general subject through all the Primary Schools, just as Drawing is at present. For boys of 15 the Department favours special courses, such as the Commercial Course

or that preparing for the Technical or Agricultural College, which will be optional with the locality, which has the authority.

Local Management with Central Guidance.

This combination of local management with central guidance—which is not absolute control, but approaching control—Sir John considered of enormous value; for while any system by which each parish in Scotland was left to provide the education itself might be a great deal cheaper than at present, it would be hopelessly insufficient; on the other hand, any system by which the Department took the management of all the schools, while it might be more economical than the present arrangement, would not be so satisfactory in many ways. Sir John wanted many brains actively thinking about these problems; and these cannot be got to think to purpose unless they are given responsibility.

There are certain things which even the counties cannot do for themselves, such as the training of teachers (which in Scotland is a national matter); also, University Education, the work of Technical Schools, Colleges and Schools of Art. There cannot be more than two or three outstanding institutions of the highest kind in a country the size of Scotland. Hence, in addition to the School Board for every parish, and a County Committee for every county, there are bodies for Teacher Training and for Higher Technical Education in each of the three "Provinces" which, for purposes of educational administration, were formed to centre around each of the Universities—Edinburgh, Glasgow and Aberdeen.

System of Organization and Co-operation.

The system of organization is that in each "Province" in Scotland there is a Technical College and a School of Art; also a School of Domestic Science and an Agricultural College. These are the centres of operations; they give the most advanced instruction, and School Boards are asked to frame courses which fit into those of the Technical College, etc. That is gradually being done, so that a coherent, organized system of classes is being obtained. A conference was arranged between the Glasgow and West of Scotland Technical College and the Glasgow School Board, which till that time had not been co-ordinating their work. With difficulty they were persuaded to have a common system of organization in which the objective of the Continuation Classes conducted by the School Board should be the Technical College, and which would be beneficial to the pupils to the extent to which they carried it. Of course the co-ordination is a loose one, no rigidity being insisted on, but the Glasgow and Govan School Boards accepted the proposal, and now it has spread over practically the whole of the south-west of Scotland; so that classes in Kilmarnock, Dundurn, Paisley, Greenock, Hamilton, and many other places are all directly linked on to the Technical College at Glasgow.

A certain amount of work done locally counts for so much work done in the Technical College, and a student who has completed the course at certain

other institutions, called Intermediate Centres, can pass on to a more advanced class in the Technical College. Each of those centres at Kilmarnock, Paisley, etc., is in turn a sort of centre of operations for all the smaller Continuation Classes held throughout the villages and country districts. The ideal, which has been largely accomplished, but is not absolutely universal, is to secure a certain coherence in the whole thing. The Technical College with the consent of the School Boards appoints one of their men, who now makes it his sole business to go round those schools and discuss with the managers what they might do and what they should aim at, how classes should be arranged, etc., also to report as to the quality of the work done. The Department asks him to send his report to their District Inspector, who adds such observations as the Department thinks proper before sending it to the manager of the school. Of course anything added is merely a suggestion, and has no legal authority. The system is based upon securing willing agreement, and it is only in the very extreme cases that the Department resorts to orders.

The Provincial Committee does not deal with co-ordinating between the Local Authority and the Technical College, because it specializes on the training of teachers. The Central Institutions are regarded as coming in the place of the Training Colleges, and the governors of the Centrals and of Agricultural Colleges as corresponding to the Provincial Committee for purposes of organization of Technical Education.

The Agricultural Colleges.

The Agricultural College of a "Province" is under the management of a body of governors chosen by the separate counties throughout the "Province" with the addition of some representatives of the University, the Town Councils, etc., so that essentially the Agricultural College of a "Province" is under the management and influence of agricultural opinion in each of the counties that it serves. The institution is not, as in England, merely a College whose sole business is the training of from 30 to 100 students who are making a systematic study of agricultural subjects, and having nothing to do with the Training Authorities. In Scotland the Agricultural College is really a combination of the Agricultural Authorities—using that term for a group for half a dozen or more counties which can be combined for the advance of agriculture in the district. The training of a body of students who are going through the full course in the College is in a way only a by-product, and not the important object, which is the development of agriculture in the district by any means the College can employ. Obviously this process of relating to the College the instruction on agriculture in the Continuation Classes is one of the purposes.

Agriculture.

The business of the Agricultural College in each "Province" is to draw up special schemes of instruction in Nature Study—not agriculture, but more general foundation for the specific study of agriculture—suitable for the schools of that

DUDDINGSTON, EDINBURGH: WORKING ON VEGETABLE PLOTS.

DUDDINGSTON, EDINBURGH: FRUIT PLOT.

KETTINS, FORFARSHIRE: CLEANING VEGETABLE PLOTS.

KETTINS, FORFARSHIRE: ROCKERY AND HERBACEOUS SECTION.

district, and including the practice of gardening or School Gardening. When these are started by the School Boards the officials of the Agricultural College visit and advise with the teachers, and report on them to the Department's inspectors, who include in there general report on the school the remarks of those specialists on that particular subject, who are asked by the Department to advise, inspect and stimulate. The Department cannot have all sorts of people running in and out of the schools; and all this visiting of teachers from special institutions such as the Agricultural Colleges is done in a certain systematic way which the Department can control so that the school is not unduly interfered with, and so that there may be something like consistency in the advice that is being given to the school.

The report of such an officer of the Agricultural College goes first to the Department's Inspector, who sends it to the Department, which in turn sends it to the School Board who manage the school, with any additional comments they want to make; and if there is any reason for so doing, the Department sends a copy of that to the Secondary Education Committee.

In the County of Fife there is a combination of purely rural, mining, industrial and all sorts of classes, The School Boards make provision for Primary Education and the less advanced Continuation Class work; and the central towns provide, in addition, first-rate Secondary Schools. A strong Secondary Education Committee supplies specialist teachers for mining and other branches to circle around the district.

Parish Schools and Bursaries.

In Scotland the traditional desire of some parents is for one of their boys to go to the University; and that applies very strongly in the more remote districts where there is no industrial activity. The most interesting instance is the Island of Lewis, where the population of 30,000 lives on what is largely a peat bog—just about the dreariest conditions for existence imaginable—and frightfully poor. Yet at Stornoway in recent years, under the system described, the Secondary School is filled with pupils from all parts of Lewis who are kept there by means of their bursaries of incredibly small amounts. In proportion to its population Lewis is turning out for the final Leaving Certificate (fitting for the University) a larger number of pupils per thousand than any other part of Scotland. It is astonishing. Many lads from the almost abject poverty of the crofter's house get on to the University and make their mark in after life. The same sentiment prevails in a place like Caithness, which has one of the highest records of pupils obtaining the Leaving Certificate. Banff and Aberdeen are also characteristic in that way. On the other hand, Glasgow, Fife and the Midlothians—all those industrial districts—are quite low down in the proportion of pupils who reach the scale of Secondary Education which fits them for the University.

Intermediate Schools, "Centres" and Bursaries.

Under the Act of 1908 the School Boards and Parish Schools are continued, but in addition there is scattered all through the country, a class of Intermediate

Schools taking pupils to 15 or 16 for Secondary Education. Lastly, a smaller number of what might be called fuller Secondary School take pupils up to 17 and 18 and prepare them directly for the Universities—the standard of University education having in the meantime advanced enormously.

There is no rigid separation of the Elementary School from the Intermediate and Secondary. The old Parish Schools have full liberty to carry their pupils as far as they can, but the Department advises the school, in the pupil's interest, not to keep him at the original school for the honour and glory of the teacher, but to send him as soon as possible to a proper Centre. For that purpose there is a provision of money for Bursaries under the Act of 1908; so that if a boy in a Highland glen is found to be a promising pupil, the teacher gives him some instruction in secondary subjects, and then advises him to go to a Centre, there being always one within half a dozen miles or so. If the boy cannot travel home every day, and has to board at the Centre, he can get an allowance to help meet the extra cost by applying to the Secondary Education Committee. The principle is that it would be too costly to put a full quota of Secondary Schools in every parish, so it is made possible for the boy who lives in the most out-of-the-way corner of Scotland to be in the same position as regards Technical Education as if he were living next door to the Secondary School.

The Bursaries are not awarded by competition; it is a case of the boy being sufficiently qualified, as shown on an examination for that purpose. The parents may represent to the Secondary Education Committee, more or less confidentially, that they cannot afford to keep the boy at the Secondary School, and he gets help "as a matter of right"—as it is put in the Department's circular. At the same time the Department does not want to make it a matter of absolute right so that a head pupil's parents, who are wealthy farmers or have big incomes living far away from Secondary Centres, can come and say, "You must pay the whole of my boy's education at a Secondary School."

The Bursary plan referred to applies also to the Technical Classes. The Central Committee of each county has funds at its disposal from which it can make grants to assist students to go further than the district, to another Centre, for technical instruction. Thus if a boy did not live in Glasgow he could yet get the benefit of the Technical College there. The plan does not give him absolute equality, but it does a great deal to mitigate the inequality as between young men living in Ayrshire and those living in Glasgow.

Training Teachers for Technical Education.

A Provincial Committee, which consists of representatives of the Universities and higher Technical Schools, provides for the Training of Teachers. In order to become a teacher of even a Primary School, the candidate must go through a general course. Beyond that the Department offers him the opportunity of getting special qualifications. For example, for teaching in Rural Schools, he can secure qualification through a certain course in Agriculture and subjects relating thereto over and above the rest of his work. That instruction is to be got either at the Agricultural College or through Instructors sent out from it, or through people specially approved by the College.

Scotland has not had difficulty in the selection of special teachers in the technical and industrial field as between rival factions wanting to have a man who is affiliated with organized labour or as representing free labour. That point is never enquired into. The Local Authority makes the appointment, and invariably sets itself to enquire who is the most capable teacher of the subject, and not whether he is a member of a Union or not. It is only very accidentally, or probably for some special personal reasons that the question whether a man is a member of the Union or not ever comes up for consideration. The Department has had no hint of any local difficulty where prejudice might be shown against one teacher and in favor of another in that respect.

There are no Central Institutions or others in Scotland doing Trade School work—teaching a trade as such—and there is no movement in favor of it at present.

In Elementary Technical Schools in towns and cities, for a subject like Engineering, the Department would expect as teachers not merely mechanics of ability, but graduates of Technical Colleges. For an ordinary handicraft subject they want capable workmen who can teach. Experience of Continuation Schools had made them distinctly doubtful of having technical subjects taught well by the ordinary school teacher. He would do perfectly well in Arithmetic or Mathematics applicable to technical industry, but technical instruction requires men who are masters of their craft or business. In textiles you must have a man who is really a capable spinner, weaver, dyer, etc, and the difficulty is to get men who combine that knowledge and ability with sufficient general education and power to teach. In the larger centres there is no difficulty in getting such men by offering decent salaries, but in smaller classes, less advanced, there is difficulty. If choice must be made Sir John was very distinctly in favour of the man who knows the practical work and can do it; teaching ability will come from practice. In large towns like Edinburgh short courses in the art of teaching are being provided for such people. These help them to know more or less how to handle the classes. The engagement of those men is left entirely in the hands of the Local Board or the County Committee, and as a rule, except in large towns, the latter make the selection.

"Education for Scotland Fund."

"The Education for Scotland Fund" has a most complicated story. It is constituted of amounts, which as grants-in-relief of local taxation, were given to education. They have been "pooled" and re-allocated for various purposes, the first one being the maintenance of Central Institutions; next, the maintenance of Secondary Schools; thirdly, the provision of Bursaries to enable suitable pupils to attend Secondary Schools; fourthly, various other matters which a small School Board cannot reasonably be expected to do for itself, and which a combination of Boards represented in a County Committee can do for all the parishes collectively, such as providing teachers of special subjects. Thus if a parish is not able to employ a teacher of Cookery all to itself this Committee employs several and circulates them around the several districts. So with

manual work, woodwork and other subjects. The County Committee does that.

Other Funds for Technical Instruction.

The Department spends in grants for Continuation Classes about £112,000 a year. That is exclusive of the grants to the Central Institutions. For Continuation Classes the Department makes the grant according to attendance paying three-fourths of the expenditure after deducting revenue from fees. There are a number of schools or classes which do not get quite three-fourths of their expenditure.

The plan of financing Central Institutions is to take the total expenditure which has first been approved by the Department, ask the Board of Governors to state their proposed expenditure for the next year, with usual increases or diminutions and reasons, and after deducting from that the income from fees, to pay the whole balance from two different sources—half from the Imperial Exchequer, and the other half about equally from rates by the Local Authorities and from the Education for Scotland Fund. If the Local Authorities exceed the estimated deficit, and the increase is reasonable, the Department admits it. If a Central Institution has certain endowments, the Department takes them to save the Education for Scotland Fund.

How the Education Fund is Divided.

There is a point that the authorities are beginning to recognize now. The first charges upon this Education Fund are those for the training of teachers and the maintenance of the Central Institutions. When those are served, the balance is divided to the various counties according to population, and inversely to their valuation—the richer a district the less it gets per head of the population. Then the first charges upon the County Fund are the proper maintenance of Secondary Education, provision of Bursaries for Secondary Education in the district, the supply of circulating teachers, and one or two minor items such as medical inspection.

After those are satisfied the balance is distributed pro rata to the School Boards of the county; so that if the Department spends more upon the Central Institutions there is so much less to distribute to the counties; if the counties spend more on the Secondary Schools, Bursaries, etc., there is so much less to distribute to the School Boards. What the School Boards get is used in relief of the rates; so that really every halfpenny spent on the Central Institutions means something out of the pocket of the ratepayer in the long run. That works well, having the great advantage of securing proper attention to advanced education which did not appeal to the ratepayer. If the Department said, "The maintenance of these Central Institutions is to be a charge upon the local rates," the whole of Scotland except two or three sections would object. Under the existing plan, since the Department is charged with the administration of the law, of the Parliamentary grants and of the Education for Scotland Fund,

whether more or less is to be spent out of the County Fund on Secondary Education—with less going to the School Boards for the relief of rates—depends to a certain extent on the Department, which has to be guided more or less by what they feel to be the local opinion.

Financing Schools of Art, Etc.

The three large Schools of Art in Glasgow, Edinburgh and Aberdeen—the two first being of the very highest rank, with many features of highly specialized ability in their particular lines, and with an abundance of students and a very high reputation in the Art world—are financed on the lines described for Central Institutions. In Glasgow, Edinburgh and Aberdeen the Colleges of Domestic Science or Household Arts, the Commercial College (called the Athenæum) in Glasgow, also the Veterinary College, and the Navigation School at Leith are all maintained in the same way. There is not sufficient local support for those schools, so the Department meets the whole expenditure after deducting revenue from fees, half of amount being from the Education for Scotland Fund.

One half of the expenditure for buildings and equipments for these Schools of Art and Domestic Science Colleges is met by the Department if their plans are approved, and the other half is found by the locality, through subscriptions or otherwise.

There are separate grants to the Universities, which are partly directed towards scientific education.

Development Fund for Research.

Lately a Development Fund has been established for the United Kingdom to aid many things, such as agricultural research; and institutions such as Agricultural Colleges in Scotland may be expected to develop research work through grants from that source. So far as agriculture depends upon information, instruction and advice, all operations will be conducted through these Agricultural Colleges. There is a Development Commission for the three Kingdoms which administers the Fund to the extent that grants are not paid from it except upon the recommendation of the Development Commission. Any body of persons or any government department may make application to the Commission for a grant for a specific purpose, and justify their application. The Scottish Department made application lately to the Development Commissioners for a grant for the Agricultural Colleges in Scotland, and got a grant for capital expenditure of £60,000 and a promise of an annual amount which depends upon circumstances.

SESSIONAL PAPER No. 191d

CHAPTER XIV: ORGANIZATION OF EDUCATION IN EDINBURGH.

SECTION 1: THE EDINBURGH SYSTEM.

The capital of Scotland has always held a high place in the provision of education, and the juvenile part of the population enjoys facilities in all grades which are probably unsurpassed elsewhere in extent and quality. The number of independent bodies concerned with the problem of education is great and these engage in an honourable rivalry in which, under the guidance of the Scotch Education Department, little of overlapping or unhealthy competition is to be discerned.

The multiplicity of administrative bodies, and the mutual relations of the various types of institution, present a difficult and perplexing problem. It will be seen, however, that beneath this apparent complexity there lies a well ordered and organically articulated system, in which may be found most of the elements demanded by the modern theory of education.

The following classification may be given:—

A. University Education.

1. The University of Edinburgh, with faculties of Arts, Science, Medicine, Law, Divinity and Music.
2. School of Medicine of the Royal Colleges.
3. The Edinburgh School of Medicine for Women.

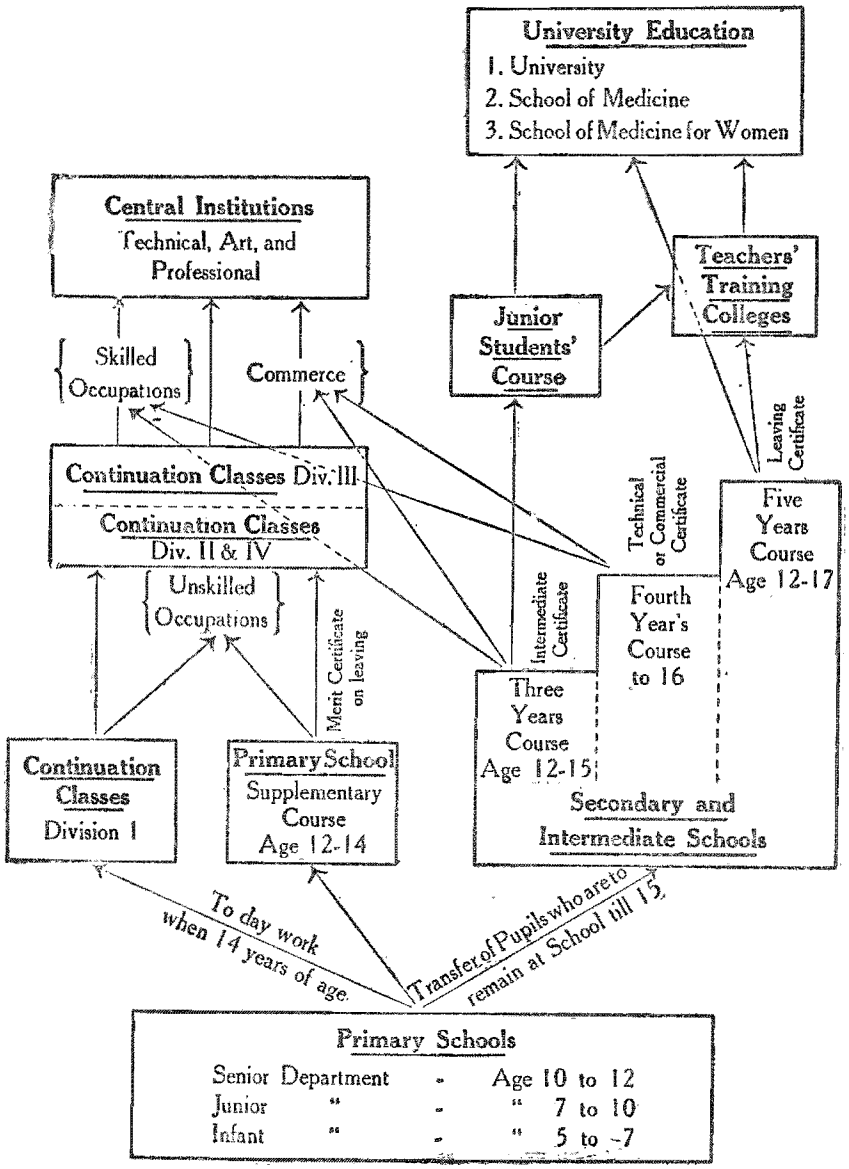
B. Technical, Art, and Professional Instruction.

1. The Heriot-Watt College.
2. The College of Art.
3. The Royal (Dick) Veterinary College.
4. The Dental Hospital and School.
5. The College of Agriculture.
6. The School of Cookery and Domestic Economy.
7. The Training Colleges for Teachers.
8. The Continuation Classes of the Edinburgh School Board.

C. Secondary and Intermediate Education.

1. The Endowed Schools.
2. The Private Schools.
3. The Schools of the Edinburgh School Board.
4. Junior Student Centres (Training of Teachers).

Diagram shewing the connection between the various Types of Institution



D. Primary Education.

1. The Schools of the Edinburgh School Board.
2. The Voluntary Schools.

E. The Special Schools and Institutions.

1. Endowed Hospital Schools, viz.:—
   Donaldson's Hospital.
   John Watson's Hospital.
   Trades Maiden Hospital.
   The Orphan Hospital.
2. The Royal Blind Asylum and School.
3. The Institution for Deaf and Dumb.
4. The Special Schools of the Edinburgh School Board:—
   Willowbrae Defective.
   Duncan Street Defective.
   St. John's Hill Day Industrial.

ADMINISTRATION OF EDUCATION.

It will thus be seen that a very ample and diversified system of education exists. From the number of institutions and the variety of public bodies concerned in their management, there ensues that vigorous and widespread interest in educational welfare which is characteristic of Edinburgh.

One part of the system is, however, wanting. There exists in the city no central institution for music which would link up such instruction as is given in the Primary and Secondary Schools to the advanced work done by a relatively small number of students in the University, although in Evening Classes in the Heriot-Watt College instruction is given in the theory of music.

The population of Edinburgh in 1910 was 320,315, and the number of persons engaged in the work of education, as members of managing bodies, administrative officers, teachers of all grades, and subordinate workers, may be stated at not less than 3,500. The annual expenditure on the whole system is approximately not less than £500,000 ($2,400,000); and in spite of the great number of independent managing bodies it may be said that the expenditure results in an efficient and characteristic system. When it is borne in mind that in each local area of England under the Act of 1902 the co-ordination of all grades of education is promoted by one local Education Authority, it will be realized that the efficiency of the system of the Scottish capital gives strong evidence of the cordial co-operation and high aims of the many bodies engaged in the work of education.

The work of the office of the School Board is divided into the following departments:—Elementary Education, Higher Education, Medical, Educational Information and Employment Bureau, Stores, Works, School Attendance, and Finance.

Vocational Guidance.

The Edinburgh Board has a full Medical Inspection staff and an Employment Bureau of proved success. The former attends to the physical welfare of the child throughout his school career; the latter picks him up as soon as he is near the leaving age, advises him as to the pursuit for which he is fitted and as to the opportunities for employment in the city; and frequently secures him a position under satisfactory conditions. The employers of the city are in active and cordial co-operation with the Bureau, and also with the highly-organized system of Continuation Classes which the Board has established.

Educational Finances.

The revenue of the Board applicable to the year ending May 15th, 1910, came from three sources, as follows:—

(1) *From Government (per Scotch Education Department):*

	£	s.	d.
Day Schools: (*a*) Code Grants	50,255	19	9
(*b*) Relief of Fees	21,000	0	0
Continuation Schools: (*c*) Code Grants	9,139	2	1
From Education (Scotland) Fund	22,275	13	11
Total Income from Government	£102,670	15	9
(2) *From Local Rating Authority*:			
School Rate	138,000	0	0
(3) *From miscellaneous sources:*			
Fees, books, etc., sold, Endowments, etc	6,719	6	7
Total from Rates, etc	£144,719	6	7
Total from all sources	£247,390	2	4

Of the total revenue the sum of £44,484 2s. 2d. was expended in the repayment of loans (principal and interest) and in respect of capital expenditures not covered by loans. When that amount was deducted from the income from rates, etc.,the sum of £100,235 4s. 5d. remained to be applied to maintenance, together with the sum of £102,670 15s. 9d. from the Government.

The maintenance expenditures were as follows:—

(1) *Education Expenses:*

	£	s	d
(a) Day Schools	176,301	1	10
(b) Continuation Schools	14,955	19	4
(c) Administration, Etc	10,592	6	5
Total	201,850	7	7

The percentage of the total expenditure of each of these three items is as follows:—(a) 71·6%; (b) 6·1%; (c) 4·3%.

The increased provision made for Education in Edinburgh by the Local Authorities is shown by the yearly amounts from the rates, as follows:—

Year.	Population	Amount. £
1880.....	235,670	23,356
1890.....	302,262	52,170
1900.....	317,459	99,106
1910.....	320,315	138,000

SECTION 2: PRIMARY EDUCATION.

Classification of Pupils.

In the 39 Primary Schools under the Board the classification of pupils follows lines laid down by the Scotch Education Department, viz.—Infant Division, in which instruction is provided suitable for children under 7 years of age; Junior Division, for children between the ages of 7 and 10; and Senior Division, for pupils between 10 and 12.

Liberty of classification irrespective of age is, however, permitted provided that satisfactory reasons can be shown for the retention of children in any Division beyond the ages specified.

The instruction given in these Divisions is so graded that the pupils are led by easy stages to the standard of attainment necessary for the Qualifying Examination, which forms the gateway to the Higher Grade School or to the Supplementary Courses provided in 32 of the Primary Schools.

General Features of Primary Curriculum.

The following is an outline of the instruction given in the four Divisions, though the Curriculum varies slightly in detail to meet requirements of school districts.

In all Divisions provision is made for instruction in Reading, Writing, and Arithmetic, according to their degree of advancement; also in Physical Exercises, Singing by note, Drawing, and the committing to memory of pieces of poetry of literary merit, while girls receive instruction in Needlework. In addition a certain time is devoted to Religious Instruction and the teaching of temperance, and every opportunity is taken to train the children in habits of punctuality, cleanliness, neatness, and good manners, and in the duty of consideration and respect for others.

In the Infant Departments the instruction is necessarily of an elementary nature, and full use is made of Kindergarten methods.

In the Junior Divisions a start is made with the study of Geography; practice is given in the speaking of English; and Nature Study is introduced, the object of the latter being that children may obtain by means of observation

and inquiry a knowledge of common objects, natural phenomena, and School surroundings. In the Senior Divisions the foregoing subjects are continued and amplified, and the study of History is introduced.

Instruction throughout the Divisions is so graded that normal pupils may complete this stage about the end of their 12th year, when, on being certified by the class-teacher and by the Headmaster to be of good proficiency in class work, they are presented to H.M. Inspector for approval of enrolment in a Supplementary Course or Higher Grade Department.

This presentation is termed the Qualifying Examination.

Pupils so presented are expected:—

(*a*) To read at sight with good pronunciation and intelligent phrasing, narrative prose of moderate difficulty.
(*b*) To write to dictation with good spelling and legible and regular handwriting.
(*c*) To answer questions as to the subject matter of, and the meaning of words and sentences in the class reading-books.
(*d*) To write a composition, the heads being given, or to give in writing the substance of a passage read.
(*e*) To know the four rules of arithmetic as applied to whole numbers, easy vulgar fractions and decimals to three places, and to be expert in applying this knowledge to the calculation, both mentally and on paper, of simple sums in money and in the common weights and measures.
(*f*) To be reasonably proficient in the other subjects included in the scheme of work of the class.

The qualifying stage being passed, those pupils who aim at obtaining the Intermediate Certificate enrol in a Higher Grade School, but those who are to leave school at 14 proceed to the Supplementary Courses.

SUPPLEMENTARY COURSES.

In these courses which are provided in thirty-two of the Primary Schools the curriculum is in the main a continuation and development of the subjects previously studied, but fresh interest is gained by directing attention to their bearing on the probable requirements of the pupil's after-school life.

The Commercial Course.

Pupils who are likely to engage in commercial pursuits enter the *Commercial Course* in which endeavour is made to give them such familiarity with principles of arithmetic as will enable them to deal with concrete cases such as occur in actual business transactions. The more ordinary methods of book-keeping are explained and illustrated by keeping accounts in simple form; the purpose and proper form of common commercial documents, such as invoices, receipts, cheques, etc., are explained; and systematic exercise is given in handwriting with a view of securing speed while preserving legibility and correctness of form.

The Industrial Course.

In the *Industrial Course*, other puplis receive instruction in elementary Geometry and Mensuration by construction and measurement of figures drawn to scale by use of compasses, protractors, and set squares. The use of "graphs" to

indicate the relation of varying quantities is taught, and the methods of measuring solids are indicated; practice is given in Arithmetic, and the pupil is made familiar with the use of the ordinary foot-rule and decimally divided scales. Pupils also attend the school workshop, where they are taught the proper use of tools and are exercised in the production of various objects from working drawings, as well as in the construction of such drawings from actual objects. Those sufficiently advanced are also instructed in the simple principles of Mechanics and in such problems as are contained in elementary text-books on Building Construction or Machine Construction and Drawing.

The Household Management Course.

Girls have a *Household Management Course* giving a preparatory knowledge of the essential branches of housewifery. It comprises a series of carefully co-ordinated lessons in Cookery, Laundry Work, and Needlework, including mending, darning and cutting out, Dressmaking, and the use of the sewing machine. In a number of the schools the girls also obtain practice in the actual management of a house, with consequent marketing and keeping of household accounts. In these lessons every care is taken that the pupils clearly understand and appreciate the "reason why" of the practical methods taught.

General Studies.

These Courses aim not merely at the preparation of pupils for any particular occupation, but the production of useful citizens, alive to their responsibilities, and with capacity to enjoy rationally their leisure time as well as to earn their living. Hence certain subjects are in all cases combined with instruction special to the particular Courses. This more general instruction includes English, in which the main object is to create a taste for good literature; home reading in conjunction with systematic lessons in composition; proper care of the body, thrift, conditions of trade and employment, institutions of Government, and history and geography of the Empire.

In the Supplementary Course each pupil is required to keep a record of the work done, for submission to H.M. Inspector, and this record forms the basis of the entries on the Merit Certificate which marks the conclusion of Primary School Education, and is the passport to the Division II. Classes in the Evening Schools.

Central Schools.

Owing to varying numbers in attendance at Schools, it is not always practicable to carry on the three Courses above indicated, and in some cases it is necessary either to omit one other of them or to form combined Courses. In view of the fact that this cannot be regarded as a satisfactory position, the Board in 1909 adopted a resolution that with the view of facilitating the classification of the pupils, of reducing the cost of equipment, and of providing a staff more

suitably trained to give the required instruction, it was desirable that Central Schools should be established in which Supplementary Classes only should be accommodated.

DETAILS OF SOME SUBJECTS.

The following details with regard to the instruction in some of the particular subjects may be of interest:—

Hygiene and Temperance.—As in former years regular instruction is given in these subjects. A "Syllabus of Lessons on Temperance" was recently issued by the Scotch Education Department, and this the Board have agreed should now be used in the Schools. In the classes below the Supplementary Course this instruction is given in conjunction with Nature Study and Physical Training, or as part of the general training of the scholars in good habits. In the Supplementary Courses the work done forms part of the instruction as to the Laws of Health, and is of a more systematic nature.

The Scriptural aspect of Temperance is also dealt with at least once a month in the time set apart for Religious Instruction.

Singing.—The six masters employed specially for this subject devote their time mainly to the classes in the Senior Division and Supplementary Courses of the Schools visited by them. The Singing of the other classes in the Schools is taken by the class teachers under the supervision, in the case of the Junior Division, of the visiting master.

Manual Instruction.—Manual Instruction in the form of Woodwork and Drawing is given to boys in all the Schools. The instruction is conducted in 33 School workshops, 22 of which also serve as Cookery class-rooms. During the past Session 4789 boys received instruction. The work is mainly confined to pupils over 12, but in the course of the year 216 boys received instruction before reaching that age.

Needlework.—This subject forms a part of the curriculum in all the Schools, and except in three Schools, where the instruction is given by the ordinary staff, Sewing is taught by special teachers. Dressmaking is also taught in a large number of Schools. In only one is the work carried on by the Sewing Mistress without an assistant; in 20 Schools the Sewing Mistress had one Sewing assistant; in 7 Schools two, and in eight Schools three assistants. The instruction is, as a rule, highly spoken of by H.M. Inspectors.

Cookery, Laundry Work, and Housewifery.—There are now 13 teachers whose whole time is employed in giving instruction in these subjects throughout the different Schools, provision having been made for girls in these subjects in all schools but three.

School Gardens.—As an adjunct to Nature Study, gardens or flower-plots, which are cultivated by the pupils, have been provided in connection with 11 of the schools, with one or two exceptions these being in some part of the School grounds. Headmasters are unanimous in speaking highly of the educational value of this instruction, which is easily co-ordinated with other subjects, gives reality to the Nature Knowledge lessons, and is a strong factor in curbing tendencies to wanton mischief and destructiveness. Such gardens are a comparatively recent development in Scotland.

SECTION 3: CONTINUATION CLASSES.

These classes are for those who have completed the Supplementary Classes, and for others who have gone to work after leaving the Elementary Schools. Their main objects may be set forth in four divisions :

(1) Bodily well-being through maintenance and improvement of the health of young people. The aim is that those children shall have sound bodies, enjoyable health, and grow up in a wholesome, healthy way.

(2) The enlargement of the sympathetic interest of the pupils and the broadening and refining of their interests and sympathies by the influence of good books and the interest of good literature, and by good reading and instruction in regard to the things they ought to know about.

(3) That the boys and girls should be equipped for the practical work they have to do, and that they shall possess competent knowledge of some craft,

industry or occupation which offers reasonable prospect of livelihood in adult years. When the boy is attending the Continuation Classes he is learning his trade through practical work for wages, and in the evenings or afternoons attending these classes where he receives instruction and training to supplement what he learns in the shop, office or factory.

(4) The inculcation of a sense of civic responsibility. The aim is that the boys and girls over 14 shall recognise their obligation as boys and girls living in Edinburgh, and that they shall think of the responsibilities and duties of communal life as well as of its rights and privileges.

These are the four main things: health, wider interests and sympathies, practical ability in occupation, and good citizenship.

The development of the Continuation Classes in Scotland generally and in Edinburgh particularly has been remarkable during the past few years, the latter being due to the new policy initiated about 8 years ago by the Edinburgh School Board. To-day the standard of attainment is infinitely higher than it was 10 years ago, and the pupils are vitally interested in their work. The change in the standard of attainment and in general tone is due to several causes, one being the introduction of practical experts to teach scientific and technical and trade subjects in the Continuation Classes.

Origin and Progress of Classes.

School Board Public Evening Classes were begun in 1873, when the total number of pupils enrolled in the 11 centres opened in Edinburgh was 983, and average attendance 410. For the first 13 years the number in attendance varied little; in only one year previous to 1906 did the enrolment rise above 4,000. Since 1904 the Edinburgh School Board has devoted very special attention to its system of Continuation Classes. The co-operation of employers, social workers, voluntary agencies, parents and teachers, has been enlisted, with the result that in 1910 the number enrolled was slightly more than 10,000. Since 1905 there has been an increase in the number attending of 6,500, or 186%. The Board's policy has been referred to in the Education Department's Blue Book in the following terms, viz.:—

> An example of what can be achieved by well organised voluntary effort is again furnished this year by the notable further increase in attendance at the Continuation Schools of the Edinburgh School Board.

The following points are interesting, viz.:—

(1) That while the number of pupils in attendance has almost trebled itself since 1904-5, the total cost to the rates has not quite doubled itself.

(2) That whereas in 1904-5 with only 3,600 odd pupils the cost per pupil was 13s. 9d., in 1908-9 with practically double the number of pupils the cost per pupil was only 9s. 9d.

(3) That the increase in numbers has been steady since 1905-6; and that for the last three years the ratio of increase has been practically constant showing in round numbers a yearly average increase of 1,170 pupils.

(4) That in 1904-5 when the numbers were lowest the cost per pupil to the rates was highest.

Scope of Work.

In the years immediately succeeding the passing of the Education Act of 1872 the chief function of the Evening School was to make good the defects of day-school education, and to provide instruction in the elements for those who had never been in attendance at a day school. Within recent years it has been more and more the object of the Continuation School to take up the work of education at the point where the day school leaves it, and to give some knowledge of the underlying principles of the occupations followed by the pupils. Since 1893 there has been a Special Code of Regulations for Continuation Classes. There it is specifically stated that the classes may be held at any time of the day, morning or evening; hence the substitution of the name Continuation Classes for the name Evening Schools. The present code makes provision for

(1) Classes for the completion of general elementary education—Division I.
(2) Classes for the elementary instruction of pupils in special subjects, especially such as may be of use to pupils engaged in or preparing for any particular trade, occupation, or profession —Division II.
(3) Organised courses of systematic instruction arranged with a view to fitting students for the intelligent practice of particular crafts, industries, or occupations—Division III.
(4) Auxiliary Classes for instruction in Physical Exercises, Military Drill, Vocal Music, Wood-carving, Fancy Needlework and Elocution—Division IV.

Requirements of Departments.

By the Education (Scotland) Act of 1908 the scope of Continuation Class work has been considerably widened; its organization being no longer left to voluntary action of School Boards. Section 10 of the Act lays upon School Boards the duty of making suitable provision of Continuation Classes for the further instruction of young persons above the age of 14 years with reference to the crafts and industries practised in the district, and also for their instruction in the English language and literature, in the laws of health and in physical training. The same section confers upon School Boards the power to make, vary, and revoke bylaws for requiring attendance at Continuation Classes of young persons between 14 and 17 years of age.

In a circular explanatory of the provisions of the Act the Scotch Education Department has pointed out that School Boards in industrial districts have no more important or pressing task before them than the fostering by all means in their power of a movement for the better use of the years of adolescence as a preparation for adult life. The question of the exercise of the powers conferred by Section 10 is referred to as follows:—

Before applying compulsion every effort should be made by the provision of suitable instruction at convenient hours, by conferences with employers and associations of workmen and by co-operation with other agencies to stimulate voluntary attendance. When compulsion is resorted to it might be limited in the first instance to those who have not received the minimum (1½ years) of Supplementary Course instruction before leaving the Day School.

Extent and Character of Classes.

The School Board's Continuation Classes are carried on in 26 schools. These form the connecting link between the Primary Schools and the five Central Institutions. They serve the needs of pupils who have to work during the day

but desire either to extend their general knowledge or to make a beginning of studies bearing on the occupation upon which they have entered.

Much attention has in recent years been given to these classes, and to bringing them into vital contact with the city industries and occupations. The Board works in close co-operation with employers of all kinds and receives from them valuable advice as to forming of courses and actual requirements of the industries. The classes meet on three nights a week, and are held in summer as well as winter. It is found that a well-organized, well-staffed voluntary system attracts large numbers of the city youth of both sexes, and compulsory attendance has not been introduced, although the Act of 1908 gives power to the Board to frame by-laws to that effect. In the winter of 1910-11 the number of students was 10,099; in the summer of 1911, 3,020.

The education in these classes is practically free, the fee for the Session (5s.) being returnable in all the schools (except 3 set apart for Adults over 20 years of age) at the close of the session to each pupil who makes 80% of possible attendances.

The range and variety of instruction may be gathered from the following list.

COURSES AND SUBJECTS.

Division I.—Classes for the completion of General Elementary Education.

English and Arithmetic, and one or more of the following—The Empire, Civics, The Laws of Health. Drawing, Woodwork, Common Commercial Documents, Needlework, Cookery, Laundry Work, Dressmaking, Millinery.

Divisions II. and III.—Specialized Classes and Courses.

ENGLISH COURSE:—
English, Composition, English Language and Literature.

COMMERCIAL COURSES:—
(i) Shorthand Course:—
English, Shorthand, Typewriting.
(ii) General Commercial Course:—
Two or more of the following—Commercial Arithmetic, Business Procedure, Elementary Book-keeping, Shorthand, English, Commercial Geography, French, German, Esperanto.
(iii) Combined Commercial Courses:—
Business (Operative), Business (Historical, Geographical and Economic).

TECHNICAL COURSES:—
(i) Elementary Engineering.
(ii) Elementary Physics.
(iii) Constructional Engineering.
(iv) Elementary Building Construction.
(v) Plumbers' Work.
(vi) Carpentry and Joinery.
(vii) Cabinetmaking.
(viii) Upholstery.
(ix) French Polishing.
(x) Printing.
(xi) Baking and Confectionery.
(xii) Tailors' Work.
(xiii) Plaster Work.
(xiv) Brassfinishers' Work.

ART COURSES:—
(i) General Art Course.
(ii) Wood Carving and Design.
(iii) Modelling in Brass and Copper.
(iv) Modelling in Leather.

DOMESTIC COURSES:—
Two or more of the following—Cookery, Needlework, Dressmaking, Laundry Work, Housewifery, Millinery, and First Aid, Home Nursing, Hygiene and Temperance.

Division IV.—Auxiliary Classes.

(i) Physical Exercises.
(ii) Swimming and Life Saving.
(iii) Vocal Music.
(iv) Wood Carving.
(v) Elocution.

The co-ordination of the work of these classes to the higher work in the five Central Institutions is ensured by frequent conferences of the teachers and administrative officers concerned, and by the issue of a joint prospectus giving all the details and the relationships of the various courses.

Elementary Trade Instruction.

Special attention is directed to the efforts of the Board to provide proper facilities for elementary trade instruction. In connection with the new Supplementary School at Tynecastle a range of 18 workshops has been erected in a two-storied building 406 feet long and 28 feet wide, with an adjoining wing on the west side 100 feet long. The height of the building is 33 feet, and the average floor space of each room 1,000 square feet

The cost of erecting these buildings has been £6,000, which works out at the exceedingly low average of 3¼d. per cubic foot; while the tools and fittings, with necessary electric motors, have entailed an expenditure of £2,020, making a total cost of £8,020.

The 18 rooms have been allocated as follows:—Engineers' and Brassfinishers' work, Tinsmiths' work, Moulders' work, Pattern-making, Cabinetmaking, Carpentery and Joinery, Plumbers' work, Upholstery, Plaster work, Practical Science, Mechanical Drawing—one each; Cookery, 3, Laundry work, 2, Tailors' work, 2.

The school was opened in September, 1911, with 23 teachers, all highly skilled experts at their respective trades, and 391 pupils, embracing the following trades:—Engineers 116 pupils; Brassfinishers 20, Moulders 21, Tinsmiths 35, Cabinetmakers 21, Joiners 44, Plumbers 40, Plasterers 21, Upholsterers 11, Polishers 8, Tailors 22, Tailoresses, 32.

The winter attendance was very satisfactory, and the workshops were opened for a summer session of 11 weeks, the enrolment being 216.

It is the intention of the Board to erect suitable workshops in other parts of the city.

Numbers of Classes and Teachers.

The total number of classes in the Continuation Schools is as follows:—Div. I, 35; Literary English, 11; Commercial, 306; Technical, 74; Art, 20; Domestic, 288; Recreative, 87; total, 821.

There are 421 teachers employed in the Continuation Classes, 122 being trained certificated teachers. For the remaining 299 the Board arranged a course of 6 lectures on the art of teaching, illustrated by 4 practical demonstration lessons by their Master of Method. The attendance averaged 200.

Percentage of Attendance.

A very high percentage of attendance has always been a prominent feature in connection with the Continuation Classes, due to the regulations as to return of fee, to attendance and Burton prizes, to the close touch kept with parents and employers by head-teachers, to the interest pupils take in the work, and to the stimulating and practical nature of the teaching. The percentage of attendance for the ten years 1901-1910 has been (in round figures): 95, 95, 94, 94, 95, 95, 94, 93, 92, 90.

Co-ordination with Central Institutions.

There is a scheme of co-ordination between the Continuation Schools and the Heriot-Watt and Art Colleges. The general principle of the scheme is that the elementary instruction in English, Commercial, Technical and Art subjects should be given in the Continuation Schools, and that students who have successfully completed a two or three years' course, as the case may be, should be granted certificates based upon the results of class work and class examinations, as well as on attendance, qualifying them for admission to the Advanced or Specialized Classes in the corresponding department of the "Centrals." The standard of these certificates is maintained under the supervision of three Assessors appointed by the above Colleges and the School Board. So far as technical work is concerned, co-ordination is becoming a distinct success, but in art and commercial subjects results have not been quite so satisfactory.

Methods of Advertising Classes.

The prospectus of the classes is issued in a joint form showing the relations between the Board's classes and the specialised classes of the Colleges, and a copy is sent to pupils who have left day school during the previous session. The arrangements for the session are also widely advertised by posters, handbills, window-bills and newspaper notices. Employers of labour are visited by the Organiser, meetings of workpeople are addressed by Members of the Board, and assistance is asked from clergymen, secretaries of trade societies and headmasters of day schools, in arousing interest in the classes and directing young people to take advantage of them.

Among the questions which now claim the attention of the Board are the following:—

(1) The best means of reaching the 7000 young persons in the city at present receiving no instruction.

(2) The provision of more suitable class-room and workshop accommodation for adolescents.

(3) The prevention of overlapping and waste by judicious schemes of co-ordination with the Central Institutions.

(4) Increased attention to the teaching of Citizenship and Physical Exercises.

(5) The training of practical experts in the art of teaching.

(6) Further co-operation with employers with a view to the institution of Day Continuation Classes.

SECTION 4: CENTRAL INSTITUTIONS.

The Central Institutions recognized by the Scotch Education Department and situated in the city of Edinburgh are:—(1) The Heriot-Watt College, (2) Edinburgh and East of Scotland College of Agriculture, (3) Edinburgh College of Art, (4) Edinburgh School of Cookery and Domestic Economy, (5) Royal (Dick) Veterinary College.

A scheme of co-ordination has existed since 1903-04 between the Continuation Classes and Secondary Schools, leading up to the Heriot-Watt and Art Colleges. It is hoped to have a scheme of Cookery and Domestic Economy brought in. By this co-operative plan the School Board secures expert advice of highly trained specialists employed in those Central Institutions, who visit the Continuation Classes not as inspectors but as advisers, to indicate such lines of work as will best connect with the more advanced college work. In the equipment of the workshops at Tynecastle the School Board had the benefit of the advice of the heads of those institutions, and by so arranging the work that it would not trench on the ground of the Heriot-Watt College, the public were satisfied that economy was kept carefully in mind.

The Continuation Classes provide only two sessions' instruction in English, Technical, Art or Commercial subjects, and pupils who receive certificates of qualification from their schools are thereafter expected to go forward to the more advanced stages of instruction in the Colleges. The assessors representing the "Centrals" and the Board have power to visit the schools from time to time and see papers set by teachers and samples of papers worked by pupils, and where qualified pupils have been readmitted to enquire into the reasons.

The Heriot-Watt College accepts School Board certificates in English and Carpentry and Joinery to admit to Intermediate Classes; those in Bookkeeping and business procedure to admit to specialized classes; and in Mechanical and Electrical Engineering, Building Construction, Printing and Plumbing as admitting to classes in those departments of the College which accept School Board certificates in Commercial Arithmethic and Commercial Geography as equivalent to their own in these subjects. It is arranged that Shorthand, Typewriting and elementary Geometrical Drawing be not taught in the Heriot-Watt College and that the School Board continue to make special arrangements for teaching these subjects.

The College of Art accepts School Art Course certificates to admit holders to their Art Classes, and Board certificates in Cabinet-making to admit to advanced classes in this subject.

A joint syllabus is issued showing the courses of instruction in the various subjects and the relation between the Board's Continuation Classes and the advanced classes in Heriot-Watt College.

To encourage pupils to pass on from the Board's Continuation Schools to those Central Institutions, a private fund is distributed covering College fees, preference being given to pupils who hold certificates of proficiency from Continuation Schools. The Edinburgh Committee on Secondary Education has a scheme for enabling city students who have successfully completed a two or three years' course of study at Continuation Schools to obtain, by bursaries or otherwise, according to circumstances, education at any recognized Central Institution.

Evening classes are held in the Heriot-Watt College, the College of Art, and the College of Agriculture. In the latter the classes appeal especially to those engaged in rural industries in the neighborhood of Edingburgh, in Factor's offices in the city or vicinity, in the seed trade, in nurseries, in gardens or forests or other branches of estate work, in dairying and in the meat and cattle trades. The classes in Botany and Zoology are of special interest to teachers, as they cover most of the ground of the ordinary Nature Study courses. A summer class in Nature Study beginning in April takes up the life history of typical flowering plants, influence of environment, etc., and typical vertebrates and invertebrates. In all the classes the work is made as practical as possible by means of laboratory work, demonstrations, examination of specimens, field work and visits to farms, woods, gardens and other places of interest.

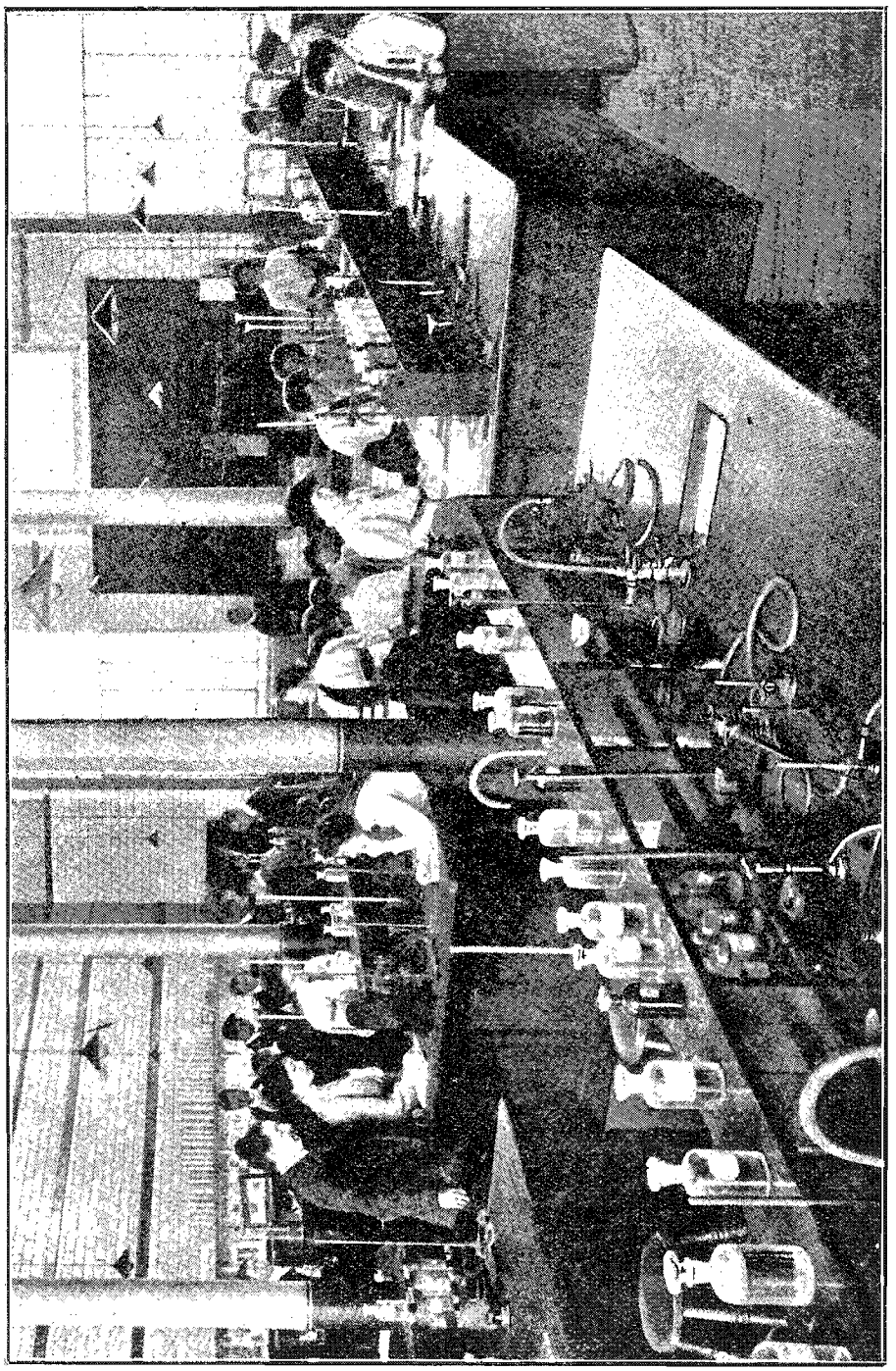
The scope of the several Central Institutions in Edinburgh recognized as such by the Scotch Education Department is as follows:—

(1) The Heriot–Watt College.

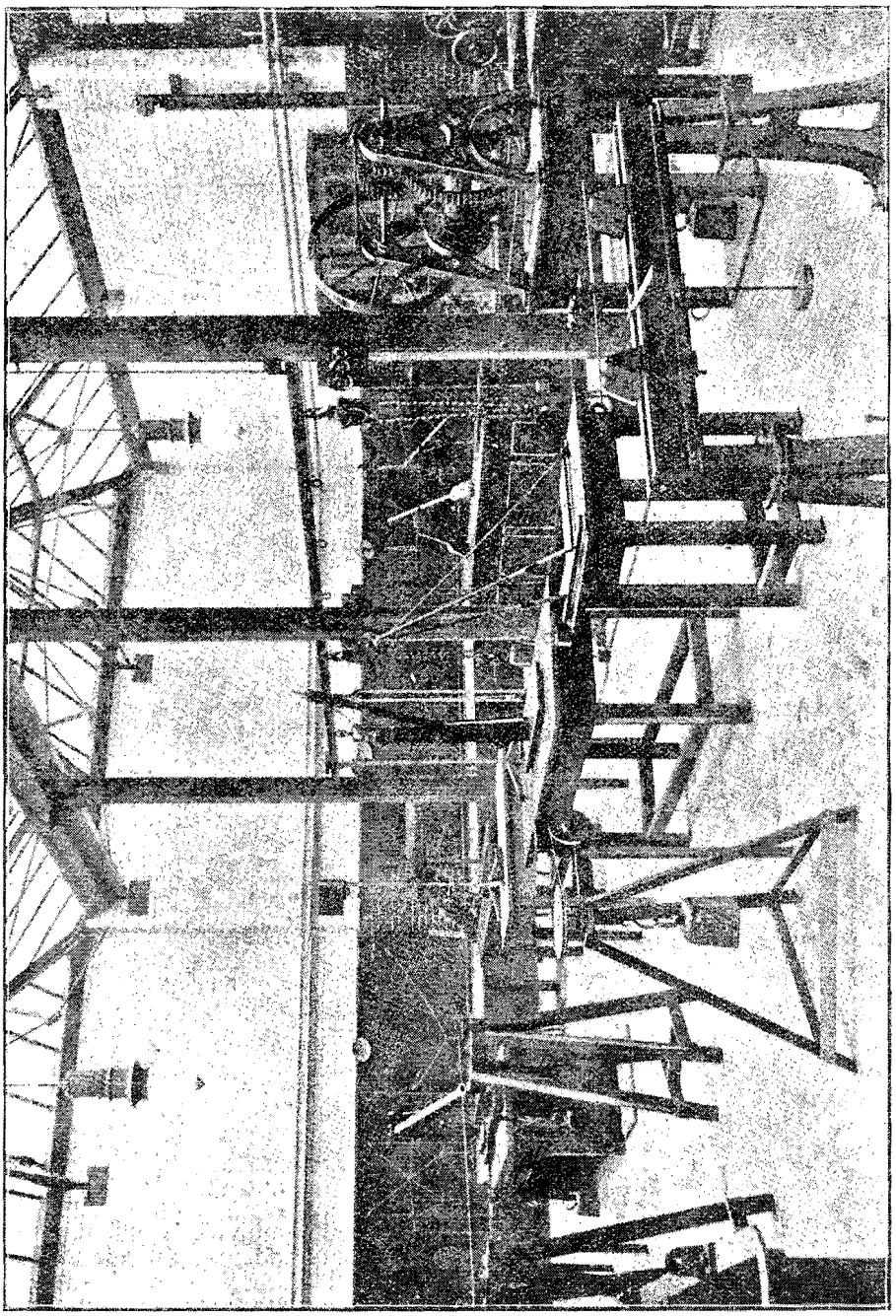
This institution was founded in 1821, under the name of The School of Arts, its general object being the provision of classes to enable industrious tradesmen to become acquainted with such of the principles of Mechanics, Chemistry and such other branches of Science as were of practical application in their several trades. The two leading classes then established, which still continue to take the fundamental subjects of education in the College, were in Chemistry and Natural Philosophy. The name of the school was later changed to the Watt Institution and School of Arts, and finally, when the Governors of George Heriot's Trust took over the management in 1885, to the Heriot–Watt College. (George Heriot was jeweller and goldsmith to James VI, whom he accompanied when the Court was transferred to London in 1603.)

The curriculum has been greatly extended, and is now of much more general character than originally. The Day Classes, which preserve to a great extent the characteristics of the fundamental courses, aim chiefly at providing advanced technical instruction in the applied sciences of Engineering, Chemistry and Mining over at least a three years course; whilst Evening Classes include instruction in such subjects and also provide courses in those of a commercial or literary character.

The courses of instruction are co-ordinated above to the Engineering Department of the University and below to the Continuation Class System of the School Board.



HERIOT-WATT COLLEGE: PHYSICS LABORATORY.



HERIOT-WATT COLLEGE: APPLIED MECHANICS LABORATORY.

The students number annually about 4,000.

The Continuation Classes conducted in this College are as follows:—

For those engaged in Engineering and Metal Trades:
A. Elementary Engineering.
B. Elementary Physics.
C. Constructional Engineering.
For those engaged in the Building Trades:
D. Elementary Building Construction.
E. Plumbers' Work.
For those engaged in Wood-working and Furniture Trades:
F. Carpentering and Joinery.
G. Cabinet making.
H. Upholstery.
I. French Polishing.
For those engaged in Book-binding and Printing Trades:
J. Printing.
K. Bakery and Confectionery.
L. Tailors' work.
M. Plaster work.
N. Brassfinishers' work.

MECHANICAL ENGINEERING COURSE.

(*School Board Continuation Classes.*)

I Year, II Year.—Geometrical Drawing, Practical Mathematics and Machine Drawing.

(*Heriot-Watt College Classes.*)

III Year.—Machine Drawing, 4 hrs. weekly. Practical Mathematics for artisans, 1 hr. weekly.
IV Year.—Electrical Engineering (Elem. 1 hr. weekly) and 1½ hrs. Laboratory work weekly (2nd half of Sess.)
V Year.—Prime Movers (Elem.) 1 hr. lecture, 1 hr. laboratory. Applied Mechanics (Elem.) 1 hr. lecture, 1 hr. laboratory weekly.

Similar Courses are arranged in all regular subjects. 1st and 2nd years are given in Continuation Centres of the Edinburgh School Board; 3rd 4th and 5th years are given in Heriot-Watt College.

(2) EDINBURGH AND EAST OF SCOTLAND COLLEGE OF AGRICULTURE.

This College was established in 1901. It is under the Scottish Education Department and entirely independent of the City, the Board of Governors representing County Councils. The building is provided with fully equipped laboratories and class rooms. In the day course a three years' study in the science and practice of agriculture is given; Horticulture and Forestry are also included. To meet the requirements of country districts, courses of lectures and experimental work are given at various stations in all the counties throughout the allotted area of influence of the College.

The College does not own a farm, but has 10 acres outside Edinburgh for experimental work. An organizer carries on experimental and advisory work, and at the same time organizes all other branches of agricultural activities in the districts. Most of the experiments are of the demonstration type on plots of from a quarter-acre to one acre. Farmers give up pieces of land for the purpose.

There are 28 Extension Lecturers who give their whole time attending markets and visiting the farmers regularly, but not teaching in Continuation Classes. The plan has worked out towards improvement. Farmers are evi-

dencing their interest in the work, large farmers being extremely friendly. Farmers' Clubs give valuable suggestions, and Advisory Committees of practical agriculturalists meet and guide the College organizers as to experiments that can be taken up, bits of work that may be specially investigated, etc.

Under the direct supervision of the staff 128 School Gardens in connection with ordinary schools throughout the area of the College are conducted under regulations laid down by the College and adopted by the Scotch Education Department, which gives special grants to School Boards for these gardens. The College has regular farmers at these places, and there is a constant point of contact. There are no Evening Classes in connection with School Garden work, but Continuation Classes in scientific work are proposed, and, if established, will be correlated with School Gardens.

Two classes (in Perth and Fife) are held throughout the whole summer for teachers actually engaged in schools, and teachers-in-training also attend College twice a week for 2½ hours each time.

The Scottish Agricultural Society works with the College, which advocates the co-operative sale of produce whenever possible.

There are about 475 students. Some qualify for the University diploma, and some for the B.S.A. degree. Fifty-two per cent of graduates go back to the land; the others are mostly teaching, lecturing, etc. In 1910 there were 114 Day and 287 Evening Students. In Edinburgh a good many legal offices connected with land—factorial work—send young fellows wanting insight into forestry, etc. Farmers near the town come in for veterinary work. Horticulture last year had 83 students, chiefly young gardeners engaged in the Royal Botanic Gardens in Edinburgh and at nurseries and private gardens round about. The work of the College is closely correlated to the Department of Agriculture in the University.

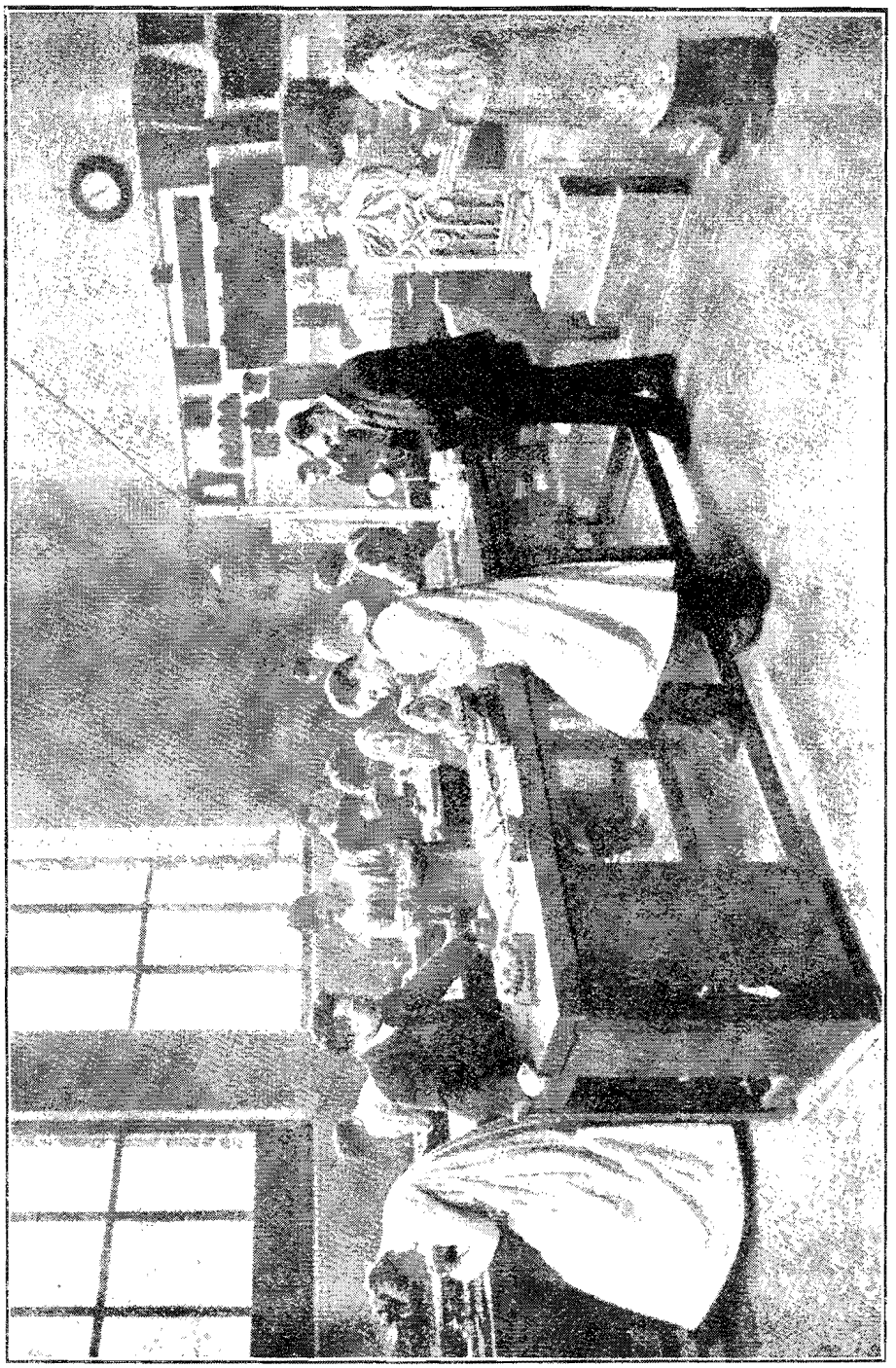
(3) Edinburgh College of Art.

This College has recently been established by the amalgamation of several independent institutions which for many years carried on art instruction in the city. It is under the administration of the Town Council of Edinburgh, and a valuable relationship exists between it and the various Scottish Art Societies and Institutions. New buildings in Lauriston Place were opened in January, 1909, admirably suited for the work. A well organized system of departments in the various branches of Pure and Applied Art has been instituted.

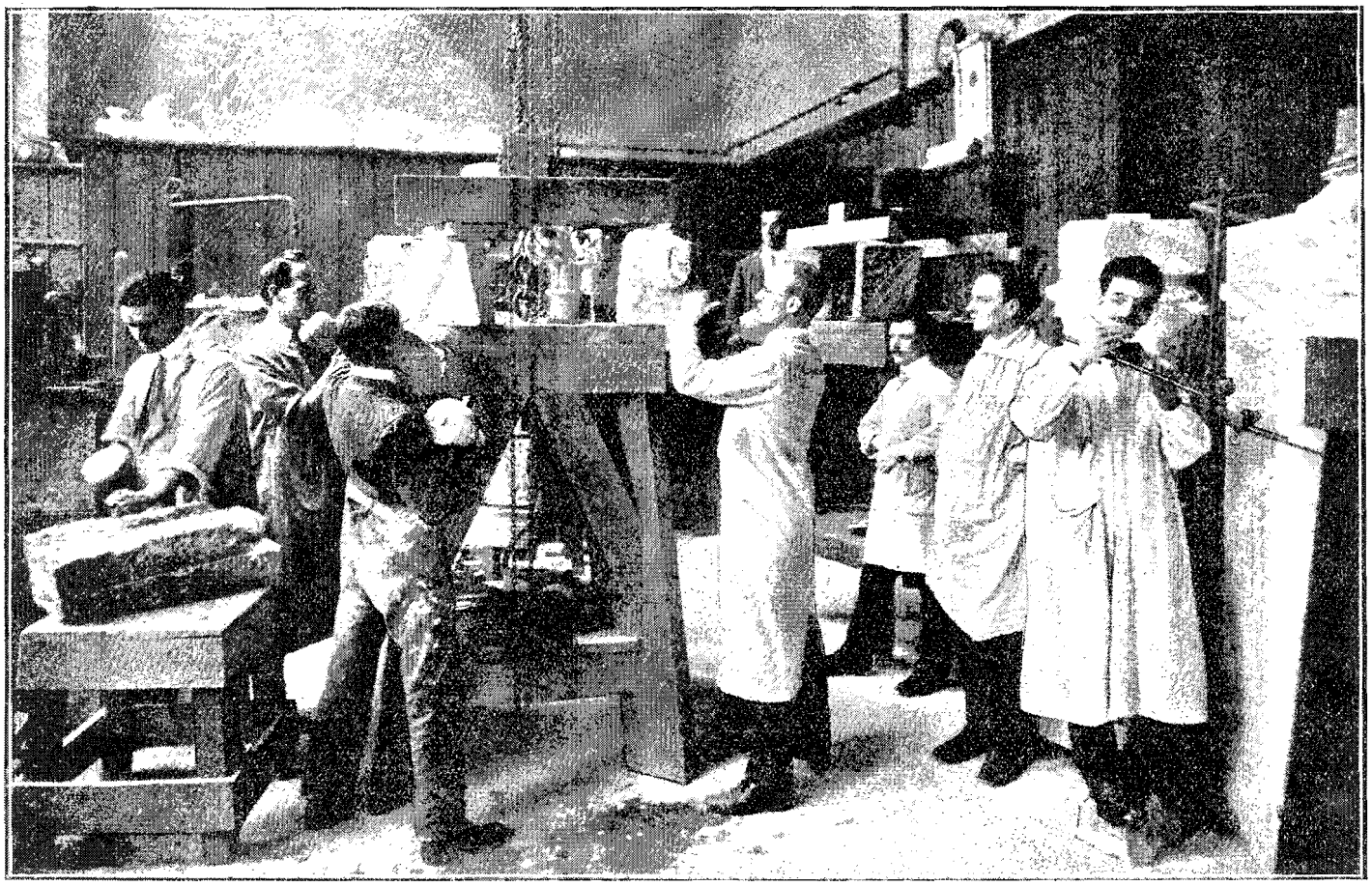
The number of students (day and evening) is about 830.

About 150 lads in the painting and decorating trade attend 4 or 5 nights weekly in the dull season, and about 25 of these were selected for a special course in Drawing and Design. Employers pay their fees from November to March, and during that time they have instruction two days a week, for which time they are paid by employers. The Evening Class is entirely under the control of the employers and the Trades Union.

For trade work, both masters and men are represented on the Committee but do not control.



WOODCARVING CLASS IN COLLEGE OF ART.



STONECARVING CLASS IN COLLEGE OF ART.

All architects' apprentices take two hours every morning in Designs a applied architecturally, and quite a number take all-day instruction, special students being selected for further instruction in Evening Classes.

Courses cover Industrial Art, Design, Artistic Crafts, as well as Fine Art. Special classes are held for teachers.

(4) Edinburgh School of Cookery and Domestic Economy.

This institution provides instruction and issues certificates in Cookery (Plain and Upper-Class), Laundry work, Needlework, Dressmaking, Millinery, and other subjects allied to domestic economy. It also gives the necessary training for managers and for those who are to become teachers of these subjects, its certificates being recognized by the Scotch Education Department and the Board of Education in England.

A course has been specially organized for girls wishing to train for domestic service. They must be over 14, and must have gone through a preliminary training in the Supplementary Course. The instruction consists of six month's continuous training at this School and includes practical instruction in Cookery, Laundry-work, Housework, Sewing, Mending, etc. The fee, £11, covers the cost of material for a working dress to be made in the class, also provision of two meals a day in the school. The School keeps a register of students earning the Certificate from this course, and endeavors to find them suitable situations.

A Special "Housewife's Diploma" Course is offered, covering from 6 months to 2 years, according to subjects, the fee being £20, also a one year's course for Lady Housekeepers, fee £17. There is a course for Laundry Managers, 50 lessons, fee £6. 6s.

The co-ordination of the work of this school to that of the Continuation Classes of the Edinburgh School Board is under consideration.

The number of students attending the various courses and demonstrations in this institution averages about 3,000 annually.

(5) The Royal (Dick) Veterinary College.

This College was founded by the late Professor Dick in 1823. Previous to that no institution devoted to the teaching of Veterinary Science existed in Scotland, nor was any Veterinary Degree obtainable in the country.

In 1827 the Highland and Agricultural Society, in co-operation with whom Professor Dick had acted in founding the College, appointed a Board of Examiners, who issued to successful students certificates of qualification to practise the Veterinary Art. Professor Dick on his death in 1866 endowed the Royal Veterinary College, hence it bears his name.

Up to 1906 the College was carried on by the Town Council of Edinburgh, as Professor Dick's Trustees, with the funds left by him, supplemented by students' fees and the income from the College practice, but it is now administered by a representative body of management.

The number of students is now about 100.

(6) Training Colleges for Teachers.

There are three of these institutions in the city, accommodating about 950 students in all, and serving the South and East of Scotland. They provide the general and professional education prescribed by the Education Department as necessary for the training of Primary and Secondary teachers. The course extends generally over two years, but allowance is made for time spent at the University or elsewhere in approved courses of general training of academic rank.

The work of the Colleges is closely related on the one hand to the preliminary instruction given in Secondary Schools and Junior Student Centres, and on the other to the curriculum of the Arts and Science faculties of the University.

The Colleges, formerly under the management of the Church of Scotland and the Free Church, are now united into one under the control of a public body known as the Provincial Committee for the Training of Teachers. A second still remains under the management of the Scottish Episcopal Church, and the third, the St. George's Training College for Secondary Teachers, is under the management of a Committee chosen from the subscribers to the College.

(7) Edinburgh University.

Although the youngest of the four Universities of Scotland, the University of Edinburgh annually enrols the largest number of students, and has, in some respects, acquired a fame greater than any of the others.

Founded in 1581 on the historic site of "Kirk o' Field," the scene of Darnley's murder, it was opened for teaching in 1583 under the name of King James's College. Its origin is due to a bequest left to the Town Council by Bishop Reid of Orkney. In 1789 the original buildings had fallen into a state of disrepair, and the erection of the present stately buildings in South Bridge was commenced. The work was completed in 1828.

In 1869, owing to the great increase of students, it became necessary to provide more accommodation, and the University new buildings were subsequently erected. These buildings have been completed by the addition of the M'Ewan Hall, a gift to the city and University, which cost £115,000. Within recent years additional buildings have been provided by the establishment of the John Usher Institute of Public Health and by the erection of a new block at High School Yards for the Engineering Department.

There are six degree conferring faculties in the University constituted by recent ordinance,—Arts, Science, Divinity, Law, Medicine, and Music.

The number of matriculated students during the session 1908-9 was 3,286, distributed as follows: Arts, 1,157; Science, 300; Divinity, 64; Law, 305; Medicine, 1,440; Music, 20.

Women are admitted to degree examinations on the same conditions as men.

SECTION 5: CONVERSATION WITH MR. J. W. PECK.

Information obtained from "Conversation" with MR. J. W. PECK, *Secretary to the School Board, Edinburgh.*

Every year about 4,000 children, half boys and half girls, flow out from the schools, about 3,000 at one time and 1,000 at the other, and the Employment Bureau deals with them. When the date for leaving school approaches, the head-master fills out on a card the boy's educational qualifications, physique, adaptation, and what trade he would be suitable for. The parents also put on the card what they would like him to go into. The boys and girls are notified to go to the head office and get verbal advice on those things. Their going is optional, but tea parties are given at the schools, with all the parents present, and they are pressed very strongly to send the children along immediately they leave school and follow up the registation or personal interview with the authorities. The larger porportion of the 4,000 and their parents go, a certain number of nights weekly being set aside for these interviews.

Mr. McNally, the organizer of the Continuation Classes, deals with those matters. He advises the scholars and their parents as to what they are best suited for, and also what Continuation Classes they should follow if they are going in for a profession.

There is also an office in the Labor Exchange under the British Government system, and for the juvenile work the Exchange Officer sits in the room next to Mr. McNally. After the boy has fixed upon what he is best suited for, he passes on and definitely registers there for that occupation, and the Government officers keep all his record cards. The age is 14 plus a fraction, there being two fixed dates for leaving school.

The "forked road" in the selection of an occupation between professional and industrial life occurs in the school course about 12. The Labour Exchange Officer,who is in contact with all the employers of the city, looks up his cards and writes for the boy to come along. The boy may or may not get the job. It is a recent system, but it is working fairly well. Mr. McNally gives advice on (1) what the boy is suited for, (2) the industries of the city, and (3) the educational qualifications to keep up with them.

CONTINUATION CLASS SYSTEM.

The Continuation Class is a two-year system, from 12 or 13 onwards, for the more elementary side of industrial work. The more advanced side is given during the following three years at the Heriot-Watt College for engineering and mathematical work: at the College of Arts for art work; at the College of Domestic Science for cookery work; and at the College of Agriculture and the Veterinary College. There is no College of Music, thus leaving a gap in the system. There are three years of training sub-divided in these more highly specialized Colleges.

Edinburgh suffers somewhat from the variety of managing bodies. The School Board manages the Continuation Class system; then the several Colleges are under the management of Governors. The Colleges wiped out their elementary Continuation Classes some time ago. When boys get to the top of the Public School system they pass on to the various Colleges, and the system is practically all one, as though one authority were managing it. The Colleges were quite glad to be relieved of their elementary work. The professors go around and see that the elementary teachers are working on lines co-ordinating with their own.

The Continuation System aims to cover education on four points:—(1) English: general development of power in speech and writing; (2) Citizenship, duties, privileges and responsibilities—they are all linked together in the organism; (3) Physical Exercise; (4) Actual Technical Training in various subjects, which follow pretty well the sub-division of the Colleges. The schools give, on a lower scale, what the colleges are giving on a higher, under a scheme of co-ordination whereby all the colleges relate their syllabuses to those of the Elementary Schools.

A Census Survey.

Last summer a survey was made of all the industries; and houses of less than £30 rent were visited to ascertain what industry or occupation the young people therein between 14 and 18 were following. In this way a complete census was obtained of the juveniles and industries of the city. Where the census showed that a certain industry was asking for workers, and was not provided for in the educational scheme, a class was started. It is hoped to have a scheme of classes that will fit the conditions disclosed by that industrial census.

How Teachers are Secured.

The question of teachers is a very difficult point. Some are Day School teachers of ordinary subjects, such as Geography and History. Actual workers in the industries are employed as teachers of the technical work, as they know the practice of the shop and are familiar with all the processes; but they have the disadvantage of not being trained as teachers. Last year an effort was made to overcome this by a course of six weeks on methods of teaching, class discipline, how to interest pupils, etc., together with practical demonstrations by really good teachers, such as Professor Stanford, of the Heriot-Watt College, who gave a lesson on how to teach Engineering, all the Board teachers who were teaching Engineering being present.

Mr. Peck's opinion was that the advantages from the teachers being practical men compensated for their lack of training in teaching. He would rather take a practical worker and give him training in teaching than take a trained teacher and try to indoctrinate him in the Technology of Engineering. The workshop teachers had had experience as pupils in Evening Classes and would remember how they were taught. Professor Stanford goes round the Continuation Classes to see about the teaching.

The practical workers who teach in the Evening Classes are paid about 3s. 4d. (80 cts) an hour. At the head of each group of Evening Classes there is a Head Teacher, who is generally a man of experience in the Day School and is responsible for seeing that proper teaching methods are followed, details of registration properly carried out, etc. There are about 300 of these workshop teachers. It is proposed to give three lectures on general methods of teaching to the whole of them by the Master of Method from the Training College, then to follow that with three or four lectures to the various groups by recognised experts in those groups—lectures to Engineering men on the special way in which Engineering should be taught, etc. Then that would be followed up by sending those experts or subordinate experts to observe them in their classes and see if they were following out the methods they had been given in these two different kinds of lectures. It is hoped thus to rivet the whole thing together by concluding with lectures by the Master of Method.

Students and Employers.

The Continuation Classes are attended by about 10,000 pupils in winter and 3,000 in summer. In addition to the office work by the organizer of Continuation Classes and the officer of the Labor Exchange, series of meetings of employers are arranged. The employer gets all his work-people together, and the Education Office sends speakers to urge on them the advisibility of entering the classes, the employers in some cases guaranteeing the fees. In that way a large number are brought in. Some eight years ago only about 3,000 were in these Classes, but by advertising, by employers' meetings, by getting at the parents, and by proving the caliber of the work, the number has been increased to 10,000, which is only about half the possible number. Mr. Peck did not know that they would get much higher than that figure, because of the inertia which could not be moved by even the most vigorous methods.

Re Compulsory Attendance.

Optional powers are given to Local Authorities under the Act of 1908 to pass by-laws requiring all young persons up to the age of 17 to attend Continuation Classes. Age limit, not educational attainment, is the basis of the legislation, just as in the Elementary School. One little Board in Haddingtonshire in 1909 passed a by-law under the Act, but it has not been followed up to any extent yet. Mr. Peck thought that compulsion up to the age of 14 does not give the authorities sufficient power or opportunity; and that specialization for industry before 14 is for such a very limited period that it must be of a very elementary kind. It was not real specialization at 14, but was just to interest the pupils in the application of their Arithmetic and Drawing to industries and arts, and did not carry out the work in the detailed way of the higher courses. He did not think the system which stopped at 14 could give a Technical Training such as the community required.

Six Hours of Day-Light Teaching Suggested.

He pointed out of the Act does not say that the classes must be Evening Classes but simply says "further education," leaving the Local Authorities free to specify Day Classes in their bylaw. If employers could be persuaded to let their employees off for Day Classes he thought it would be the better way. The Day Continuation Class work, he added, would have to be a part-time system. It would be a very serious revolution to take a large lump of day time out of industry. An improvement, if they could get the employers up to it, would be to take six hours weekly in daylight for Continuation Classes, instead of two hours on three nights weekly as now. Most of the members of the School Board, however, were timid about making this move. The initiation of the by-law is left to the School Board, which is subject to the will of the general ratepayers, who to some extent would be employers. The situation would be quite different if compulsory attendance were a statutory requirement. Where the School Board is elected it is more difficult to pass such a by-law. Of course if any large number of the ratepayers wanted it they would press for it at the triennial elections.

Advisory Committees and their Functions.

Advisory Committees, 18 in all, are made up for the groups of industries from employers, expert workmen and others interested in the industry. Their object is to see that the classes are kept in contact with industrial practice, and that the teachers are doing the work properly. They also advise the authorities as to whether they are guiding the pupils properly to the various industries; whether the various pamphlets issued by the Board about the industries are properly drawn up; and generally, they keep the Board right in regard to those matters. The members of those Advisory Committees attend meetings very regularly. The reports almost invariably say, "every member present." Each Committee has from 5 to 8 members. The Advisory Committees meet all together once a year and discuss things generally, and their suggestions are found very valuable and practicable. Those Committees are consulted about the workshops. For example, if the Board wanted to teach Tailoring, they could advise as to what sort of work should be taken up, what sort of men should be obtained as teachers, etc. He did not say the Board always accepted fully what the Committees suggested, because it has to deal with the educational side of the question. Out of the entire Advisory Council of 125 members, which is made up of the members of all the Advisory Committees, only 10 or 12 are educational experts.

CHAPTER XV: ORGANIZATION OF EDUCATION IN GLASGOW.

INTRODUCTORY.

Glasgow is organized for education on lines so similar to those given in detail for Edinburgh, that merely a summary and a few special features are given.

The School Board has 15 members and a Clerk; 12 Committees look after the various departments; and the Board has representatives on various educational and other bodies in the city, numbering 22 in all, including Central Institutions, Endowments Board, Committee on Secondary Education for the District, etc.

After experience with the new Education (Scotland) Act of 1908, the Board reports that while proceeding cautiously and, where possible, by way of experiment in regard to new questions, it continues to make steady progress in all departments of its work. It is establishing a systematic co-ordination of the various departments of educational work, and attempting to bring about the closest possible connection between the Day Schools and the Continuation Classes.

The experiment of establishing, in one of the Higher Grade Schools, a three years' course of instruction specially suited for the needs of pupils who intend to proceed to engineering or allied trades, and to continue their studies at the Evening Classes of the Technical College or other Central Institution, proved so successful that it has been extended.

The Continuation Classes are being developed with due regard to the needs of all members of the community; and, as fitting in an industrial city like Glasgow, special attention is being paid to the requirements of artisans. Further, in order to insure that every child under their care shall get at least the rudiments of a good elementary education, they have, under section 10 (3) of the Education (Scotland) Act, 1908, made by-laws compelling the attendance at Continuation Classes, until 17 years of age, of young persons beyond the age of 14 years within their district (1) who have not completed two years' attendance at a Supplementary Class or the equivalent thereof, (2) who are not otherwise receiving a suitable education, or (3) who are not especially exempted by the School Board from the operation of the by-laws.

SECTION 1: CONVERSATION WITH MR. J. CLARK.

Information obtained in "Conversation" with MR. J. CLARK, M.A., *Clerk to the School Board of Glasgow, and with* MR. FLEMING.

The School Board has very wide powers under the Act of 1908. There are fixed dates for the children to enter and leave school, these dates being chosen

with the approval of the Central Authority, viz., 1st August, 1st February, or 1st April next after the child's 5th birthday; the leaving date being the corresponding one after the age of 14. From the time of entering to about 7 years of age, the child remains in the Infant Department; then from 7 to 12 there are five main stages. At 12 he passes the Qualifying Examination, and goes to either Secondary School work or to a Supplementary Class. The latter has an important bearing on industrial training. Many artisans are getting their training in the Evening Classes and proceeding to the Technical College or other Central Institution, where they take certificates and diplomas.

Selection of Vocation.

There is no distinction between Elementary and Secondary School work before 12 years of age.

At the age of 12 a notice is sent out to the parents, asking them which course they desire the child to follow. If a child is to leave at 14, since the Board has power to keep him at Evening Classes till 17, it is better for him to take the Supplementary Course and afterwards take his artisan or commercial training in the Evening Schools.

The integral difference between the two courses—the Supplementary Course and the course of the Secondary School—is that in the Supplementary Course no new ground is broken. Generally speaking, half the time is given to manual work; the boys have 5 hours Drawing and Manual Instruction, and the girls have Housekeeping, including Household Arithmetic and Keeping Accounts. They go out in turn to buy the provisions that are to be cooked for the day's work; and in addition, they have Dressmaking and other things.

If a boy had taken the Supplementary Course and then changed his mind, he would really require to go back to the beginning of the Higher Grade Course. Though he might go a little faster, he would be handicapped almost to the extent of the time he had spent in the Supplementary Course, but he would have lost nothing in his powers of observation and reasoning. He would not be so well equipped for the science side. A lad, after two years of Supplementary Class work and two years of Evening Class technical work, would be as well equipped for the particular kind of artisan work he was going to, as if he had had the three years' science course of the Intermediate Classes—in fact, a little more so. As a matter of fact, there are only very few cases of boys changing from one course to the other, chiefly because the schools are very fortunate in having the right men to advise the parents, so that only those who are quite sure of not being able to keep the boy at school after 14 are sent into the Supplementary Classes.

Attitude of Employers.

Out of about 7,000 going out yearly, probably 2,000 pupils have not reached the Supplementary stage, but there is a by-law under the Education Act that they shall make it up before 16. The difficulty is that where the boys are working in factories and shops, the number of hours, including education,

must not exceed the limit stated in the Factory Act. Some employers are rather inclined to say that if there is any restriction as to the hours of labor, they will take nobody before 17; but others pay their apprentices sixpence a week additional for each certificate they get, so that some of these boys who would ordinarily be getting 10 shillings, are earning 14 shillings per week. One of the main objects of the by-law is to improve the attendance at Day-School, and in time people will realize that those who do not attend are so much handicapped in getting employemnt that the effort will be made to keep them at school till 14. Only those who do not attain a certain standard come under the by-law, and the parents begin to appreciate it already.

Admissions and Bursaries.

All the Science Classes in the whole of the West of Scotland are affiliated with the Technical College, and the students can get into the Technical College without examination on the certificate of the school.

The Burgh and County Committees have schemes of bursaries and maintenance allowances which enable the poorest lad in the district, if he has the necessary ability, to go on with those classes. The various industries are represented—engineering, drawing, building, naval architecture, coal mining, etc., and a scheme is being worked out on more elastic lines on the Commercial Education side at the Central Institution. The bursaries tend to keep the boys at home in the early stages, which is desirable, as the lower stages of the Technical College are overcrowded. By co-ordinating these local courses and accepting their certificates for admission to the Technical College, this is achieved. The particulars of the case of an applicant for a bursary are gone into in each case, and the nominating authority nominates on the basis of the certificates held by the students, while the personal evidence of the student is made an element.

Co-operation with Labor Exchange.

The Technical College co-opts special members to decide along what lines special instruction should be given, and the Local Committees co-opt leading experts in various lines, all working in close conjunction with the Labor Exchange and the Advisory Committee consisting of representatives from all the education authorities, and from leading trades and industries and associations of industries. These can do what the Labor Exchange cannot do, viz., advise parents and boys what trades are overcrowded or unsuitable. Cards in duplicate are sent to the centres, one being filed at the School Board for Continuation Class purposes, the other filed at the Labor Exchange. These cards give information about the boy and some idea of what he is most fitted for. The Headmaster advises the boys when leaving to continue their education, and every case is visited so as to get them into the Continuation Schools. The Labor Exchange is not to relieve parents of their responsibility, but to help them. Special inducements are offered to boys

to take courses rather than single subjects, by making it cheaper to do so. It is also proposed, instead of returning part of the fees for regular attendance, to admit to a second year's course, and to return the money at the end of that.

In Scotland the School Boards have a great deal of power in the matter of attendance, but Glasgow is the only big educational authority in Scotland which enforces the by-law about children in factories attending school, or even children working for their parents, or independently such as newsboys, etc. Every child has to be licensed for public purposes, and licenses are refused to those who do not attend school. While regularly constituted authorities have much power and responsibility, the Scotch system is essentially democratic.

Elementary Education.

The number of pupils for whom grants were paid during the school year 1910 was 69,886. Of these, 1,903 pupils, including 198 junior students, earned grants in the Higher Grade Departments and 67,963 in the Elementary Departments of the schools. The total amount of grant received from the Scotch Education Department, exclusive of the two High Schools, was £99,303, 6s. 11d., being £1. 8s. 3¼d. per pupil, for schools inspected on the work of 12 months, as against £94, 887, 7s. 2d., or £1. 7s. 6½d per pupil, in the previous year. This shows an increase of £4, 415. 19s. 9d. over all, and an increase of 8¾d. per head.

It is noted with satisfaction that enrolment in Supplementary Classes or in Higher Grade Departments was 5,735, as compared with 5,483 the previous year. The percentage of successes of pupils was 96.3, as against 97.7. In these classes and departments, 4,916 pupils received instruction, as compared with 4,406. Grants amounting to £8,185 10s. were paid on an average attendance of 3,146, as against £6,921 on an average of 2,676; and Merit Certificates were awarded to 1,618 pupils out of a total of 1,670 presented, as compared with 1,257 out of 1,279 in the previous year.

Secondary Education.

An increasing number of duly qualified pupils continue to take advantage of the higher education offered in the Secondary Schools of the Board. Care is taken at the date of each qualifying examination that parents are informed of the difference between Supplementary and Secondary Education, and warned as to the inadvisability of enrolling in a High School or a Higher Grade Department any pupil who is not to continue at school until he has obtained at least the Intermediate Certificate.

The three years' instruction, which constitutes the Intermediate Course, includes a systematic study of English and one or more languages, balanced by adequate instruction in Mathematics (including Arithmetic), Science, and Drawing. All specialization is postponed until the stage of the Intermediate Certificate has been reached. Thereafter, the pupils, while following a broad general curriculum, have an opportunity of varying their subjects of study according as they aim at an academic, a scientific, a technical, or a commercial career.

The Intermediate Certificate is accepted as qualifying pupils for admission to Schools of Art, Schools of Domestic Science, and certain other Central Institutions. This standard of attainment is also demanded of pupils entering on the Junior Student Course.

Pupils who have completed a post-intermediate course of three, or in some cases, two years, and have obtained the Leaving Certificate, are fully equipped to profit by University instruction, and a pass on the higher standard in any subject at the Leaving Certificate Examination is accepted as the equivalent of a pass in that subject at the University Preliminary Examination.

CONTINUATION CLASSES.

In the organisation of the Continuation Classes, the establishment of a close connection between day and evening school work, and the encouragement of a higher standard of general education are sought. The development of Supplementary Classes in the day school makes it possible to secure this. One function of the Continuation Classes is to make it possible for pupils who have completed the Elementary Day School course to broaden and extend their knowledge, and ultimately to specialise along the line of their practical work. Recognising this, the Board are gradually increasing the scope of their classes. In addition to the courses already in existence, English, Language, Commercial, Domestic, and Industrial courses have been arranged and all students who have not previously acquired a satisfactory knowledge of English must include that subject in their course.

Provision has been made under the Industrial Courses for artisans engaged in various trades to receive instruction in the principles underlying their occupations, and in workshop methods and processes, with such practice as may be necessary to supplement their workshop experience.

Attempts are also being made to stop the leakage between Day and Evening School in the case of those who left school before reaching the Supplementary Class. At each of the fixed dates, particulars of all children leaving school are obtained, and Attendance Officers are detailed to visit their homes, and endeavour to secure their enrolment in the Continuation Classes. So far this has not had an appreciable effect, but under the new by-laws the attendance of such children will be compulsory. The co-operation of the Employment Bureau of the Labor Exchange proves helpful in enabling the Board to trace such children as receive employment through the Exchange. Despite the leakage above referred to, there is a considerable increase in the number of pupils taking advantage of the classes for the completion of general elementary education, the total number being 3,588, as compared with 3,017 the previous session. In the more advanced classes for specialised instruction there is also a considerable increase, the numbers being 20,688, as against 18,506,the percentage of attendance being 80, as against 81.

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SECTION 2: A CENTRE FOR THE WEST OF SCOTLAND.

Glasgow is the centre for the Western Division comprising the Counties of Argyll, Ayr, Bute, Dumbarton, Dumfries, Kirkcudbright, Lanark, Renfrew, Wigtown. In this Western Division there were in the Session 1909–10, 435 Continuation Class Centres and 827 Continuation Classes.

As the result of a conference between the Glasgow and West of Scotland Technical College and the Glasgow School Board, these two bodies were persuaded to have a common system of organization in which the objective of the Continuation Classes conducted by the School Board should be the Technical College, and which would be beneficial to the pupils to the extent to which they carried it. Of course the co-ordination is a loose one; no rigidity is insisted on; but the Glasgow and Govan School Boards accepted the proposal, and now it has spread over practically the whole of the south-west of Scotland; so that classes in Kilmarnock, Dundurn, Paisley, Greenock, Hamilton, and many other places are all directly linked on to the Technical College, the scheme having been adopted by some 30 Boards in the Western Division and three from Stirlingshire.

ORGANIZATION OF SCIENCE CLASSES.

This has raised the question of representation upon the Joint Committee on the organization of Science Classes, which could not be regarded as satisfactory unless every Educational Authority adopting the general scheme of work was represented on the Committee. The whole matter has now been considered and a readjustment made upon a fair basis. The Committee is now composed of:—

(a) Four representatives of the Technical College.

(b) Three representatives of the School Board of Glasgow.

(c) Three representatives of the Govan Parish School Board.

(d) One representative from each of five School Boards and one representative from the Govan Y. M. C. A.

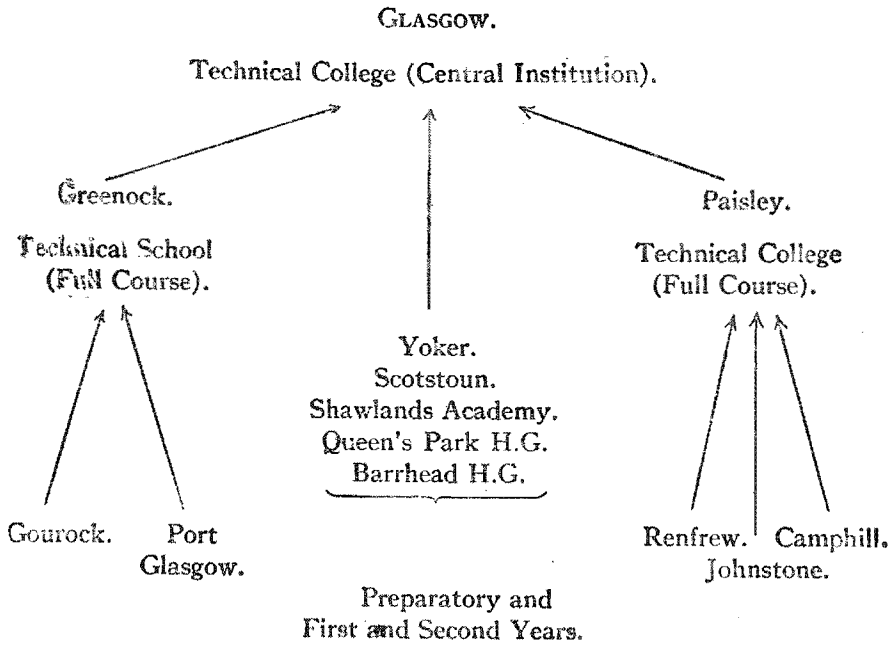
(e) One representative of each authority, excluding those mentioned, having an enrolment before the preceding September of not less than 150 individual students in affiliated classes.

(f) The Organizing Secretary or Director of Education for any county containing affiliated centres, or a representative from the County Secondary Education Committee.

(g) A representative of the Scotch Education Department.

PLAN OF TECHNICAL EDUCATION IN RENFREWSHIRE.

The following conspectus of Technical Courses in Renfrewshire will serve to show the arrangements made in that county.



EMPLOYERS' CO-OPERATION IN CONTINUATION CLASSES.

Public meetings have been held in a number of towns with a view of arousing a greater measure of interest in Continuation Classes and widening public opinion regarding their aims and possibilities. A Workers' Educational Association, representative of various Craftsmen's Societies, has been formed with branches and secretaries in certain districts through Glasgow, with the object of co-operating with the Board by impressing upon apprentices the benefits likely to accrue from attending a course of study having a direct bearing on their craft. Conferences have also taken place in several cases between employers and others interested in education, for the purpose of eliciting opinions on the selection and training of apprentices.

In response to a Circular issued to all employers in Glasgow and District, containing a series of questions, practically every one favoured co-operation, and promised to do all they could; some stipulating that the classes be held in the evenings. The questions dealt with the training of apprentices (*a*) before apprenticeship, (*b*) during apprenticeship.

Under (*a*) the great majority emphasize the importance of general education rather than technical, though specialization in mathematics and kindred subjects is favored by some. Under (*b*) specialization on the lines of the pupil's work

is recommended, adequate instruction being given in Mathematics, Geometry, Drawing and Blue-prints. Some employers also express a desire for practical instruction of apprentices in their particular work.

On the whole, firms would give preference to boys prepared on the lines indicated; some however decline to do so. The bulk of employers would be willing to give every encouragement as regards promotion, etc. to apprentices in their works attending classes approved by them; some have already adopted this course. Others point out that owing to the trade rates of wages it would be difficult to grant increases.

Some employers offer to recoup apprentices' fees and expenses for materials, etc. or to promote good pupils to the drawing office by examination. All express willingness to co-operate with Education Authorities in promoting Trade Classes whose object is to produce more highly skilled workmen. They also promise to lend small equipment, such as patterns, tools, moulding boxes, etc. to classes in the district.

As regards the time for holding classes, about 80% of the firms maintain that work would be dislocated if the classes were held during the day. About 12% think that classes should not be altogether in the evening, while others express doubt, but will consider the matter. One firm suggests that boys should spend half the year at classes and half at the works. Even those firms, who consider that the classes should be in the evening, express readiness to co-operate with Education Authorities in arranging them at other times.

The majority of employers do not consider it advisable to have reports sent them on their apprentices' progress, only 37% answering in the affirmative.

GENERAL SUMMARY OF EMPLOYERS' OPINIONS.

The general opinion is in favour of:—

(1) Boys to stay at Day School till 16;

(2) Failing which, boys to attend Continuation Classes for subjects similar to those of the Day School, to be followed by a more technical course in Mathematics and Machine Drawing on entering their apprenticeship.

BURSARIES.

The Bursaries awarded by the Committee on Secondary Education for the District of the School Board of Glasgow are of three classes, viz:—

(*a*)—*Intermediate Bursaries*, granted to pupils from Elementary Schools or Departments, and tenable at an Intermediate or Secondary School for three years, from the beginning of the session subsequent to that in which the Qualifying Examination has been passed. A Bursar must take the full curriculum of the school for the Intermediate Certificate of the Scotch Education Department.

(*b*)—*Secondary Bursaries*, granted to pupils from Intermediate or Secondary Schools, and tenable at a Secondary School from the beginning of the session subsequent to that in which the Intermediate Certificate has been gained. A Bursar must take the full curriculum of the school for the Leaving Certificate, or for the Junior Student's Certificate.

(*c*)—*Central Institution Bursaries*, tenable at the following Institutions:—The Glasgow School of Art, Glasgow Athenæum (Commercial College), the Glasgow and West of Scotland Technical College, The West of Scotland Agricultural College, Glasgow Veterinary College, The Glasgow and West of Scotland College of Domestic Science.

A Central Institution Bursary is awarded for one session only, but a further application may thereafter be made to the Committee.

GENERAL CONDITIONS.

(1) The parents or guardians of applicants for Bursaries must be resident within the area of the School Board of Glasgow.

(2) The Bursaries are not awarded by examination, but the Committee will take into account the educational qualifications of the applicants as well as their need of financial assistance. The amount awarded will vary according to the circumstances of each case.

(3) The Bursaries will be paid only on a satisfactory report as to attendance, progress, and conduct being obtained from the Head Teacher.

(4) The Bursaries shall not be tenable with any other Scholarship or Bursary, unless in very exceptional circumstances, with the special approval of the Committee.

(5) On the award of a Bursary a form must be signed declaring that the Bursar intends to complete the relative curriculum course; in default of such completion, the return of the amount expended will be required.

Under the Glasgow Educational Endowments Boards, Bursary competitions were held in 1911 for University Bursaries. Three Bursaries of the annual value of £25, tenable for four years at the University of Glasgow, were awarded by competitive examination among those who had attended Public or State-aided Schools in Glasgow and required aid in obtaining a University education.

170 Bursaries were also awarded for Continuation Classes, 50 being for scholars whose previous education qualified them for attendance at Continuation Classes at Central Institutions, and the remainder for those already in attendance at such classes.

Candidates above the age of 17 are excluded from these competitions and the Bursaries are awarded strictly in the order of merit.

SECTION 3: CENTRAL INSTITUTIONS.

The Commission was impressed with the general good work done in Glasgow, as in other places in Scotland. In addition to the information obtained from conversations with Messrs. Clark, Fleming, Stockdale, Newbery, and other leaders, we give a brief survey of the Central Institutions.

The Glasgow and West of Scotland Technical College is fully covering the ground in the various branches of Engineering, Mining, Naval Architecture, Chemistry, Metallurgy, Building, Textile Manufacture, Mathematics and Physics. An account of the work of this college follows the "Conversation" with Dr. Stockdale.

One Institution of particular interest is the Glasgow School of Art, which is featured under (4) of this Section.

Under the head of Central Institutions, brief outlines are given of the West of Scotland Agricultural College and the Glasgow Athenæum (Commercial College). These and the above, together with the Glasgow and West of Scotland College of Domestic Science and the Glasgow Veterinary College, form the Central Institutions for the district.

(1) GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.

Information obtained in "Conversation" with DR. H. F. STOCKDALE, F.R.S.E., *Principal.*

This College was established in 1796, and is therefore probably the oldest Technical College in the world. A class known as the Mechanics' class conducted under that old institution, which had the name of Andersonian College, called after the founder, Professor John Anderson, hived off from the parent institution and took to itself separate premises and management and called itself the "Mechanics' Institution". That was the beginning of these Institutions which under that name spread throughout the whole of Great Britain, and which have formed the beginnings of nine-tenths of the technical institutions of England.

In 1886 a Royal Commission which had to deal with the endowments of Scotland, and had large powers, brought together again the old Mechanics' Institution and the Andersonian College and some three or four or five other endowed bodies, and formed them into the "Glasgow and West of Scotland Technical College". These were brought bit by bit into one homogeneous institution, but the work of the College was conducted in three or four buildings scattered over the city. About ten years ago Glasgow raised a building fund of about £360,000, £80,000 of which came from the Government, the balance from voluntary subscriptions or grants from the city and other authorities. With that money the present magnificent building was erected.

REPRESENTATIVE BOARD OF GOVERNORS.

When the College was started with a new lease of life in 1886, the Commission placed it under a Board of Governors which consisted in the first place of certain Life-Governors representing old endowments which were then thrown into the common pool; and in addition to that they authorized the Lord Provost and Magistrates, the School Board, the University, the Trades House, the Merchants' House, Educational Endowments Boards, and public bodies of that kind, to appoint representatives for terms of years. With very slight modifications that Constitution holds good to-day, and these men are the governing body.

FREEDOM UNDER SCOTCH DEPARTMENT

In the old days the work was largely under the Science and Art Department of the English Board of Education, but about 12 years ago the power to give money for this work was transferred to the Scotch Board, and since then the

College has been in the hands of the Scotch Education Department whose general policy is to allow the utmost freedom in the development of the work. While the Department requires to be very fully informed about finances, proposals in regard to payment of staff, and a hundred and one things that make up the working machinery of the College, they have not interfered, and have had sense enough to see that those on the spot probably understand local problems better than they, and from the start they have done nothing but help those in charge.

Day Students.

Shortly after the transfer of authority, the day work began to push ahead very strongly, until now there are 600 day pupils, more than half giving their whole time to College work, on which they enter with full University standing; but the standing of the diplomas of the College is not less than that of any British University. The other half of the students is variously made up. For example, a big shipbuilding firm has met with difficulty in regard to a particular oil, and they sent a competent man, a graduate in science, and put him in the laboratory to deal with that particular question. Though this man is not typical of the other 300, it is quite a common thing to find a man in a civil engineering office who is weak in surveying and wants to push ahead in that subject, and his employer will arrange to release him for a course in the College. Out of the 300 men there would probably be 150 graduates, who in the main attend the College to follow special courses adapted to their peculiar requirements.

The whole of the day work is of University standard, excepting the work of one little group—the Bakers.

Evening Classes—General Section.

The Evening work is in two distinct sections. The large General Section is on a par with the day work as to standard,which is indicated by the fact that there are from 150 to 200 University graduates in the Evening Classes. Entrance upon this work is preceded by preliminary examination only in Mathematics in regard to non-engineering subjects; in engineering subjects a preliminary knowledge of Drawing is also required. This standard, which marks the beginning of the evening work in the main section, is the point at which students from Continuation Classes conducted by the School Boards around Glasgow enter, the latter having general courses leading to particular departments of the College under agreement with the College authorities, the work being regulated by a Joint Committee.

An officer of the College visits all the surrounding classes to see that the work is done in accordance with the agreement, that the syllabuses are correct, and that certificates are issued only to students who have satisfactorily done the work and reached a desirable standing. The volume of this work can be judged from the statement that every class of any importance, within 30 miles of Glasgow, is affiliated with the College, and that the numbers in these classes

reach about 7,000, while there are within the College itself about 5,000; so that with the day students the College is the centre of organizations affecting about 13,000 or 14,000 students.

No work is done in the College of as low a grade as is done in these Supplementary Classes; there was an agreement that there should be a strict line of demarcation. The College had to send down to the Supplementary Classes hundreds of students, but the attendance has increased tenfold, and they are coming back very much better prepared than before, because they are giving very much more time to preparatory work. A boy, who has left the Elementary School at 14, has to go through a preparatory course of possibly two and usually three years before going to the College, so that there is good material with which to carry on the evening classes.

Evening Trade Classes.

The other side of the evening work is the Trade Classes, and to this problem the Governors are giving very serious attention. Dr. Stockdale said he could not say that a satisfactory solution of the problem had been found. The classes have grown bit by bit; the plumbing classes are the oldest, having existed for 30 years; sheet metal workers were the next, then the decorative trades, then printers, and thus bit by bit the College was led into the provision of a great deal of instruction which had no relation to the mass of the evening work.

The general tendency of the last Act of Parliament and of the policy of the Education Department of Scotland is towards putting all this trade work under the School Boards. The main work of the College is growing so much that something will have to be put out of it to allow for that legitimate growth, and Dr. Stockdale thought that almost inevitably it would be the Trade Classes.

Special Institution for Trade Classes.

Personally he would like to see established a big separate institution which would provide for all the trades concerned in the work of the district, with relations to School Boards similar to those of this College, that new institution providing for the rank and file just as the College endeavors to provide for the higher ranks of the industrial world. This was Dr. Stockdale's personal view, and he added that what he said on this subject had not been considered by the Governors and adopted as their opinion.

He thought the College and its work were big enough as an administrative unit, and that if it grows any larger it cannot be properly looked after. He therefore personally deprecated the indefinite expansion of the work such as would follow a decision to retain and develop the Trade Classes within the College walls, as these could form a section which might well be dealt with separately. He thought that they would have to be in a building separate from the Continuation Classes, because of the necessary setting aside of workshops with very extensive and complete plant. At present the whole of the

basement of the College from end to end (350 ft.) with the exception of one room is given up to the Trade Classes. That type of student could not be got into the Day Classes, the Baking School being the only one in which, during the day, anything is done in the way of trade work. The ordinary operations which affect industry prevent men from coming in during the day, as they must earn their bread and butter.

It is not the intention of the Trade Classes of the College to teach a trade. The practical classes are open only to those who have had sufficient experience to profit by the class. In that way the Trades Union difficulty is met, and yet at the same time the classes are left open to those who have had workshop experience.

The Baking School.

The College was approached a short time ago by the Master Bakers of Scotland with a request for help stating that, although the industry has become very important and a large number are engaged in it, very little is known about it from a scientific point of view. The College authorities agreed to do what they could, and the Master Bakers subscribed among themselves about £4,000 to equip rooms for the instruction of bakers. One of the Associates in Chemistry, who had also a practical knowledge of bakery, was put in as lecturer.

The Baking School forms a little world within a world, and is apart from the general working operation of the College. Ten or twelve men—mostly all sons of bakers—give their whole time to that work, and are looking forward to succeeding their fathers in business.

Probably the Baking School will always be treated differently from others, because the bakers of Scotland have made important sacrifices to establish it. They worked for many years, long before there was the present strong feeling in favour of education, and today the Master Bakers of Glasgow give the College over £100 a year and provide the material used in the Bakery School.

Dr. Stockdale said the way in which science could help the baking trade was very astonishing. He told of an extensive baker from Edinburgh who a few months ago came to the College saying that everything was going wrong —thousands of loaves being turned out every day that were practically unsaleable—and asked what could be done to help him. The College man, on investigating, found a colony of foreign bacteria in possession of his bakehouse. He told the baker what to do; and after he had done it everything was all right.

Preliminary Examinations.

There is no difference in the entrance standing between the Technical College and the University, though there is a difference in methods, and it is hoped that the changes made two years ago would simply anticipate the work of the Joint Committee of the Universities.

The Joint Board of the Scottish Universities controls the examination for admission to them, and at present this College does not come under that, but will have to do so and adopt the same preliminary if and when the change in the University takes place.

One feature that must be kept in view is that the Secondary School system of Scotland terminates with the Leaving Certificate at the age of about 17, and Dr. Stockdale hoped that that Leaving Certificate would be accepted for matriculation without question in any faculty in any of the Universities. To all intents and purposes it is accepted now, but accepted for individual subjects; but he would like to see it accepted as a unit because, being the completion of the Secondary Education system, it would mark the entrance to the University.

In addition to the information obtained from "Conversation" with Dr. Stockdale, further particulars were learned by visiting the Institution and by examining its publications. The features of use to Canadians are mentioned hereafter.

Evening Classes.

All students, except those afterwards exempted, who propose to enter the Evening Classes are required to pass an entrance examination in Mathematics.

Those who have obtained Course Certificates from any recognized Continuation School are admitted without further examination. The entrance examination is not required from students over 16 years of age proposing to enter classes in Music, Bacteriology, Biology, Geology, and Physiology, but they are expected to have received a good general education.

Students over 16 years of age joining Trade Classes are exempted from examination, but are strongly recommended to qualify for admission to classes related to their subject in other Departments of the College. The Trade classes are:—Textile Manufacture, Boilermaking, Decorative Trades, Plumbing, Sheet Metal Work, Bootmaking, Printing and Allied Trades, Watch and Clockmaking, Breadmaking, Confectionery, and Tailoring.

Students must satisfy the Heads of the Departments in which they wish to attend classes that they are prepared to profit by the instruction provided. The Organizer of Continuation Classes in Science is present each evening to advise junior students joining the College for the first time. Advisers for the several courses of study leading to the College Certificate have been appointed, whom students are recommend to consult.

Enrolment of Students.

The enrolment at the college in 1910 was as follows:—

	Intermediate Students	Class Enrolments.	Student-hours.
Day Classes.....	523	2,189	210,062
Evening Classes.....	4,944	9,038	328,416

OCCUPATIONS OF EVENING STUDENTS, SESSION 1909–1910.

Men.

Mechanical Engineers and Draughtsmen, and Structural Draughtsmen	1,329	
Boilermakers, Ship Platers, Shipwrights, and Ship Carpenters	149	
Foundry Managers, Blacksmiths, Brassfounders and Finishers, Moulders, Steel Smelters, and Roll Turners	52	
Tin and Copper Smiths, and Sheet Metal Workers,	112	
Civil and Mining Engineers, and the Mining Industries	314	
Electrical Engineers and Draughtsmen, and Instrument Makers	186	
Telegraphists, Telegraph and Telephone Mechanics,	143	
Opticians and Watchmakers	60	
Clerks, Travellers, and Civil Servants	304	
Teachers	146	
Architects, Measurers, and the Building Trades	677	
Chemists, Gas Manufacturers, Druggists, Drysalters, Paper Makers, Dyers, Colour Makers, and Bleachers; Paint and Oil Trades	198	
Printing and Allied Trades	141	
Cabinetmaking and the Furnishing Trades	59	
Textile Trades	66	
Tailors	70	
Bootmakers	57	
Warehousemen and Salesmen	124	
Bakers, Chefs, Cooks, Grocers, etc	399	
Other Trades	32	
No occupation, or occupation not stated	133	
		4,751

Women.

Teachers	78	
Chemists, Telegraphists, Clerks	19	
Dressmakers, Milliners, etc	12	
No occupation, or occupation not stated	84	
		193
Total		4,944

(2) WEST OF SCOTLAND AGRICULTURAL COLLEGE.

During the Session of 1910-11 there were in attendance at Day Classes 111 individual students; at Evening Classes 111; at the Kilmarnock Dairy School 240. A steady annual increase since the College was opened in 1899 points

to the urgent necessity of more accommodation. 54 students followed full consecutive courses for the Diploma or Associateship of the College. The regulations allow recognition of attendances at a rural course under the Provincial Committee to qualify *pro tanto* for the College diploma.

Extension Lectures in agricultural subjects have been delivered in 65 different towns and villages, and by arrangement with County Councils and other Local Authorities, classes with from 5 to 20 lessons in each have been conducted in Argyllshire at 10 centres, Dumfriesshire 17 centres, Lanarkshire 4, Ayrshire 5, Kircudbright 9, Perthshire 5, and 1 centre each in Renfrewshire, Wigtownshire and Stirlingshire. Dairy Extension work is also vigorously carried on.

Horticulture lectures have been delivered at 47 centres, and 55 School Gardens established in the different counties related to the College.

The Poultry Department has been strengthened by the appointment of a Lecturer, and Extension Lectures on Poultry Husbandry have been given in 26 centres.

A large number of *Demonstrations* have been given in different parts of the division of Woods and Forests.

Farmers engaged in *Cheese-making* continue to be supplied with pure cultures by the College.

The experiment of linking together related subjects to form a course has resulted in a greater number of students receiving systematic instruction.

(3) GLASGOW ATHENAEUM (COMMERCIAL COLLEGE).

The number of individual students in the Session 1910-11 was 1,402, the enrolments in the various classes being 2,758. At the close of the session 917 students presented themselves for examination, and the work done, as ascertained by independent examiners, is stated to be of a high standard.

The classes now number 128, the staff numbering 31 as against 13 five years ago.

Courses have been instituted in the Law of Shipping and Marine Insurance, Law relating to Railways, etc., the Money Market, Patterns, Designs and Trade Marks, special Day Classes being formed in order to encourage pupils from Secondary Schools to continue special studies before entering upon business. The result justified their continuation and extension.

The experiment of linking together related subjects to form a course has resulted in a greater number of students receiving systematic instruction.

Earnest consideration is being given to the question of co-ordinating the College work with that overtaken by School Boards.

(4) GLASGOW SCHOOL OF ART.

In Scotland the leaving certificates (Intermediate and Higher) are the meeting-points for school graduation, and the radiating points towards graduation in the professions. It is necessary to emphasize the facts: (1) that Drawing runs through the entire curriculum, the minimum time being 1½ hours weekly

in the earlier stages, and 2 hours in the later; (2) that the Intermediate Certificate is granted on the results of inspection and examination at the medium age of 15, not for isolated subjects, but for a well-balanced course of study, including Drawing; (3) that it is not a final certificate, but a passport to higher study; and (4) that the higher Grade Certificate in Drawing is awarded to successful students on a minimum of two years' further study.

Higher art studies, as well as technical, are under the control of the Central Institutions, which include the Edinburgh College of Art, Glasgow School of Art, and Aberdeen (Gray's) School of Art. Committees of Central Institutions are composed of representative men, appointed from local bodies such as town councils, universities, school boards, trade societies, etc.

Universities have not been identified to any extent with Art teaching. In 1880 a Chair of Fine Art was founded in connection with Edinburgh University, but the functions of the Professor consist chiefly in giving an annual course of lectures, of which little advantage is taken. It is believed the time is not far distant when Art will be more closely associated with collegiate courses.

The certification of Art teachers, hitherto based entirely on the result of practical attainments, such as acceptance of works and personal examinations, will be conditional in future on the possession of the Intermediate Certificate; further study of general subjects of education, including Art, during a period of two years as Junior Student in training; and the diploma of a Central School of Art, covering a period of two, three, or four years. Attendance at a training centre for professional instruction in teaching methods, principles of education, etc., is also necessary.

Students preparing to be teachers of general subjects must obtain the Intermediate Art Certificate, succeeded normally by at least two years' study as Junior Students, during which it is expected that the Higher Grade certificate in Drawing will be obtained. Those who show special aptitude may be recognized as qualified to give instruction in Supplementary Courses.

Art Related to Industries.

More attention has recently been paid to the bearing of Art teaching on subjects relating to industries—their design, technique, and economic production. The satisfactory completion of a definite course in the Central Schools is attested by the award of the school diploma. The value of these diplomas is being increasingly recognized by employers and teaching bodies. Central and more important schools are equipped with craft rooms.

In view of the large number of occupations which do not call for extensive Art training, but in which Drawing forms a valuable adjunct, courses are provided which include Free Drawing and Technical Drawing, Geometry and Mensuration.

In Scotland the term "Free Drawing" includes what was formerly known as free-hand, model, and light and shade, with all their modern developments. Technical Drawing in this connection means the application of Drawing correlated to subjects of a technical nature.

Scottish students have not hitherto enjoyed adequate opportunities for higher Art study, but the future looks much more promising.

The influence of Art Education on industries will manifest itself more apparently in the demand for good and tasteful products, than in the creation of Art objects; so many are users and so few producers. Hence instruction in Art matters must be a fundamental feature of the Art Education of the future. Sufficient time has not elapsed to demonstrate fully the effect on students and employers of the present system.

The Functions of a School of Art.

Taking Glasgow and its School of Art as typical of most of the larger cities of the United Kingdom, the following is selected as an interesting statement embodying the views of Dr. Newbery, Principal, in reply to the question "What are the functions of a School of Art with special reference to craft classes?"

A craft class may be defined as a course of instruction in any special production to which Art is applicable, and in which the producer must be an Art workman. A craft class is really a trade class, for instruction in the nature and limitations of material. In the establishment of craft classes it should be taken for granted that the School of Art is a central institution for instruction in advanced Art, and that it is set down in the middle of an industrial population, whose chief work is the production of manufactured material or articles to which Art is applicable. Its objects then are,—

(1.) To supply to the utmost the needs of any and every local manufacture in which the application of Art plays any important part. This should be its chief work.

(2.) To aid in the resuscitation and revival of any Art industry which may once have been traditional, but which the pressure of commercial competition may have either thrust into the background or sapped of any vital life.

(3.) To endeavor to create new industries, provided always that the difficulties attending such creation be not insuperable.

Glasgow Industries Requiring Art.

(1.) Glasgow has a multitude of manufactures, but it is primarily a weaving town. It makes carpets, tapestry goods—such as curtains and hangings; cotton prints; muslin goods (particularly the harness variety); linen, damask, etc. But it prints wall-papers; it makes furniture; cast-iron work is a noticeable production; and there are one or two wrought-iron firms (one fairly good). It has a large trade in wood carving; it supplies architects with both wood and stone carvers; glass-staining is a noticeable, and more than locally appreciated art. The art of pottery is being taken seriously by at least one manufacturer. The city has silver-chasers, and jewellers' manufacturers, die sinkers, and commercial engravers. Lithography, though largely mercantile, employs many designers; there are the usual decorators' and painters' trades; mosiac and marble workers claim attention, and others, whose needs must be met.

Under (2.) comes needlework and embroidery, which in past time made Ayrshire famous, and an endeavour is being made to revive not only its acceptance, but also that of the art of lace-making.

Under (3.) comes the tentative effort being made, chiefly through the medium of the School of Art, coupled with a firm of well-known publishers, to afford work for women in the craft of book-binding and decoration; also to meet any possible demands that may be made by local gold and silversmiths for enamelling, and designs for gold and silver work and jewellery.

This list of the arts and crafts presents a fairly full budget for any School of Art to meet, but the demand may be taken as typical of most of the larger cities of the kingdom, with the exception, that in specialised centres, such as Birmingham, Sheffield, Manchester, or the Potteries, a local need bulks which simplifies and centralises craft work.

Courses in Design and Decoration.

Guided by local conditions and demands, the Glasgow School of Art has the following courses in design and decoration:

Technical Studios have been specially erected to enable students to learn design in and through the use of material. To show the process of weaving, a loom has been erected and a practical weaver gives the demonstrations.

COURSES.

Principles of Design.—Lectures and demonstrations.

Applied Design.—Textiles—Carpets—Wall Papers—etc.

Stained Glass.—Design—Material—Technic—Preparations of Cartoons—Colour Schemes—Study of old examples—Drawing of Figure, Foliage and Ornament—Painting and Leading—Finished work.

Decorations of Interiors.—(Churches, Public and Private Buildings)—Drawing from the Cast—Drawing and Painting Flowers—Principles of Ornament—Architecture—Colour Schemes—Stencil Cutting—General application.

Needlework and Embroidery, Applique, &c.—Foliage in Outline—Study of Flowers from Nature—Design and Application—Technic—Study of old examples—Original work in Silk, Wools, and Linen.

Bookbinding and Decoration.—Outline from Cast—Foliage from Nature—Design to fill given spaces—Study of old examples—Tools and their uses—Material—Preparation and Execution of original design.

Ceramic Decoration, Design and Painting.—Outline from Cast and Foliage—Still Life Painting—Modelling, Design, and application—Materials—Colours—Processes—Glazes—Firing.

Enamels.—Ornament—Figure—Life—Still Life—Design and Composition—Technic—Finished Work.

Mosaics.—(Same as above.)

Block Cutting and Printing in Colours.—Drawing and Shading Ornament from the Cast in line and wash—Antique—Life—Design and Figure Composition. Experiments in Printing will be made by a Printing Press.

Sgraffito and Gesso.—Drawing and Modelling Ornament from the Cast—Antique—Life—Architecture—Colour Schemes.

Design, Lithographic and Poster.—Ornament and Figure from the Cast—Life, Drawing and Painting—Design—Figure Composition—Colour Schemes and their application—Technic—Printing—Finished Works.

Metal Work—Gold, Silver, Brass, Copper and Iron.—Drawing Ornament and Figure from Casts—Design—Modelling—Ornament and the figure—Material—Technic—Repoussé Work—Chasing and Engraving—Original Work.

Wood Carving and Engraving.

Stone Carving.—Drawing and Modelling Ornament and Figure from the Cast—Life—Figure Composition Design—Copies of old work from examples and photographs; Original Designs,

Beginnings and Development.

The Glasgow School of Art was founded in 1840. In 1892 the Governing Body was made representative of the principal Public Bodies of the city, and the School was registered under the Companies' Act. In 1894 the Governors began to collect public subscriptions for the erection of a new building, part of which was formally opened in 1899. In that year the Scotch Education Department took over the control of the Science and Art Education of Scotland, and in September, 1901, the Glasgow School of Art was established as the Central Institution for Higher Art Education for Glasgow and the West of Scotland. In 1906 the growth and development of the School made the completion of the building a matter of necessity, and this was accomplished three years later.

The Governors are authorized to grant Diplomas and Certificates to students upon the results of a course of instruction, together with special tests. They bear the official endorsement of the Scotch Education Department, and are accepted by that Department as proofs of technical capacity.

The various Secondary Education Committees of the Country are empowered under the Education (Scotland) Act, to grant maintenance bursaries and maintenance scholarships to enable duly qualified students to obtain education in the Day and Evening Classes of the School of Art as a "Central Institution". Certain sections of the work of the School have been co-ordinated with that being done by the Glasgow Provincial Committee, the Technical College and the chief School Boards of the City and district.

Relation of Art School to Primary Schools.

The scheme of Drawing studies agreed upon between the School of Art and the Glasgow School Board, intended to form a connecting link between the art work of the Primary School and the School of Art, has been accepted and put into working effect by at least a dozen other School Boards, so that their Continuation Classes in Drawing have been advantageously linked to the Evening Courses in the Central Institution.

An inspection of the work in the Continuation Classes of the second year results in a number of students being selected for further instruction in the School of Art. These classes are intended not only for students who desire to become painters, sculptors or designers, but also for those who wish to obtain a general knowledge of and practice in Art and the Artistic Crafts. Drawing classes generally are, however, disappointingly small. Notwithstanding every effort having been made, both by School Boards and by members of the Master Painters' Association, to bring before them the advantages of Art instruction, it is doubtful if more than 10% of the apprentices and journeymen have taken advantage of the facilities provided.

ENROLMENT OF STUDENTS.

The ordinary students in attendance (1910-11) at the various classes—day and evening—in the four Departments of the work of the School were as follows:—

Drawing and Painting	458
Design and Decorative Art	99
Modelling and Sculpture	41
Architecture	125
Total	723

CONVERSATION WITH MR. NEWBERY.

Information obtained in "Conversation" with MR. FRANCIS H. NEWBERY, A.R.C.A., *Director of Glasgow School of Art, and* MR. JOSEPH VAUGHAN, *Superintendent of Art Instruction under the Glasgow School Board, and by a visit to the School of Art.*

The Glasgow School of Art is a state institution managed by Governors elected from public bodies in Glasgow, the Education Department at London paying half the cost of maintenance. The efforts of the institution are devoted to raising the standard of Art throughout the length and breadth of the land. The attainment of this end is being achieved in no small measure through the work of the Elementary School teachers who come to this School for their training.

The School aims to make art applicable to industries. The object is to give people good taste and skill and power to apply good taste to the things they make, and to their own occupations. The School starts with the supposition that every boy and girl has an instinctive desire to express himself or herself in terms of Art. The point is to define exactly what is meant by Art. Mr. Newbery starts with the desire of the child to decorate itself, to surround itself with forms which are copies or impressions of what it sees, and he endeavours to make the child observe and study nature, and through this desire of decoration applied to itself or its surroundings to cultivate that side of beauty. It is a very simple proposition to recognize a certain power which the child possesses, and to deal entirely with that.

The old idea was that the school-master had so many homeopathic doses of Drawing to compound and count, throwing in stuff of no use to man or beast, and to serve that out to the children. The new idea is that Art students, like anybody else, have certain powers and instincts to be cultivated and directed. Mr. Newbery said the result had warranted the new point of view, and he believed there were now in the west of Scotland a large number of people teaching Art by endeavouring to develop this instinct in the child and directing its attention to the observation of nature from a purely artistic point of view. Between 800 and 900 teachers pass through the School every year. He believed that each of those teachers, in turn, is a missionary exercising an influence upon the children. Only by such education could they hope to get at the big thing called public taste, because the little children in the school are the future public.

No distinction is made between the Art student who comes on Monday morning and works five days a week and the man or woman who comes on Saturday morning as a school teacher. The latter are not school teachers to the Director and his staff. The moment they enter the Art school they are Art students, and are submitted to the same Art influences of environment, instruction, direction, and any other that the staff can bring to bear upon them.

Need of Education in Taste.

Many evening class students work in Glasgow shops, but the problem here as elsewhere is this: Until the public can be brought to the point where good taste becomes national, if not universal, the designer works against odds, for the manufacturer is there to sell his goods to the public, and in plain English he sells them to people whose taste is worse than his own. Today 30 men and women are finding a living in Glasgow in Arts and Crafts who ten years ago could not get a foothold. They approach the public directly in the same way as the man who paints pictures. The girl working in a studio receives an order to make a piece of embroidery, to paint a picture, to make a piece of silver work or of repoussé work; she puts the taste into the article, and all over Glasgow the manufacturers' shops are filled with such articles for which this Art School is responsible. The people compare what they get this way with what the manufacturers of machine-mades sell, and have taken the view that this is the thing to produce. These Art works have developed a standard of taste. The school is turning out Art craftsmen, and slowly but surely the quality of the artistic needlework, pottery, silversmithing, etc., which the students are putting on the market is elevating public taste. It follows that in time the tone of machine-manufactured goods will be similarly elevated.

Should Schools Manufacture Goods ?

The question of the manufacture of goods in schools for sale is a very involved one, the Director remarked, and one that neither this Art School nor any other can settle directly. Manufacturers in Glasgow pay rates to support the experts and others in the Art School, and if the School were to set the manufacturers against them, they would say, "We are not going to run this school in order that it may compete with our own works." They would not have a School of Art that was a factory. Therefore all the School had to do was to turn out designers seeking clients and customers. Mr. Newbery stated that in Germany last year he found exactly the same problem, together with others.

School Produces Designers, not Designs.

Mr. Newbery believes that Art education should be far more general in its application; then graduates can go to a manufacturer and specialize in what they want. He told of a manufacturer coming from Paisley for a man to take the place of his foreman designer. The man turned out to be a very

big success and revolutionized the establishment, increasing the trade and making the whole thing smarter. As a matter of fact what he did when he got into that firm was to change almost entirely the style of design they were doing, and he 'got there' because he changed the style. "This School carries out a policy of its own in Art, producing designers, not designs, not subserving the needs of any particular industry. If a student is working towards, say, textile designing, his exercises are supervised by an expert from time to time, and any defects or features that are impracticable are pointed out; but the School does not have advice from anyone in trade as to what they think would be suitable for the School to do to meet their industrial conditions."

At the close of the term all the design students, who desire the School diploma, submit their works to a jury consisting of an artist, two designers, an architect and the best manufacturer who can be obtained, who is an expert on the manufacturing side.

Art and Practical Processes.

In pottery work the idea is that there is no preconceived design. It is not a question of having something made and then applying Art to it, but in the mere doing of it Art is the result. When such articles are taken into the home they exercise an influence, and people then want to buy something more of the same sort.

Pupils learn the colours very quickly, and like quiet colours—greys and blues, greens and purples. The pupils are kept away from floral forms, but the appearance of a flower can be made like small circles, and it does not take long to evolve floral forms from purely geometric forms. Pupils must be taught that embroidery is not painting, and that it will not do things that paint will do.

Twice a week a stained glass expert comes to the School of Art, and though he does not design he knows how to put a window in and tells about the lead-line, etc. The School is thus kept in touch with the technical requirements of the trade. The School eliminates the idea that the designing is done for any particular manufacturer, but the student at the school wants to express himself, does so in this way, and is kept right by experts. The putting in of lead lines must be endorsed by a man who knows the trade, else the design in stained glass may be like some designs in textiles—impossible of execution. The School endeavours to accept and carry out any demand that may be made upon a man to express himself.

Revival of Art Needlework.

There is a general tendency to revive Art Needlework, but it has not yet been generally placed upon a good educational footing by relating it to discipline in Drawing and Design. The Inspector notes that it appears in some cases to be difficult to persuade teachers and pupils that pleasing designs can be produced with the needle even when the stitches used are of the simplest and most

familiar character; but where this is once properly realized there is seldom any desire to return to the ordinary purchased design traced upon the material. With this craft, as with wood-carving and repoussé, systematic success can best be obtained when a close connection is maintained with the Art Classes of the School.

The Dorset Smock.

A rather interesting experiment in educating the public taste is being carried on by Miss Macbeth,an Instructress in charge of Sewing and Embroidery. Director Newbery said that when he was a boy in Dorset, the "Dorset Smock" with its sewing and the artistic decorations of the dwelling were features of that countryside. The people who made those smocks never heard of the Art School in their lives, yet made extremely charming works of Art on traditional lines. So good was their work that when he could get hold of an old smock he bought it for the museum or Art School as a work of Art relative to the craft.

In sewing, as taught in this School of Art, school mistresses receive some practical illustration of the belief of Art teachers in the application of Art to the things of daily life. Hitherto they had been doing designs based upon floral forms, etc.; now they had evolved a scheme whereby, in the very act of joining two pieces of cloth together, the stitches were so arranged that they formed a kind of decoration, the result being a work of Art.

It is a long step forward if people can be brought to see that Art ensues by simply doing a thing in an artistic way, for they then begin to feel that Art is not something exterior to themselves, or a technique apart from themselves.

The child is a better artist at the end of the process just described than before, because the Art has developed outward—which all Art must do. Miss Macbeth said the children in the Kindergarten had been doing similar work in paper; now they do it in textiles; and it goes on logically from that.

The Continuation Classes use construction stitches to make Art garments—decorative construction all through. The first four stitches are the heavy stitches, the tacking stitch, top-sewing and herring-boning stitch. The child learns these stitches in the early stages. At seven years old it learns the plain stitch. Darning is begun as decoration. The principle is applied all the way through.

Collaboration with Architects.

A life-size clay model was shown, and it was stated that one student made two full-sized figures in collaboration with an architect, and brought himself into touch with the actual requirements by working with the architect. Another student went recently to a new building in Glasgow and made figures for the doorway in keeping with the style of the place and the architect was so much struck with these pieces that he put them up. Architects come to the school and ask for things and get them for their buildings.

KEEPING IN TOUCH WITH THINGS OUTSIDE THE SCHOOL.

All the professors have studios in the School. They have three days on and three days off duty at the School; they keep alive in Art by touch with the outside world.

Mr. Newbery considers the Glasgow School the most practical Art institution in the world, its aim being to do the greatest good to the largest number. When a school is tied to a manufacturer it cannot do that, for the latter would not allow it, he being the biggest number. This school is concerned solely with being of the utmost utility from an educational point of view.

During the winter 478 teachers were in attendance ; in July another batch would be coming out of the glens and the Highlands, and in August still another batch. This is University Extension.

There is a set of lectures during the winter on related subjects—History of Art, Architecture, Sculpture, etc, because a student who is going out into the world to carry on a tradition ought to know the history of that tradition. Last year there was a brilliant set of lectures by University men on social and cultural subjects supplementing the History of Art, because it is absurd for a man to try to understand Greek Art unless he knows both Greek sculpture and the social conditions that produced that Art.

SESSIONAL PAPER No. 191d

CHAPTER XVI: ORGANIZATION OF EDUCATION IN THE COUNTY OF FIFE.

INTRODUCTORY.

The Commission was informed that the organization and work in the County of Fife might be taken as representative and illustrative of much of the best that was being undertaken outside the large cities in Scotland. The County was visited and some of the more important features are reported upon.

The occupations followed in the County of Fife may be classed as purely Rural, Mining, Industrial, Commercial, Fishing and Housekeeping. These are in addition to the professional occupations usually followed among such people. Provision is made by the various School Boards and the County Education Committee to meet the educational needs of young persons for these several occupations. The School Boards make provision for Primary Education and Continuation Class work, particulars illustrative of which have already been given. In the towns there are Secondary Schools for general education which prepare for occupations or for entering colleges and universities. Under the Education Act of 1908 most of the Continuation Class work for Industrial or Technical Education, which was formerly under the County Education Committee, has come under the care of the several School Boards. A strong County Education Committee supplies specialist teachers (practically sublets them to local School Boards) for such subjects as Mining, Household Science and Industrial work where the school population of the locality does not require the whole of the time of such a specialist. These specialists circulate around a district and undertake their work in classes under a number of School Boards.

SECTION 1: CONTINUATION CLASSES.

Mr. James Mitchell, the enthusiastic and capable organizer of Continuation Classes, has the general supervision of the work under the County Education Committee of which he is Secretary. The following points were gleaned from conversation with him:—

Continuation Classes or Courses are provided for the chief occupations of the County, viz. Agriculture, Fishing, Mining, Engineering, Textile Manufactures, Commerce and Housekeeping.

For *Agriculture* there are not as yet any classes under Division III. Students who have gone as far as to be ready for such work go on to the Agricultural College at Edinburgh.

Nature Study is provided for at the Rural Schools.

There is a *Course for Teachers of Rural Schools*, continuing every Saturday during one school year. This course is given at Anstruther, where there is a

suitable School Garden. Such teachers receive an allowance to cover travelling expenses and while attending the course continuously, during the holiday period, they receive 15s per week living allowance.

Fishing. In the centres where a large proportion of the population follow fishing, the Nature Study in the Primary Schools is given with the needs of that occupation in mind. A special Fishery Course of 3 weeks' duration is provided for the fishermen at the Fishery Station at Aberdeen. Particulars of that are given under Schools for Fishermen. The County Education Committee name two or three men from each of the several fishing communities and pay their expenses while taking the three weeks' course. The fishermen appreciated the course very much and said they derived benefit from it. The information obtained by them was quickly and readily passed on to others who had not the advantage of attending the course.

For the *other occupations*, such as Mining, Engineering, Weaving or Textile Manufacture, Commerce and Housekeeping, Preparatory Classes are held at the small centres. Then the pupils go to larger centres for courses in Divisions II and III. On evidence of satisfactory progress, such pupils receive travelling expenses to these larger centres. After completing a course in Division III at one of these centres, the pupil may go on to the Evening Classes at one of the Central Institutions. Or when he completes the work in Division III, he may become a day pupil at one of the Central Institutions, and the way is open to him to proceed to what is practically the equivalent of a degree.

Mr. Mitchell considered the essentials in organization and effective maintenance of Continuation Classes to be as follows:—

1. An enlightened and energetic County Education Committee and like School Boards;
2. A capable and enthusiastic Organizer;
3. Competent, sympathetic and intelligent Teachers.

Inspector's Report on Continuation Classes.

Mr. J. C. Smith, His Majesty's Inspector for the district including the County of Fife, reports on the Continuation Class work in his district. The following points are selected as illustrative and suggestive for Canada.

For several years Fife had been very fairly provided with Continuation Classes—very fairly, that is, in comparison with most country districts in Scotland. But this was due in large measure to the activity and foresight of the County Committee. During the Session 1908-09 (in which is included the spring session as well) Continuation Classes were conducted at 69 separate centres, about half of which were under the management of the County Committee. Except in the larger towns—where the School Boards conducted classes in all Divisions—the distribution of management proceeded on this principle: that the County Committee should manage all Technical Classes, whether Industrial or Domestic—and, of course, the Domestic Classes had by far the largest enrolment—leaving to the School Boards the management of Division I, and of any literary subjects that might be desired; classes in commercial subjects were conducted by both authorities.

With the passing of the 1908 Act, the establishment of Continuation Classes became a statutory duty on School Boards, and the County Committee proceeded to divest itself of the management of its classes, except a few, that were considered to serve a wider area than was embraced by any single Board or practicable combination of Boards. This process, I may add, is now practically complete; the County Committee now retains only the management of the important Mining School at Cowdenbeath; and at the same time the classes formerly conducted

by various local committees have all but one been absorbed by the School Boards. These transferences might have occasioned a partial collapse of the Continuation Class system, but for the fact that the County Committee had in its employ a considerable staff of expert teachers, whom they retained, sub-letting their services (so to speak)to the School Boards at less than cost price. Continuity was thus maintained, and the County Committee, though no longer managing these classes in the technical sense, still helped to control their organization in no small measure.

Provision is made for Rural Continuation Classes in a comparatively large number of villages in Fife. Lads of 14 to 17 employed on farms are urged to attend the day school in the afternoon for several days or for every day in the week. That can be done without serious inconvenience to anybody.

Urban Continuation Classes have been established all over the industrial area of Fife, and a very satisfactory Continuation Class system is said to exist in skeleton. The need now is to fill that up by large attendance of those in need of education.

Percentage of Attendance.

As instances of the number of individual pupils who attend the Continuation Classes, the case of Dysart is cited, which, with some 3,500 pupils on the rolls of the day schools, has no fewer than 850 students enrolled in the Continuation Classes. In Kirkcaldy the proportion of Continuation Class students to the total number of boys and girls between 14 and 17 was estimated at 40% in 1910, as against 27% in 1909, In the case of Dunfermline, where there are from 1,200 to 1,300 boys and girls between the ages of 14 and 17, only 351 of these, or 28%, were enrolled in 1910 in Continuation Classes. The Inspector says:

What about the remaining 72%? That is the problem in a nutshell. The first thing is to bring home to people the fact that the problem exists, and what is its nature and extent. When we look at our fine Technical and Mining Schools we are apt to think that we are doing quite well. And so in a sense we are. For those adolescents who know what they want, for boys and girls who mean to get on in life, who have a definite ambition and want help in its pursuit, many of my Boards are doing very well indeed. But this class, as we have seen, amounts even in a favoured district only to 28% of the whole. What of the rest? Are we to let them drift? The attitude of many well-meaning people amounts in effect to that. "There is no demand for these classes," they say; and the classes in consequence are either not started or are soon abandoned. It is this attitude which we have first of all to combat. We have to impress on School Boards that their responsibility for the welfare of youth no longer ceases and determines at 14.

The first step, then, is to take a census of adolescents (14 to 17), showing their occupations, the Continuation Class (if any) that they are attending, and the stage of advancement they have reached when they left the day school. In my Day School Report I have shown that 50% of our pupils leave school without qualifying; of those who qualify, about one-third leave before getting the Merit Certificate. It will be found that the 28 per cent who attend Continuation Classes consist largely of those who have obtained the Merit Certificate in the day school. So much for the extent of the problem.

* * * * *

In Dysart, on the other hand, we have a plain working-class population, no great variety of occupations, and no education tradition to speak of; the problem here is much harder, and the success correspondingly more laudable. One factor in this success has been the fact that all the Dysart Supplementary Courses and Qualifying Clas es are centralised on Viewforth Public School, and that the head master of Viewforth Public School is also the organiser of Viewforth Continuation Classes. Hence most of the Dysart children are under his charge for a year or two in the day school, and can be headed towards the Continuation Classes. It is also possible so to frame the syllabus that Division I shall be identical *mutatis mutandis* with the first year of the Supplementary Course, and Preparatory Division III with the second. Pupils can thus be transferred from day to evening class at any fixed date. This continuity is symbolized, and the prejudice, which still hangs about Division I, avoided, by describing these classes as "Evening Supplementary Courses, Preparatory and Advanced." I regard this alignment of Supplementary Course and Continuation Class work as of great importance.

Practical Measures Suggested.

A summary of the most hopeful practical measures to be taken, in the opinion of his Majesty's Inspector, are:—

1. A census of adolescents in each School Board area, with particulars as to occupation, Continuation Class, if any, attended, and the stage of advancement which they have reached before leaving the day school;

2. The appointment in each School Board area of a salaried Organizer, whose duty it will be to supervise the system of Continuation Classes. This official would co-operate with the County Organizer on the one hand, and with the employers and trade representatives on the other, to secure a system of classes that would meet the educational needs of the locality;

3. The alignment of the work of Division I and Preparatory Division III Classes with that of the Supplemenary Courses;

4. The establishment of Information Bureaus at all suitable centres.

The Information Bureau is likely to be a useful ally to the Continuation Class work, especially in industrial districts with a wide variety of occupations. The prospect is more obscure in purely mining and purely agricultural districts, where there is a steady demand for labour of one kind, and most boys go straight to the pit or the plough tail. In this activity the School Boards will be obliged to co-operate with the employers of labour and with representatives of labour, and this, too, should react favorably upon the Continuation Class system.

SECTION 2: COWDENBEATH MINING SCHOOL.

The Fife County Committee joins with the Beath School Board in providing courses at the Fife Mining School, Cowdenbeath. This is the case in the County where the County Education Committee and the School Board manage courses jointly. In other cases the County Education Committee, through its organizing secretary and by subletting specialist teachers, co-operates with and assists the School Boards.

Objects of School.

The School is established for the purpose of carrying out a liberal scheme of Technical Education in Mining and in the several branches of industry closely related thereto.

The organised courses of instruction are based on the requirements of Division III. of the Code of Regulations for Continuation Classes issued by the Scotch Education Department. Systematic courses extending over three or more years are provided, and in addition there is a Preparatory Course for those whose previous attainments do not fit them to enter at once with profit on the specialised work of their particular course.

The Laboratories are fitted in a thoroughly modern manner, and comprise:—

Chemical Laboratory.

Physical Laboratory.

Mechanical and Strength of Materials Laboratory.
Hydraulics Laboratory.
Electrical Engineering Laboratory.
Mining Laboratory.

Courses of Instruction.

In accordance with the requirements of the Code of Regulations for Continuation Classes, the student must follow a definite course of instruction in subjects relating to and having a special bearing upon some particular trade or industry or occupation.

In compliance with these Regulations, and to provide for local requirements, courses of instruction have been arranged for under the following heads:—

1. *Mining.* 2. *Mechanical Engineering.* 3. *Electrical Engineering.*

Each part of any course must be taken up in an orderly manner, and single or disconnected subjects may be taken only after the express sanction of the Principal has been obtained.

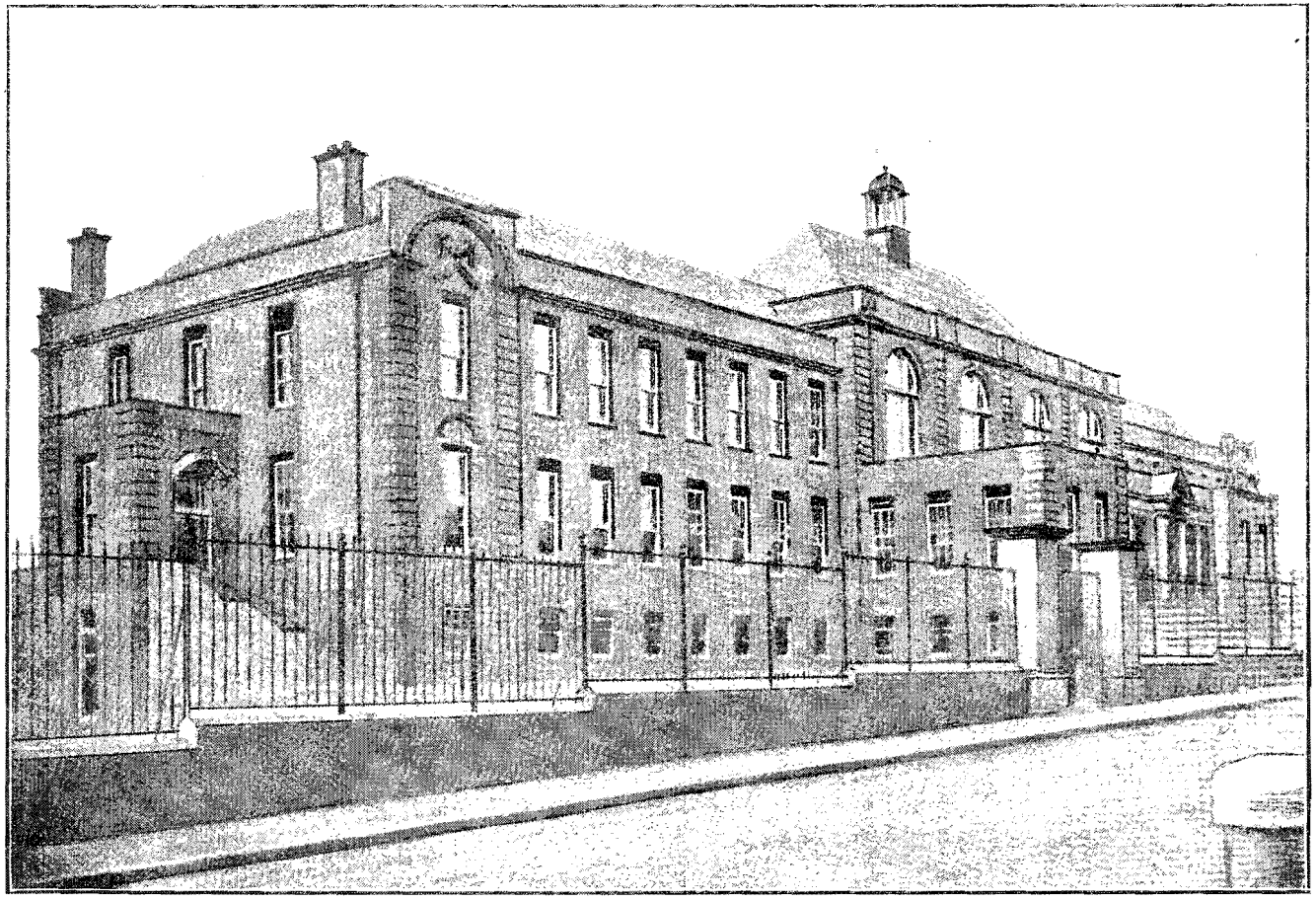
The School provides courses in Divisions I, II and III, as already described under the Continuation Classes, pages 664-5.

The equipment of the Mining School has been provided with particular regard to meeting the needs of those actually employed in and about the mines. The School itself had been in existence for about 16 years, although the new school building, where all the departments are now accommodated, was opened only a year before the visit of the Commission. Before the new building was provided the attendance at the Mining School was from 100 to 120. After the new building with its staff and equipment was provided, the increase in attendance was very large. During the Session 1910-1911 about 760 pupils were in attendance. Of these, 280 were taking the 5 years' course in Division III, 42 were colliery managers in actual service and taking a special course, and 440 were workers taking the more elementary courses. These were all evening courses.

Conditions on which the Scholarship is Paid.

Junior Scholarships or assisted railway fares are given freely to those who are qualified to profit by the courses and require such financial assistance. The following are the conditions on which the Scholarship is paid:—

1. The Scholarship is awarded conditional upon attendance at a course under Division III in all the prescribed subjects of that course for the particular year.
2. Application must be made on a form to be obtained from James Mitchell, Esq., F.E.I.S., County Buildings, Cupar, and must be in the Secretary's hands before 15th August.
3. Students must perform all their class work and exercises to the satisfaction of their teachers.
4. Students must make not less than 80 per cent of the possible attendances.
5. They must attend all Class Examinations, and also Official Examinations of the School at the close of the session.
6. Scholarships will be paid only to (*a*) unmarried men in receipt of a wage under 20s. per week; (*b*) married men in receipt of a wage under 40s. per week.
7. Distance travelled must be over two miles.
8. Scholarship will be paid in one instalment not later than 15th May in each year.



FIFE COUNTY COMMITTEE MINING SCHOOL AND BEATH HIGHER GRADE SCHOOL, COWDENBEATH, SCOTLAND, 1911.

SESSIONAL PAPER No. 191d

The Mining Course.

The Mining Course continues during 5 years. Students who have completed a full course are admitted to the 5th winter session of the course held on Saturdays in the Heriot-Watt College, Edinburgh.

A Bursary is awarded of the annual value of £50, tenable for 3 years at the Heriot-Watt College, Edinburgh, or at a University approved by the Committee, and subject to a report of satisfactory conduct and progress of the bursar at the end of every session.

In Division II the following Special Courses are given:—

1. A Class forming a preparation for the Colliery Manager's Certificate.
2. A Class forming a preparation for the Under Manager's Certificate.
3. A Half-Session Course (Jan. to April) in Strength of Materials, for Colliery Managers.
4. A Half-Session Course (Sept. to Dec.) in the Examination of Mine Air, for Colliery Managers.
5. A Special Class in Electrical Engineering, for Colliery Officials.
6. A Class forming a preparation for the Fireman's Certificate.

For the convenience of men in official positions, who find Saturday afternoon the only free time during the week, a Class forming a preparation for the Colliery Manager's Certificate and another Class forming a preparation for the Under Manager's Certificate, meet on Saturdays from 4 to 6 P.M.

The curricula include: Coal Mines Act. Ventilation. Lighting. Sinking, fitting, and pumping. Haulage. Winding. Modes of working. Mine gases and coal dust. Strength of materials. Applications of electricity to mining. Surface arrangements. Surveying and levelling.

Organised Mining Course

1. Preparatory Year's Course, comprising:—English, Arithmetic, Drawing, Mensuration, and Physics.
2. First Year's Course, comprising:—Applied Mathematics, Class I; Mining, Class I; Physics and Chemistry (Lecture and Laboratory work).
3. Second Year's Course, comprising:—Applied Mathematics, Class II; Mining, Class II; Mechanics and Steam, Class I (Lectures and Laboratory Course); Summer Class in Practical Surveying and Drawing, Class I.
4. Third Year's Course, comprising:—Applied Mathematics, Class III; Mining, Class III; Technical Electricity (Lectures and Laboratory Course); Summer Class in Surveying, Class II.
5. Fourth Year's Course, comprising:—Applied Mathematics, Class IV; Mining, Class IV; Mining Laboratory, Class I; Electrical Engineering (Direct Current), Lectures and Laboratory Course; Summer Class in Surveying and Levelling, Class III.
6. Fifth Year's Course, comprising:—Mining, Class V; Mining Laboratory, Class II; Mechanics and Steam, Class II (Lectures and Laboratory Course); Electrical Engineering (Alternating Currents), Lectures and Laboratory Course.
7. Saturday afternoon Classes at the Heriot-Watt College for students who have successfully passed through the above course. These Classes comprise:—
   1. Half-session course in the Mechanical Laboratory, making tests on engines, boilers, fans, etc. October to Christmas.
   2. Half-session course in Alternating Currents in the Electrical Laboratory. January to April.
   3. Series of Lectures on Mining throughout the session.

Arrangements have been made with the Local School Boards, whereby the student may take portions of the above course at the Board School, and the remaining portions that cannot be dealt with at the local centres, at the Mining School, Cowdenbeath.

Students working under these arrangements must be careful to complete the full course of each year before proceeding to the next year's course.

Students may take their classes in Mining and Mathematics of the first year of Division III at local centres, where such classes are held, and attend one evening each week at Cowdenbeath for Chemistry and Physics to complete their first year's course.

Similarly, Mining and Mathematics of the second year's course may be taken at the local class, and the student travel to Cowdenbeath for Mechanics and Steam to complete the second year's course.

Organized Mechanical Engineering Course.

A course of class work and laboratory practice is given in this Department and continues during 4 years.

1. Preparatory Year's Course, comprising:—English, Arithmetic, Drawing, Mensuration, and Physics.
2. First Year's Course, comprising:—Applied Mathematics, Class I; Mechanics and Steam, Class I; Practical Geometry and Mechanical Drawing, Class I.
3. Second Year's Course, comprising:—Applied Mathematics, Class II; Mechanics and Steam, Class II; Mechanical Drawing, Class II.
4. Third Year's Course, comprising:—Applied Mathematics, Class III; Mechanical Drawing, Class III; Technical Electricity (Lectures and Laboratory Course).
5. Fourth Year's Course, comprising:—Mechanics and Steam, Class III; Electrical Engineering, Class I; Mechanical Drawing, Class IV.

Organized Electrical Engineering Course.

A course of class work and laboratory practice is given in this Department and continues during 4 years.

1. Preparatory Year's Course, comprising:—English, Arithmetic, Drawing, Mensuration and Physics.
2. First Year's Course, comprising—Applied Mathematics, Class I; Mechanics and Steam, Class I (Lecture and Laboratory Course);Physics and Chemistry (Lectures and Laboratory work).
3. Second Year's Course, comprising:—Applied Mathematics, Class II; Mechanical Drawing, Class I; Technical Electricity (Lectures and Laboratory Course).
4. Third Year's Course, comprising:—Applied Mathematics, Class III; Electrical Engineering (Direct Currents), Lectures and Laboratory Course; Electrical Machine Design, Class I.
5. Fourth Year's Course, comprising:—Applied Mathematics, Class IV; Electrical Engineering (Alternating Currents), Lecture and Laboratory Course; Electrical Machine Design, Class II.

Continuation Classes.

Continuation Classes are conducted at 5 Board Schools of the Parish of Beath. These comprises courses of studies during 4 years, viz. Preparatory; Division I or First year; Division II or Second Year; and Division III or Third Year. In each year they are grouped as Commercial Course, Industrial Course, Household Management Course and Art Course.

Similar Continuation Courses are carried on at over 70 separate centres under the various School Boards within the County, not all of them carrying on all four kinds of classes or all four years of work. The classes or courses are arranged to meet the needs of the population served by the local School Board.

As already mentioned, when a pupil has exhausted the opportunity in the small centre he may receive a bursary to enable him to attend the Classes at a larger centre, and so on to one of the Central Institutions.

SECTION 3: SPECIAL PROVISIONS AT DUNFERMLINE.

The town of Dunfermline, also in the County of Fife, has made full provision for Continuation Schools under the School Board, and these are co-ordinated or lead up to the Technical Classes in the Lauder Technical School.

The Lauder Technical School.

This is a Secondary School with a Classical Side and a Modern Side. The equipment for classes in Mining and Weaving seemed particularly complete and appropriate. Evening Classes use the laboratories and equipment to a great extent. There were no day pupils attending the Weaving School up to the time the Commission visited the School.

The main building was a gift to his native city by Mr. Andrew Carnegie. It affords excellent provision for the Science and Art, as well as for Mining and other classes. It contains a fine suite of Art Rooms, including Elementary Drawing-room, Antique and Clay-Modelling rooms. There is a large Lecture Room, provided with every facility for lectures on science subjects; also Laboratories, in which students have the opportunity of practical work in Chemistry, Magnetism and Electricity, and Mining-Engineering, and rooms for the teaching of Mathematics, Building Construction, and such-like subjects. A large extension, handsomely equipped, in which electricity is utilized both for power and lighting, was opened in November 1910. Here excellent accommodation is provided for the departments of Weaving and Engineering. The suite of Weaving Rooms includes a Weaving Lecture-Room, a Laboratory for textile testing and analysis, and a large Weaving Shed, all furnished in a very complete and up-to-date manner. For the accommodation of the Engineering Classes, there are two rooms specially adapted for teaching Machine Constructing and Drawing, a large Mechanical Laboratory well supplied with testing and other machines, models, etc.; a Heat Laboratory, an Experimental Engine-Room, and an Iron-Workshop. There are also Laboratories for Electrical Engineering and Chemistry.

Excellent provision has been made, in alliance with the Carnegie Dunfermline Trust, for the teaching of Craft work related to various trades, in which artistic form and fitness of design are to be regarded as matters of primary importance. This includes work in Metal, Wood Carving, Modelling, Enamelling, Gilding, Repoussé Work, etc.

Information and Employment Bureau.

Dunfermline has a well-organized and active Educational Information and Employment Bureau. Its purposes may be stated as follows:—

(1) To supply information with regard to the qualifications most required in the various occupations of the City and District, the rates of wages, and the conditions of employment.

(2) To give information about the technical and commercial continuation classes having relation to particular trades and industries.

(3) To advise parents regarding the occupations for which their sons and daughters are most fitted when they leave school.

(4) To keep a record of vacancies intimated by employers, and to arrange for suitable candidates having an opportunity of applying for such vacancies.

Children can now leave school only at certain fixed dates, these being in Dunfermline 1st January, 1st April, 1st August, and 15th October.

It is proposed that a record shall be kept in the Bureau containing information on the following points regarding all boys and girls who leave school:—

(1) A statement of Attendance and Behaviour.

(2) Physique, Sight, Hearing.

(3) Standard of Education attained.

(4) Fitness for particular occupations.

To facilitate this work, the School Board provides cards, of which the following copy may be taken as an example. A different colour of card is used for each different schooi.

DUNFERMLINE (BURGH) SCHOOL BOARD.

Educational Information and Employment Bureau.

COMMERCIAL SCHOOL.

Name of pupil..... Address.....

Date of birth..... Date of leaving School.....

Standard of Education attained.....

Attendance..... Behaviour.....

Physique..... Sight..... Hearing.....

Occupation desired (Parent to be consulted by Pupil).....

Opinion of Headmaster and Teacher as to kinds of Occupation Pupil is fitted for by natural bent and educational equipment.....

In what Evening Classes does Pupil propose to enrol, and for what Course of Instruction?.....

.....*Headmaster.*

Note.—Remarks by Teacher or Headmaster should be entered on back of card. This card to be sent to School Board Office, 104 High Street.

Carnegie Dunfermline Trust.

Dunfermline is fortunate in having many educational advantages and opportunities provided or assisted by Mr. Andrew Carnegie, whose birthplace it is.

For Dunfermline proper, the *Carnegie Dunfermline Trust* practically pays 3 doctors, one dentist and 2 nurses in connection with the health work for the public schools. Two of the doctors do also some work in teaching, and in the training of teachers who are taking the courses of Physical Culture and Hygiene at the Institute. The Trust also pays the salary of the Drawing teacher who visits the several schools. Bath premises, with finely appointed conveniences, have been provided; for the use of these small fees are charged, and the Trust provides the sum of about $15,000 per annum for maintenance, above the amount received from fees. In the old bath premises, which preceded the more commodious and beautiful ones at present in use, the baths are free at certain times under regulations, and provision is made there for a free medical and dental clinic. In brief, the Carnegie Dunfermline Trust is doing exploratory and experimental work to shed light on social and educational problems, as well as to benefit immediately the children and people of the town.

College of Hygiene and Physical Training.

This institution gives a course of training extending over two years, which, in conjunction with the professional course of training in teaching provided by the Provincial Committee, prepares students to become teachers of Physical Training and Hygiene in schools. During the Session of 1909-10 the total number of students was 44, of whom 16 were men. Five men and 16 women completed the course and were awarded the diploma of the College.

Vacation Classes.

St. Andrews' Provincial Committee, in co-operation with the Fife County Committee, arrange for the further instruction of teachers by Vacation Classes held at 6 centres within the County. These provide for ordinary certificated teachers, teachers of Physical Training, Manual Instruction, Cookery, Plain Sewing and Cutting Out.

CHAPTER XVII: GALASHIELS AND HAWICK.

SECTION 1: HAWICK.

Hawick is an ancient Burgh with a present population of about 17,000 people. The chief industries are the manufacture of Scotch tweeds and woollen hosiery. A walk against the workpeople, leaving the mills at the close of the day, revealed a working population of healthy appearance, vigorous physique, neatly dressed, quiet in manner and apparently contented and happy. There was no evidence of dissipation. Men and women alike were smart and intelligent looking.

One learnt that many of the solid neat-looking houses where these people live were built through the aid of a Building Society. Numbers of these were semi-detached stone cottages costing from £350 to £400 per house. The payments necessary to enable the occupant, for whom the house was built, to own it outright had been about 6% per annum on the cost of the house for a period of 20 years or rather more. Such payments gave a member of the Building Society a full title to the house at the end of the 20 or more years. Tenement buildings had been built on a similar basis but costing less per house. Such tenement houses with kitchen, living room and bedroom could be rented for from £8 to £12 per annum.

In the newer areas of the town the houses had neat well-kept gardens in front, and the workers had garden plots for vegetables at some distance from their dwellings. There were over 400 such plots of 1-10 of an acre each. The abundance of flowers and their beauty had made this an industrial "garden city" before that name was technically appropriated by a new movement. These facts are mentioned, because some at least of the fathers of the town in conversations attributed them in large measure to the education and educational influences of the place.

Continuation Classes.

Hawick School Board provides Evening Continuation Classes for the further education of young men and women after the Elementary School has been passed. In the announcement of these classes the Clerk to the School Board says:

> Boys and girls on leaving school, soon forget much that they have learned if they do not seek to extend and at the same time fix in their minds the knowledge already gained. It is therefore especially desirable that parents should see the importance of their children attending these classes and should do everything in their power to further such attendance.
>
> The training of adolescents is now regarded as one of the most important developments in the educational system. It is at this stage that the moulding of character is effected. Much of the future prosperity of the youth depends upon the manner in which he spends these years.
>
> Increased knowledge is assuredly the best preparation for an honourable and profitable employment; and the formation of habits of study, and the consequent acquirement of higher tastes and ideals, are a safeguard against temptation to idleness and evildoing. Therefore let the youth of the town be encouraged to spend their evenings profitably at these classes, which are conducted by capable teachers in as interesting and instructive a manner as possible.

The Continuation Classes are carried on in a manner somewhat similar to those described at length at Edinburgh. Division I has preparatory courses; Divisions II and III provide specialized courses arranged in no less than 37 classes providing courses of work for (a) engineers, (b) joiners, (c) masons, (d) plumbers (e) commercial workers, (f) art students and (g) domestic occupations. The classes themselves, beginning with English, provide also for Latin, French and German and furnish systematic training for each of the groups of workers.

In conversation one of the teachers expressed the opinion that it was desirable that pupils from these Supplementary Classes should be sent or taken frequently to the more advanced technical classes held at the Hawick Technical Institute in order to interest them in the provision which exists for further education.

Successful Evening Classes.

In "Conversations" with members of the School Board it was learned that the Board relies a good deal upon the Consultative Committee in the arrangement of the classes. The attendance has grown up chiefly during the last eight or nine years since they have become more attractive by adaptation to the occupations of the young people. They are now attended by 853 individuals.

It is claimed that the evening classes, instead of exhausting the young people, have a recreational and exhilarating influence because of the different kinds of activity from those followed during the day. The development of more taste and more thinking on the part of the pupils is claimed to be an excellent result. The attendance after the classes are opened is so well maintained, after the first month, that 90% of the whole number have their fees returned by making 80% of the total possible attendances. It was observed that the attendance at the Evening Classes was about 5% of the total population of the place. That is a tribute to the wisdom of the people, the effectiveness of the administration and the capability and enthusiasm of the teachers. After learning the character and extent of the educational work done, one has no cause to wonder at the wholesome bearing of the people and the beautiful appearance of their sturdy Burgh.

HAWICK TECHNICAL INSTITUTE.

The following information was gathered from "Conversation" with Mr. William Davis, M.A., the Principal, who is also Director of Textile Technology under the Education Authorities of Carlisle and Dumfries.

The Institute was brought into existence to train operators employed in the two staple local industries, viz: woollen cloth manufacture and the production of knitted fabrics. The classes are held, from September to May, each evening from 7 to 10 p.m., and are keenly taken advantage of by the young men employed in these industries. This has been more particularly the case during the last two sessions since all departments were provided with a full equipment of practical apparatus. This has, in fact, given the cause of technical education for this district such an impetus that Mr. Davis would strongly recommend any new classes to have the apparatus installed the first session.

Generally speaking the students of any one department meet two evenings per week, one being devoted to lecture work for about one hour and the other given to practical work for about two hours. When the classes started considerable difficulty was experienced in obtaining teachers qualified so as to be recognised by the Education Department. Though practical men who had but little previous experience in teaching, or lecturers who had but little practical experience, could be obtained with comparatively little difficulty, the two accomplishments were rarely found together. The method now is to appoint a lecturer who can be recognised by the Department, and then have a practical man to take charge of the apparatus. When the classes have been in existence for some years promising students come forward, and after obtaining their diploma, qualify to act on the Staff.

For the past seven years Mr. Davis has been engaged in developing textile technical instruction in various parts of Scotland and England. For several years he went to a neighbouring district near Hawick until a young man qualified who could be left in charge of the classes. Other places were taken up in the same way and young men are now qualifying to establish such classes permanently. In three years' time all such towns will have a textile department established under their own local teachers.

Training Women Workers.

Last session the Institute took up the question of training the women workers in local industries, and introduced classes for repairing the imperfections of woven textiles. The experiments proved an unqualified success; 25 students attended two evenings per week with the utmost regularity, and showed the keenest interest and enthusiasm. As a result of this instruction the manufacturers have been able to considerably shorten the period of apprenticeship necessary to learn this branch of work. The work of this Department has attracted the attention of the neighboring towns of Galashiels and Selkirk, which are now starting similar classes in their Institutes.

Similar sections exist in connection with the knitting department, where a number of students devote their time to the structure of the various stitches of the knitted loop and learn how to repair such fabrics. The difficulty about teachers for such departments is not so great as with the other sections, for the work partakes more of a practical character, and the general supervision of a technologist is all that is needed along with practical female instructresses.

Teaching Methods are Important.

In Great Britain teachers of technical subjects at present have had little or no training in educational methods. An effort has been made to remedy this in Hawick by providing a certain link between practical technical requirements and mat weaving in the Kindergarten. By teaching the building up of fabrics first, the student is all the better able to repair the imperfections.

By conference with the teachers in the Kindergarten departments it has been brought about that the young children, in weaving with strips of coloured paper, soon learn to weave according to patterns which can be carried out on a textile loom.

In the other departments also even teachers recognized by the Government to teach Textiles do not proceed in an appointed method. This point is worthy of attention in connection with any new scheme of instruction. In fact it would be advisable to ask prospective Textile teachers to take the ordinary courses of educational method provided by the ordinary Teachers' Training Colleges.

Great stimulus is given to the work by the students preparing themselves for the London City and Guilds examinations in textile subjects, in connection with which certificates and prizes are given.

Kinds of Classes.

The Hawick Technical Institute provides specialized courses in weaving and hosiery manufacture and in cloth mending with ten classes. The names of these classes will suffice here to indicate the character of the work which is undertaken: The classes are arranged as *Wool and Worsted Weaving and Designing* for each of four years; *Frame-work Knitting and Hosiery Manufacture* for each of three years; *Cutting out and Finishing Hosiery Garments* for each of two years; *Cloth Mending*, one year.

SECTION 2: GALASHIELS.

Galashiels is another headquarters for Scotch tweeds. Here also the appearance of the workers and their homes equal the best that were seen in Germany. Both towns had every appearance of being well kept, with no evidence to an observant visitor of anything like slum life or slum quarters. Many workers own their houses. In the factories which were visited the workers seemed to be intelligent, capable and interested. On every hand one had evidence of good organization and absence of hurry-scurry. If loafing or idleness took their toll they were not obtrusive. Particularly at one mill at Selkirk, the buildings themselves and their surroundings had an appearance of solidity and beauty which in Canada one would expect only in an educational or art building. One of the proprietors said he was sure the buildings and their surroundings and appointments gave "tone" to the workmen and the work which was advantageous alike to the employer and those employed.

In addition to the usual Board Schools, with their Supplementary and Continuation Classes, Galashiels is the seat of the South of Scotland Technical College.

THE GALASHIELS TECHNICAL COLLEGE.

So far back as 1883 classes for instruction in the technique of woollen manufacturing were commenced in Galashiels, under the auspices of the Manufacturers' Corporation. In course of time the management of the classes

passed into the hands of the Burgh School Board, associated with the Deacon and Deacon elect of the Manufacturers' Corporation, while the Corporation made an annual contribution towards the expenses of the school. In recent years the success of the school has been phenomenal. The students have gained the highest distinctions in the examinations of the City and Guilds of London Institute, while their interest and enthusiasm in the ordinary work of the schoool have been great. The school had won such a high reputation that when the manufacturers and others were invited to contribute towards the new Technical College scheme, a sum of £10,120 was readily forthcoming, which, supplemented by a grant of £10,000 from the Scotch Education Department, has enabled the managers to bring the scheme to a successful issue.

The College buildings consist of a main two storey portion in the Classical Renaissance style of architecture, 161 feet long by 54 feet broad. Provision is made on the ground floor for two lecture rooms and laboratories for pattern analysis, textile testing, fibre analysis, dyeing, colour, mechanics, physics, machine drawing, with textile museum, principal's and teachers' rooms. The upper floor affords space for art, chemistry, electricity and building departments, with Board room and lecture hall. Behind the main building extends a shed of 9,000 square feet in which is placed the textile machinery of the school. The equipment consists of 60 handlooms for students' use in experimental weaving and designing; 6 power looms, warping, warp and weft winding; a set of woollen cards with the different feeds and condensers; mule; twisting frame; knitting machines, besides smaller apparatus.

The Institution was primarily intended to serve the purpose of a Woollen School for Scotland. It is devoted chiefly to instruction in the principles and practice of fancy woollen and worsted cloth manufacture; and it has evening work in other subjects such as engineering and building construction.

Surrounded as the College is by woollen manufacturing concerns of the highest reputation, it is kept in living contact with every throb of all that is best in the industry. Exceptional facilities are thus afforded of learning the business and its technique under thoroughly practical conditions.

No effort is made to train operatives to become more dexterous. That is not required, because ample facilities are afforded in the mills. The influence of the College and the classes is directed towards the development of good character. Students are made to feel that they are part of an honourable institution with a reputation which must not be lowered by any unworthy conduct on their part.

The governing body consists of five members of the School Board at Galashiels, three manufacturers and one sculptor.

The income in 1910-11 was derived from Government grant, £1061; fees, £122; local rate, £410. There are five departments: (1) A Woollen Manufacturing Course with an attendance of 12 full day pupils, 10 part time day pupils and 130 evening pupils; with 40 pupils in Cloth Mending. Of the 150 ordinary evening pupils about 100 aim to be designers or hold some position which requires a knowledge of designing. (2) A Dye and Chemistry Department with 25, mostly evening students; (3) Engineering 50 students, all in evening

classes. The day occupations of these students are as draftsmen, fitters, turners, pattern makers, blacksmiths, moulders, and they are chiefly apprentices at those trades; (4) Building Construction Department with 40 to 45 students mostly joiners with some plumbers and building clerks; (5) A School of Art with 50 to 60 pupils. The total attendance is about 350 individuals.

The Director had 12 years' experience in woollen mills and was then selected as Evening Technical Lecturer. He had previously been an evening school student in Science, Art and Technology. In spare time during the day, while conducting evening teaching, he studied first for London University B.Sc., then Edinburgh B.Sc. Engineering, and D.Sc. Physics.

The staff have been selected by the Director from among a number of students by personal observation of qualities. The men have proved satisfactory. The teachers are all craftsmen, and their theoretical qualities are attested by City and Guilds of London Institute certificates in their several subjects.

The Head Art Master is an A.R.C.A. London. The other members hold, as a rule, first class honors (City and Guilds). The Engineering lecturer is a Whitworth Exhibitioner and Medallist in University and City and Guilds, South Kensington, etc., subjects.

The teachers are obtained from the most intelligent workers in the factories who have been students in the Evening Classes. These act first as demonstrators and then as assistants. When they become assistants they receive 5s. 6d. per hour.

The Principal receives more private applications for ex-students as designers, etc., than he can properly meet, and has frequently to recommend men who have not been students. Ex-students have been sent this year to Russia, France, Ireland, Yorkshire and various parts of Scotland.

CONVERSATION WITH DR. THOMAS OLIVER.

Information as follows was gathered in "Conversation" with Dr. Thomas Oliver, the Principal.

In the old days of the industry, when manual dexterity was the prime factor, the needs of the trade were met by the apprenticeship system, fostered by the Trade Guilds. This system of trade instruction aimed at making every unit in the industrial army equally efficient at the same work. Since practically every man in the trade was a weaver, nothing was to be gained by making one weaver better than another. The modern revolutions in the industry, brought about by mechanical invention, have also imposed a division of labor which fifty years ago would not have been entertained. The efforts of every worker are so restricted to part of the process of manufacture that he has no opportunity of becoming acquainted with the remainder of the process. Thus the value of the average individual decreases. The more a machine approaches to the automaton the less important the machine attendant becomes, and the more efficient must the 'overlooker' be.

Last year Dr. Oliver tried, in accordance with Departmental instructions, to make a course of Elementary Physics, Mechanics and Mathematics interesting to first year weaving students. On the third night he had a deputation waiting on him to try and get something more useful and agreeable substituted. "What's the use of these things to me? I am going to be a pattern weaver"—was the sum of the young person's wisdom.

German Progress in Woollens.

The Germans try to develop the innate artistic and scientific faculties in their young men. Wherever work requires brains, and brains are invested in the work, the product of these brains will appear in the long run. "At the present time" said Dr. Oliver, "our continental rivals are far behind in the matter of style in the production of fancy woollens. Fifty years ago they were far behind us in industries from which they have now completely ousted us. Now, I am confident that when the Germans put as much brain power into the manufacture of fancy woollens as they have put into the dyeing industry, into the electrical industry, and into the application of optics, they will succeed equally as well. It will lie with us to see that we are not pushed out of the market by superior products."

Education Made Applicable.

"A new spirit is suffusing minds in the woollen industry. The most conspicuous evidence of the fact is shown in the erection of this College. Ten years ago we would have deemed such an expenditure a ridiculous waste of money. But education is less costly than ignorance. An outlay which promotes the intelligence and the industrial efficiency of the community is well spent. Many and varied are the causes assigned for industrial depression. Good times make employers and employed wasteful and careless. The Peruvian silver mines were the cause of the downfall of Spain. The excessive pursuit of the various forms of sport, the enormous drink traffic, lower wages and longer hours of foreign workers, the edicts of Trades Unions, the tariff walls of other nations, are all advanced as causes, and are undoubtedly prime factors in the decline of many of our industries. But one which is too often ignored is that we are deficient in the knowledge of our business. We have been playing at technical education for thirty years.

"Technical education is not magic nor jugglery; it is merely common sense organized. I am not one of those people who assert that education is the prescription that will cure all ills. The technical education of thirty years ago, although meeting a great need at the time, has been in measure found wanting. It took insufficient account of the diversity of modern industry. Moreover, there has been no effective system in operation which ensures that the right kind of student will receive instruction. The instruction has been too pedantic, too much dominated by the atmosphere of the University. This is more evident

in engineering than in textiles. Every Technical College prospectus in the country has had engineering on the same model, viz., the University course. The young student struggled through his University career, secured a post as a technical teacher, and promptly commenced to inflict a miniature University Course on his students, forgetful of the fact that none of his students were going to be teachers. They hope to be foremen of turning, fitting, pattern making shops and so on."

IRELAND.

CHAPTER XVIII: OUTLINE OF THE EDUCATIONAL SYSTEM.

INTRODUCTORY.

Ireland has a total area of 32,605 square miles, 945 of which are water and 1,800 bog land. In round figures it contains 20,000,000 acres of land, about three quarters of which is classed as cultivable. Ireland is bounded on the North, West and South by the Atlantic Ocean and on the East by the St. George's Channel and the Irish Sea. The distance from the coast of Wales is about 50 miles and from that of Scotland thirteen and a half miles.

The climate is somewhat warmer than that of England, the mean annual temperature being about 50 deg. F. The atmosphere is more humid than that of England or Scotland and this, with the frequency and uncertainty of rainfall in the summer, has a retarding influence on the ripening and saving of the grain crops.

The population for 1911 was estimated at 4, 381,951, showing a decrease of 1·7 % within the previous ten years. The decreases in the decennial periods are becoming smaller. The decrease in population from 1881 to 1891 was 9% and from 1891 to 1901 was 5·2%. The emigration to the United States is largest. In 1911 the numbers who went to the United States were 36,616; to Canada, 6,807; to Australasia, 3,554; to British South Africa, 996; to other places, 1,318. Between 1851 and 1910 over 4,187,000 persons emigrated.

OCCUPATIONS OF THE PEOPLE.

According to the census of 1901 the occupations employing the largest number of persons were as follows:—

General or local government	34,281
Professional occupations	55,175
Agriculture	859,525
Fishing	10,434
In and about mines, quarries, etc	6,512
Workers and dealers in clothing	141,588
Textile fabrics	110,208
Building and works of construction	60,977
Metals, machines, etc	41,179
Paper, printing, books and stationery	11,563
Wood, furniture, fitting, etc	11,040
Skins, leather, etc	4,267
Precious metals, jewels, etc	3,148
Chemicals, oils, soap, etc	2,896
Gas, water and sanitary services	1,715

Brick, cement, pottery	1,381
Domestic offices or services, excluding domestic outdoor service.	202,238
Providing food, lodging, etc	75,148
Transportation	71,255
Commercial occupations	39,323
Other general and undefined workers	177,516
Total number occupied	1,949,607

SECTION 1: THE NATIONAL SCHOOLS.*

The object of the Irish National Schools is to afford to children of parents of all religious persuasions, under safeguards and regulations which secure the fundamental principle of non-interference with different faiths, (1) literary and moral instruction given in common to all scholars; and (2) separate religious instruction to those of different faiths without interference with secular education. No child can be excluded, either directly or indirectly, from attending any National School by reason of religion or social position, and no school for any select class of children is recognized as a National School.

The main basis on which the development of Primary Education in Ireland is organized is the granting of aid by the Commissioners of National Education (subject to general principles as above) to local patrons and local managers of National Schools. This aid takes the form of grants and loans for building and repairing school houses and teachers' residences; grants of salary for teaching staffs; and free grants (or supplies at reduced rates) of books, maps and requisites for the use of schools, teachers and pupils.

Two Classes of Schools.

Ordinary National Schools consist of two great classes:—(1) "Vested" schools are such as have been built by the aid of grants from the National Board (two-thirds of the estimated cost of building, furnishing and enclosing the school-house, the remaining third being provided locally) and secured for educational purposes by leases to the Commissioners themselves or to Trustees, in the latter case the Commissioners also being parties to the leases; (2) "Non-vested" schools are such as have not been built by aid from the National Board or secured to them by lease. Convent or Monastery Schools may be either Vested or Non-vested.

System of Management.

Both the above classes of schools are directly under the patronage of some person or persons. If the school is vested in the Commissioners, the name of the patron (who is generally the grantor of the site of the school) is inserted in the lease, and if the school is vested in Trustees the latter are recognized as the patron. If the school is non-vested the patron is usually the person who applies

* The material for this summary was obtained from the memorandum by The Right Hon. C. T. Redington, D.L., Commissioner of National Education in Ireland, in "Special Reports on Educational Subjects" issued by the Education Department, London, Eng., 1896-7.

to the Board for aid in the first instance; but if a local committee is managing the school then the committee is the patron. The patrons have the right of managing the schools themselves or of nominating as local managers fit persons, such as clergymen or other persons of good position living in the vicinity; and these are charged with the direct government of the schools, and must undertake to visit them frequently and see that the regulations of the National Board are complied with. The Commissioners reserve the right to refuse to recognize any patron or manager, or to withdraw their recognition of such after investigation. The local managers, subject to the approval of the Commissioners, appoint the principal teachers, assistant teachers, work-mistresses, etc., but the Commissioners appoint the "monitors" from among the best pupils of the National Schools, on the recommendation of the District Inspectors. The local managers have the right to dispense with the services of any member of the teaching staff, and the Commissioners also reserve the right of refusing to recognize or to continue the recognition of any member of the teaching staff, and of fining, dismissing, reprimanding or otherwise punishing any teacher or monitor when necessary.

Great interest is taken in the conduct of the schools by the local managers, of whom there are about 3,000, including clergymen and laymen of Christian denominations as well as some Jews.

Curriculum.

The Commissioners have made the following subjects compulsory in all schools:—reading, writing, arithmetic, spelling, grammar, geography, together with agriculture in rural schools for boys and needlework in all girls' schools. The following extra subjects are taught in addition to drawing and music:—Classics, French, Irish, German, instrumental music, physical science, chemistry, hygiene, geometry, agriculture, dressmaking and other industrial branches.

Many National Schools have private endowments, and schools of this class have been included in endowment schemes formulated under the Educational Endowments (Ireland) Act of 1885; and the Commissioners in some instances have representatives on their Governing Boards. Under the operation of the Irish Education Act of 1892 most of the National Schools have become free, and when the compulsory attendance clauses of that Act fully operate it is expected that the attendance will be largely increased.

Teachers and Grants.

Many National Schools are recognized in connection with convents and monasteries, and in some of them the teachers, though members of religious communities, are "classed," and the schools conducted and the teachers paid precisely in the same way as the ordinary National Schools. In the case of such schools where the teachers are not classed, and consequently not paid the class salaries, the conductors of such schools receive a "merit capitation grant" of 10s. or 12s. per annum per pupil on the average daily attendance, according

to the proficiency of the pupils generally as reported by the Inspector. These unclassed convent and monastery schools are dealt with as ordinary National Schools, the essential difference between them and the latter being that the teachers of ordinary National Schools are lay persons. The Commissioners recognize lay persons as industrial teachers in Convent Schools, and pay them fixed salaries, but do not pay "lay" persons who assist in ordinary instruction in Convents though such must be "classed" teachers.

The training of National teachers is provided for in five training colleges. Three of these are Roman Catholic (two for males and one for females), one is Protestant (for both sexes) and one, entirely controlled by the Commissioners (the Marlborough Street College) is undenominational for both sexes. At these colleges nearly 800 students attend annually.

Training Colleges.

Each college has two courses: (1) for National teachers already "classed" who have actual charge of schools but who employ substitutes during their absence for one session at college; (2) for "classed" teachers who have not charge of schools; also for pupil teachers, monitors and other suitable candidates. This course covers two sessions. These students are granted diplomas of training after completing their courses and two years' satisfactory service in National Schools. The college authorities are paid £50 per annum for each male teacher trained and £35 for each female teacher trained, besides diploma bonuses of £10 and £7 respectively.

Professors and staffs of the Denominational Colleges are appointed by their managers subject to the general approval of the National Board.

Practising National Schools are attached to each college and the teachers in these schools have special privileges as regards salaries.

Since 1879, teachers may receive pensions after retirement at the age of 55 for males and 50 for females, three-fourths of the benefits being provided from the Government endowment, the remaining fourth being contributed by the teachers.

Teachers under the Irish National system must be qualified as being persons whose attainments have been tested by examination, or as members of religious communities of men and women devoted to teaching. Where "class" or special salaries are claimed the school attendance must be sufficiently numerous to warrant such payment, an average daily attendance of 20 pupils being required. Special arrangements are made in cases of small schools on islands.

Teachers of ordinary National Schools receive in addition to salaries, "results fees" according to the answering of their pupils at the annual "results examination"; capitation payments from the local taxation (excise and customs) grant of £78,000 per annum; payments out of the grant for free education under the Irish Education Act of 1892; gratuities for training monitors; and premiums from certain local contribution funds. Workmistresses are not classed as teachers; they are paid an annual salary of £12 and get a share of the results fees. Industrial teachers are usually paid a salary of £24 per annum, and do not receive results fees.

Inspection.

The country is divided into 66 districts, each having an inspector in charge. The 6 head inspectors exercise general supervision over the district inspectors and their assistants and also have actual inspection of a number of schools.

Each National School is examined yearly for results, and the inspector's report covers the marks obtained in each subject by each pupil examined, the class in which the child was previously examined, how long enrolled in the class in which he was last examined, etc. The inspector also carefully examines the school accounts and verifies the number of attendances of each child. No results payments can be sanctioned for any child who has made less than 100 attendances in the results year.

In Ireland the schools meet only once each day for four hours' secular instruction, and a child must be present before the rolls are called to warrant his attendance counting for "results" purposes. In National Schools situated in Poor Law Unions, which are "contributory" under the Act of 1875, the Guardians pay the teachers 50% additional to the results fees earned, but in such cases the Guardians and not the teachers receive the share of the customs and excise grant aforesaid.

Model School Departments.

Besides the ordinary National Schools there are Model School Departments in towns and townships, these schools being owned, controlled and directly managed by the Commissioners. The teachers are usually selected by competitive examination, the Headmasters being provided in most cases with residences or cash allowances in lieu of them, and additional special payments are available for such masters and mistresses under certain contingencies. Monitors are employed in Model Schools under the same conditions and at the same rates of pay as in ordinary National Schools. In addition to monitors, Pupil-teachers (who must be at least 16 and not over 20 years of age) are appointed for only one year on the recommendation of the head and district inspectors after examination, but may be continued for a second year; they are not recognized in any except Model Schools. At the end of their first year of service, they may, after passing a satisfactory examination, be placed in the lowest grade of "classed" teachers, and after a second year's service may be promoted to the first division of that class on the same conditions. These pupil teachers get free grants of books on first appointment, are paid £26 per annum, with gratuities, and if retained a second year receive a small quarterly salary.

Evening Schools.

Evening schools are recognized in connection with Model, Convent, Monastery and ordinary National Schools. Teachers of evening schools in connection with Model Schools are paid special rates of salary; in connection with Convents and Monasteries £10 per annum is allowed for every 100 pupils

in average attendance; teachers of other evening schools receive £1 per month while the school is open. Teachers of all evening schools are entitled also to results fees, but receive no benefit under the Act of 1892. Evening schools must be open three evenings weekly for two hours each evening, and will not be examined for results unless in operation for six continuous months.

SECTION 2: DAY SECONDARY SCHOOLS.

In "Conversations" with Mr. T. P. Gill and Mr. George Fletcher the Commission gathered information concerning Day Secondary Schools which are under the Intermediate Board of Commissioners. The following are some of the main points so gathered; others are dealt with in Chapter XX—"Conversation with Mr. George Fletcher."

As to the Day Secondary Schools being dealt with directly by the Department, Mr. Gill said it might be interesting from the point of view of some Canadian circumstances to state that all the Secondary Schools in Ireland, without exception, are voluntary schools, and none of them were created by the State or the Local Authority. Nearly all have been in existence for many, many years, some with foundations, some with none, but all without exception receiving State grants either from the Intermediate Board or from the Department.

The principle adopted in administering the grants from the Department of Agriculture and Technical Instruction leaves it free to disregard everything concerning these schools except the efficiency of the teaching of the particular programme for which the Department paid the grants. For example, the Department would go into a school like St. Andrew's College, which is Presbyterian, or Mount Joy Church of Ireland School, or a school maintained by the Free Mason body, or the Catholic Schools conducted by the Christian Brothers, or the Convents. It was a matter of no concern to the Department what religion, if any, those schools taught provided they taught the Department's programme (Experimental Science, Drawing, Manual Instruction, Domestic Economy) in an adequate manner, gave a proper amount of time to it, employed in the teaching of it teachers adequately qualified, and also permitted the most complete inspection by the Department. If those conditions were fulfilled, and the Department's inspection at the end of the year revealed that the schools had given adequate time to the programme and taught it well, then the grant would be paid.

There are no Secondary Schools that receive Municipal assistance; they are all private schools. The Department grant does not form a very substantial part of their expenses, but they also get grants from the Intermediate Board, which administers grants for Secondary Education in the schools. The programme of that Board has been co-ordinated with that of the Department; so that they fit in.

Grants for Secondary Education.

The total grant from the Department and the Intermediate Board together would be about £4: 10s. per pupil, hence it would be impossible to furnish any-

thing like the excellent system of Secondary Education in Ireland but for the fact that a very large number of these schools are provided by religious orders and have voluntary teaching, the salaries not cutting much figure. The cost of a Secondary Day School pupil in Ireland generally might be put at from £14 to £18, and the Government grants did not amount to nearly half that. If the Department of Agriculture and Technical Instruction went on the plan of saying that it wanted a particular type of school that would fulfil this or that condition, and that it would not give grants to any other schools, it would start out handicapped with a very costly programme. On the other hand if the Department said it wanted a certain programme taught and certain results accomplished by the schools, and that if it received them it would pay for them, that plan would secure what were considered most valuable conditions—minimum cost and maximum results.

SECTION 3: AGRICULTURE, INDUSTRIES AND TECHNICAL INSTRUCTION.

The watchwords of the movement for progress in Ireland, through the improvement and extension of Agricultural, Industrial and Housekeeping Education, are imperishably connected with the name of Sir Horace Plunkett: "Better Farming; Better Business; Better Living."

The recent developments had their immediate origin in the Report of what is known as the Recess Committee. That Committee was formed on the invitation which Mr. (now Sir) Horace Plunkett issued in August 1895 to a number of Members of Parliament and other Irishmen of various political opinions, to meet for the discussion of any measures for the good of Ireland about which all parties might be found in agreement.

Recess Committee's Work.

The Recess Committee evidently did its work in a thorough-going manner. Its Report, which was issued in August 1896, recites what the Committee undertook to do.

(1) It first devoted its attention to the existing economic condition of Ireland, and sought to trace its industrial shortcomings and commercial disabilities to their more direct causes.

(2) It next reviewed the immediately available resources of the country, and considered the possiblites of their development.

(3) It then caused enquiries to be made in those European countries whose experience in the improvement of their agricultural and industrial condition might guide those interested in the material progress of Ireland. For that purpose it sent special Commissioners to the following countries:—France, Belgium, Holland, Denmark, Bavaria, Württemberg, Austria, Hungary and Switzerland.

(4) The Committee endeavoured to utilize foreign experience in making suggestions for the promotion of agriculture and industries in Ireland.

Referring to the various countries in which enquiries and investigation had been made, the Report states:—

> Various though the circumstances of these different countries are, it is a striking fact that we find the same main principles adopted by them all in promoting agriculture. The three great principles, which are common to all, may be summed up in three words: Organization, Representation, Education. That is to say: organization of the agricultural classes themselves in societies, clubs, or corporate bodies for the advancement of the various branches of their industry; representation of the opinion of the farming classes in the administration of State aid by Government Departments; and education of the farming classes, both adults and children, in all technical knowledge appertaining to their industry.

The Committee also reported that they found decentralization, the free play of local individuality, and direct relationship with local industries to be the keynotes of artistic and technical training throughout the Continent.

The general conclusion arrived at by the Committee was:—

(1) That the administration of State aid to industries in Ireland, on the principles to be described, can be most effectively carried out by including the two branches of Agriculture and Industries, and the Technical Instruction relating thereto, under the care of one Department of the Government specially created for the purpose;

(2) That this Department should consist of a Board with a Minister of Agriculture and Industries responsible to Parliament at its head, and a Consultative Council representative of the agricultural and industrial interests of the country.

As the result of these enquiries and investigations, the Chairman of the Committee, in a letter to then Chief Secretary to the Lord Lieutenant of Ireland (The Rt. Hon. Gerald W. Balfour, M.P), said, "While we do not anticipate an immediate fulfilment of all the possibilities we indicate, we are confident that rapid progress on the lines suggested is within the bounds of practical attainment."

Lessons for Canada.

The conditions which existed in Ireland in 1896 were in many respects so much like those in Canada in respect to training for Agriculture and Industries, that an extended and reasonably full statement is given of the organization and work of the Department of Agriculture and Technical Instruction which was created as the result of the report of the Recess Committee. A further reason lies in the fact that the current and intimate knowledge, gained by practical experience, enables the Department to judge how far the system which was inaugurated and the methods which have been followed are appropriate and efficacious.

Our Report is limited to the main features of the work which is directly educational.

The Department issued its first Annual Report in 1899-1900. After 10 years of experience, some modifications in the methods of administration have been made, extensions have been added, but on the whole, the organization, system and methods then adopted have proven themselves well adapted to meet the situation. On all sides one finds testimony, through his eyes and ears,

to the happy results, of a regeneration of agriculture and of a revived interest in and preparation for industries, which are being accomplished by the joint work of the Department, Local Bodies and individuals.

The members of the Recess Committee rendered such an illustrious and lasting service to the cause of agricultural and industrial education in English-speaking countries, that the Commission takes the liberty of recording their names in this Report, and of paying its tribute to their work: they served their own nation well, and have enabled Ireland to contribute to the progress of civilization with increasing advantage to itself and marked benefit to other countries.

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