

# A GUIDE TO EMPLOYMENT FOR BOYS AND GIRLS IN GREATER LONDON

*Compiled by the*  
LONDON REGIONAL ADVISORY COUNCIL  
FOR JUVENILE EMPLOYMENT

[ *Ministry of Labour and National Service* ]

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LONDON

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## FOREWORD.

When, ten years ago, the first Guide to Employment for London Boys and Girls was published, it was my privilege, as Chairman of the London Advisory Council for Juvenile Employment, to commend it to those interested in Choice of Employment; as the most reliable and up-to-date survey of the whole field of employment for London juveniles. Since 1928, however, the outer districts of London have experienced intensive industrial development. New trades, new processes have come into being and new problems have arisen. The changes which have taken place have rendered imperative the revision of the original Guide, a task which is now completed.

It is hoped that the New Guide will be of considerable assistance to those who are responsible for advising boys and girls who are about to begin their industrial careers. Too frequently does it happen that these juveniles, only vaguely aware of the opportunities open to them, accept the first employment offered to them without enquiring into its suitability. The Local Committees for Juvenile Employment, whilst fully alive to the pressure of economic considerations in far too many homes, endeavour to combat this attitude wherever practicable, and should find the Guide of the utmost help to them in this essential work.

The thanks of the Council are due to the Ministry of Labour for arranging for the publication of the Guide, and for placing at their disposal officers fully qualified for the task of collecting and summarising the considerable amount of information appearing in this volume. The Council are also indebted to those employers, members of the appropriate trade organisations, and technical experts who have offered their wide knowledge and experience for utilisation in the Guide. Without their co-operation, the Guide would not have that practical value which it undoubtedly possesses.

MAX J. BONN,

Chairman of the London Regional Advisory  
Committee for Juvenile Employment.

June, 1938.

# GUIDE TO EMPLOYMENT FOR GIRLS IN GREATER LONDON

## PREFACE.

A handbook giving a description of the range open to boys and girls in London was compiled by the London Advisory Council for Juvenile Employment and published in 1928. Many changes have taken place in the interval; there has been increasing industrial and residential development of the Metropolis beyond the London County Council boundaries; and the Advisory Council formerly restricted to the Administrative County of London has given place to the London Regional Advisory Council for Juvenile Employment covering an area within approximately 15 miles of Charing Cross. In view of these changes, and of the need for bringing up to date the details relating to occupations, the Guide to Employment has been completely revised.

The field covered by the new handbook is broadly that of Greater London, and the employment conditions described are those obtaining in that region. The types of occupations open to boys and girls educated at Elementary (including Central) Schools have been considered: careers for Secondary School pupils are the subject of pamphlets issued in the "Choice of Career" series published by H.M. Stationery Office and these have been excluded.

The statutory school leaving age at the time of the compilation of this handbook is 14 years and it will be noted that reference throughout is made, as appropriate, to that legal minimum age for recruitment. Application of the Education Act, 1936, will result in the school leaving age being raised to 15 years in 1939. When this change takes place the age of entry into occupations for which school leavers are now recruited at 14 years will be affected.

The rates of wages quoted throughout the handbook are those current at the date of compilation. Wages, whether governed by Trade Boards or not, are subject to change; current information on employment conditions, including wage rates and hours,\* can be obtained at the Juvenile Departments of Employment Exchanges or at Juvenile Employment Bureaux.

Changes have taken place in the distribution of the population on account of rehousing and migration, and there has been considerable movement to the outer districts of London. In

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\* The Factories Act, 1937, reduces the maximum number of hours of work of boys and girls between the ages of 14 and 16 to 44 per week. This clause becomes operative in July 1939.

some areas, notably in the West and North-West, industrial and residential developments have coincided but the outward migration from Central London has increased the juvenile labour demand problem in that region. The total number of insured juveniles between the ages of 14 and 18 years in Greater London increased from 369,000 in 1935 to 448,000 in 1937, but owing to decrease in the birth rate a decline in the number of school leavers is imminent.

The employment opportunities open to the London boy and girl are wide and varied, for in Greater London all the chief aspects of the life of a many-sided community are represented. The importance of London is not limited to Public Administration, Commerce and Finance, it is also a great producing and distributing centre. There is no part of London which is essentially the manufacturing quarter, but while many industries are widely distributed some are traditionally localised.

The availability of a number of careers from which to choose does not necessarily result in the wisest choice being made by school leavers. The co-operation of parents and teachers is needed as well as the advice of those who have knowledge of employment conditions, in order to ensure that a wise choice is made. Although a wide range of occupations has been covered in this handbook, it should not be regarded as a substitute for personal advice which can be obtained from the Juvenile Advisory Committees attached to the Employment Exchanges of the Ministry of Labour and the Juvenile Employment Committees established by Local Education Authorities. These Committees have knowledge of the individual firms in their neighbourhood and experience gained from placing juveniles in employment. Boys and girls up to the age of 18 years are strongly advised to obtain expert advice at the outset of their careers and at any time when guidance is needed. The facilities for further education provided by Local Education Authorities in the area covered by the handbook offer opportunities for developing interests of all types. There are representatives of industry and of education on the Committees for Juvenile Employment and advice on employment questions, or as to additional educational facilities, can be obtained without charge.

Lists of the addresses of all the Committees within an area of 15 miles of Charing Cross and of the technical and other schools are given in Appendices A and B.

## CLERICAL AND COMMERCIAL OCCUPATIONS.

It is not possible within the limits imposed, to describe in detail all the varied occupations which make up the vast and complicated business of clerical and commercial life in London. The following paragraphs aim at giving a general outline of the work, showing some of the typical branches, and the opportunities offered to boys and girls from elementary, central and commercial schools.

There is no hard and fast distinction between clerical and commercial occupations, and generally it may be said that while commerce is concerned with the actual transactions involved in marketing, including the import and export of produce and materials, together with the essential services, financial and otherwise, on which the marketing depends, clerical workers deal with the records and documents which are necessary in connection with these transactions.

## RECRUITMENT AND TRAINING.

There is an increasing tendency among employers when recruiting clerical staff to give preference to boys and girls who have attended central and secondary schools. Banks, Insurance Companies and other large business organisations normally recruit juniors at about the age of 16, who have obtained a General School Certificate, or attained an equivalent standard of education. Detailed information on these sections is given in the "Choice of Career" Series No. 10 (Commerce); No. 12 (Banking and the Money Market); No. 13 (Insurance) and No. 19 (Clerical and Secretarial Work for Women). There are, however, many clerical openings available for boys and girls as office juniors and messengers, and future progress is dependent solely on their own ability, individuality and industry. It is of the utmost importance that boys and girls on reaching the top standard at an elementary school should resolve to continue their education at evening institutes, or preferably proceed to a day continuation or commercial school for further training, in order to compete with those who have had the advantage of higher education. A knowledge of shorthand and typing is a useful qualification, and "Speed" ability at these subjects is an undoubted asset.

In small business and professional offices there is always a demand for boys and girls as office juniors. The training given in these offices is often wider than in a large office, since the work is not sectionalised in the same way; but the prospects of promotion beyond a certain point are uncertain. The good posts,

in such offices are sometimes held for long periods by senior clerks with experience of the particular business concerned, and knowledge of the firm's clients; juniors might have to wait a long time before obtaining promotion to these posts.

In all offices, large or small, there is a considerable amount of work of a routine character, for instance, copying, filing, indexing, typing, duplicating, telephone switchboard operating, book-keeping and the manipulation of labour-saving machines, which in an increasing degree are being utilised in modern offices. The work gives valuable training in office routine, and juniors must expect to go through this training, which is generally the testing ground for those who show themselves capable of more responsible work. Particularly in large offices, the work tends to be sub-divided and unless juniors show special initiative they are likely to remain in the lower grade of clerical life. This applies particularly to girl clerks who are often careful and conscientious routine workers, but perhaps through want of opportunity or ambition, are inclined to be easily satisfied with positions where there is little responsibility. Clerks who take an intelligent interest in their work, even where it is mainly of a routine nature, are a valuable acquisition to any office. A shorthand typist, for instance, has many opportunities of exercising intelligence, and may command a higher salary than the merely efficient routine worker.

### MACHINE OPERATING.

The increasing mechanisation of office processes has caused a rapid rise in the number of machine operators, and has opened a wide avenue for the employment of girls. There is a large variety of office machinery, ranging from the easily operated machines used for duplicating, addressing, punching and sorting, to the more complicated machines for invoicing, ledger posting, tabulating, calculating, bookkeeping, and accounting. Manipulative skill and accuracy are necessary and while the simpler types may be learnt easily, special knowledge is required to operate the more complicated machines. A good knowledge of figures, including decimals and the metric system, is a qualification for calculating machine work, and a knowledge of book-keeping is necessary for machine bookkeeping and accounting. Some employers provide free courses of training which vary from a few weeks to three months, or alternatively, training is obtained prior to entering employment. Manufacturers of some types of machines have training schools, and fees ranging from 5 to 12 guineas are charged for a course of instruction. There are opportunities for promotion to the post of Supervisor, where particular ability in the organisation of work and control of staff is displayed.

## WAGES.

Generally the wages of junior clerical staff and clerks engaged on routine work are much the same in all offices. Boys and girls from elementary schools of 14 to 15 years of age without experience or special training start at about 12s. 6d. to 15s. per week; boys and girls from central and commercial schools at about 20s. to 25s. per week according to qualifications. Trained machine operators start at higher salaries dependent upon the degree of skill and the type of machine. In some offices there is a definite annual increment, but in others increments depend upon individual capacity. Clerks on routine work, including machine operators and shorthand typists, may generally rise to a salary of about £150 to £200 per annum in the case of women and £200 to £250 in the case of men. Promotion to higher posts depends upon industry, ability, sense of responsibility and personal qualifications.

## HOURS.

The usual office hours are from 9 a.m. to 5.30 or 6 p.m. and to 12.30 or 1 p.m. on Saturdays. In a few offices occasional Saturdays are free. The ordinary public holidays are given, and in addition one to three weeks a year with full pay is usual, according to seniority.

In the paragraphs that follow some particular branches of clerical and commercial work are described in greater detail, but routine work in these occupations is covered by the previous paragraphs.

## IMPORT AND EXPORT.

Goods, including food, raw materials and manufactured articles are brought from all parts of the world to London and other commercial centres by Merchants and Trading Companies. Similarly the products of this country are exported abroad. Some manufacturing companies import their own raw materials, but normally, imported goods are sold through brokers or agents to wholesale dealers. Some merchants and brokers specialise in particular classes of goods, e.g., coal, tea, meat, rubber; others confine themselves to the products of particular countries—India, China or South America; others, again, are General Merchants and deal in a variety of goods sending them wherever there is a demand, and the market is likely to be good. Some merchants have their own fleets of ships, others rely on shipping firms for the transport of their goods. The business of Merchants and Shippers is, therefore, closely related.

In the same way there are special markets where particular classes of goods are bought and sold. Thus, in London, corn, timber, meat, fish, fruit, vegetables and other goods have their



own special markets for the purpose of bringing together the merchant, the broker or dealer, and the wholesale and retail buyer.

Boys aged 14 to 16 from elementary schools are frequently employed as office boys. If, however, they are of the right type, make use of their opportunities and continue education, they have, in many branches of the import and export trade, practically the same prospects as boys from secondary schools, who are recruited normally as junior clerks.

A boy at about 16 years of age usually spends some time in the counting-house or office, and then is assigned to a particular branch of the business, but he should take every opportunity of learning what he can of the other branches. A first-class shipping clerk should have a knowledge of marine insurance, transport law, freightage, and foreign exchange, in addition to a routine knowledge of his firm's business. Shipping clerks should aim at taking the examinations of the Institute of Chartered Shipbrokers, which are held at the City of London College, White Street, Moorfields, E.C.2.

In a merchant's office a boy must acquire a thorough knowledge of the goods with which his firm deals, the places from which they come, the distribution, the supply and demand in the world's markets. Some of the large firms of merchants have offices and agents in many parts of the world, and offer excellent opportunities to an ambitious boy. For this reason it will often be an advantage to learn the language of the country in which the foreign trade mainly lies, e.g., Spanish for the South American meat trade. A commercial course of studies with a view to taking examinations such as those held by the Royal Society of Arts, the London Chamber of Commerce, the Chartered Institute of Secretaries or the Institute of Bookkeepers, should prove useful. Promising boys who show aptitude for the work are quickly promoted with large increases in remuneration and commission. A smart appearance, strength of character, reliability and powers of leadership are often more essential than actual scholarship.

In broker's offices the opportunities are limited. As a rule, brokers do not handle the goods which they buy or sell; they often work on a commission basis for importers, dealers or merchants and usually employ only a small clerical staff. A boy starts at about the age of 16 as a junior clerk at 20s. to 25s. per week; he should gain knowledge of the markets in which the firm deals and may in time become confidential clerk and act for the firm in the market. Brokers often engage young and ambitious clerks who have had experience of wholesale markets with a firm of merchants or wholesale dealers and this is probably the best training for a boy whose tastes lie in the direction of brokerage. In merchants' and brokers' offices girls are employed mainly as shorthand typists.

## OFFICES ATTACHED TO MANUFACTURING OR PRODUCTIVE BUSINESSES.

In connection with every manufacturing or productive business there is a clerical staff, which is large or small in accordance with the nature and size of the business. Businesses of this kind which are usually public or private companies, offer prospects to boys who can make the most of the opportunities presented to them, but whatever branch of the clerical or commercial side is ultimately aimed at, and whether a boy comes from an elementary or a secondary school, experience of the productive or manufacturing side is most important. Many firms give promising boys who enter their offices the chance of gaining "works" experience. Such chances should not be neglected. It is not necessary to go directly on to the manufacturing or operative side: a period spent in the offices of the Works Manager, the Works Engineer, or the Works Accountant, which are closely in touch with the actual manufacture, would be sufficient for a boy, who is keen to gain the experience which will be invaluable to him in the future. In a works office he must expect to spend considerable time in the works itself, taking messages to foremen or charge hands, collecting and checking time sheets, etc., and in this way he has innumerable opportunities of increasing his knowledge of the productive processes. If actual "works" experience is not possible much

can be done from the study of technical books connected with manufacture. A boy who shows an interest in the technical side can usually be sure of help in difficulties from the technical staff in an office. Many firms have executive posts, both

domestic and in other countries for which the clerical staff are sought, and are on the look-out for suitable young men to fill them. A working knowledge of the manufacturing side is a valuable qualification.

There are large numbers of girl clerks employed in these offices. Similarly, shorthand typists, machine operators and bookkeepers, are employed. Some firms are exceptional to find a woman as head of an administrative or executive department of a manufacturing business. It seems no reason why in a works where women are largely employed, an intelligent girl clerk should not gain a knowledge of manufacture akin to that obtained by a boy in a works office, which would fit her for a high post, but such posts are generally by women of exceptional character and ability.

In a large company there is a general head office where the rule is sometimes at a distance from the works. Many firms have their head offices in London, but have works in various parts of the country. The general office is under the control of the General Manager, who is responsible to the Board of Directors of the Company, who lay down general policy.

The office is divided usually into a number of departments, each of which has its responsible head. The Secretary's department, for instance, conducts the business of the company, such as the preparation of agenda and minutes for meetings of directors, the payment of dividends and other communications with shareholders. The Secretary must possess a good knowledge of the Company's business and its commercial organisation, and in addition is familiar with the Law as it affects companies. He is often a Fellow of the Chartered Institute of Secretaries. The sales department is concerned primarily with the commercial side of the business, with the work of the firm's agents and travellers, and also sometimes with advertisements. The Works Manager and Works Engineer are directly interested in production, and have their own offices attached to the works. The Accountant is responsible for the preparation of the firm's accounts for auditors, for checking the cost of the various departments of the business and for preparing estimates for new work. In any of these departments in a large firm there is ample opportunity for development and progress.

The works office or offices are organised on somewhat different lines, since they are concerned only with production. They offer, however, to the boy of clerical tastes an opportunity of gaining knowledge of the manufacturing side, the importance of which has been already emphasised, and form an excellent training ground for boys who may gain the higher posts in the clerical and administrative services of the firm. In the works offices there are good opportunities for boys from elementary schools. They start usually at about 12s. 6d. to 15s. per week, and work at first as messengers between the office and the works. Those showing distinct practical or mechanical tastes may have the opportunity of taking up the manufacturing side, but in any case they gain an invaluable general knowledge of manufacturing processes. A boy with an aptitude for figures would find in the experience thus gained the foundation of "cost" accounting which is becoming an increasingly important side of modern manufacture. Another boy might find his tastes lie in estimating and the purchase of raw materials. Those who fail to show special interest or initiative may be employed on work of a semi-routine character, such as the calculation and payment of wages. Briefly, in a works office the clerical side is closely allied to the manufacturing, and therein lies the opportunity to the boys with initiative.

### **CLERICAL WORK IN RETAIL SHOPS.**

Clerical workers are employed in most branches of retail distribution but this side of the work usually does not offer the same scope as does the side of salesmanship. (See page 18.)

In large department stores clerical work is so sectionalised that it can be carried out by almost routine methods. Clerks, mostly girls, are employed as machine operators or on simple ledger work, entering up the accounts as they are passed through from the sales departments. About one in 20 women clerks may become section leaders, rising to £3 or £3 10s. per week, otherwise a clerk's salary would rarely exceed £2 10s. per week for women, and about £3 10s. for men. There are, in large shops, openings for experienced bookkeepers and shorthand typists. The best prospects are for correspondence clerks, of whom the most promising have a chance of becoming managers' secretaries, rising to a salary of about £300 a year, but the number of these posts is limited.

In small retail establishments girls are extensively employed in cash desks and in keeping the accounts of customers. These duties in themselves offer training in mechanical accuracy, but there is little prospect of advancement, and the cash register is gradually superseding the cashier. Girls taking up this work should learn book-keeping or shorthand typing at evening classes.

A girl who is a good book-keeper, can take down a letter in shorthand, and type, has probably the best post offered in retail business, and she may have a chance of promotion to the head office in the case of multiple shops, with considerably improved prospects.

### SOLICITORS' OFFICES.

Boys from elementary schools who enter at the age of 14 are paid, normally, from 12s. to 15s. per week. These boys start as office boys, and assist generally on such duties as post and filing and work of a messengerial nature. They should study shorthand and typewriting and obtain good speeds. When older, opportunities may be available to gain knowledge of such work as Probate, Conveyancing, Investigating Titles, and Building Society procedure; but years of intensive evening study would be necessary. A large percentage of boys leave solicitors' offices after a few years, but experience indicates that the training is an asset in securing other employment with commercial or industrial firms.

Central school boys with a knowledge of shorthand-typing enter at the age of 16 at about 25s. per week and proceed to such work as outlined above. Information regarding articulated clerkships is contained in the "Choice of Career" series No. 15 (Law); but in exceptional circumstances it is possible to be offered Articles by the employer, after ten years' employment, for a term of three years instead of the usual five years. The

average wage paid to a clerk at the age of 25 is about 50s. per week and an experienced clerk proceeds to between £150 and £250 a year.

Girls from central schools usually enter at about 16 years of age at a weekly wage of about 30s. per week. Speed in shorthand and typing is usually essential. They are employed on general clerical duties, and as adults are paid about 50s. per week.

### **STOCK BROKERS' AND JOBBERS' OFFICES.**

Boys from elementary schools may start as office boys or messengers. They have not quite the same opportunity as boys entering as junior clerks, but the higher posts would not be barred to an intelligent or ambitious boy who identifies himself with the interests of his firm, and takes advantage of the facilities for further education available at evening institutes. (See page 250.)

Boys usually start as junior clerks at about the age of 16 and learn the general routine of the business and the detail of transactions in the market itself. A taste for figures combined with clearheadedness and accuracy are the chief qualities required, while a knowledge of typing and book-keeping is a useful asset. A junior clerk may receive about 20s. per week and subsequent progress depends very much upon personality. He should aim at becoming first an unauthorised clerk who is admitted to the Stock Exchange but not to deal therein, and then as an authorised clerk who can deal for the firm he represents. Firms can apply to the Committee of the Stock Exchange for the authorisation of clerks, promote young men from their office staff in this way, and pay the annual fees for their authorisation. An experienced authorised clerk who is able to bring business to his firm, on which he gets a commission, can earn a large salary. If he does not become an authorised clerk, a boy who gives careful attention to business may by promotion become the head clerk in an office, where he would be in control of the staff and office routine.

There is no opening for girls on the Stock Exchange, except as telephonists, shorthand-typists or routine clerks.

The usual office hours are 10 a.m. to 5.30 p.m. with free Saturdays, but in times when business is very active these hours are greatly exceeded.

### **AUCTIONEERS' AND ESTATE AGENTS' OFFICES.**

Normally boys from secondary schools are recruited at the age of 16 or 17 as articled clerks (see "Choice of Career")

Series No. 4, Surveying, Land and Estate Agency and Auctioneering), but sometimes in the larger offices, boys from elementary and central schools are engaged as messengers and office boys at a commencing wage of about 12s. to 15s. per week. They are encouraged to attend evening classes and recommended to learn Typing, English and Arithmetic. In later years they have an opportunity to learn work which includes the sale and letting of house and shop property, licensed property, factories and warehouses, plant and machinery, and the valuation and sale by auction of chattels such as furniture, pictures, silver, etc. Eventually, they may qualify as practitioners by taking the preliminary, intermediate and final examinations of the Auctioneers' and Estate Agents' Institute of the United Kingdom. It is thus possible to become a practitioner by long experience as an ordinary clerk, but it is a slow process, and the ordinary clerk cannot have the opportunities of the pupil whose parents have paid a premium for training. The ordinary clerk is able to proceed to a salary of between £200 and £250 a year. Girls enter as shorthand-typists at the age of 16 commencing at about 20s. per week and are able, eventually, to earn up to about £3 per week. Some proceed beyond this amount when they secure appointments as personal clerks to Principals.

### **ACCOUNTANTS' OFFICES.**

Boys are recruited between the ages of 14 and 17 as office boys and junior clerks, at 15s. to 20s. per week, and are engaged on elementary duties such as post, indexing and filing, proceeding if suitable, to junior audit work which entails a good knowledge of arithmetic. Information concerning articulated clerkships is contained in the "Choice of Career" Series No. 6 (Accountancy), but the Society of Incorporated Accountants and Auditors will accept persons as members who have not served under articles. Candidates who have passed the preliminary examination of the Society or obtained exemption, and have at least six years' approved service with a Public Accountant, normally Chartered or Incorporated, may sit for the intermediate examination. On reaching the age of 25, and after nine years' approved service, those who have passed the intermediate examination may be eligible to take the final examination. Similar facilities are allowed by the London Association of Certified Accountants; in certain circumstances persons who have attained the age of 26, and have ten years' experience with an accountant in public practice, may be granted exemption from the intermediate examination of the Association. Application for membership may be made after five years' experience as an Associate.

## ADVERTISING.

Some firms have their own Advertising Departments, while others entrust their publicity to Advertising Agents who employ specially trained writers and artists. It is the business of an advertising agent or advertising manager of a firm to advise as to the most productive means of expending the sum which a firm propose to devote to advertising. He is responsible for preparing schemes of advertisement, by display, poster, films, radio, etc. An experienced agent is expected to advise on the most effective type of advertisement to suit the business of his clients, to present designs for approval, and to know where to find artists who will carry out his designs, and the papers and periodicals best suited to the particular subject.

The copywriting and ideas side of advertising which requires considerable imagination and knowledge is carried out usually by people who have worked elsewhere before engaging in the work of advertising. The art work calls for special ability and training. (See page 16.) Work in other departments is usually of a skilled or semi-skilled kind which needs careful and training. (See page 16.) Work in other departments boy fresh from school.

There are many small agencies where the work is done by only a few people, but the organisation of a large Advertising Agency consists of the following main departments:—

*Marketing Research Department* is responsible for searching out facts which may be useful in preparing the client's advertising campaign. If, for instance, a toothpaste is to be advertised, it is necessary to secure information about other brands of toothpaste; where they are sold; which are most popular and why, etc.

*Space Buying Department* deals direct with newspapers and owners of hoardings for the purpose of securing space for advertisements.

*Copywriting Department* employs men and women experienced in writing advertisements and headlines and in finding ideas on which to base advertising campaigns. In addition to writing advertisements their work includes the preparation of booklets, brochures, folders, leaflets, and other printed matter.

*Art Department.*—An art manager is usually in charge, controlling designers experienced in "laying-out" advertisements, booklets, etc., already written by the copywriters. The art manager is responsible for the design of the advertisement and for negotiating with free lance artists and photographers who produce the illustrations.

*Production Department* (sometimes known as Copy Detail Department) deals with block-makers and typesetters, for the

production of the complete advertisement in block form ready for insertion in newspapers. This Department is responsible for supplying these plates to the Press.

*Printing Department.*—Obtains estimates for printing clients' booklets, folders, posters, etc., and passes proofs, etc.

*Accounts Department.*—In addition to looking after the agency's own accounts this department is responsible for collecting and approving accounts on behalf of clients—from newspapers, printers, typesetters, blockmakers, etc.

*Despatch Department,* controlled by a despatch clerk, employs messengers for the delivery of printing instructions, proofs, etc., and maintenance of contact between the many organisations engaged in the advertisement.

*Executive Department.*—Every advertising agency has highly paid executive workers, sometimes known as "contact men", who negotiate with clients, using all departments of the Agency in an effort to produce effective and economical advertisement.

## RECRUITMENT.

Elementary School boys start at about 15s. per week in an Advertising Agency as messengers in the Despatch Department. They may there gain some knowledge of the general methods of advertising work. Most agencies promote boys whose work suggests that they might be usefully employed in another department.

Secondary School boys at about 16 or 17 usually start in the Production Department, where they act as assistants. They are in constant touch with other departments of the agency and are able to obtain a general knowledge of advertising work. Subsequent promotion usually depends upon ability and initiative. There are also positions open in Advertising Departments of manufacturing firms for boys who have received training in an advertising agency.

The young man with ideas, whether from an elementary or a secondary school, is wanted in advertising, and he may rise to a highly paid position. The ordinary clerical routine work of advertising is paid at about the same rates as in other businesses.

Advertising offers many opportunities for girls. Much of the advertising to-day is directed to women and many agencies employ women who are able to present the feminine point of view in advertising. A girl who is particularly gifted, either as an artist or a writer, may secure employment in that line, otherwise she should start as a clerk or shorthand typist.

## COMMERCIAL ART

Commercial Art embraces all kinds of drawing for advertisements and display, poster designing, fashion drawing, book illustration and general design for industrial purposes. Advertising is carried out mainly through agencies with their own



studios and artists. (see page 15), or by commercial art studios and printers, centred mainly in the City and the West End, but much of the work in connection with the other branches is done by free lance artists, working on their own account.

### **RECRUITMENT.**

Boys and girls start from about the age of 17, often after at least three years study at a school of art. Original ideas and general ability in drawing are essential. Proficiency in all types of lettering and line drawing and wash in black and white of still life and common objects are of greater value than colour work for advertising. Poster designing is well paid work, but offers few opportunities for the beginner. Fashion drawing is done mainly by women, but progress in this branch is dependent on technical experience and skill in the technique of design. In some publishers' studios, letterers for book jackets may be employed, but the general illustration work is put out, usually, to free lance artists. There is an increasing demand for industrial designers who design textiles, wallpapers, jewellery, pottery, leather goods, box lids and tins, labels and packages for goods, etc. Firms with their own studios sometimes arrange sandwich courses in conjunction with the art schools, whereby facilities are provided for students to spend part of their time in the factory to become acquainted with technical requirements.

### **TRAINING.**

Preliminary training can be obtained in the schools of art recognised under the Board of Education. Special provision for training junior students is sometimes made where full-time junior art departments are established for boys and girls between the ages of 14 and 16 (see page 250). The students who enter these junior art departments must be prepared to take a three years' course of study, including general draughtsmanship and design, fashion drawing, lettering and display, textile and wall-paper designing, lithographic drawing, poster work and book illustration, etc., in addition to general educational subjects. Older students are of course also accepted at the various art schools for training of a similar character.

### **TECHNICAL PROCESSES.**

Apart from the general training in art mentioned in the foregoing paragraph, training in the processes involved in connection with commercial art is given at the School of Photo-Engraving and Lithography, Bolt Court, Fleet Street. This school provides classes for both junior and senior students. There is a junior day trade school for boys which provides a two-year full-time course for boys who enter between the ages of 13 and

14½. This trade school provides a preliminary training which is suitable for boys intending to enter any branch of photo-engraving, including photo-lithography and lithographic drawing, and a few boys are also trained for commercial art. The admission to the photo-engraving trade is very restricted and only such boys are taken into the school as have made arrangements for their future employment with a suitable firm.

There are also day and evening classes in process work, and in art, for older students. For full particulars see page 265 and for a description of the various processes see "The Printing Industry", page 166.

### **WAGES.**

Earnings depend entirely on personal ability, but after training, boys and girls may start employment at about 25s. or 30s. per week. A good letterer may earn up to £5 per week, or more. Industrial designers may earn considerably more according to their experience and creative ability. Women engaged on dress design and fashion work may earn between £2 10s. and £3 15s. per week as assistants in a studio, and more if they show great originality and an unusual sense of style. Free lance work is precarious, but artists of outstanding merit are able to earn large salaries. The most successful are usually those who have had studio experience at some period of their career.

### **HOURS.**

The hours in a commercial studio vary between 44 and 48 per week.

## **RETAIL DISTRIBUTION**

### **SALESMANSHIP.**

The work of the retail trades is to sell goods to the public, and though the class of goods and the conditions under which they are sold vary considerably, the qualifications which make up the successful salesman are the same. Familiarity with the qualities of the articles dealt with, some knowledge of the materials of which they are composed, and the purposes for which they are designed, together with the personal qualities of alertness, patience, good temper and cheerfulness make up the equipment of the successful sales person. Height and general appearance are also important.

Though the art of selling can be acquired in a shop dealing with almost any kind of goods, careful training and opportunity for development are necessary. Where there is a great variety of goods of different quality there is clearly more scope for exercising the art than where the range is narrow. The type

of assistant also varies with the class of goods sold, the district where they are sold, and the class of customer normally dealt with. Girls have proved to be very successful saleswomen, and in certain branches of the distributive trades girl assistants outnumber men. See also "Choice of Career" Series No. 23 (Retail Distribution).

### HOURS.

Under the Shops Act, 1934, young persons under 18 may be employed for not more than 48 hours per week, exclusive of meal times, but there is at present no statutory limitation to the hours that may be worked by older assistants. It is true that there are shops, e.g., some of those dealing in confectionery and tobacco, where the hours are still very long, but in most large shops in the West End the hours are from 9 to 6 or 7 p.m. (to 1 p.m. on Saturdays), with 1½ hours for meals, while the aggregate hours in the best suburban shops are not much longer, with an early closing day during the week.

### ORGANISATION.

The organisation of large shops, whether in London or the suburbs, is more or less on the same lines. They are divided into departments according to the class of articles to be sold. Sometimes only one range of goods is found, e.g., drapery, jewellery, or furniture, but in a large department store every article would be dealt with for which there is ordinarily a demand by the public. The range of selling organisations varies from that of the small independent trader to the large multiple shops and department stores, including the Co-operative Societies and the Fixed-Price "Chain" Stores.

### DEPARTMENT STORES.

Large general establishments, since they offer wide opportunities for boys and girls of different individual tastes, are generally to be recommended for beginners.

*Recruitment.*—In the best City and West End firms boys and girls are not, as a rule, engaged for training as assistants under the age of 16 years. Sometimes they go direct into one of the Departments to act as guides to customers or as messengers in the office or counting house. Boys and girls start younger in the suburban trade, generally at about 14 or 15. Formal apprenticeship is not common, but there is usually an understanding that boys and girls, after a period of probation, will be kept on as learners or students. A number of leading firms

offer positions to day students who have completed a course of training at the L.C.C. Technical Institute for Distributive Trades, Westminster, or at the Ealing and Enfield Technical Institutes (see page 254).

*Training.*—Juveniles start by making themselves generally useful, collecting and distributing documents and goods, or help older assistants by carrying out simple routine duties. In this way they familiarise themselves with the work and organisation of all departments—an important part of their training—and after a time, are allocated definitely to a department according to their aptitude or preference. Juniors should avail themselves of the opportunity to attend evening classes (see page 254). The City and Guilds of London Institute has adopted a syllabus and regulations for the award of the Institute's Certificate in Retail Distribution (Drapery and Outfitting).

*Salesmen and Saleswomen.*—After about two years they become junior salesmen and saleswomen, and in due course are given a "sales book," which means that they sometimes work on a commission basis. From then their progress depends upon their success in selling, and they can go forward after some years of experience from being sales people to under-buyers or buyers.

*Buyers.*—Buyers occupy important and well-paid posts. It is their business to visit markets or factories and examine all merchandise brought for their inspection, to place orders with firms at home or abroad, to organise the work of the sales staff, and to be generally responsible for their particular department to the management of the firm. The competition for these posts is naturally very keen.

*Other Posts.*—A few assistants with special aptitude can take up special branches such as designing or window dressing. Many large firms also have staff and welfare supervisors, offering possibilities of promotion to employees showing capacity for supervision.

*Wages.*—Boys and girls starting at the age of 14 receive about 12s. per week, and about 17s. and 14s. per week respectively at the age of 16. Dinner and tea are sometimes provided, in which cases the cash wages are somewhat lower. At age 18, girls receive from 21s. to 25s. per week, rising at age 23 to rates from 30s. to 40s. per week. Youths at 18 receive from 27s. to 30s. per week, rising to about 63s. per week at the age of 25. Further advancement beyond these rates is dependent on merit, but an experienced salesman may earn, with commission, from £4 to £6 per week, and an experienced saleswoman from £3 to £5 per week. Buyers in minor departments may earn between £200 and £300 a year, and considerably more in important departments.

## MULTIPLE SHOPS.

In the high class multiple shops, e.g., outfitters, boot shops, etc., which are sometimes attached to manufacturing businesses, a good type of assistant is required. The training given within the shop is generally sound and practical, but there is not the same scope as in large stores. In multiple shops the buying would ordinarily be done centrally. The special features of the food distributive trade, including that carried on in multiple shops, are dealt with below.

*Wages.*—Young assistants generally are recruited between the ages of 15 and 16, and a boy starts at about 17s. 6d. per week. A good salesman may rise to be manager of one of the branches at a salary from about 70s. per week. Girls start at about 15s. per week, but have, on the whole, limited prospects of rising beyond the position of counter hands at a wage of about 40s. per week.

## FOOD DISTRIBUTIVE SHOPS.

Food distribution is a large and important branch of retail distribution as a whole, and since it concerns goods mainly perishable, the method of distribution has to be more rapid and regular than for some other classes of goods.

*Branches.*—The distribution of food is divided into the following branches which are usually carried out as separate businesses:—

- (1) Grocery and Provisions.
- (2) Meat.
- (3) Fish and Poultry.
- (4) Fruit and Vegetables.
- (5) Bread.
- (6) Milk and Dairy Produce.

Food distribution is also undertaken by many of the large department stores.

*Recruitment.*—In all these branches a large number of boys and girls of 14 and upwards are employed as shop assistants, porters, roundsmen, packers and messengers, though in the first three branches considerably more men and boys are employed than women and girls. The provision trades in every branch offer better opportunities to boys than to girls. Girl assistants have been found very useful in dealing with the lighter classes of provisions, with dairy produce, bread, cakes, confectionery, fruit and vegetables, but the heavier side of the provision trade is not generally suitable for women and girls, who do not get the all-round training that would qualify them to be shop managers.

*Training.*—The best training and the best prospects are offered generally in those parts of the trade which deal with a wide range of goods, since the assistant has to learn the qualities of the goods that are sold. The selling of bread, for instance, obviously does not require the same knowledge and experience as the selling of the various classes of provisions that belong to the grocery or meat trade. Where goods are uniform, as in confectionery, or are done up in priced packets as is usual in some sections of the grocery trade, the sale can be carried out by assistants after a brief training and in this work women assistants are frequently employed. There remains, however, ample scope in the food distributing trades for the trained intelligent assistant who has worked up from the bottom. In the grocery trade, the high class family grocer, with several branches dealing both with provisions and groceries, provides probably the best training for the young assistant. There are a number of such firms to be found in the London area and some of them have definite schemes of training or apprenticeship, or adopt the scheme recommended by the Institute of Certificated Grocers. Some of the multiple grocery organisations have training schemes in conjunction with the L.C.C. Technical Institute for the Distributive Trades.

While schemes of training or apprenticeship are not uncommon in the grocery and provision trade, it is not unusual in the other food distributive trades to find any special training apart from that which is given in the actual sale of goods within the shop. Many employers still think this is the best training that can be given, but the advantages of special training are beginning to be more fully appreciated. In connection with the retail meat trade, for example, the London County Council with the co-operation of the trade, have established an institute at Smithfield where preliminary training is given (see page 263). This covers at present only a small portion of the ground, but the trade appears to be well satisfied with the experiment.

*Wages.*—Boys in the food distributive trades start at about 12s. to 15s. per week and have the possibility of rising to be head assistants and shop managers with a salary of £3 to £10 per week, according to the size of the shop and the turn-over. A manager often receives a bonus on profits in addition. A girl working as shop assistant or cashier starts at about 10s. per week and would rise to a salary of about £2 to £2 10s. per week. In the milk distributive trade *minimum* rates have been fixed by a Trade Board. In the City of London and the Metropolitan Police Area, boys under 15 start at not less than 15s. 6d. per week, rising to 56s. per week (minimum) at the age of 21. Girls at the age of 15 to 16 start at not less than 16s. per week. A woman shop assistant over 21 is entitled to not less than 36s. 6d. per week. The rates are slightly less in districts outside the Metropolitan Police Area.

## OTHER SHOPS.

There still remains a large number of distributive shops not covered by the above paragraphs which are of so varied a nature that it is not possible to do more than indicate generally what points should be taken into consideration by a boy or girl undertaking this kind of work. Generally, the principle applies that where a high-class article is sold, or where there is a variety of goods of different quality, there is scope for a well-trained type of assistant. It is advisable, if possible, to choose a shop where high-class goods are sold rather than one dealing with inferior articles, not only because the training and prospects are better, but also because a belief in the quality of the articles sold is the essence of successful salesmanship. High-class shops dealing with a great variety of articles are to be found in many districts, both in London and the suburbs.

## MESENTERS, VAN BOYS, PORTERS, PACKERS AND ROUNDSMEN.

One of the features of the retail distributive trades is the employment of out-door messenger boys, including van boys.

*Messengers.*—It is a mistake to regard all messenger work as necessarily a dead end. Many firms ultimately employ their messenger boys who prove suitable, as assistants or roundsmen, and it is maintained that messenger service, since it brings boys into contact with customers in their own homes and gives them an opportunity of learning the elements of salesmanship, should, in itself, be a useful part of training. The high-class shops in the West End who employ comparatively few out-door messengers, either boys or girls, are generally able to offer progressive and permanent employment, and of other shops, the best prospects of absorption appear to be in grocers', green-grocers', fishmongers', butchers', ironmongers' and boot shops. It is, however, undoubtedly true that a considerable number who enter the trade as messengers are not absorbed and have to seek fresh employment between the ages of 16 and 19. There are several explanations for this. It is clear that boy messengers employed by a firm of chemists will never be chemists, though in a large establishment they might be absorbed as packers. Generally, however, such boys will have to seek new occupation at about 16. On the other hand, a butchers' or a grocers' messenger boy should have a reasonable chance of being absorbed as shop assistant, packer, porter, roundsman or driver, but as a matter of experience many are not. Employers point out that often errand boys are of poor intelligence, are recruited

from the ranks of those who have failed to get or are unsuited for skilled work, take little interest in their work, seldom attend evening classes and are unfitted to be counter hands or to be promoted to other positions of responsibility such as roundsmen. There is undoubtedly some truth in this. It may also be true that the occupation itself, with its want of discipline—since messengers are for a large part of their time outside the control of their employers—and possibly a lack of interest on the part of the employers themselves are very largely to blame for the deficiencies. London firms to some extent draw upon the provinces for trained assistants, since it is naturally the object of the ambitious boy or girl to get to London, where the opportunities are wider than perhaps in a small provincial town, and this also restricts the chances of promotion in the trade for the errand boy or girl.

The employment of girls as out-door messengers is not so widespread as the employment of boys. Though prospects of absorption are held out to girls, experience shows that, except in the large West End shops, where only a very good class of girl is engaged, a comparatively small proportion really secure openings in the firms in which they work as out-door messengers. It is clear that in some classes of work the prospects of being absorbed are practically nil, but even where there are prospects the same difficulties are operative as in the case of boys.

*Van Boys* are much in the same position as messenger boys, and the problem of their absorption is similar. A percentage can be, and are, absorbed as motor drivers or van men, but they cannot all be absorbed in this way. Their hours are often long and for a considerable proportion of their time boys have little to do; but for a boy who for reasons of health requires open air work a van boy's occupation has advantages, provided the hours are not too long and he has not to lift heavy packages. The increase in motor delivery and the employment of a youth to accompany a motor driver to assist in the delivery of goods is having some effect in decreasing the demand for young boys as van boys. A smart boy has the opportunity of learning to be a driver.

*Wages.*—Messengers and van boys start at about 12s. to 15s. per week and proceed to about 25s. to 27s. 6d. per week at 17 to 18. After that age, if not absorbed as packers, porters, drivers, roundsmen, etc., they have to seek fresh employment. A roundsman must be thoroughly reliable and be able to deal tactfully with customers whose houses he visits. He would earn from about £2 to £4 per week, and often works on a commission basis. For packers see page 25 under Wholesale Distribution. Girls start at about 12s. per week, and receive about 15s. to 20s. per week at 16 to 18.



## WHOLESALE DISTRIBUTION.

### AREAS.

Firms carrying out wholesale distribution are centred mainly in Canning Town, King's Cross (Clerkenwell), Shoreditch, Stepney, and in the City and West End.

### ORGANISATION.

Goods when sold by brokers and merchants pass mainly into the hands of wholesale dealers by whom they are sold to retail distributors. Some wholesale firms are also importers and many have retail branches, but where this is so the wholesale and retail businesses are usually carried on separately. There are special wholesale markets for some perishable goods where a large number of dealers conduct their business; thus meat is sold in Smithfield Market, fruit and vegetables at Covent Garden and fish at Billingsgate.

Wholesale distribution may be divided into two branches, as it is concerned with:—

- (a) The storage and packing of goods.
- (b) The sale of goods.

In each of these branches boys and girls of different types are employed.

### STORAGE AND PACKING.

Goods are stored and packed in warehouses of which there are several kinds:—

(1) Private warehouses from which wholesale merchants and manufacturers supply the retail trades with goods of all kinds, including provisions; and warehouses attached to manufacturing businesses.

(2) Large public and private warehouses or yards at docks and wharves including bonded warehouses, where bulky dutiable goods are kept until the duty is paid, cold storage for meat and other stores which require special arrangements. This kind of storage is mainly used by merchants and importers, some of whom have no warehouse accommodation of their own. The work connected with it is heavy and unsuitable for boys under the age of 18, and they are seldom employed except in the offices attached to wharves.

### RECRUITMENT.

In the class of warehouse referred to in (1) above, a considerable number of boys and girls are employed, except where goods are distributed in bulk without repacking and where the work is too heavy for juveniles. The work in a warehouse consists

of unpacking, making up into smaller parcels, repacking, boxing, labelling, etc., and the work varies according to the kinds of goods dealt with. The packing of delicate and costly textiles or millinery, for instance, affords regular and pleasant occupation under good conditions for boys or girls who are fairly strong. Packing, at its best, requires skill and experience and where the business is not seasonal, as in many wholesale textile houses, wholesale departments of retail distributive businesses and manufacturers' warehouses, the boys and girls employed are usually absorbed in the business. Such firms, as a rule, prefer boys and girls not under the age of 16, but in many cases younger boys and girls are engaged as warehouse messengers, van boys, etc., and are sometimes absorbed in the packing department as vacancies arise.

Other warehouse work is of a rougher and unskilled kind, such as making up of goods into small packages or tins and is akin to factory work.

### WAGES.

Warehouse messengers and van boys start at about 12s. to 15s. per week, and packers and porters at the age of 16 at about 16s. to 20s. per week. Experienced male packers and porters over the age of 21 receive about 40s. to 60s. per week. Girl packers and porters at the age of 16 start at about 12s. to 15s. per week, and women packers and porters proceed to between 30s. and 35s. per week. In the trades covered by Trade Boards the *minimum* rates fixed by the Boards apply to packers and warehouse workers.

### SALE OF GOODS.

Many wholesale firms have sales rooms in connection with their warehouses. They are as a rule divided into departments in which different classes of goods are displayed for inspection and sale to buyers for retail firms.

### RECRUITMENT AND TRAINING.

Boys of a good type, tall and well-mannered, are engaged usually at about the age of 16 as departmental assistants, although some firms will consider particularly suitable boys at the age of 14. Generally they spend some time in the counting house and then pass through some or all of the departments to become familiar with the range and quality of the goods dealt with by the firm. They are definitely trained as salesmen and deal with customers under the eye of the departmental manager; the object being to give them such a training as to fit them to be representatives of the firm either as travellers or buyers, according to the qualities they show. They can also rise to be departmental managers.

Particularly good openings are offered to boys in the wholesale meat trade centred at Smithfield Market. The trade itself is anxious to secure a good type of boy and gives every support to the L.C.C. Institute at Smithfield, which has been established in connection with the meat trade. As in the other branches of the wholesale trade, boys must be prepared to start at the bottom and to act as salesmen "on the front" in the market. If they show ability for salesmanship and prove of value to their firms, there is no bar to their reaching the highest posts in one of the largest trades in the country.

Girls are employed mainly in the counting houses and offices as ledger clerks and shorthand typists. In some of the wholesale textile houses, pattern making is done by girls, and is a pleasant occupation requiring some taste, particularly in the making up of pattern books.

### **TRAVELLERS.**

For boys with an aptitude for salesmanship a traveller's life may be both interesting and lucrative, since travellers usually receive commission on the orders they bring in, in addition to their salaries. Owing to the increasing competition, firms are paying particular attention to the training of travellers. The opportunities for women as travellers are much more restricted. Some wholesale firms selling women's garments and baby linen, however, often employ women travellers.

### **WAGES.**

Departmental assistants start at about 15s. per week, and on rising to the duties of salesmen should earn between 50s. and 70s. per week. Travellers and buyers are able to obtain salaries varying between £250 and £500 per annum, according to the nature of the trade.

### **HOURS.**

The hours vary from about 44 to 48 per week, and the best firms allow 6 to 12 days holiday with pay, in addition to public holidays, after 12 months' service.

## **BREAD AND CONFECTIONERY MAKING.**

### **COMMERCIAL BAKERIES.**

Full use is made of machinery and practically all the operations in bread making are done by mechanical means. The work tends to be divided into departments and workers are usually engaged on one process only.

## LOCAL BAKERIES.

A retail shop is attached to the bakery and the workers in the bakehouse make bread and confectionery by hand, with the help of certain labour-saving appliances.

## RECRUITMENT.

Personal cleanliness is essential, especially as regards the hands and hair. In commercial bakeries boys start at 14 as messengers, or in some unskilled capacity such as cleaning tins or manipulating chopping and slicing machines. Girls start at about the age of 16 and assist women in such work as greasing tins, wrapping, packing and despatching. In local bakeries boys start at 14 as errand boys, and at 16 may have opportunities to learn confectionery making, proceeding to bread making at the age of 18. They must be healthy and strong physically for hand bakery work.

## DESCRIPTION OF PROCESSES.

The processes are similar whether manufacture is mainly by hand or by machinery. Men are employed in bread making, which normally involves night work, but women are employed in large numbers in making confectionery and icing.

*Flour Blending.*—Large bakeries usually have a flour room, where flour of different qualities is blended, but flour already blended is bought by small bakeries. The work is done by machine by unskilled male labour under a skilled foreman possessing a technical knowledge of flours. The blended flour is transferred to the dough mixer for manufacture.

*Dough Making.*—Bread is made either by the "straight process" when the yeast and other ingredients are all mixed at the same time or by the "sponge and dough" process. In the latter, the yeast is first prepared by mixing it with warm water and some flour; it is then in the form known as "sponge." After preparation the sponge is "rested" for a time and then additional flour is added, making dough. The mixing and working up of dough is done by hand or by mechanical means. After mixing the dough is "rested" in wooden troughs to allow it to ferment or "ripen," and then divided into pieces of the size required and weighed; the pieces are rolled and further worked up on a table and moulded according to the shape required. The moulded pieces of dough are then greased, or placed in greased tins and are ready for baking. In large bakeries the complete process is done by machinery.

*Baking.*—The dough from the troughs is placed in a divider which delivers the dough in the exact consignment, to be baked

into the standard size loaves. Ovens are of various kinds, including closed ovens which have a door through which the loaves are put in with a wooden slip or peel; draw plate ovens from which an iron draw plate can be withdrawn for loading and then pushed back. In a third type of oven the cover can be raised for loading and then replaced. Large modern bakeries have gas fired ovens, sometimes 100 feet long and open at each end. Through this tunnel run smoothly moving chains on which frames containing the pieces of dough are carried. The bread is baked as it passes through, the process taking about 50 minutes.

*Smalls.*—In the making of “smalls,” that is, cakes, pastries, sponges, tarts and handmade biscuits, many ingredients are used, such as specially prepared flour, sugar, fats, eggs and egg compounds, dried fruits, chocolate, etc. In large bakeries extensive use is made of mechanical devices of all kinds, sponge and batter mixers, slicing and chopping machines, etc. The work too, is often divided into operations performed successively by different individuals, and boys sometimes have opportunities to learn by working with skilled operatives. Baking is done as in the case of bread. After baking skilled specialists do the decoration of ornamental pastries, or the icing of cakes.

*Packing.*—Bread and confectionery when baked is taken to a cooling room and stored on wooden racks until ready for packing and distribution. In the larger bakeries the bread is sold wrapped in waxed paper. Automatic wrapping machines are used, the bread entering the machine at one end and emerging from the opposite end in a sealed waxed paper wrapper. This unskilled work is done by women.

## PROGRESS OF EMPLOYMENT.

The staff employed by a large bakery include foremen, dough makers, table hands, ovenmen, salesmen and vanmen. On the technical side of the industry some knowledge of chemistry and physics is desirable. This and the higher branches of manufacture, together with knowledge of the construction of flues and ovens can best be learned in a technical school. Special classes connected with the trade have been arranged at the Borough Polytechnic National Bakery School, and boys who hope to become bakers should make every effort to attend these or similar classes. (See page 244.) To gain experience it is often desirable after about three years' service with one firm to transfer to another. Generally a worker specialises in one particular branch.

## WAGES.

Boys start at about 12s. to 15s. per week, rising to 20s. or 25s. per week at the age of 16. The London rate for a trained

baker is 60s. to 65s. per week, for dough makers from 65s. to 68s. per week, and foremen from 68s. to 81s. per week, while men in key positions earn between £4 and £8 per week.

*Girls* start at about 18s. per week, proceeding to an adult rate of about 30s. per week, but in large bakeries, where a production bonus is paid, this amount is increased to about 35s. per week.

### **HOURS.**

The hours are 48 a week, but overtime is often incurred during the busy seasons. Bread is usually made at night, the bakers starting between 6 p.m. and 12 midnight. Under the Factory Acts, boys are not allowed to be employed at night under the age of 18, but under certain conditions boys of 16 and 17 may be employed in bakehouses after 5 a.m. or up to 9 p.m.

## **BISCUIT MANUFACTURE.**

### **AREAS.**

Biscuit factories are found mainly in the areas of Bermondsey, Fulham, Isleworth, Lewisham, Poplar, Stepney, and Willesden.

### **FACTORIES.**

The number of workers employed in each factory varies from about 100 to 3,000 and the proportion of women to men is about 2 to 1. The buildings normally are bright and well ventilated.

### **WELFARE.**

Usually there is a welfare supervisor who engages new employees, and maintains an interest in their subsequent training and progress, particularly regarding their health and social welfare. Sometimes two sets of overalls and linen headwear are provided; where one set only is supplied, the worker is expected to provide an additional set.

### **RECRUITMENT.**

Boys and girls start at the age of 14. Intelligence, neatness and nimble fingers are required. Personal cleanliness is essential, particularly the hands and hair. Most of the girls start in the packing department, but some are used for odd jobs, such as carrying materials for the adult workers. Later those who are physically capable of the heavy work may be used on work at the ovens. Others proceed to machine feeding, soldering,

wrapping, carton making, labelling, etc., and those who show the necessary aptitude may be employed in the icing and creaming departments.

Most boys start by assisting on oven work and in the flour lofts, where they have opportunities to learn the work of flour mixing. Some are used as van boys, or on carrying between departments by trucks. If the firm prepare their own paper, etc., in stationery and printing departments, some boys may be trained as machine minders on this work. Van boys who do not become motor drivers at the age of 18, may either be engaged on loading flour into the mixers or on loading motor vans.

Firms invariably prefer to train and promote their own workers for responsible posts such as checkers and charge hands. Continued education at an Evening Institute is a necessary qualification.

### DESCRIPTION OF PROCESSES.

*Mixing and Baking.*—These departments are staffed mainly by men. The flour, sugar, eggs, milk, butter, treacle, etc., are mixed by machines into dough which passes through a "break" machine which rolls the dough into smooth sheets. These sheets are stamped out by machine into the desired shapes of the biscuits (the scrap returns to the break machine). The shapes pass on a slowly moving conveyor through the ovens, which may be as long as 90 ft. The speed of movement and heat are so adjusted that the dough is properly baked when it reaches the further end of the oven, the time taken varying from six to thirty minutes. This process is usually supervised by skilled bakers.

*Icing and Creaming.*—After cooling the biscuits are coated with sugar or chocolate in liquid form, usually by adult women, as a hand process. The sandwiching of cream between biscuits is usually done by machines attended by women and girls.

*Packing.*—The biscuits are weighed and packed into tins, cartons and packets. Airtight packing in cartons has largely superseded the use of soldered tins, which are, however, still used for export. The packing of assorted biscuits is arranged by passing the tins or cartons along a conveyor in front of girl packers, each of whom adds selected biscuits according to a special plan. One layer is usually filled on each complete journey.

### WAGES.

*Girls* usually start at 12s. per week, rising to an average piece work wage of 20s. at 16 and to a maximum of about 45s. per week as adult workers.

Boys start at about 13s. 6d., rising to about 22s. at 16, and as adults, to rates varying from about 30s. to 70s. per week according to age, experience and nature of employment.

### **HOURS.**

The working week is normally 44 to 48 hours, which in some cases are worked from Monday to Friday, leaving Saturday as a holiday.

### **BUILDING AND ALLIED TRADES.**

#### **AREAS.**

The industry is carried on throughout Greater London. The headquarters of the principal firms are found mainly in the areas of Borough, City, Camden Town, Edgware Road, King's Cross, Walham Green, Westminster and the West End.

#### **ORGANISATION.**

The size of the firms varies considerably—from the small employers (some of the "one man and a boy" type) who undertake jobbing repairs, to the large concerns employing hundreds and in some cases thousands, of men in the construction of churches and schools, business premises and housing estates. The industry may be divided broadly into two main branches: (1) the erection of new premises (houses, commercial buildings, institutions, etc.) many involving constructional iron work, and (2) the repairing and redecorating of existing buildings.

Many firms undertake both branches of work, and operatives are often transferred from one to the other, but the nature of the industrial experience gained, particularly in the case of boys, varies according to the type of building upon which they are employed. Certain parts of the builders' work are performed on the firms' establishments, e.g., the wood machinists; carpenters and joiners are able to prepare various sections of the woodwork in the workshop, the stone masons are able to cut and dress the stone in the yards—but the actual erection takes place on the site of the contract.

#### **TRAVELLING ALLOWANCES.**

The worker occasionally has to travel long distances, sometimes outside Greater London, to his job. In certain cases daily travelling allowances are paid to apprentices and learners by the employers, and a boy entering the building industry must recognise that he will be required to make these journeys. Again, a number of the larger firms undertake contracts beyond a daily travelling distance, and skilled men, together with the



boys working with them, are occasionally transferred to those centres, in which case an allowance for lodging is paid by the employer.

### **DEVELOPMENT.**

Under modern conditions a number of important changes are taking place in the industry which influence to some extent the position of skilled men in certain occupations, and the recruitment of boys. For example, the development in iron, steel and ferro-concrete in works on construction, the increasing use of mechanical aids, of steel window frames, etc., and of asphalt, affect the position of bricklayers and masons, carpenters and joiners, and paviors respectively.

### **SEASONAL EMPLOYMENT.**

The industry is to a certain extent seasonal, more especially the decorating trade, in which the work is carried on at intermittent periods. Much of the work is outdoor and cannot be performed in wet and frosty weather, first because the worker would suffer in health, and secondly, because work, such as outside painting would be spoiled. Some firms, however, endeavour to arrange that as many men as possible are employed on interior work during the winter season, thus reducing to some extent the time lost in consequence of unfavourable weather conditions.

### **RECRUITMENT.**

For the skilled occupations, a good standard of general education is necessary and in all occupations good health and strong physique are essential. It is sometimes urged that certain building occupations are suitable for boys with weak chests because of the open air work, but this is not to be commended. In any case, such boys should not be admitted to the stone cutting, carving, etc., occupations. A knowledge of drawing and design is an essential qualification in several of the occupations particularly carpenters and joiners, cabinet makers and plumbers, and some artistic inclination is required of painters, signwriters, mosaic workers, stone carvers and plasterers, more especially in the higher branches of these occupations. The main qualifications for youths entering the semi-skilled and unskilled occupations are physical strength and agility.

In the smaller firms, boys are engaged by the employer, in large firms the selection is made by the manager in charge of a contract or by the foreman in a workshop. Those recruited to learn a definite occupation enter either as (a) indentured apprentices, or (b) learners under verbal agreement, and are admitted between 14 and 16 years of age, seldom later, except in the case of boys who have been in continued attendance at a Secondary, Central or Technical School.

*Apprentices* are selected usually by a representative of the management and some firms require written applications. Preference is generally given to the sons or relatives of men in the industry. Normally premiums are not required.

A scheme has been agreed by the London Joint Apprenticeship Committee, representing the London Master Builders' Association and the London District Council of the Federation of Building Trade Operatives. It provides that all boys learning a skilled occupation, after serving a probationary period of not less than one month, must be indentured, but not before they are 15 years of age. The period of training is a maximum of five years and a minimum of four years; a boy who has completed satisfactorily at a day technical school an appropriate course of instruction may have the period so served counted as part of the apprenticeship. There are separate schemes for apprentice plumbers and apprentice painters employed by firms in the Plumbing Trade and the Painting and Decorating Trade, respectively. In their main features the provisions of these two schemes are similar to those stated above for apprentices employed by builders.

A similar scheme is in operation in the Mosaic Trade, an important feature of which is the encouragement given to the recruitment of British boys to this occupation which, in the past, has been carried on almost exclusively by foreign labour.

*Improvers.*—In the industry there is a class of "improver" (distinct from the ordinary post-apprenticeship improver). They are youths who enter the industry with the intention of learning a particular trade and gain experience in their association with craftsmen. They move from one firm to another at more or less frequent intervals, thus acquiring a knowledge of the work required in that occupation, and eventually become recognised as craftsmen. Many youths in training in the industry in London become skilled workers in this way as distinct from those serving a recognised apprenticeship.

### TOOL KITS.

In some of the occupations a large and expensive kit of tools is required. Assistance in obtaining this is sometimes available by application to various charities, or some employers will advance on repayment terms.

### DESCRIPTION OF THE PRINCIPAL OCCUPATIONS.

*Bricklayers* have to know how to mix mortar and how bricks are laid to form different bonds. Skill in the use of the trowel is acquired first by "filling in" and building rough outside and inside walls. Subsequently the youth is taught outside facing work, erection of fireplaces, chimneys and arches, how to cut and rub mouldings and generally to work to gauge and

plumb line. Bricklayers working for smaller firms sometimes do wall-tiling, etc. *Masons* are of four kinds:—(1) *Banker masons* who, by means of saw, mallet and chisel, cut and dress or trim the stone surface either at the quarries or in the builders' yard; a proportion of this work is done also by machinery. (2) *Mason fixers* who place and fix the prepared stone blocks in position in the building under construction. Most masons are able to undertake both these branches of work. (3) *Monumental masons* and *stone carvers* cut out designs on stone or marble and also do letter cutting and engraving. This work is more highly skilled than that of the other three occupations. (4) *Paviors (or street masons)* work with mallet and chisel. They fix granite sets, cut flagstones, etc., and lay them to form footways, kerbstones, roadside channels, and gutters. This is heavy work and requires considerable strength and sound health. These men are more usually employed by public works contractors and local authorities.

*Carpenters and Joiners.*—These were formerly regarded as separate occupations and this practice still prevails to a large extent. The joiner generally works at the bench in the workshop making stairs, doors, cupboards, etc., which are subsequently erected in the building by the carpenter who is more usually engaged on the job and whose work also includes fixing floors, skirtings, window frames, roofs, etc. Both have to use a variety of tools (hand and machine) and work to exact measurements. Carpenters and joiners trained in the building industry may also be employed in other industries, e.g., ship-building and, in addition, are often found on the maintenance staffs of collieries, factories, etc. A large and expensive kit of tools is required by carpenters and joiners.

*Plasterers.*—This occupation requires a variety of skill according to the kind of work and finish. The boy has to learn the making of plaster which is a composition of lime, sand, hair and water mixed in various proportions; plaster of paris, portland cement and other cements are also used. For internal work on walls and ceilings, the material is skilfully applied with a "float" in successive coats, the final coat presenting a perfectly smooth surface. Plain mouldings or cornices are made by running a mould of zinc cut to the required profile. Models and casts in slabs or panels of fibrous plaster are made in the workshop and fixed in the building and require a high degree of skill. Some of the work is heavy and boys should have sound constitutions and possess an artistic sense, especially for the more delicate fibrous plaster work.

*Plumbers* do all kinds of lead and copper work, including the fitting of all classes of piping for water, gas and drainage. They have to know how to make water-tight and air-tight joints, and acquire knowledge of the principles of drainage, etc. A

knowledge of welding is an advantage in view of the extensive use of copper piping. A boy begins by learning practical work in the workshop and later works on a job. A large kit of tools is required.

*Painters and Decorators.*—The work of these men includes the painting of wood and iron work, whitewashing and distempering, as well as the more skilled work of varnishing, graining, enamelling, stencilling, and wallpaper hanging. Few men are able to undertake all these branches and, in the main, a youth who has received a general training will specialise in one or more branches, e.g., he may become a grainer and enameller. The increasing use of spray guns for paint work, is becoming also the work of a specialist. A boy has to learn how to mix paints, the matching of colours, the use of the brushes, "filling-in," etc. He begins on the rougher kinds of work such as the painting of outdoor iron palings and is introduced gradually to higher grades of work. Specialisation may come during the last year of apprenticeship or later when the youth has qualified as an all-round painter and decorator.

*Signwriters.*—This is a varied occupation closely allied to that of the painter and decorator, but often of a more delicate nature. It includes signwriting and painting on glass, wood, cloth, etc., poster writing and printing, facia work and incised lettering. Apprentices usually begin by painting and otherwise preparing the background, subsequently the preparation and carrying out of the design in colours, and later the application of gold leaf would be learned. In certain branches of the work spray guns are used. Ability to draw, a good eye for colour and a definite artistic sense are essential requirements.

*Glaziers.*—The glazier cuts the sheet glass to size with a diamond tool and sets it in a wooden or metal frame with putty or cement. A modern tendency is the adoption of "patent glazing" which consists of glass fixing by metal clips and lead strips. Lead glazing requires varied skill according to the nature of the design. This is sometimes a specialist occupation, but in some cases it is combined with that of painting and decorating or that of plumbing.

*Slaters and Tilers.*—The boy has to learn to sort slates, trim their edges and pierce holes for nails, to nail tiles and slates to roof battens, to cut slates and tiles to special shapes, to fix ridge tiles and to torch ridges and roof edges by filling in spaces with mortar. Wall-tiling is sometimes done by bricklayers and masons.

*Mosaic workers* represent a small specialised occupation requiring considerable skill and artistic sense. In simple floor mosaic work small pieces of marble, stone or glass are floated or laid in a suitable cement and subsequently polished by the

*marble polisher*, whose work is not so skilled. The mosaic worker has to cut his material into suitable shapes and sizes and the highly skilled craftsmen can interpret a design and produce the pictorial effect desired in stone, marble or glass. The design is often prepared in the workshop.

*Heating and Domestic Engineers.*—The work of these men overlaps to a certain extent that of the plumber, gas fitter and coppersmith. They carry out hot water supply work and other work not in lead, in connection with heating, laundry, cooking and general hot water supply service in which iron, brass, copper and other hard metal piping is used.

*Other Skilled Occupations.*—Among other occupations found in the building industry are *woodworking machinists, cabinet makers, french polishers, electricians, lead burners* and *riveters*. In the main these belong to other industries and are described in the appropriate section of the handbook.

*Semi-skilled and Unskilled Occupations.*—The skilled operatives in all the occupations named are assisted by *labourers*, some of whom do work of a general character, while others, e.g., *bricklayer's labourer, plumber's mate*, etc., are attached to men in a particular occupation. The work of the latter is generally of a semi-skilled character and requires a certain amount of training. An important occupation in all branches of building, particularly constructional work, is that of the *scaffolder and timber man*, who erects the scaffolding preparatory to the work of construction. Relatively few boys are employed on ferro-concrete in which the steel framework is manufactured. The workers are mainly adult labourers with a limited number of skilled men engaged in erecting the girders, etc., and semi-skilled men on the mixing, etc., machines. Youths who have worked as rivet boys in ship-repairing yards would find that experience helpful in connection with the riveting and erection of iron and steel girders, etc., in constructional engineering factories and on building sites. (See Ship Repairing, page 78.) In addition there are transport workers—*drivers* of motor and horse-driven vehicles, but few vanboys are employed. On large constructional works, *crane-drivers* are engaged in lifting the heavy iron-work, etc.

## TRAINING.

The main part of a youth's training takes place on the job, but in certain occupations a period in the workshops is customary; in the case of *joiners* the whole of the training period is spent in the workshop. Among the *woodworking* occupations, for example, the boy working with a craftsman and under the supervision of a foreman would learn the use and care of tools (an important feature in all the skilled occupations) the different

kinds of wood, the making of various types of joints and other features of the skilled man's work. On the job, he would learn to fit together the parts of wood prepared in the workshop, e.g. roofing, wainscoting, doors, staircases, etc. Again the apprentice *banker mason* will learn in the yard how to saw, dress and machine blocks of stone preparatory to fixing them on the building. In the case of *painters*, practice in the finer work, e.g. graining, marbling and enamelling, is sometimes given in the firm's workshop while the *plumber* apprentice will also learn jointing and other phases of his work. In the main, however, practical instruction takes place on the job and the boy learns by working side by side with a craftsman in his particular occupation. He is given simple and rough work to begin with and graduates towards the more difficult and finer parts of the work. In some firms, in which the training of apprentices is well organised, a definite scheme by which certain periods are allocated to particular classes of graded work, is in operation.

Apprentices employed by firms engaged on large housing contracts are frequently limited in the scope of training available to them. Similarly those employed by smaller firms engaged on jobbing repairs are handicapped, and it is essential in these instances that the training on the job should be supplemented by appropriate technical instruction. Generally, few apprentices other than a limited number of bricklayers and masons are engaged on the large constructional contracts, where often the best class of work is done and a youth may have to wait until he has completed his apprenticeship before obtaining this kind of experience. A suitable place for an apprentice to receive sound training is usually in small firms engaged on good class work where the probability of a varied and all-round training is more likely.

There is no recognised system of training for the semi-skilled occupations—the youth “picks up” his knowledge in day to day work. In the case of unskilled occupations there is no training.

*Technical Classes.*—All apprentices and learners, irrespective of occupation, should attend Technical Classes. Some firms allow time off during the normal working hours to enable apprentices to attend appropriate classes. In the main, however, apprentices are able to attend Evening Classes only, and these are available at various Evening Institutes (see page 244). These classes are generally organised as (a) courses of general education with a technical bias, and (b) on an occupational basis, e.g. classes for carpenters and joiners, for painters, for plumbers, etc. It is helpful for all apprentices, irrespective of occupation to learn the elements of building construction, building drawing and building calculations. Particulars of examinations for the award of certificates and diplomas are obtainable at the Technical Institutes. 4

### PROGRESS OF EMPLOYMENT.

Many apprentices serve a period as improvers or young journeymen before they are recognised as craftsmen in their respective occupations, which, ordinarily, is at 21 years of age. The period varies from three months up to two years according to the practice of the individual firm.

Boys trained for one of the skilled occupations may become foremen, clerks of works, or works managers provided they show the necessary ability in their practical work, have applied themselves to their technical training and possess an appropriate personality. Some skilled men become estimating or costing clerks, after suitable technical instruction. The possession of a certificate or diploma would be a valuable asset.

### WAGES.

The wages of craftsmen and labourers are calculated on an hourly basis, and subject to fluctuation in accordance with the official Cost of Living figure. The rates paid to craftsmen, labourers and apprentices at the end of 1937 are given in the following scale:—

Occupation.	Within 12 mile radius from Charing Cross.	Area between 12 and 15 mile radii from Charing Cross.	Apprentices (propn. of Craftsmen's hourly rate).						
			1st year.	2nd year.	3rd year.	4th year.	5th year.		
	Per Hour. s. d.	Per Hour. s. d.							
Mason Fixers ...	1 9½	1 9	1/5th	1/4th	1/3rd	½	3/4ths		
Bricklayers ...	1 8½	1 8							
Masons ...									
Carpenters and Joiners ...									
Machinists ...									
Plasterers ...									
Plumbers ...									
Painters ...								1 7½	1 7
Marble Polishers ...								1 6½	1 6
Scaffolders and Timbermen ...								1 4½	1 4
Labourers ...			1 3½	1 3	—	—	—	—	—

In other skilled occupations the rates are similar to those for bricklayers, etc., but in the case of electricians and certain other workers the rates correspond with those paid in the main industry to which they are attached. During the *improvership* period the wages are higher than those for apprentices, varying from 44s. per week to 73s. per week, according to the firm and occupation concerned.

*Improvers* (other than post-apprenticeship improvers) under the age of 21 are paid *minimum* wages in accordance with experience, based on the apprenticeship rates.

### **HOURS.**

The outdoor nature of the industry and the difficulties of providing artificial light govern the number of hours worked, which are 44 per week throughout the year. These are increased by overtime, however, in accordance with agreements between employers and operatives as required by circumstances.

### **CLOTHING TRADES (OTHER THAN BOOTS AND SHOES).**

The clothing trades cover one of the largest groups in the Greater London area. Women and girls are in the majority in the trades, though a good number of men and boys are also employed, and much of the skilled work is carried out by men.

While certain of the branches tend to merge into one another, ladies' tailoring, for instance, into dressmaking, dressmaking into blouse making, blouse making into the making of underwear and other clothing, the trades fall into certain broad groups, according to the type of garment made and the method of manufacture. As regards the textile clothing trades, there is a broad distinction between the making of non-tailored and of tailored garments.

### **TRADE BOARDS.**

The grouping adopted for the purpose of the Trade Boards Act has been generally followed in this summary.

Rates of wages offered at the beginning of 1938, have been quoted in certain instances by way of illustration, but for the current statutory *minimum* rates of wages payable under the Trade Boards Acts reference should in all cases be made to the current Trade Boards notices. A list of Trade Boards with an important note on Learners' Certificates is given in Appendix C.

### **RECRUITMENT.**

All workers in needlework trades should have good eyesight, and cool dry hands with flexible fingers, particularly in dressmaking, millinery, lingerie and embroidery, where delicate work and expensive fabrics are easily injured.

The trades offer openings for many different types of boys and girls, but the work done and the conditions under which it is done vary so widely that before advice about entering the trade can be given to any particular boy or girl it is necessary for the adviser to have some knowledge not only of the branch of the trade but of the individual firms concerned. London girls, and in some branches boys, are fortunate in the wide opportunities which are open to them for training in the highest class of work.



## TRAINING.

In this connection special mention may be made of the system of Day Trade schools for girls which provide, inter alia, vocational training combined with general education, and drawing and design in the needlework trades. A girl passing through a Trade school has the opportunity of training in all the various processes of her trade, including the more advanced processes, such as cutting and fitting, which are not usually within reach of the beginner who enters the workroom in the ordinary way. In addition, facilities for instruction in trade processes are offered in evening trade classes and every advantage should be taken of these (see pages 251 to 253).

## SEASONAL EMPLOYMENT.

In some branches of the trades employment may be somewhat seasonal in character and in the slack seasons short-time may be worked, particularly in the case of work connected with ladies' garments, which depends largely upon fashion. Still, a boy or girl who has been trained in one of the higher branches of the trade in a good firm and has made use of the opportunities offered by trade classes should be reasonably sure of regular and well-paid employment.

## HOURS, HOLIDAYS, ETC.

The physical conditions of work in the trades as a whole are good, with the exception of some branches of the tailoring trade. The hours are not long on the whole, varying from about 45 to 50 per week. The Factories Act (1937) stipulates 44 hours per week for juveniles between the ages of 14 and 16, and 48 hours per week for those between the ages of 16 and 18, and adult female workers. The holidays given vary considerably. The large West End houses usually allow a fortnight's holiday with pay after a year's service; otherwise the usual public holidays are given but there is no uniform practice about annual holidays, although the system is increasing.

## PRIVATE RETAIL DRESSMAKING.

Private retail dressmaking ranges from the trade of the high-class Court Dressmaker where the number of workers employed may vary from 30 to 100 or more to that of the small local employer who works with one or two juniors. Though there are openings for men as designers and cutters the trade is mainly in the hands of women. The best work is done by West End firms in London and girls trained in good West End workrooms would be accepted anywhere, but it is not always easy for girls to pass from less high class firms into first class West End

houses. It should also be noted that the great development of recent years in the ready-made trade, while it has not appreciably affected the work of the highest class of West End dressmaker, has very much lessened the demand for dresses made by the "little" dressmaker. There are, therefore, considerable advantages to a girl in getting straight into a firm doing the best class of work in the West End.

### RECRUITMENT.

A girl starts as learner—formal apprenticeship is not usual—and may go into the workroom, showroom or stockroom. She generally remains in the same department in which she starts her training, but is sometimes transferred from one to the other according to her suitability.

### TRAINING.

Girls work under one of the older workers whom they help, and thus gradually learn to handle the materials which are in use. Progress depends upon industry and powers of observation, as well as general good temper and usefulness. In the best workrooms, girls are taught to make dresses throughout including the cutting from patterns and this general training is very important. All the best work is done by hand, but there is also a certain amount of machining done by machinists. From learner, a girl becomes an improver, generally in the third year of training and after that an assistant. After remaining as an assistant for a year or two she becomes a gown hand. She then receives the work direct from the fitter and is assisted by other girls. Firms do not undertake to train girls to be fitters as part of their normal training but quick and intelligent girls are given the opportunity of learning this part of the trade which is highly paid. Whether a learner passes beyond the stages of assistant or not, depends upon her own initiative, her mastery of the trade, and power of managing staff, but if she becomes a competent fitter she is always sure of well paid employment.

Certain employers in the West End allow attendance for two half days a week at the Barrett Street Trade School, Oxford Street, W. A preliminary training in this occupation is also to be obtained at the schools indicated on page 251.

### SHOWROOM.

In the showroom a learner starts under a saleswoman and acts as assistant in bringing gowns and materials for a customer to select. A knowledge of the artistic value of materials and the power of dealing with the requirements of individual

customers is gained in this way. As a rule in the best show-rooms, learners are not taken under the age of 16. Appearance, height and manners are important. For a girl with practical training, who has some appreciation of colour, form and line, and can put down her ideas as a rough sketch, the showroom may be the training ground for designing, which is the most highly paid in the dressmaking trade.

### STOCKROOM.

In the stockroom a learner starts by running errands and matching colours and materials, helping the stock-keeper, whose business it is to keep the workroom supplied and to give orders to travellers. The work is semi-clerical since careful records have to be kept of the stock and materials and it would be suitable for a girl who has some inclination for clerical work. The stock-keeper's work is highly responsible and is well paid.

### WAGES.

Statutory *minimum* rates of pay are laid down by the Dress-making and Women's Light Clothing Trade Board, but showroom work is outside the scope of the Trade Board.

The current *minimum* rate for boy workers under 15 is 10s. per week and for girl learners in the first six months is 9s. per week, then 12s. per week during the second six months, rising to 25s. per week in the fourth year. The adult female rate in London after four years of learnership is 8d. per hour but a special rate of 9½d. per hour is fixed for leading hands who take work direct from the fitter and make up without supervision (other than general supervision). Many employers, however, offer to all grades a wage above the minimum Trade Board rate. See also Trade Board notices W.D. (28) and (29).

### WHOLESALE DRESSMAKING AND WOMEN'S LIGHT CLOTHING.

This branch of dressmaking is a very large one. There are openings for men as cutters but here again most of the processes are carried out by women and girls. The methods of manufacture apply generally to all garments not made to individual orders, with certain exceptions referred to later. The branch covers a group of trades which are carried on separately, but tend to merge into one another, embracing all kinds of women's clothing that is not definitely tailored, and includes baby linen and children's garments. There is the greatest difference in the quality of the work done. It ranges from the higher classes of dresses, blouses and lingerie made in workrooms for West End shops, down to coarse aprons and overalls made under

factory conditions. The firms engaged in this class of work are found all over Greater London. Where the best work is done, the conditions approach those of private dressmaking. The gowns are made for retailers in a wide range of measurements, even to individual measurements, and are fitted up on stands. The training given in any of these workrooms to learners is good and the materials used are of the highest quality. In the West End trade girls learn to make garments throughout, though from the fact that the work is less individual and that there is a good deal of repetition of the same models, there is not, generally speaking, the same scope for taste and individuality as in the private trade. In accordance with the class of work and the amount of repetition, the trade lends itself to sub-division of processes and the training becomes less complete. Workers starting in certain branches of the wholesale trade cannot transfer easily to private dressmaking. Only by knowledge of individual firms and of the class of work done can it be said whether learners get a really satisfactory training or become skilled only over a narrow range.

### DESCRIPTION OF THE PROCESSES.

As the amount of repetition work increases the difference between private retail and wholesale trade becomes more marked and the method of manufacture tends to become that of the factory, with the gradual substitution of machine for hand work and an increase in the sub-division of processes. This gives rise to a different organisation of work and class of worker in which the machinist using either treadle or power-driven machines plays a large part. In the wholesale trade the workers can be divided broadly into the following classes: (1) cutters, (2) machinists, (3) finishers, (4) pressers and boxers.

*Cutting*, which is a skilled and highly paid branch of the trade, is done both by men and women and the latter, as a general rule, are engaged in cutting the light materials. Boys and girls are employed as learners to be trained as cutters. Cutting is sometimes done by hand, but where a number of garments are to be cut to the same model, as is usual in factories, the cutting is done by a power-driven knife. Knowledge and skill is required to avoid waste of material. A knife driven by a small electric motor is sometimes used by women. It has the advantage of being portable and can be used in any part of the cutting room. The cutter hands the garments when cut out to the machinists who piece them together without tacking and machine them.

*Machining* is a very important part of the clothing trade generally and it is not confined to any one branch. It is almost completely the work of women and girls. The machines are either treadle or power-driven, and practically every operation

in making up garments, except cutting and finishing can be found to be performed on one or other of a variety of machines. The machining is rather noisy work, especially in a large factory where power machinery is mainly used. The machinist must not only have a good knowledge of her machine and be able to regulate the speed of it, but must also be able to piece together very accurately parts of the garments on which she is working. Since speed in production is essential, there is a tendency for the work to become highly specialised and for a girl to learn to machine only one kind of garment and to use only one kind of machine. By continual repetition in this way she becomes an expert within a narrow range and is able to work at high speed. The fact that the machinist when trained is generally paid at piece-work rates has the effect of encouraging specialisation. Thus girls become expert machinists, for example, on blouses, skirts and lingerie or on parts of garments such as sleeves and buttonholes, but they are unable to pass from one to the other without additional training, and the machinist who has been earning good wages may find herself out of work through slackness in her particular branch or due to a change of fashion. Where specialisation is carried to a high degree there is a growing tendency to give a wider training to the workers in order that their services may be used more fully, especially in times of seasonal slackness.

*Finishing, Pressing and Boxing.*—After the machinist has finished her share of the work, the garment is passed to the finishers who do such work by hand as cannot be done by machine, for example, putting in fastenings, threading ribbons and sewing bands, etc. The finisher's work is the least skilled and arduous in the clothing factory and for that reason girls starting as learners are often employed on finishing. In this way they gain a knowledge of the type of garment made before they are put on to the machine. When the garment is finished it is pressed and placed in boxes by pressers and packers, who are usually women in a factory where the output is women's clothing. Pressing is often done by hand.

### RECRUITMENT.

Learners in a clothing factory must be quick and strong and have good eyesight. Slow, nervous girls are not likely to make good machinists. A learner should aim at getting as wide an experience as possible in using machines while she is young.

### TRAINING.

A girl learner of 14 may start as a machinist working under an experienced hand who shows her how to piece together her work and use her machine. Generally, it is the practice to start as a finisher or as a messenger running about between the

departments, since in this way a learner gets used to factory conditions and gains some knowledge of the kind of work done before she starts the rather arduous work of machining. Moreover, a worker is entitled under Trade Board regulations to count this "runabout" experience as part of her learner-ship provided it does not exceed six months. Girls are often anxious to start machining quickly because of the high rates that can be earned on piecework and are generally started within a few months of their engagement if they are suitable. They are often unwilling to learn a new operation since it means a period of training, even though they will ultimately earn higher rates on more skilled work.

Learners when trained as machinists usually remain as "general hands" but a few who are specially clever may become "sample hands" who put together specimen garments under the direction of the cutter and designer. Others may assist in overlooking the work on a number of machines. It is also possible, but not usual, for a machinist to become a designer, which is a special and highly skilled occupation and generally requires a special training such as that obtainable at the Barrett Street Trade School. In small firms the proprietor or manager, whether man or woman, is often the designer. The tendency to purchase designs from special firms has meant also less scope for designers in small firms.

### WAGES.

The *minimum* rates are fixed by the Dressmaking and Women's Light Clothing Trade Board. In London the rates for male workers and for female learners are the same as in the Retail Bespoke Branch of the trade. The adult *minimum* rate for females is, however, lower—7½d. per hour—and there is a special *minimum* rate of 8d. per hour fixed for machine workers (other than learners) when the work is conveyed direct to or from the worker on a mechanical conveyor belt. The *minimum* rate for men cutters with not less than five years' experience as cutters is 1s. 6d. per hour. See also Trade Board notices W.D. (28) and (29).

### SHIRT, PYJAMA AND COLLAR MAKING.

#### AREAS.

A large proportion of this work is carried out in factories, mainly in the areas of Bermondsey, Borough, Camberwell, City, East Ham, Hackney, King's Cross, Leyton, Shoreditch, Stratford, Walthamstow and Westminster. A small amount of high-class bespoke work, including the making of white dress shirts, is done also in the West End.

## CONDITIONS OF EMPLOYMENT.

The work is light and has the advantage of being regular. It is little affected by changes of fashion, though there is a certain amount of seasonal fluctuation.

## DESCRIPTION OF THE PROCESSES.

*Shirts and Pyjama Making.*—The processes of manufacture are similar to those described for other machine-made garments. The cutting is mainly done by men with a hand knife, electric knife, or power-driven band knife. Women sometimes do the laying up and marking out of the material for cutting and also the actual cutting out. The machining consists of a number of processes by which the garment is put together, the button holes being made invariably by machine and buttons sewn on either by hand or machine. In some factories the processes are much sub-divided and it is sometimes difficult to persuade a girl to learn a new operation even though it would be to her ultimate advantage, but in other cases the girls are taught the machining throughout. The most skilled work is the making and fitting of yokes, collar bands and cuffs. Buttonholing and buttoning are regarded as special processes for which there are separate machinists. Skilled machinists usually operate machines capable of making 2,500 to 3,500 stitches per minute. They should be able to regulate the feed of the cotton through the machine, change the cotton spools and alter the stitch sizes. Running repairs to the machines are done by mechanics. After machining, shirts are examined and either laundered or pressed and boxed. Some factories have laundries attached.

*Collar Making.*—The making of men's collars is a distinct branch usually carried out in establishments specialising in the work, they are made also, however, by a number of firms who manufacture medium grade and high class ready-made shirts. In such cases the collars are made in a separate department. There is little or no interchange between the workers employed on the two kinds of work.

The main processes are laying up and cutting the materials, stamping the size number and retailers' name inside the band, machining the parts together, putting in the button-holes, laundering and boxing for despatch. In the work of assembling, the two outside pieces of cut material are placed face to face with the interlining on top, they are then passed to a machinist who "runs" a row of stitching around the top and sides of the upper part of the collar (leaving open the bottom) and around the bottom and sides of the band (leaving open the top). The top and the band are next turned right side out by a worker known as a "creaser" or "turner". A machinist afterwards

inserts the open part of the top into the open part of the band, fixing them in position by one or two rows of stitching. The making operations are finally completed by stitching round the edges of the collar and the band and putting in the buttonholes. After laundering and boxing the collars are ready for despatch.

### RECRUITMENT.

Learners start at 14 years of age, girls as messengers, and help generally in the factory. Boys learn cutting. Good eyesight and flexible fingers are essential.

### WAGES.

The *minimum* rate fixed by the Shirtmaking Trade Board is 9s. per week for girl learners—though some firms pay 10s. to 12s. per week—rising to 25s. per week during the fourth year of employment. Machinists are paid at piece-work rates, which yield about 34s. per week or more. The *minimum* rate for boys under 15 years of age is 11s. per week, rising to 26s. per week at the age of 18. Male cutters over the age of 22 earn from 56s. to 76s. per week according to experience with increased rates for piece work. See also Trade Board notice S. (17).

### RETAIL BESPOKE TAILORING.

This includes the making of all kinds of tailored garments either for men or women which are supplied to the orders of individual customers.

### RECRUITMENT AND TRAINING.

Where the work of retail bespoke tailoring is done under ordinary workshop conditions, with suitable accommodation, either on the premises of the employer, or in workshops away from the employer's premises, the most difficult and best paid work, coats, trousers and breeches, is carried out by men. Boys have opportunities of apprenticeship from the age of 14. In waistcoat making, either men or women may be employed on this type of garment. These conditions prevail in West End workshops, and also in the East End, when work is done to the order of individual customers. A training in all these sections is not usually given over the same period, as the demand is one craftsman for coats, and another for each of the various types of garments. The Regent Street Polytechnic provides a three-year course for boys from the age of 13, where the training enables them to enter the trade as apprentice improvers. They are also admitted to a two years' major course from the age of 16.



In the case of some of the high-class West End firms who have their own workrooms for ladies' tailoring, men, women and girls are employed under the direct supervision of the cutter. Girls are engaged as learners at the age of 14, but some firms prefer older girls from Trade Schools who enter as improvers at about the age of 16. Learners in these firms obtain a thoroughly good training in each branch of the work with the exception of cutting. Instruction in drafting and cutting may be obtained, however, at the evening department of the Regent Street Polytechnic.

### DESCRIPTION OF THE PROCESSES.

The work falls into three divisions: (1) cutting, (2) making up and (3) designing.

*Cutting* is a highly-paid branch of tailoring and, in the retail trade is confined to men. The cutter takes the measurements of the customer, cuts the material, does the fitting on and supervises the making up. A good knowledge of the work of a sewing tailor is indispensable and cutters themselves have mostly risen from the ranks of tailors who have taken up cutting after their sewing experience and have generally attended special technical classes. Apprentices or learners to tailoring do not learn to be cutters as part of their training.

*Making up*, that is, the actual putting together of the cut-out garment, is done by men with the assistance of women. The best work is carried out mainly by hand, such machining as is necessary being done by men or sometimes by women machinists. High-class firms in the West End sometimes do the making up on their own premises. More usually the making up is given out to journeymen tailors, who either hire a workroom or a share in a workroom where they carry out the making up right through, sometimes with several assistants as well. They also work at their own homes with the help of their families. These journeymen outworkers are more or less independent of the firms who employ them. Though they are highly-skilled workmen, capable of training boys and girls, and often do take young apprentices straight from school and teach them to make garments throughout, employment with an outworker should not be recommended either for boys or girls without a personal knowledge of the conditions. Retail bespoke work is also give out to sub-contractors, really small manufacturers, who are referred to under Ready-Made and Wholesale Bespoke Tailoring.

*Designing*.—There are very good openings in ladies tailoring for designers. This is a most skilled branch of the trade, but a first-class training in the operative side is most important.

## WAGES.

*Minimum* rates of wages are fixed by the Retail Bespoke Tailoring Trade Board, but the pay given often exceeds the minimum rate fixed by the Board. Payment is usually on a piece work system, the rates being known in the trade as "time log" rates.

Boys start as apprentices at *minimum* rates between 6s. and 7s., and girls at between 4s. and 5. per week, according to area. Boy learners start at *minimum* rates between 8s. and 9s. and girls at between 5s. 6d. and 6s. 6d. per week according to area. Apprentice-improvers begin at about 25s. per week in the West End. For a skilled tailor the *minimum* time rate is between 52s. and 72s. per week, and for a tailoress between 32s. and 40s. per week, according to area. Further particulars regarding *minimum* rates and definition of areas are indicated in Trade Board notice R.B. (L) 13. Some firms allow one week's holiday with pay.

## READY-MADE AND WHOLESALE BESPOKE TAILORING

This section refers both to ready-made garments, that is to say, such as are produced on a large scale in a variety of standard sizes without direct attention to the individual wearer and also wholesale bespoke garments, which are manufactured by factory methods, even though measurements are taken from individuals. It includes men's tailored garments, and the making of uniforms, liveries and other contract clothing is also covered.

### SUB-CONTRACTORS.

No hard and fast lines can be drawn between the retail bespoke and the wholesale trade. As quality falls off the journeyman tailor takes more and more assistants and becomes a sub-contractor, and the sub-contractor a regular manufacturer. In some lines the highest class of goods are made under wholesale methods of production and many small firms work both for the retail and wholesale trades with little difference in their methods. Inexpensive ready-made garments are also manufactured in much the same way by large firms under factory conditions.

The wholesale trade is centred mainly in the East End of London and is carried out in factories which often employ a large number of workpeople and in small workrooms frequently managed by Jewish tailors who work with their own families. These latter firms are known as "Cut, Make and Trim Tailors". They are in reality sub-contractors carrying out

work at piece rates for larger firms. Some firms do not do any manufacturing themselves, apart from designing garments, but rely wholly on the sub-contracting tailors.

## DESCRIPTION OF THE PROCESSES.

In either case the method of manufacture is similar, the chief difference being that in large factories the operations are much subdivided, power machinery is used, and a high proportion of women and girls are employed. In the smaller factories and workshops more operations are carried out by single individuals, the proportion of men and boys employed is high, and treadle machines are frequently used. Generally speaking, a better all round training is given to boys and girls by the smaller employers.

*Cutting.*—In a large factory there is a special cutting room. Cutting is carried out by men, either by hand or by a power driven knife of guillotine, in accordance with the number of garments to be made from a single model. Boys are employed in the cutting room and assist the cutter. They start on the simpler operations in the room such as marking up, trimming, cutting out linings, etc.

*Tailoring.*—In the better qualities this is highly skilled work, especially in the tailoring of coats. This is nearly always done by men, and consists of shaping, baisting and preparing the garment for the machinist; waistcoats and trousers are often tailored by women. In the small firms the work is carried through by a single individual, but in larger firms it is subdivided into (a) fixing or fitting up, that is to say, assembling all the cut-out parts for machining, including generally the shaping of collars, and flaps and marking pocket holes (b) flat baisting done by an assistant tailor; and (c) baisting and shaping by the head tailor.

*Machining.*—This is generally done by women and girls though some firms, mainly in the East End, employ men machinists. (For machining see page 44.)

*Finishing.*—This includes sewing down linings, sewing on buttons, name tabs and tickets, etc., and is done by hand by women and girls.

*Passing.*—This is the examination of a garment to ensure that it is properly finished and must be done by a worker experienced in tailoring.

*Pressing.*—This is done by men and women or by older boys and girls by hand with irons heated by gas or electricity, but pressing by steam press is on the increase in factories.

## RECRUITMENT.

Learners start at about the age of 14, usually as "runabouts" for about three months during which period they learn to clean work, that is, take out baistings, etc. They are then drafted to one or other of the sections. The trade offers permanent employment to skilled workpeople, but is liable to seasonal fluctuation, the busy season being from March to July. The conditions are, on the whole, better than in the retail trade, especially when the work is done in well lighted factories. In some of the small firms, however, the conditions are less satisfactory.

## WAGES.

*Minimum* rates of wages are fixed by the Ready-Made and Wholesale Bespoke Tailoring Trade Board. At present, girl learners start at a *minimum* rate of 9s. per week, rising to 25s. per week in the fourth year. Boys under the age of 15 start at 10s. per week, and rise to 46s. per week at the age of 21. The *minimum* rates for skilled adult male workers vary from 48s. to 79s. per week, according to occupation, experience and age. The *minimum* rates for adult female workers are 30s. to 34s. per week, according to occupation and age. Piece-work rates yield slightly higher wages to all grades. See also Trade Board notice R.M. (31).

## WHOLESALE MANTLE AND COSTUME TAILORING

This trade includes women's, girls' and children's ready-made and wholesale bespoke tailoring, and also women's, girls' and children's retail bespoke tailoring when carried on in a factory where garments are made up for three or more retail establishments. The conditions are generally similar to those as indicated under Ready-Made and Wholesale Bespoke Tailoring, but a larger proportion of women are employed. The processes include the cutting and finishing by hand or machine, of coats, costumes, tailored skirts, coat-frocks, mantles, service clothing or similar garments made by tailoring processes. For a description of the processes, see under Ready-Made and Wholesale Bespoke Tailoring, which is generally applicable with the exception that the cutting and tailoring may be done by women.

## WAGES.

*Minimum* rates of wages are fixed by the Wholesale Mantle and Costume Trade Board. At present girl learners are paid a *minimum* rate of 9s. per week during the first six months, and rise to 25s. per week during the fourth year. Boys under the age of 15 start at a *minimum* rate of 10s. per week, and proceed to 46s. per week at the age of 21. The *minimum* rates for skilled

adult male workers range between 52s. and 72s. per week, according to occupation, experience and age. The *minimum* rates for adult female workers are 30s. to 34s. per week, according to age and occupation. Piece-work rates yield slightly higher wages to all grades. See also Trade Board notice W.M. (28).

## LADIES MILLINERY, HAT AND CAP MAKING

### MILLINERY.

The millinery trade is divided into two branches, wholesale and retail. The wholesale trade is carried on extensively in London and mainly in the City, Shoreditch, Stepney and West End. The retail trade is found everywhere in Greater London and is carried on in establishments specially devoted to millinery and in workshops attached to drapery firms.

### RECRUITMENT AND TRAINING.

The best class of work is done in the West End both in the wholesale and retail branches. Workers in the best firms are interchangeable, but the training in small workrooms or those attached to drapery establishments varies in accordance with the class of work that is done.

Millinery offers light and congenial occupation to girls with good taste who are clever with their fingers. The chief drawback to the work is that it is dependent on fashion, and that there is generally a slack season in the autumn, when milliners may be required to work short time or are put off temporarily. One of the best types of training is to be gained in the workrooms of Court Milliners where practically every article is made to the order of individual customers; otherwise as in the case of dressmaking it is difficult to draw a distinction between wholesale and retail millinery in the best houses. In either case a learner is taught to make hats right through. The organisation of a milliner's establishment is on the same lines as a dressmaker's, that is to say, a learner may go either into the workroom, showroom or stockroom, and much the same conditions apply (see page 42). A learner starts in the workroom at about 14, and becomes in turn improver, assistant or fully trained hand. She should then be able to make her own shapes, select her own trimmings and to copy models from Paris, or from other firms who make a speciality of designing. For particulars of day and evening classes see page 253.

In the cheaper wholesale trade which is found mainly in the City, but also to some extent in the West End and other districts, the training is not so good, as the work tends to be sectionalised. Hat shapes are bought ready-made and the milliners cover and trim them. A learner would not be taught as a rule to make her

own shapes. In the best workrooms learners go through a course of training and learn trimming throughout, including the copying of high class models, but the colours and trimmings are generally chosen for them, and there is not the same scope for individual taste as in the best West End establishments. In the cheapest trade the workers carry out one operation only.

### **CLOTH HATS AND CAPS AND UNIFORM CAPS AND HELMETS.**

Cloth caps made of flannel, tweed or other material are either made by tailors for individual customers or more generally by wholesale methods in factories. The processes in making these caps in factories are in the main similar to those employed in the case of other factory-made garments.

In the making of uniform caps and cork helmets for the Government, public bodies, railways, etc., the method of manufacture, though on wholesale lines, is somewhat different. The shapes are first made of buckram or other material, they are then covered with cloth and the peaks and head linings, usually of leather, are set in. The badges and additional trimmings are attached by hand. The cutting of leather or material for coverings, linings or stiffening is done by men and boys either with the hand or power-driven knife or by special presses. The rest of the work in making caps is done by women and girls either by treadle or power machines. The making of cork helmets as worn, for example, by policemen is a special branch of the trade, and, except in the making of coverings and in trimming, a distinct class of labour is employed. The helmets are made by attaching layers of cork by means of a rubber solution to lining which is stretched on a block. The shapes are then covered with serge, cotton or other material which has been sewn into shape, as in the manufacture of cloth caps, and is also treated with the solution which is highly inflammable. The work is, therefore, carried out in a building apart from the making of cloth coverings. It is paid for at piece-work rates, but juveniles are seldom employed.

Embroidery on caps is mainly machine worked, by men; hand embroidery where it is necessary being worked by women (see page 55).

Cap making is a fairly regular trade and not affected by seasons.

### **WAGES.**

*Minimum* rates have been fixed by the Hat, Cap and Millinery Trade Board.

The *minimum* rate at present for girls at the age of 14 is 9s. per week, and for boys 10s. per week. The full *minimum* rate for men is 1s. 1d. per hour and for women 8½d. per hour, but

a special *minimum* rate of 1s. 5d. per hour has been fixed for skilled men, such as cutters, blockers, bodymakers, finishers, stiffeners and shapers. For further particulars see Trade Board notice H.M. (20).

## EMBROIDERY

Embroidery enters into practically all the garment-making trades, and to some extent into the upholstery trades as well. Many firms engaged in garment making have their own embroidresses who receive a special training, while others send their work to be done by embroidery firms or by home workers.

The trade is carried on extensively in London, the best work being done in the West End. A distinction may be drawn between hand embroidery, and the machine embroidery. Both branches are highly skilled, and are often used in combination. A well-trained embroidress should learn both. This can best be done in a Trade School (see page 252).

The Embroidery trade as such is not covered by a Trade Board, though embroidery workers attached to particular trades covered by Trade Boards are included in those trades for Trade Board purposes.

### HAND EMBROIDERY.

Hand embroidery is divided into four distinct branches which are usually carried on by firms specialising in particular branches:—

*Dress Embroidery.*—This includes the most highly skilled work on bridal gowns, dress materials and lingerie, also tambour beading on dresses. This branch employs the largest number of embroideresses.

*Domestic Embroidery, or Fancy Art Needlework.*—On tea-cloths, cushions, covers, etc., and drawn-thread work.

*Naval, Military and Masonic Embroidery.*—On uniforms and ceremonial garments including gold embroidery, gold and silver lace weaving, and the insertion of jewels.

*Ecclesiastical Embroidery.*—On vestments, banners, altar cloths, etc.

The work is carried out in a variety of materials, gold, silver and tinsel thread, silk, wool, worsted, and cotton, all being used according to the type of embroidery. The work demands great care and attention to detail, delicacy of touch and good eyesight.

If a girl wishes to become a designer of patterns or colour schemes she must also show signs of artistic taste.

The material on which the design for embroidery has been traced or stencilled is stretched on a flat frame and for some materials is backed with canvas.

Where padding is necessary this is done with cord, thick cotton, thread or papier mache. The whole work is carried through by one or more embroideresses with the help of assistants. Learners begin by helping embroideresses; they learn how to fix the work in the frame and do the padding, or they work on simpler designs on less costly materials. In ecclesiastical embroidery they learn to fill in the background with plain silk stitching. Much domestic embroidery is done with the crochet needle on a tambour frame.

There is a definite scheme of apprenticeship to gold embroidery in the naval and military embroidery section which lasts for three years, a fourth year being worked as an improver. An apprentice starts at 10s. per week, and after her training has to pass a test before she can earn the right to call herself a gold embroidress. The weaving of gold and silver lace and setting in of jewels is a part of the trade, but is done by separate workers.

Ecclesiastical embroidery is a small but highly-skilled branch of the trade.

A skilled embroidress earns from £2 per week upwards:

### **MACHINE EMBROIDERY.**

Machine embroidery is carried out mainly in large wholesale workrooms and factories. Extremely elaborate designs are worked by the machines, which are single needled or multiple needled and are hand, treadle or power-driven. The machine most in use is the Cornelly. It has to be guided by the operator and has a number of attachments for making different stitches. A high degree of skill and experience is required to carry out the work with speed and certainty. Similar machines are used in upholstery embroidery. Badges or monograms produced in large numbers—for example, on uniforms or blazers—and other such designs are worked by a pantograph machine, which is operated both by men and women. Girls start between the ages of 14 and 16 as assistants, their work being to thread needles and fix material in the frames for machining. Skilled machinists can become pantograph designers or draughtsmen and earn high wages.

Most of the work done by machine embroidery is paid for at piece-work rates, and it is difficult for a girl to obtain a good training because of the time and trouble taken in teaching a beginner the work on such elaborate machines.

### **WAGES.**

A learner starts at about 10s. per week and a skilled machinist can earn £3 per week and upwards.



## WATERPROOF CLOTHING.

### AREAS.

The work is carried out mainly in the areas of Edmonton, Shoreditch, Stepney, Walthamstow and Willesden.

### BRANCHES.

Waterproof clothing may be divided into two groups—"raincoats" and "waterproofs". The former are garments made from cashmere, gabardine and heavy textile materials which are proofed chemically, and the latter from cottons and silks, which are waterproofed by means of a rubber coating. Raincoats are usually lined. The making of raincoats is within the scope of the Ready-Made and Wholesale Bespoke Tailoring Trade Board (see page 50), but waterproofs, or rubberised garments, are excluded from the Trade Board regulations, and special workers are generally engaged. In small firms the trade is inclined to be seasonal, and short time may be worked during January and February.

### RECRUITMENT.

Boys and girls start straight from school at the age of 14. An average intelligence is required, and deft fingers are essential. Boys learn cutting and trimming, and girls, solutioning, machining and finishing. The smell of the solution is regarded sometimes as obnoxious, but workers soon become accustomed to it.

### DESCRIPTION OF THE PROCESSES.

The work is done in factories under conditions as to cutting, machining and finishing, which apply to other branches of the wholesale tailoring trade, the only separate processes being the sticking together of the seams by rubber solution. This is usually done by dipping the finger in the solution, rubbing along the edges of the cloth and pressing them together when partly dry. The garments are then machined. The process of sticking is done usually by women, and requires skill since it is the sticker who actually pieces together the garment after cutting. The cutting and trimming operations are done by men, and women do the machining and finishing.

### WAGES.

Boys and girls start at about 12s. per week, and subsequent wages vary according to the firm and the quality of garments. Some firms pay time rates and others piece rates. Women workers are able to earn from 30s. to 40s. per week, and men about 70s. per week.

## **KNITTED GOODS.**

### **AREAS.**

Firms making knitted goods by machine are centred mainly in the areas of Acton, Camden Town, Ealing, Edmonton, Hackney, Lewisham, Leyton, Shoreditch, Stepney, Tooting, Wembley and Wimbledon. There is also a certain amount of hand-work in the West End.

### **BRANCHES.**

The trade includes the manufacture of all types of woollen knitted clothing, including hosiery, beach-wear, pull-overs, costumes, jumpers and children's wear, also silk stockings. The latter part of the trade has developed considerably during recent years. The trade generally has the advantage of being regular.

### **RECRUITMENT.**

Girls start as learners at about the age of 14. The work is clean and pleasant, but somewhat monotonous. It is carried out generally under good factory conditions and consists mainly in machine work which can be learned quickly by intelligent girls. They start usually as winders, or on examining finished work.

### **DESCRIPTION OF THE PROCESSES.**

The wool or silk is wound on to wooden bobbins by the winders, who operate simple machines. The bobbins are then passed to the knitters who attend delicate knitting machines. Some exertion is necessary in working these machines, and the operator must be able to adjust the needles according to the required style of knitting. The parts, e.g. front, back, sleeves, etc., are then passed to the overlockers, who assemble the garments and sew up the seams by power machines. This is intricate work demanding skill and precision. Finishers sew on buttons, belts, etc. by hand, and the finished work is examined for detection of faults.

### **WAGES.**

The wages in this occupation are not regulated by a Trade Board. Learners begin at about 10s. to 15s. per week, and proceed to about 25s. per week as winders. Competent knitters and overlockers may earn between 35s. and 45s. per week at piece work.

## FUR TRADE.

The trade is divided almost equally between men and women, though, on the whole, the most skilled work is performed by men. The import and sale of undressed skins is in the hands of merchants and dealers. The paragraphs that follow concern the cleaning and making-up of furs, and the work in these sections is carried out by (1) fur dressers and dyers, and (2) furriers.

### DRESSING AND DYEING.

This section of the trade is centred mainly in the areas of Bermondsey, Hackney, Leyton and Tottenham.

*Fur dressers and dyers* prepare the skins, which come from all over the world in an uncured or semi-cured state, before they are made up. The dressers do not as a rule own the skins they dress, but work for firms of furriers. Dressing is carried out mainly by workmen known as "Tubbers" and "Fleshers". Generally speaking, the work of the *tubber* is to preserve the skin and prepare it for the flesher. This work is mainly skilled. The *flesher* removes superfluous tissue from the underside of the skin with a flesher's knife. The work when done by hand requires skill and care so as to avoid injury to the skin. The subsequent operation is to clean the fur so that it becomes flexible and glossy.

The work is carried out by a number of processes in which men and boys and some women are employed. Some of the processes are done by hand and some by mechanical means. Generally, the dressing of the more valuable skins is carried out by hand by men, but the tendency in the trade is to increase the use of machinery and to sub-divide the processes so that they may be performed by less skilled labour under skilled supervision. Some processes are said to be unhealthy. In the process known as "unhairing" or the removal of long hairs by scraping, there is a risk of small hairs and dust from the skins entering the lungs. In the dyeing side of the work care and skill are required. The work is rather dirty and unpleasant and it entails frequent dipping of skins into water and chemicals. Only strong and healthy boys should take up this work.

### FURRIERS.

The work of the furrier is highly skilled and there are good opportunities both for boys and girls but the trade is much affected by seasonal slackness. The work is undertaken by retail or wholesale firms or by small employers working for larger firms. The best work is done in the West End and in the City; cheaper work is done mainly in the areas of

Shoreditch, Stepney and Tottenham. The workmen match, cut and repair and fit together skins for hand sewing or machining. The work calls for much skill and is done both by men and women. The making up of cheaper furs in imitation of rarer kinds is an important and developing side of the industry. Apprentices and learners are taken on this side of the trade. They must serve five years' apprenticeship or six years in the trade before earning full rates. There is also a section of the trade which is engaged in making up trimmings only. This work involves a much lower degree of skill.

*Machining* is done by women generally on power machines, but there is some hand sewing as well. The work is sometimes heavy and suitable only for strong girls. They must have four years as machinists in the trade before earning full rates.

*Nailers* are usually men who are employed in stretching the machined articles to the required shape, which is maintained by nailing them to a board.

*Finishing and lining* work is done by women who make up furs into garments, stoles, rugs etc., and line them with silk or other fabrics. This work is done by hand by women and girls. After four years' experience in the trade they can earn full rates.

Evening Classes in Furriery are available at the Northampton Polytechnic. The curriculum includes cutting, machining, finishing and lining, pattern cutting, design and fitting of fur garments, dressing and dyeing, trade organisation and management.

## WAGES.

*Minimum* rates have been fixed by the Fur Trade Board, as indicated in the Trade Board notice Z (26) and (27). Boy and girl apprentices to cutting and nailing start at 12s. per week and proceed to a *minimum* rate of 42s. per week during the fifth year of apprenticeship. Other boys and girls start at between 12s. 6d. and 15s. per week according to the nature of their work. Male workers of 21 and upwards earn *minimum* time rates of 56s. to 80s. per week and women of 19 and upwards, 30s. to 80s. per week according to occupation. Higher rates are earned on piece work.

## CORSET MAKING.

The trade includes the making of support belts, brassieres, suspenders and infants' stay-bands.

There is a high-class retail trade mainly in the West End, where corsets are made to individual orders by corsetières; they are also sometimes made and altered in the workrooms

attached to speciality shops and department stores. In addition manufacture is carried out in factories situated mainly in the areas of the Borough (Walworth), City, Shoreditch and Westminster.

### HAND-WORK.

In the high-class trade corsets are made by hand, together with some hand and power machining. The work is interchangeable and girls learn the special stitches required, also boning and assembling; some are trained eventually in cutting, and also in fitting if of outstanding ability. A girl must be quick and intelligent to succeed in the West End trade. She starts generally as a messenger and does odd work in the work-room, such as taking out tackings, unpicking for alterations, etc. Belts are sometimes made from a rubber material, which has thousands of perforations arranged scientifically to regulate the control given, but girls are rarely employed on this work, as the machining demands skilful handling. The trade generally is a good one for girls, since it is light and regular. Classes are available at the Barrett Street and Bloomsbury Trade Schools.

### MACHINE WORK.

In the factories the work is carried out by means of power machinery. It is much sub-divided, and a girl may be kept for a considerable time on one of the many processes, but there are opportunities for good cutters, power machinists, supervisors, and designers. The various processes by which corsets are made in factories are as follows:—

*Cutting.*—The hand knife, electric knife, band knife and guillotine are all used.

*Stitching or Seaming.*—That is, joining together of the different parts, including the stitching in of the busks.

*Strapping or Stripping.*—That is, stitching in the strips of material between which stiffening is inserted.

*Boning,* or pushing the stiffening bones into position.

*Taping and Binding.*—That is, paring the edges and binding the raw edges with tape.

*Suspender Assembling and Attaching.*

*Eyeletting.*

*Trimming, Pressing and Boxing.*

The whole work is carried out by women and girls, except that the cutting is sometimes done by men. The conditions under which the work is carried on are generally good.

## WAGES.

*Minimum* wages are fixed by the Corset Trade Board. The rate for girls at the age of 14 is 9s. per week, but most employers start learners at between 10s. and 12s. per week. The *minimum* rate increases to 25s. per week in the fourth year of learnership. A female adult corset maker can earn 34s. per week and upwards, according to the nature of the work, and a fitter from 50s. per week. The *minimum* rate for male cutters is 70s. per week. For further information see Trade Board notice K (14).

## ARTIFICIAL FLOWER SEED AND FRUIT MAKING.

### AREAS.

*Hand-made.* West End. *Machine-made.* Mainly the City, Hackney, King's Cross (Clerkenwell), Shoreditch and Stratford.

### BRANCHES.

The trade includes the making of artificial flowers, fruit, foliage, grasses, mosses, seeds and pods from paper, wax, textile materials, porcelain, glass, plaster, metal composition, rubber, leather, raffia, feathers, shells, cellophane and similar materials.

Flowers of exclusive design and style are made entirely by hand, but in the machine-made section the petals and foliage made from textile materials are cut into shape, veined and curled by power-press machines. The firms engaged vary from small ones to others employing over 300 workpeople. Women and girls are mainly employed. The work, except on hand-made flowers, is mainly unskilled, and the processes are much subdivided. A small number of outworkers are engaged in the trade.

### RECRUITMENT.

The work is light and clean, while the training is good and offers opportunities to a girl with artistic taste. Girls should have good sight, a sense of colour and be quick with their fingers.

### HAND-MADE.

The trade was formerly carried out mainly in Paris, but is now well established in London, chiefly in the West End, and includes clever replicas of prize blooms for house decoration as well as for wear. Small trees and shrubs are also made with a high degree of skill in imitation of nature. Millinery trimmings, hair decorations and floral sprays for evening gowns are made also, but this side should perhaps be considered a branch of millinery. The firms are nearly all small, sometimes a section in a department store, but do highly artistic work and are often managed by women artists.

Girls are trained in mounting, veining, curling, tinting and designing, but men usually stamp out the petal and foliage shapes by means of a hand punch.

### MACHINE-MADE.

This trade is largely sub-divided into separate processes, mainly unskilled, in which machinery plays a considerable part. Whether made of textile fabrics or paper, the petals and leaves of flowers are cut into shape by power-press machines worked by women and girls. The shading and dyeing are skilled processes carried out by men and women, and sometimes spray guns are used. Metal dies are used for veining and curling, and the skilled process of mounting by hand is done by women and girls. In paper-made flowers the processes are simpler since the paper is already tinted and has merely to be twisted into shape on wires. Seeds and berries are made by a series of processes, mostly unskilled. Specially dressed cotton wool being cut and moulded into shape and dipped into coloured plaster and polished, the only skilled processes are performed by men. Artificial fruit is made by women and girls by pressing cotton wool into shaped wooden moulds. The cotton wool is then covered with silk or other fabrics and mounted. The covering and mounting is skilled hand work and is done by women and girls.

### WAGES.

*Minimum* rates have been fixed by the Ostrich Feather and Artificial Flower Trade Board, and conditions regarding learners' certificates are applicable. (See Appendix C.) The *minimum* rate for girls at the age of 14 and under 16 years of age is 6s. per week, but most firms pay between 10s. and 12s. per week. The *minimum* rate at the age of 17½ is 26s. per week, and for women of 18 or over 28s. per week; women in the hand-made section, however, are able to earn up to 45s. per week, and in the machine-made section between 30s. and 35s. per week. The *minimum* rate for male workers over the age of 22 is 48s. per week. For further information see Trade Board notices O.F. (6) and (7).

## ENGINEERING AND ALLIED TRADES.

### ENGINEERING.

#### AREAS.

Engineering firms are established in practically all parts of Greater London, but the industry is centred mainly in the areas of Acton, Battersea, Borough, Canning Town, Croydon, Dagenham, Dartford, Deptford, Edgware Road, Hendon, King's Cross, Kingston-on-Thames, Poplar, Shepherds Bush, Shore-ditch, Southall, Stratford, Willesden and Woolwich.

## DEVELOPMENT.

The improved methods of production which are continually being introduced into large and well-organised factories tend more and more to the sub-division of processes. Formerly the proportion of skilled craftsmen to other workers was relatively high, but under modern conditions the proportion tends to be lower while simultaneously other occupations requiring skill of a different kind have developed considerably. Many processes hitherto performed by the skilled worker by hand are now carried on by operators (male and female) of automatic or semi-automatic machines, comparatively few requiring a high degree of skill. Again, the extreme accuracy of machine production has simplified the assembling of machine-made parts. Boys are still receiving training, however, in both large and small firms for positions requiring a high degree of skill in the design, manufacture and upkeep of engineering appliances. The greater proportion of openings for boys and girls, however, are for processes, such as machine operating, the assembly of machine-made parts, and certain other processes not connected with the operating of machines.

## ORGANISATION.

It may be convenient to divide those engaged in the industry into (1) administrative and technical staff; (2) skilled mechanics; (3) process workers; and (4) labourers. In (1) and (3) there is suitable employment for girl labour, especially among the process workers.

(1) *The Administrative and Technical Staff* includes the directors, works and departmental managers, designers, draughtsmen and tracers, costing and estimating clerks, order, wages and general clerks and shorthand typists.

(2) *Skilled Mechanics* select one or other of the following occupations, and serve a period of not less than five years' training through the various processes in that particular trade:— pattern-makers, moulders (foundry), blacksmiths, boiler-makers, coppersmiths, fitters (including electric fitters, tool-makers, &c.), turners, sheet-metal workers and tinsmiths, woodworkers (carpenters, joiners and machinists).

From the ranks of such skilled workers, the foremen, shop managers, and sometimes higher administrative positions are obtained, but this depends largely on the extent to which such workers have studied theory as well as practice during their period of workshop training.

(3) *Process Workers*, or those engaged in the various processes comprise a very large class of workers in the industry and include boys and girls. Process workers are divided into two main



classes (i) those engaged on machine operations and (ii) those engaged on hand processes connected with material which may or may not have been machined.

(4) *Labourers*.—Boys engaged for general work may continue as labourers in adult life, but those who show adaptability and resource are often promoted to machine and other process work.

## RECRUITMENT.

Juveniles are recruited to the production side of the industry as (1) boy apprentices; (2) boy and girl process workers on hand or machine operations; (3) boys for general work. The apprentices may enter as (a) pupil apprentices for the administrative side (i.e., those who propose to take up engineering as a profession); (b) trade apprentices.

(1a) *Pupil Apprentices*.—These are relatively few in number and are selected by the works manager or other representative of the management. Written applications are required by some large firms. The usual age of entry is 16 years, and candidates must have received a good technical education before entering the workshop. Few firms now require the payment of a premium, but a formal agreement is usual. The apprenticeship is for a period of five years of comprehensive training in the various departments, including the workshops, drawing office and possibly the estimating and costing departments. Intelligence, a high standard of general education (particularly in mathematics), ability in drawing, mechanical aptitude and physical fitness, good eyesight and hearing are essential qualifications. (See also Choice of Career Series—No. 16.)

(1b) *Trade Apprentices*.—These are usually selected by the foremen or departmental managers; they are sometimes admitted at 14 or 15 years of age, but more usually the apprenticeship commences at 16 years, the time served prior to that age being often regarded as probationary. Forms of agreement are used by some firms, the usual period covered being five years from the age of 16, during which the youth is trained in one of the skilled occupations. In some firms a youth who has done particularly well during his workshop training may be transferred to the drawing office or other departments for a wider experience than that gained in the mechanical departments, which may lead to opportunities of advancement to the higher grades on the administrative side. A good standard of intelligence and general education (including a knowledge of arithmetic and ability in drawing) and mechanical aptitude are required, while a sound physique, good eyesight and hearing are important.

(2) *Process workers* constitute a large group of workers in the industry and in many establishments, particularly in the large firms, there is a wide variety of operations, hand and machine,

suitable for boys and girls. The usual age of entry is 14 or 15 years, but recruits are often admitted at later ages. They are generally selected by the shop foremen or chargehands. A good standard of intelligence and physique is necessary, but the essential qualifications are quickness of vision, flexibility of hand, arm and body movements and adaptability. Those who prove efficient and attentive may be promoted as opportunities occur to positions such as "charge hands", etc., of a series of processes.

(3) *Boys for general work* are usually selected at the age of 14 or 15 by the foremen. Sound physique is the primary consideration, while average intelligence and capability are necessary.

### DEPARTMENTS WITHIN THE INDUSTRY.

The following departments are usually found as essential parts of all large engineering works:

*Drawing Office.*—Where the designs and working drawings ("blue prints") are prepared for the use of workers in the production departments.

*Pattern Shop.*—Where the patterns (mainly of wood) of the articles to be produced in the foundry are made.

*Foundry.*—Where the metal castings are made.

*Smithy and Boiler shop.*—Where wrought metal is forged, rolled, pressed, riveted, etc.

*Tool Room.*—Where cutting tools used on lathes, slotting machines, etc., are forged from the steel bar. Press tools or dies for use in power and hand presses are made also.

*Copper Smithy.*—Where the processes of shaping, brazing and riveting of copper sheets and pipes are carried on for the making of a finished copper product.

*Acetylene and Electrical Welding.*—Where metals are welded together or cracks or flaws are repaired by means of apparatus concentrating high temperature on the parts requiring treatment.

*Machine shop.*—Where the cast or wrought material is machined to accurate dimensions. The operations include lathe work, drilling and tapping, milling, planing and shaping, grinding, turning and boring.

*Fitting Shop.*—Where the machined parts are fitted together or assembled to produce the completed articles.

*Woodworking.*—Where the various wood parts required for engineering products are machined and assembled, e.g., for aircraft, agricultural implements, motor and transport vehicles, case making, etc.

*Sheet Metal Working.*—Where the sheet metal parts are wrought by hand and rolled or stamped, pressed, riveted, or welded together to make the lighter class of sheet metal articles, as distinct from the heavier class such as boilers or big tanks.

*Testing and Inspection.*—Where the completed article is inspected and tested before being sent to the despatch department.

*Painting and Packing.*—Where articles are coated with a preservative paint and packed ready for despatch.

*Maintenance.*—In this department, according to the type of manufacture carried on in the works, are millwrights, fitters, turners, wood-workers, plumbers, pipe fitters, bricklayers, electricians, etc., employed on the maintenance and repair of the plant and buildings.

*Others.*—Estimating, costing and clerical departments; stores and despatch; transport services to and from and within the works, etc. Generally speaking these sections are found in all manufacturing establishments.

## ENGINEERING PRODUCTIONS.

It would not be possible to name the numerous articles, large and small, produced in engineering establishments, but the tendency among firms is to specialise for trading purposes in certain classes of production. For example, a firm may be engaged solely in making metal castings which are supplied to other firms who complete the finished article; another firm may make, say, an internal combustion engine throughout, while yet another type of firm may confine its activities to repair work, e.g., motor vehicle repairs. In this respect therefore the industry may be regarded as being further sub-divided and the sub-division more especially applicable to the Greater London area is as follows:—

*Aircraft Manufacture.*—The work entailed in this trade is similar in many respects to that of motor manufacturing and a proportion of girls are employed in the larger factories (see also page 68).

*Electrical and Radio Engineering.*—The manufacture of generating plant, electrical appliances, etc. Girls are employed in making the smaller parts involving hand and machine processes. Work in the latter section tends to be seasonal.

*Electric Lamp Manufacture.*—The manufacture of electric lamps is highly developed in the specialisation of processes and in this connection, apart from the employment of a certain number of skilled men engaged in the maintenance of the plant, mostly offers employment of a nature suitable to girls (see also page 92, "Factory Occupations").

*Foundries.*—Castings of iron, steel, copper, aluminium and various types of alloys are made by pouring molten metal into sand moulds formed from patterns; some foundries specialise in one or other of these metals and others cater for the requirements of the industry in all metals and alloys. Certain classes of operations, e.g., the making of small sand cores, etc., are sometimes performed by girls.

*Gas Meter Making.*—Employers who specialise in certain sheet metal work and fitting and turning of light metal parts, in the construction of gas meters; some of the operations involved are done by girls.

*Instrument Making.*—A light and delicate type of mechanical, electrical and optical engineering manufacture, a large proportion of which is done by girls (see also page 76).

*Lift Manufacture.*—The work embraces mechanical, hydraulic and electrical engineering in the manufacture of lifts, elevators and conveyors, etc., and the erection of these appliances on the customer's premises.

*Motor Manufacture.*—This trade embraces many types of occupations in addition to light engineering, such as the body building, in which wood, sheet metal, upholstery, painting, etc., are required (see also page 178). The repair of motor vehicles is related to this branch. Many of the processes in this section are performed by girl workers.

*Pattern Making.*—Employers who specialise in making and supplying the wooden, and sometimes metal, patterns required for the metal castings used in various forms of engineering productions.

*Plastic Mouldings.*—The plastics industry is concerned mainly with the production of articles moulded with the aid of heat and pressure from compositions containing synthetic resinoids and other organic chemical products. The moulding powder produced from these chemicals is placed in a steel mould shaped according to the design for the finished article. The mould is then put into a steam heated or electrically heated press and pressure is applied at the required temperature until the powder assumes a solid shape which, after trimming and polishing, is ready for every day use.

Firms occupied in the industry confine their attention invariably to one particular phase. There are the manufacturers of the raw materials who specialise in the preparation of the chemicals from which the powders are made. Then there are the moulding powder manufacturers, who produce the powders in loose or tablet form for transmission to the moulders who are responsible for the finished articles. In addition, there are the mould and tool makers who supply the moulders with the steel

moulds, which are often of a delicate and intricate nature. Finally, there are the plant makers who supply the presses and polishing machines.

The presses in the factories of the moulders are attended by men and boys, while girls are usually employed at piece rates on trimming and polishing the articles and controlling the lighter machinery.

*Plating and Polishing.*—A trade engaged in coating metal articles by electro, chemical or galvanising processes (see also page 125).

*Radio Service Engineering.*—Service engineers are employed by manufacturers and wireless dealers, to adjust faults which may occur in sets purchased by customers. Prospective service engineers should attend an evening institute with the view to obtaining either a National Certificate (see page 70), or a certificate in Radio Service work awarded by the City and Guilds of London Institute. Further particulars may be obtained from the Secretary, Radio Manufacturers' Association, Astor House, Aldwych, W.C.2.

*Sanitary Engineering Manufacture.*—All classes of engineering sanitary appliances which are in the nature of light general engineering. Girls are employed on some parts of this work.

*Sash and Casement.*—A trade engaged in the manufacture of window frames in metal, which is considerably displacing wood. Metal doors are also made in increasing quantities.

*Scale and Weighing Machine Making.*—Some works specialise either in light or heavy machines while some make both. The lighter sections of the work are often done by girls.

*Sheet Metal Working.*—Employers who specialise in the lighter class of sheet metal work for the requirements of the engineering trade in the motor and aircraft industries, domestic and heating and sanitary appliances, metal furniture, etc. Girls are employed on many of the lighter processes involved in this work.

*Tank and Boiler Making.*—Employers who specialise in the use of the heavier classes of metal sheets and plates.

## TRAINING.

Apprentices generally receive their training by working with a skilled journeyman. In some instances they are placed under the immediate supervision of the foreman, while a few firms have established "nurseries" in which the young recruits spend a period of about six months prior to being allocated to a particular shop or occupation. In the early stages of training an apprentice may be called upon to perform such tasks

as sweeping out the shop, running errands, etc. Later by watching the skilled worker carrying out various operations and also undertaking simple jobs, he learns the use of tools, etc., and proceeds eventually to more difficult and intricate work. During the later years of apprenticeship an apprentice would be given jobs to complete on his own responsibility under the general direction and guidance of the foreman. Apart from acquiring purely manual skill, apprentices are taught to read the working drawings or "blue prints", to learn to be methodical in their work and appreciate the importance of accuracy.

No definite period of training is required for the process operations, whether hand or machine work. The experience gained on the simpler processes, however, generally proves valuable in performing the higher grades of work to which promotion is possible, according to efficiency. The machines are generally set by a skilled worker—the setter—but the working of them calls for concentration, delicacy of touch and manipulative skill.

*Technical Institutes.*—Facilities for technical training in the various skilled occupations in the industry are available in many districts in the Greater London Area. (See list of centres and classes on pages 256 to 260.) Preliminary courses of general and technical education, suitable for youths between 14 and 16 years of age, are also provided in a number of junior technical institutes and evening schools. It is important to stress that all boys should attend classes related to the occupations in which they are employed, and so qualify for higher posts within the industry.

*Certificates and Diplomas.*—Prospective engineers should aim at obtaining a National Certificate or Diploma in Engineering. These are arranged by the Board of Education in conjunction with some of the professional Engineering Institutions. Full particulars of preparatory courses and how to enter may be obtained from Local Education Authorities. Scholarships such as the Whitworth Scholarships and Royal Science Scholarships are available, and Local Education Authorities will consider the award of an appropriate maintenance grant. Full particulars of these scholarships are available from the Board of Education, and pamphlets, price 3d. and 4d. respectively, are obtainable from H.M. Stationery Office, or through any bookseller.

*Automobile Repair Certificate Scheme.*—In view of the great increase in road transport, and the necessity of a good standard of maintenance work on motor vehicles, a Repair Certificate Scheme has been started by the Institution of Automobile Engineers and special courses have been arranged at Technical Institutes. Applicants for the certificate must be over 23 years of age: those who pass the tests for qualification are entitled to wear a special badge and obtain the better status and pay implied by skilled work of a recognised standard.

## WAGES.

*Process Workers.*—The time rates of wages for boys are as follows:—

<i>Years of age.</i>	<i>Per week.</i>	
	<i>s.</i>	<i>d.</i>
I4 ... ..	I3	8½
I5 ... ..	I6	I¼
I6 ... ..	I8	7
I7 ... ..	22	6¼
I8 ... ..	27	5
I9 ... ..	3I	4
20 ... ..	35	3

The time rates of wages for male adults (21 years of age and over) vary from the engineering labourers' rate of 8½d. per hour plus 18s. bonus and 2s. special bonus per week (to time workers), to a rate slightly below and sometimes equal to the rate paid to the skilled craftsmen.

*Girls.*—The time rates of wages are as follows:—

<i>Years of age.</i>	<i>Per week.</i>	
	<i>s.</i>	<i>d.</i>
I4 ... ..	I3	0
I5 ... ..	I5	8
I6 ... ..	I8	4
I7 ... ..	2I	8
I8 ... ..	26	0
I9 ... ..	27	4
20 ... ..	28	8
21 and over	30	0

*Apprentices.*—The time rates of wages of indentured apprentices are the subject of agreement between the employer and the parent or guardian.

On completion of the full period of apprenticeship (i.e. normally at 21 years of age) it is usual to serve a period as a "young journeyman", on a scale of pay which is increased at regular intervals, until the appropriate rate for skilled worker is reached.

*Skilled Workers.*—The approximate time rates of wages for skilled workers in the principal occupations are given below. The amounts stated include in each case the approximate basic rate plus a bonus of 18s. per week and a special bonus of 2s. od. per week to time workers.

Occupations.	Basic rate per hour.	Bonus rate per week.		Approximate weekly amount to time workers.
		Cost of living bonus.	Special bonus.	
	s. d.	s. d.	s. d.	s. d.
Toolmakers ...	1 3½	18 0	2 0	80 8½
Pattermakers ...	1 2·3	18 0	2 0	75 11.
Woodworkers ...	1 2	18 0	2 0	74 10
Platers (Boilermakers)	1 1·8	18 0	2 0	74 0
Coppersmiths ...	1 1·5	18 0	2 0	73 0
Moulders and Core-makers	1 1	18 0	2 0	70 11
Fitters and Turners	1 1	18 0	2 0	70 11
Blacksmiths ...	1 1	18 0	2 0	70 11
Sheet Metal Workers	1 1	18 0	2 0	70 11

*Payment by Results.*—In addition to the time rates stated above most employees may work under various systems of “payment by results” such as piece work, etc., by which means their weekly earnings can be considerably increased.

### HOURS.

The normal working week in the industry is 47 hours.

### AIRCRAFT CONSTRUCTION.

#### AREAS.

The industry is centred mainly at Cricklewood, Feltham, Hatfield, Hayes (Middlesex), Hounslow, Kingston-on-Thames and Weybridge. *Aircraft engines* are manufactured at Acton and Edgware. *Airscrews* at Edgware and Weybridge.

#### ORGANISATION.

Aircraft Construction is a specialised branch of the engineering industry and the work includes other occupations in addition to light engineering, such as woodwork, painting and needlework. The size of the woodwork shop is dependent on the type of machine. Commercial and private machines are constructed mainly of wood, but for military machines the woodwork is reduced mainly to a minimum.



## RECRUITMENT.

Boys should be well built and healthy, with mechanical aptitude and drawing ability. They are recruited normally either as learners at the age of 14, or as apprentices at 16.

Girls at the age of 16 are engaged usually as needlehands and power machinists, and sometimes learn "doping", machine stamping, or small filing and drilling. Occasionally they are recruited at the age of 14, and are trained in these operations.

## TRAINING.

Learners and apprentices sometimes work together in a "nursery" under the control of a foreman, and carry out simple drilling and filing operations in addition to small assembly work. The learner is employed normally as a shop boy, obtaining various articles from the stores for the skilled workmen. Occasionally he may be allowed to assist with a simple process and if he possesses keenness and initiative, would have opportunities of progressing to more responsible work. Some firms offer facilities for a boy with ambition to obtain experience in each section of the factory with ultimately a period in the drawing office. The elementary school boy must be prepared, however, to attend evening classes in order to secure qualifications which will enable him to compete for higher positions with boys possessing the advantages of technical, central or secondary school education.

*Apprentices.*—Boys from junior technical, central or secondary schools are recruited at the age of 16 as apprentices and sometimes a premium is required. Occasionally well developed boys of 14 years of age from elementary schools are engaged and if suitable are eligible for vacancies as apprentices on reaching the age of 16 years. Trade apprentices are selected usually for artisan employment, but capable boys are sometimes considered for promotion to higher posts and generally a few suitable boys are selected each year as apprentices for a general training. A probationary period is served usually before the final acceptance of candidates for a five-year apprenticeship and selection is made in accordance with progress reports received from the workshop foreman, ability at evening classes and physical fitness for workshop training.

## DESCRIPTION OF THE PROCESSES.

The normal engineering processes are carried out in the *Fitting, Machine, Tool Making, Electrical Wiring, and Sheet Metal* shops, but work in the *Wing Construction, Fuselage Building, and Fabric Covering* shops presents distinct features. The manufacture of airscrews is akin to the woodworking trades.

*Wing Construction.*—Strips of duralumin are used for making the ribs in the wings, rudders and fins of the all-metal machines. The strips are cut and bent then joined up in sections. This structure is then fitted by riveting or by oxy-acetylene welding into the tubes which form the outer edges of the wings, etc. The tubes are manufactured from sheets of mild steel or duralumin and are shaped and riveted by machinery. They are then dipped in black enamel, and afterwards baked in large ovens. For the commercial type of machine, the ribs are made of spruce and ash, while mahogany is used where added stability is required.

*Fuselage Building.*—The fuselage consists either of a network of tubes strengthened at vital points by supports made of stainless steel, or of spruce, ash and mahogany, with an outer covering of three or four-ply wood.

*Fabric Covering.*—The wings, etc., and fuselage are encased in a fine linen fabric which is stretched across, and stitched firmly round the outer edges. A "dope" mixture of cellulose acetate is applied to the fabric, which renders it taut and weatherproof. This work is done by women and girls.

## PROGRESS OF EMPLOYMENT.

Evening classes which learners and apprentices are expected to attend are available as indicated on page 256 and are held sometimes at the works in co-operation with the Local Education Authorities. The classes usually specialise in the design and construction of aircraft and the construction and repair of aero engines. Sometimes in addition, training is given in factory organisation, stores procedure and production engineering and in some cases the curriculum is in accordance with the Air Ministry's requirements for Ground Engineers' (A), (B), (C), (D) licences, subject to the candidate satisfying the examiner as to his practical experience. Some firms offer scholarships and others give prizes to outstanding students who are often given facilities of graduating to more difficult and intricate work in the factory, with opportunities to qualify eventually as foremen, inspectors, draughtsmen, production engineers and aircraft executives.

## WAGES.

The approximate scales of wages as shown on pages 71 and 72 are applicable, but most firms pay piece rates which considerably increase the weekly earnings.

## HOURS.

The normal hours are 47 per week.

## MATHEMATICAL AND DRAWING INSTRUMENTS.

### AREAS.

The trade is carried out mainly in the Borough, King's Cross, Stepney, the West End and Westminster.

### SECTIONS OF THE TRADE.

Mathematical instrument making is divided into two sections: the making of instruments from metal and wood.

*Metal Instruments.*—These include compasses, dividers, metal scales, etc. The best metal articles are made and fitted by the ordinary light engineering methods, with much sub-division of processes. The cheaper kinds are largely stamped out.

*Wooden Instruments.*—Slide rules, set squares, drawing boards, etc., are made by methods similar to those described under "Woodworking".

### RECRUITMENT.

Boys and girls usually start at the age of 14 as learners, but formal apprenticeship prevails in the "Mathematical Dividing" Section. Neat and accurate handwork are essential qualifications.

### DESCRIPTION OF PROCESSES.

*Mathematical Dividing.*—The dividing (or marking) of scales or degrees, is a small but special part of the trade. Dividing is done either by machine or by hand. Men and boys are employed.

*Lettering.*—The lettering of scales is done either by hand or by pantograph machines, which are usually operated by women and girls. The machine has a sharp point which can be set to cut letters and figures of any size on almost any material. This type of machine is used in many branches of instrument making where lettering is required.

### WAGES.

Boys employed in the metal and wooden instruments section commence at about 12s. per week, and proceed by yearly increases to skilled rates appropriate to the Sheet Metal and Woodworking trades.

Girls start at about 10s. per week, and progress to an adult rate of about 35s. per week.

Apprentices engaged on dividing are paid about 10s. or 12s. per week, and usually receive piece rates at the age of 18.

A skilled man earns from £2 10s. to £4 10s. per week according to age and experience.

### HOURS.

The normal hours in the trade are 47 per week.

## OPTICAL INSTRUMENTS, INCLUDING SPECTACLES.

### AREAS.

The main areas for this industry are Battersea, Camden Town, Croydon, Edgware Road, King's Cross and the West End.

### BRANCHES.

Optical instruments include all instruments in which glass lenses are used, such as telescopes, microscopes, field glasses military instruments such as range finders, photographic lenses, surveying instruments, ophthalmic instruments, etc. The making of spectacles, which is a special branch of the trade, should also be included. There are two distinct kinds of workers employed in making optical instruments; those who make the metal parts, including frames, and those who make the lenses.

### RECRUITMENT.

Boys start either as indentured apprentices or as learners between the ages of 14 and 16. Girls start as learners at the age of 14. An ability at handwork and arithmetic are essential qualifications.

### DESCRIPTION OF THE PROCESSES.

The *casting, turning, finishing* and *fitting* of the metal parts are much the same as in general mechanical engineering. The tubes for telescopes, etc., are made of sheet metal, rolled round and brazed to form the joint. A steel "mandrel" or core is then placed inside the tube and the two together are drawn through an iron ring in order to make the tube perfectly smooth and of the correct size. Finishing and fitting are skilled operations. These tubes are sometimes bought ready made.

*Lenses* of all kinds are made of specially prepared optical glass, generally moulded to approximately the shape required. The grinding and polishing of lenses, whether intended for optical instruments or spectacles, is done in much the same way, except that a higher finish is required for the former than for

the latter. There are two processes in the preparation of lenses; grinding and polishing. These operations can be done by hand for highly finished surfaces but is usually carried out by machines, which require constant watching. The most skilled and accurate handwork is generally done by men.

*Grinding* is performed by working the lens, set in pitch, against a revolving metal grinder, which is fed continually with emery powder and water. The grinders are of many shapes, flat, concave, or convex, accordingly to the kind of surface required for the lens. In hand grinding, lenses are worked singly, but in machine grinding usually in groups attended by men or women operatives.

*Polishing*.—Most lenses are polished by machinery. There is some handwork, and learners sometimes begin by polishing by hand. The lenses are placed on flat moulds and a circular plate descends which works rouge over the surfaces for about four hours. One worker attends four machines. This work is usually done by men.

*Finishing*.—Trimming and grinding of the lens edges, and the fitting of lenses to spectacle frames are generally done by women.

### PROGRESS OF EMPLOYMENT.

Learners and apprentices assist the skilled workers, but learners rarely have opportunities of experience on more than one process. Juveniles are encouraged to attend evening classes, and some firms pay the necessary fees. Examinations are held and diplomas and certificates awarded by the British Optical Association.

### WAGES.

Indentured apprentices employed by firms affiliated to the Engineering and Allied Employers' National Federation start at 10s. 2d. per week, proceeding to 34s. per week at the age of 20. At the age of 21 a rate of 60s. 11d. per week is paid, and at 22, the full rate of 70s. 11d. per week. Piece work rates are paid in addition, which fluctuate, however, according to the shop and nature of work. Learners start at about 10s. or 12s. per week, and increases are given usually at intervals of 6 months in accordance with conduct and ability, proceeding to the full rate at the age of 22. Highly skilled men earn up to about £4 10s. per week.

Women from 28s. to 50s. per week according to age, experience, and nature of employment.

### HOURS.

The normal hours are 47 per week.

## SHIP REPAIRING.

### AREAS.

Several of the ship-repairing establishments are in the lower reaches of the river, but these are often owned by firms whose principal yards or repairing depots are in the areas of Poplar, Deptford and Bermondsey. As a consequence many workers, often including boys who, in the main, may reside and be employed in those districts, are frequently called upon to work on ships in wet or dry docks lower down the river, in Canning Town, North Woolwich, Tilbury, etc. In addition to work on ships, barge and boat building or repairing is carried on in small yards and slipways, at frequent intervals on the river-side.

### RECRUITMENT.

Boys generally are selected by the foreman in charge of a job or a group of workers. Apprentices, however, are usually interviewed by the manager or representative of the management before a final selection is made. Some firms require a written nomination. The sons of men already in, or associated with the industry, are often given preference.

All boys desiring to train as skilled workers in the principal yards are required to enter into an indenture of apprenticeship in accordance with a scheme prepared by the River Thames Dry Dock Proprietors' and Ship-repairers' Association. The period of apprenticeship in each occupation is five years and the boy must be not less than 16 years of age at the commencement of his training. A probationary period of not less than three months has to be served. In other establishments and in firms engaged in barge and boat building the period of service is usually the same, but the general conditions are not so well defined.

Under the Association's scheme the apprentices in the skilled occupations are engaged for the full term of five years' apprenticeship irrespective of the age reached at the conclusion of the period, and receive their training by working with a journeyman under the general supervision of the foreman. They are taught the use of the tools appropriate to the occupation, to read the blue prints of the work to be performed, and to carry out jobs graded from the more simple to the more difficult and complicated operations. The training must be supplemented in all cases by attendance at a technical school, and it is a condition of the indentures of apprenticeship that the apprentice shall attend evening classes on not less than two evenings a week. When the necessity arises and a boy is working at a distant yard, facilities are given by some firms for boys to leave early on class nights.

For skilled occupations as a whole a good standard of general education is necessary and in the engineering occupations preference is often given to boys who have remained at school (secondary, central or junior technical) until 16 years of age. Good health and physique are important. The occupations in the ship repairing branch are the more arduous, and for these physical strength is essential. In practically all the skilled occupations sound intelligence, a taste for drawing and designing, manipulative skill and quickness of action are required; in most of them the reading of technical drawings in the form of blue prints is an essential part of the work, and this can be attained only by actual practice. The prospective draughtsman should possess a good sense of proportion. The apprentice painter should be neat and artistic. Selected apprentices (more especially from the marine engineering department) whose workshop and technical school training are reported upon favourably, are sometimes given a period of training in the drawing office or estimating department.

There is no regular system of recruitment in the semi-skilled occupations, boys being accepted as vacancies occur, at any age between 14 and 18 years.

Rivet heaters and catchers, scalers and boys for other labouring work are admitted at 14 years.

The standard of education required for the semi-skilled and labouring occupations is lower than for the skilled occupations. Boys work in association with skilled men under the general supervision of the foreman. They are instructed to do such jobs as may be required of them without any definite course of training. A boy requires to be active, as quick movements are frequently necessary in the course of his work. Good health and sound physique are essential, as a large part of the work is performed in the open air. In the case of scalers, whose work is of a rough character, the main consideration is good health and small physique.

One of the features of juvenile employment in the industry is the gap between 14 years when a boy normally leaves school, and 16 years when he can become apprenticed to an occupation in the industry. During that period he may find employment at one of the boy occupations in the industry, but some of these are "boy occupations" only, i.e., they do not necessarily provide for continuity of employment in adult life. It is estimated, for example, that not more than three out of eight rivet boys (heaters and catchers) are appointed at 16 years of age; the majority in these occupations cease to be employed in the industry at, say, 18 to 20 years, unless meanwhile they have transferred to become labourers or scalers in other departments, but this is not always possible as there are already boys in those departments hoping to continue as adults. The experience gained by these boys in ship-repairing yards, however, would

be helpful in enabling them to undertake work in constructional engineering, the riveting and erection of iron and steel girders, etc. (see "Building Industry").

### BRANCHES OF THE INDUSTRY.

The main branches of the industry are (1) staff; (2) ship-repairing department; (3) engineering department, and (4) transport and other subsidiary occupations. The work of the different branches is described in detail below.

(1) *Staff*.—The work of the establishments is under the direction of the firm's Directors, assisted by works or departmental managers who usually are technical men trained in the practical and commercial sides of the business. The managers are assisted by foremen, who are usually men with a wide experience of their particular trade and who are responsible to the manager for the work of the trade supervised by them. The plans of the repairs or alterations required to the ship are prepared by draughtsmen, most of whom have had workshop training in addition to their drawing office experience. Designers and tracers are also concerned in the preparation of plans from which blue prints are made, which are the "working drawings" for the use of the skilled men in the yards and workshops. The clerical staff consists of estimating, costing and account clerks, timekeepers, general clerks and typists, etc. A fair number of women and girls are employed in the firm's offices on tabulating, adding and cost calculating machines, and general clerical work.

(2) *Ship repairing department*.—This description is applied to the branch concerned with repairing the hull, deck, etc., of the ship as distinct from the engine and boilers and other machinery repairs or installations. The occupations are as follows:—

*Shipwrights*.—These men prepare the dry dock for the reception of the ship or superintend the hauling on to the slipway, and shore up the vessel into a stable position. After the under-water portion of the repairs has been completed, or when the contract has been completed the work of undocking is undertaken by them. In addition, they make stages, moulds and templates and repair and fit deck timbers (including caulking), ceilings, hatch covers, pipe casings, masts, derricks, boat checks, pad for deck fitting, etc.

*Caulkers*.—Caulkers make watertight the spaces between the deck timbers by driving oakum into the seams by means of caulking irons and a mallet. Marine glue is added to fill up the space between the oakum and the upper surface of the planks. Caulkers also sometimes make watertight the seams and overlaps between plates, using for this work a hammer and chisels or a pneumatic machine.



*Platers and Iron Workers.*—The plates, angles and bars used in the repair of the hull, tanks, etc., are cut to the appropriate size and shape as specified in the working drawings or as lifted off the ship from moulds or templates. *Marker boys* or apprentices assist in drawing the necessary lines and marking of holes, and the labourers hold the plates or bars while the skilled workers shear, straighten, bend and punch them as required by means of power machines. The position of marker boy is often regarded as a stage in apprenticeship. Platers sometimes specialise as beam platers, plate benders, frame setters, etc.

*Angle iron smiths* do work similar in certain respects to that of the plater but specialise in the bending of the many angle pieces required in the reconstruction or repair of the ship.

*Drillers.*—Drillers drill and countersink holes of a definite size in exact positions in plates or bars by means of a hand drill or by pneumatic electric machines. They also drill out rivets and drill and tap holes for studs or tap bolts.

*Riveting.*—After the plates and bars are screwed up in position on the ship they are riveted. This is done by hammering a hot rivet with a hand or pneumatic power hammer so that the point becomes flattened and filled out while the head is shaped like a mushroom, thus locking two or more plates or bars. The rivets are heated by boys called rivet heaters, who work at a small portable forge placed in a convenient position on the ship or quay side. In cases where it is not possible to have the rivet fire conveniently placed near the holder-up or riveters, the rivet heater throws the hot rivet to another boy called a rivet catcher or carrier (there may be more than one stage of throwing) who passes it to the holder-up. The holder-up places and holds the rivet in position in the hole while the riveters do the hammering. The rivet boy (heater or catcher) is sometimes a stage in apprenticeship. The holder-up is a separate occupation less skilled than that of the riveter. The group of workers concerned in these operations is called a riveting-squad or sometimes the "black-squad."

*Welding and Burning.*—Some plates, particularly in oil tanks, are welded by the oxy-acetylene or electric welding plant and this is usually done by riveters who have specialised in the work. Plumbers fitters and blacksmiths also use the oxy-acetylene and electric welding plant in jobs connected with their own special work. Riveters also use the oxy-acetylene plant for burning out rivets, and riveters and platers sometimes use the same plant for heating and fairing damaged plates in place. Operatives are granted an additional rate of pay when using the welding or burning machine.

*Blacksmiths (or Shipsmiths)* work at a forge and are assisted by strikers—a separate occupation which does not usually lead

to the qualified shipsmith. They forge, bend and shape the iron bars or rods for the deck fittings, etc., of the ship by hammering the metal while at white heat on the anvil or metal block, either by hand or power hammers.

*Boilermakers.*—This comprehensive term is often applied to the group of workers which includes platers, riveters, caulkers, angle iron smiths, etc.

*Sawyers, Woodcutting Machinists, Joiners, Cabinet makers, Upholsterers and French Polishers.*—Have their own particular work to do in connection with the making, fitting or repairing of all cabin fittings, linings, casings in cabins and insulated holds, gratings, companionways, accommodation ladders, storerooms, racks, shelves, butchers' shops, hospitals, dispensaries, etc.

*Plumbers.*—Make and fit to, or repair, lead and iron service and waste pipes to cabins, galley, wash deck services, sounding pipes, etc. They also fit the lead lining in sinks and cool chambers, fit brine pipes, scuppers, and w.c.'s, etc.

*Storekeeper.*—The storekeeper occupies an important place in the yard's organisation. He has to be familiar with all the materials and tools used in the various occupations in all branches of the establishment and to keep records of the quantities received and issued. It is a very helpful experience for a boy to work in the stores for a short period before beginning his apprenticeship in a definite occupation.

*Other Occupations.*—The men in all the skilled occupations are assisted by labourers or helpers, sometimes both men and boys, whose duties generally are to "fetch and carry" the materials, tools, etc., required. These workers are sometimes given specific names, as plater's helper, hammerman, driller's mate, etc.

*Riggers* (who are often recruited from ex-seamen), rig derricks and gear for making heavy lifts, rig bosun's chairs, etc., when required and repair rigging, funnel guys, etc.

*Sailmakers.*—Make or repair sails, box covers, canvas awnings and screens, wind sheets, etc.

*Scalers.*—Clean out the holds, tanks, bilges, etc., and chip and scale inside and outside the hull, etc.

(3) *Engineering Department.*—The repairing of boilers, smoke boxes, funnel and stokehold flooring guard plates, etc.

Boilermakers in this department are chiefly concerned in the repairs to boilers, stokehold flooring and guard plates. They cut out and renew defective boiler tubes, furnaces, fit new furnace doors, smoke box doors, cheek and baffle plates, expand leaking tubes, cut out and renew defective rivets and make and fit patches in furnaces, etc. In the course of this work burners come into operation for burning out rivets, tubes or furnaces and welders are often employed welding cracks, butts and

landings in furnaces and combustion chambers. Platers and their helpers prepare the plates for patches or new smoke box doors and air-casing plates, floor and guard plates. Drillers drill holes in certain parts of this work.

The fitting and repairing of engines, turbines, steering gear, electrical, hydraulic and other machines is undertaken by this department. All the occupations are found in other branches of the engineering industry and are described in the appropriate section. For the purpose of convenience they are named below:—

Boilermakers, platers, drillers, welders, burners and helpers, fitters, fitter-erectors and millwrights, turners and toolmakers, brass finishers; machinists (including capstan lathe hand, planer, borer, slotter, spindle, etc.), moulders, coremakers and fettlers or dressers; pattern-makers and foundry men; electricians and wiremen; coppersmiths.

Joiners in this Department do such work as cylinder lagging, re-wooding stern bushes and sundry casings, etc., and plumbers do iron drain and exhaust pipes, internal feed pipes, etc., while painters are generally employed in all parts of the vessel, hull, cabins, etc. Workers in these occupations also are assisted by labourers and " mates ".

*Transport, etc., Department.*—The conveyance of material to and from and within the establishments involves the employment of men and boys on motors, lorries, travelling cranes, etc. In this branch the principal occupations are—Drivers of motors, wagons, lorries, steam and traction engines and cranes. These men are concerned mainly with the transport of heavy materials to and from and within the establishments, and some of them are assisted by boy labour.

In some of the larger establishments platelayers and bricklayers are employed, but the ship-repairing firms do not usually train youths in these occupations.

### TECHNICAL CLASSES.

Classes suitable for apprentices in most of the skilled occupations are available in day and evening courses at the L.C.C. School of Engineering, Poplar, and the Polytechnic, Woolwich. Instruction of a preparatory character, both in general and technical education, is given in evening institutes (see page 255), and a boy proposing to become an apprentice at 16 years of age should attend appropriate classes prior to that age, particularly if he has not attended a day technical school, secondary school or junior technical school.

## WAGES.

The weekly wages of apprentices in the establishments where the scheme drawn up by the River Thames Dry Dock Proprietors' and Ship-repairers' Association has been adopted are:—1st year, 11s; 2nd year, 14s.; 3rd year, 18s.; 4th year, 22s.; 5th year, 27s. In other establishments the wages are either the same or slightly higher. In semi-skilled and other occupations the wages generally are higher, varying from 10s. per week in the case of messenger boys to 12s. and 14s. per week and sometimes more in the case of rivet boys, boy scalers, etc. The wages of adults in the skilled occupations range from 77s. per week. Riveters, drillers, caulkers, and shipwrights frequently work on piecework, when their earnings are greater than when working at time rates. The wages of semi-skilled workers and labourers vary from 62s. per week. The earnings of pieceworkers and timeworkers are augmented when working beyond the normal hours.

## HOURS.

The normal hours are from 8 a.m. to 5 p.m. (with a break of one hour for the midday meal) on Monday to Friday inclusive, and from 8 a.m. to noon on Saturday, without a break. Frequently, however, contracts have to be completed within a limited period in order that ships may go to sea again, and in these circumstances, overtime or night shifts may be necessary for adult workers.

## SPECTACLE FRAME MAKING.

### AREAS.

The industry is centred mainly in Camden Town, Croydon, Kings Cross, Surbiton and the West End.

### BRANCHES.

There are three distinct branches; the making of gold frames, metal frames, tortoiseshell and imitation shell frames. In the high-class trade frames are made throughout by hand to the measurements of individual customers. Gold frames are made from wire drawn from gold rods and the work is not unlike jewellery work. In the case of metal frames the wire is usually brought already drawn and the ordinary engineering processes are used. The making of tortoiseshell and imitation shell frames has, however, almost superseded the making of

gold and metal frames. The high-class tortoiseshell, and imitation shell hand work is confined to men, and boys have opportunities to learn the processes by working with skilled operatives. Women are sometimes employed on fitting lenses to frames, and girls learn that side of the work. Women assisted by girls are mainly employed in the machine operations.

### RECRUITMENT.

Boys and girls start at the age of 14 as learners. Mechanical aptitude and good eyesight are essential. The top class at an elementary school should have been attained, and learners must be prepared to attend evening classes.

### DESCRIPTION OF THE PROCESSES.

*Tortoiseshell Frames.*—The scales of tortoiseshell are cut into the required sizes, laminated into bars measuring about 6 inches by one inch and to a thickness of about a quarter of an inch. Skill is required in the matching of colour and design. The lamination is then tied securely and made plastic by an immersion in hot brine. It is then placed in a press and the adhesions are effected by the natural gelatine which exudes from the shell. When cool the eye pieces are cut out from the bar with a fret saw. It is again made plastic after which the eye pieces are shaped by means of a metal mandrel. The bridge is then cut out with a fret saw, and the completed frame filed to the required shape and polished.

*Imitation Shell Frames.*—The synthetic shell frames were formerly manufactured from casein, which is a milk product, but recently there has been a large increase in the use of cellulose acetate and celluloid. These materials which are produced in various colours and patterns, transparent or opaque, are obtained in sheets from the manufacturers. The shaping process is similar to that for tortoiseshell frames, but usually the apertures for the lenses are punched out by machines. Cheaper imitation shell frames are made throughout by machinery.

### TRAINING.

In the workshop it is rarely possible to obtain experience in the manufacture of all types of frames, and learners should, therefore, supplement their workshop experience by attendance at evening classes. (See page 259.) Some firms pay the necessary fees, and sometimes the amount of an increase in pay is dependent on the nature of the evening school report.

*Examinations.*—The Worshipful Company of Spectacle Makers conducts examinations each year in May and November, for the award of Fellowship certificates (F.S.M.C.).

### WAGES.

*Boys* start at about 10s. to 12s. per week. Increases are given usually at intervals of six months, in accordance with conduct and ability. A journeyman spectacle maker earns about £3 10s. od. per week and highly skilled workers up to £4 and £5 per week.

*Girls* start at about 12s. 6d. per week. Women earn about 30s. per week, and more when employed at piece rates.

### HOURS.

The normal hours in the industry are 47 per week.

## SURGICAL AND DENTAL INSTRUMENTS AND SURGICAL APPLIANCES.

### AREAS.

The main areas for the industry are Borough, Croydon, Edgware Road, King's Cross, Stepney, Tottenham and the West End.

### DEVELOPMENT.

The variety of instruments is very large and to meet the progressive needs of modern surgery, there is a frequent demand for new designs.

### RECRUITMENT.

Keen eyesight, nimble fingers and an ability at arithmetic and freehand drawing are essential. Some firms engage boys as indentured apprentices or as learners at the age of 14, but others prefer boys as unindentured apprentices from central, technical and secondary schools at the age of 16. Most firms stipulate as a condition of employment that boys from elementary schools attend evening classes twice a week for tuition in mechanical drawing, arithmetic and English.

### DESCRIPTION OF THE PROCESSES.

The best instruments are forged from Sheffield steel, which is delivered to the workshops in bars of suitable size and sections.

*Forging.*—Forging work is very highly skilled and is one of the most important sections of the industry as each forger can supply the work for several men. A good forger turning out "clean" forgings materially helps the worker who carries out the succeeding operations.

*Finishing.*—The forgings are worked up to the finished article either by “edge” workers who work on sharp edged instruments, or “blunt” workers who deal with blunt instruments; these two classes of workmen being quite distinct. In both cases the work is carried out by grinding, filing and fitting and in delicate instruments great care is required. In the best work each operative completes the article from the forging himself and there is little sub-division of processes. The instruments are then hardened, tempered, polished and generally plated.

### **SURGICAL APPLIANCES.**

Sheet metal and wood are used mainly in the making of surgical appliances. The appropriate processes and general conditions in those trades are applicable.

### **PROGRESS OF EMPLOYMENT.**

Learners and apprentices assist the skilled forgers and finishers, but learners rarely have opportunities of experience on more than one process. At the age of 18 boys are encouraged to attend the Chelsea Polytechnic for special classes in anatomy and physiology. The Institute of British Surgical Technicians, established to accord a status to those engaged in the surgical instrument and appliances industry admits to membership those who have completed the course and have passed the necessary examination. Members of the Institute with workshop experience have opportunities to join the highly trained technical staff working in the warehouses and orthopaedic fitting rooms.

### **WAGES.**

Indentured apprentices employed by firms affiliated to the Engineering and Allied Employers' National Federation start at 10s. 2d. per week, proceeding to 34s. per week at the age of 20. At the age of 21 a rate of £2 17s. 11d. per week is paid, and at 22 the full rate of £3 7s. 11d. per week. Learners start at from 8s. to 12s. per week, unindentured apprentices at about 15s. per week, and proceed to the full rate at about the age of 22. The time rate for highly skilled men is from 1s. 6d. to 1s. 10d. per hour, but much of the work is paid at piece rates. Salaries of £250 to £350 per year are paid to the technical staff in warehouses, etc.

### **HOURS.**

The normal hours are 47 per week.

## THERMOMETER MAKING.

### AREAS.

The work is carried out mainly in the areas of King's Cross, Wimbledon and Wood Green.

### BRANCHES OF THE TRADE.

Thermometers are of three kinds; (1) mercury (or spirit) and glass, (2) mercury and steel and (3) electrical. The latter two are metal instruments, and are used mainly for measuring temperatures at a distance, the temperature being recorded on a dial; they are mainly made by engineering processes. Firms making thermometers also sometimes make barometers, both mercurial and aneroid, barographs and other similar instruments. Mercury (or spirit) and glass thermometers are made of specially prepared glass tubes or canes. The making of canes is a separate trade.

### RECRUITMENT.

Boys at the age of 14 are sometimes apprenticed from five to seven years to learn glass blowing, which is skilled work, but usually start as learners. In other sections, boys and girls begin as learners. They are employed both by manufacturers and out-workers, but limited experience only is obtained with the latter. Some firms employ a disproportionate number of juveniles. Good sight and an average intelligence are necessary.

### OUTWORKERS.

The larger manufacturers carry out all processes, but there are many out-workers or chamber-workers, who may make thermometers complete, but often carry out one process only, working for larger firms. This method of manufacture is particularly common in the case of clinical thermometers, the making of which is a separate section of the trade.

### DESCRIPTION OF THE PROCESSES.

The main processes in making thermometers are (1) blowing, (2) calibrating (or pointing) and dividing, (3) mounting.

*Blowing.*—The tube is heated by a blow-pipe or gas jet and then blown with the mouth. The blower is really the thermometer maker who is responsible for carrying the work right through until the thermometer is filled with mercury and sealed. This work is done mainly by men and boys.

*Calibrating and Dividing.*—In calibrating (or pointing), the glass is marked at various temperatures to obtain the correct



graduation or division. The tube is then covered with beeswax and the graduations are marked in by a dividing machine, which cuts through the wax. Dividing is also done by hand by using a gauge and a knife. Marking of the numbers, etc., or "figuring" is done by hand or by a pantograph machine. The marks are then etched out in the glass by an acid bath. The beeswax is dissolved off and the thermometers are ready for testing. Calibrating is done by women, and dividing by machine by men or women. Hand dividing is usually done by men.

*Mounting.*—Some thermometers are mounted, the mounts being either of metal or wood. As a rule, the mount is graduated and not the thermometer, which must be set in the mount so as to get the graduations correct. In the case of wooden mounts, the moulder also does the dividing by hand. Mounting may be done by men, women or juveniles.

### WAGES.

Apprentices and learners, whether boys or girls, start at about 10s. to 12s. per week. Adult male workers earn from 1s. to 1s. 8d. per hour, and women from 8d. to 10d. per hour, according to age and experience. Payment is sometimes made at piece rates.

### HOURS.

The hours are normally 48 per week, but some out-workers work much longer hours.

## WATCH AND CLOCK MAKING AND REPAIRING.

### AREAS.

*Watches* are made by hand in the areas of King's Cross (Clerkenwell) and the West End and one large firm in King's Cross assembles parts imported from abroad.

*Clocks* are made by machine processes in the areas of Acton, Edmonton, Enfield, Ilford, Tottenham and Willesden, while hand finished work is carried out in Croydon and King's Cross (Clerkenwell).

### DEVELOPMENT.

The manufacturing side of the trade was virtually out of existence in 1930, but mass productive methods have caused a revival, more particularly in clock making. Each succeeding year has seen a vastly increased output, and also the introduction of new types. At first only the larger pendulum clocks were made. Later many fitted with All British lever escapements

were marketed, and now almost every type is made including large numbers of very small movements almost down to watch size, such as motor car clocks. There is also the possibility of making watches on a large scale.

### **TYPES OF CLOCK MAKING.**

The large outside public type, or turret clock, is skilled engineering work. The high grade hand-finished English time-piece, or "dial", calls for more individuality and all round skill than those constructed by mass productive methods, such as the cheap thirty hour movements, various types of bracket clock and electric clocks. The latter are divisible into three classes, the master clock system whereby a single clock is able to control and synchronize a large number of distant subsidiary clocks, "all mains", and the battery actuated clock. The manufacture of time recorders, and time control switches, the primary function of which is to determine intervals of time rather than to indicate the time of day, and other intricate mechanisms closely akin to clocks, is similar to instrument making, and may be regarded as a branch of light precision engineering.

### **TECHNICAL DESCRIPTION.**

The escapement is that part which regulates the movement of the action or train of the watch or clock, and prevents it from running down too quickly. It consists of the last and quickest moving wheel in the train, also small components known as pallets, which communicate the energy to the pendulum or balance. A train consists of a number of wheels which gear together on pinions and arbors, and transmit the force generated by weight or spring to the escapement. In a clock there is usually an additional train for the purpose of striking the hours.

### **RECRUITMENT.**

Boys start between the ages of 14 and 16 as informal apprentices for a period of 5 to 7 years in the hand-made and hand-finished sections. In the mass production shops boys and girls start at the age of 14 as learners or process workers. Intelligence and keen eyesight are necessary, and a decided manipulative dexterity is essential.

### **DESCRIPTION OF THE PROCESSES.**

*Clock Making.*—There are many processes, several of which are almost completely carried out on automatic or semi-automatic machines. The operatives vary greatly in ability,

according to their particular task—many are highly skilled workers who are necessary for the more important parts of the work, such as “setters-up”, and examiners.

Such parts as the plates, cocks, pillars, hands, etc., are stamped out or machined, drilled, etc., and finished by men and women. The wheels are stamped out of brass strip and the teeth are then cut by automatic gear cutters. The pinions are turned from steel rod on automatic lathes, afterwards having their leaves cut on automatic gear cutting machines. Boys are employed on feeding automatic machines, and if suitable have opportunities of proceeding to the skilled operations.

Girls are employed mainly on assembly work, each has a separate operation to perform, such as inserting pillars and wheels into the plates. The work is placed on a moving conveyor at various stages until the completed clock reaches the experienced examiner for testing. The figuring of the dial is completed usually in one operation by means of a rubber cushion off-set. The clocks are then transferred to racks where they remain for a week, during which time they are subjected to periodical inspections and any necessary adjustments.

*Watch Making.*—The work is similar to, although in many respects finer than clock making, and requires a large proportion of highly skilled operatives. The plates, pinions, etc., are cut by hand, but the wheels are usually cut by machine. The making of escapements, assembling and examining, springing, poising and timing are done by skilled men. It is not possible to obtain standard tools for the work, and a skilled workman should be able to make his own tools and jigs. The making of cases is an entirely distinct trade, and is not done by the watchmaker.

### TRAINING.

In the hand-made and hand-finished sections boys start by helping the skilled workers, and in a good shop they should learn to make a watch or clock throughout. On the mass production side the normal engineering conditions obtain. “Process” boys are given opportunities to work in the various shops, and after about two years some may become trade apprentices, while others proceed as engineering labourers. Girls are employed on semi-skilled operations, and no special training is required. Apprentices and learners should attend technical classes, such as those arranged at the Northampton Institute, since there is much in the theoretical side of the work which cannot be learned in the workshop.

### REPAIRING.

Watch and clock repairing is an important branch of the trade, and is carried on extensively in retail shops. A repairer should, if possible, have training in watch and clock-making, but usually

a boy learns his trade by working with an experienced repairer as learner. He often starts as an errand boy, and is taught repairing if he shows an interest in the work. Repair work is good training under a skilled workman who does a large variety of work, but repairers themselves are sometimes not fully skilled. A boy working as a repairer should not fail to attend technical classes in clock or watchmaking.

### **WAGES.**

Apprentices start at between 10s. and 15s. per week, and from the age of about 21 should earn the full rates of 1s. 4d. to 1s. 6d. per hour. A skilled watch and clock maker earns between £5 and £6 per week. The minimum Engineering Federation rates are paid to all workers on mass production (see page 71) and experienced examiners earn a rate between 2s. and 2s. 5d. per hour. Women inspectors are able to earn up to £2 10s. per week.

### **HOURS.**

The normal hours are 47 per week.

## **FACTORY OCCUPATIONS (GENERAL).**

There are many occupations open to the London boy or girl which it is not possible to describe individually, but which may be grouped for convenience under the heading Factory Occupations. The occupations covered under this heading are concerned chiefly with the manufacture of food and food products, preserves and essences of all kinds (including sweets), drink, tobacco and cigarettes, soap, candles, matches, paints, varnish, glue, scientific glassware, chemicals (including chemists' sundries), rubber and rubber goods, incandescent mantles, electric wires and cables, evaporated and solidified milk products, tin boxes, and many kinds of haberdashery and fancy goods. This classification does not mean that the conditions of work in the occupations concerned differ essentially from some of those described under the headings of particular trades, especially where in the latter mass productive methods have been introduced. There is, however, a similarity in the methods of production which makes a general description of these occupations possible. A brief account is given below of a modern factory, and the processes described may be taken as typical of factory work generally.

### **MANUFACTURE.**

As a rule, manufacture is carried out by process workers under central technical supervision from a laboratory or other technical or experimental department. In these technical

branches there are sometimes opportunities for central and technical school boys to be trained on the technical side. They start as laboratory assistants or in some other similar capacity and their progress depends mainly upon their own initiative. Generally employers are prepared to give them every encouragement in attending technical classes to qualify for a science degree, and some employers pay the necessary fees. Boys from elementary schools, also, start sometimes as laboratory boys, but unless they show exceptional ability, there is little prospect of their being absorbed on the technical side.

### **PRODUCTION.**

The labour employed in direct production is mainly unskilled or skilled within a very narrow range, though in some cases long experience of manufacturing processes creates a form of skill which is difficult to define, but which is none the less valuable. Thus, sugar boilers, tobacco blenders and chemical process workers have acquired a skill which, though sometimes not scientific, is of considerable practical utility. Such workers are generally men. They are usually in supervisory positions as foremen or charge hands and can earn high wages. These men are recruited from the manual workers who show intelligence and adaptability. There are, however, signs that in some trades a more scientific knowledge is required in the case of employees occupying these positions. Thus a scheme is in operation in connection with the rubber industry with the object of giving foremen a technical knowledge of rubber manufacture. Selected boys attend for three years in special full-time technical classes in rubber manufacture at the Northern Polytechnic and then start employment with a rubber firm.

### **AUTOMATIC MACHINERY AND LABOUR SAVING DEVICES.**

The increased use of automatic machinery and such labour-saving devices as endless travelling bands means that the average factory worker is either a machine minder or feeder or is engaged in parcelling, filling, wrapping or some form or another of packing, and it is mainly in this latter kind of work that women, girls and boys are employed. Another effect of the increased use of machinery is that hand processes are continually being replaced by machinery. This often means a reduction in the number of hand workers, who must be transferred to other work, or they are dismissed.

### **PROMOTION.**

There is often great reluctance on the part of factory workers to learn more than one process, at which they become highly expert. To learn other processes sometimes means a temporary

change from piece work to time work, and a reduction in weekly wages. Still, employees who have a wider range of experience and can be transferred to different work without loss of output, are valuable to their employers and are the last to be put off in a slack period. While they are young and adaptable, boys and girls should not neglect opportunities to widen their experience by learning as much as they can of the various processes of manufacture. A readiness to do this is one of the qualifications for promotion to charge hands and foremen.

### **MAINTENANCE STAFF.**

The upkeep of machinery is an important and skilled branch of the work in most large factories, and necessitates the provision of a highly qualified staff of mechanics and often a complete fitters' shop. Boys are sometimes employed as process workers in this branch of the work and obtain a good training as engineering mechanics (see Engineering). Sometimes other mechanics such as carpenters and joiners, plumbers, painters, etc., are also employed on the maintenance staff.

### **WELFARE.**

It is a mistake to regard factory work as necessarily dirty or unpleasant. Much factory work is of a monotonous kind and requires care and dexterity rather than the skill which comes of long training. It is often carried out under excellent conditions but "speeding up" methods sometimes impose a nervous strain on the workers. The development of welfare work in large factories, especially where considerable numbers of women and girls are employed, has greatly improved the conditions of employment, and increased the comfort of the workers. Some factories broadcast radio programmes to relieve the monotony of the work, and also to maintain output especially during the latter part of the day.

### **SEASONAL EMPLOYMENT.**

Better organisation in factories is also having the effect of spreading production more evenly over the year, and thus lessening the effect of seasonal depression and large fluctuations in staff. Where the work offers regular and permanent employment, and is not liable to periods of severe slackness, factory employment can be regarded as quite suitable for an average type of boy or girl whose tastes do not lie in any particular direction. There are still, however, many factories where the conditions of employment are less satisfactory. Sometimes the actual working conditions fall far short of those found in modern well-equipped factories. This criticism applies chiefly to small factories. Sometimes the work is carried on at high pressure for short periods to meet a seasonal or intermittent demand, e.g.,

for the Christmas trade. Boys and girls are engaged in the busy times and many are put off when the rush is over, a new batch of younger boys and girls being engaged when the next period of pressure arrives. This kind of employment is bad, since it offers little inducement to sustained effort or prospect of permanence. Consequently, the workers are mostly recruited from the lower grades of factory labour. Personal knowledge of individual factories and the conditions under which the work is carried out is very important for those giving advice to boys and girls, especially in areas where a considerable proportion of school-leaving children are absorbed in factory occupations.

### **WAGES.**

The wages vary considerably. Boys starting from school earn about 12s. to 20s. per week and girls from 10s. to 15s. per week. Men earn from £2 to £3 and women from 25s. to 30s. per week at time rates, but the work is paid for usually by piece or bonus rates and these wages may be greatly increased at busy seasons.

### **HOURS.\***

In accordance with the Factories Act the maximum hours are 48 per week for women and young persons, and normally 44 hours per week for boys and girls between the ages of 14 and 16. Overtime is not worked by boys and girls under the age of 16 and over that age is limited to 100 hours in a year, and 6 hours only in any one week.

### **A MANUFACTURING CHEMISTS' FACTORY.**

A typical modern factory has the benefits of improved conditions such as lighting, central heating, fresh air and surrounding open spaces. The factory is divided into two parts consisting of a two-storey building where the manufacturing processes are carried out and a single-storey building where the goods are finished, stored and despatched. The products consist of proprietary articles such as tooth paste, health salts and peroxide of hydrogen, also sundry pharmaceutical preparations including ointments, face creams, hair lotions, etc. The factory staff numbers about 200 women and girls and about 100 men, while in the Research Laboratories are six chemists with B.Sc. qualifications, also six training assistants. Full use is made of automatic and semi-automatic machinery and a skilled staff of mechanics keep the machines in good running order. There is also a printing department.

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\* See footnote to Preface.

## DESCRIPTION OF THE PROCESSES.

The processes are much sub-divided and girls working in teams carry out single operations. Some examples of the processes are as follows:—

The tubes for containing tooth paste are bought ready-made with screw tops attached and a current of air is first passed through the tubes to eliminate any foreign matter. The screw ends of the tubes are placed into holders in a machine and each tube is filled automatically from a hopper into which the paste has been pumped along pipes from the manufacturing side of the factory. The tube is closed and crimped automatically, then pushed on to an endless band which travels along the centre of a table where girls pack into specified consignments. This work of filling and packing is carried out by a team of six girls.

The health salts are brought in bins from the manufacturing side, tipped into elevators, then forced into hoppers. The weighing is done by an electrically controlled machine which deposits the requisite quantity into a package. The packages are put into tins on a moving conveyor, lids fixed, tins wrapped in cellophane, then packed into standard consignments. This work is done by a team of 20 girls and 32 tins are filled and packed per minute. The bottles to contain peroxide of hydrogen are fed into a machine where they are rinsed thoroughly then passed to another machine where they are filled automatically with liquid, thence to a machine where caps are screwed on. The contents are examined by the aid of a strong light and the bottles are then placed on a conveyor for labelling and packing. A team of five girls is engaged on these operations.

## WELFARE.

The welfare arrangements for the staff are of a high standard. A spacious room with kitchen attached, is divided during working hours into a restaurant where meals at a moderate price can be obtained, a rest-room and a recreation room. This room is available also for holding staff dances, etc. There are two squash racket courts with dressing rooms and shower baths attached, also facilities for billiards and table tennis. Adjoining the factory are two hard tennis courts and within a quarter of a mile a  $5\frac{1}{2}$  acre sports ground where most games and athletics are available.

A well-equipped first aid room, including facilities for ultra-violet ray treatment, is controlled by a welfare supervisor and arrangements are made whereby the slightest accident receives immediate attention.



All workers in the factory are supplied with white overalls and caps which are laundered weekly. The girls are able to sit at their work and chairs with back rests are provided.

### **EVENING CLASSES.**

The firm encourages attendance at Evening Classes and fees are paid to enable the training assistants in the laboratory to study for degree qualifications.

### **WAGES.**

Girls start at the of 14 at 14s. per week if engaged on work in connection with proprietary articles and proceed by annual increments of 2s. per week to 20s. per week, then to 25s. per week at 18 years of age, and 27s. 6d. at 19. In addition they receive a bonus averaging 4s. per week. Those engaged on work in connection with sundries receive 14s. per week at the age of 14 and proceed to 20s. per week at 16, 25s. at 17, 27s. 6d. at 18 and 30s. at 19. No bonus is paid to these workers. Supervisors are paid 35s. per week and senior supervisors 40s. per week.

There are a few boys employed starting between the ages of 14 and 18 at between 20s. to 30s. per week and proceed to 45s. per week at the age of 21. Unskilled male workers are paid from 50s. to 62s. 6d. per week and skilled workers, from 55s. to 70s. per week. Section foremen are paid on a scale from 65s. to 80s. per week and departmental foremen up to £5 per week.

There is a contributory pension scheme. Payment is made in respect of public holidays, and an additional week's holiday with pay is allowed in the summer.

### **HOURS.**

The normal hours for women and girls are 44 per week and for men 46 per week. A five-day week is worked, starting at 8 a.m. on Monday morning and finishing at 5 p.m. on Friday. A luncheon interval of one hour, and breaks of 12 minutes duration are allowed during the morning and afternoon.

### **FILM INDUSTRY.**

The industry is divided into three main branches (1) production, (2) distribution and (3) exhibiting.

### **AREAS.**

Production is carried out mainly in the studios which are located at Blackheath, Cricklewood, Denham, Ealing, Edgware

Road, Elstree, Isleworth, Islington, Iver, Shepherd's Bush, Twickenham, Walton-on-Thames, Wembley, Wimbledon and the West End.

The business of distribution is transacted usually from offices in the West End, while exhibiting is effected through the media of the many cinemas.

### **DEVELOPMENT.**

The Cinematograph Films Act, 1927, has materially assisted the production of British films. The Act specifies that a certain quantity of films shown in this country must be directed by British subjects, photographed on British territory, and of British authorship, while the labour employed must also be mainly British. Foreign competition continues but British films are providing a steadily increasing supply. The industry is still, however, in its infancy and consequently there are frequent changes and improvements in method. During 1930 sound films were introduced which involved the building of a new type of studio, the installation of expensive equipment, and the engagement of additional experts, while the recent innovation of colour cinematography may demand also a change in technique. The increase in output of educational films, news reels, and a recently perfected apparatus for obtaining medical cinematograph records, as revealed by x-rays, are important features.

### **PRODUCTION.**

In addition to the work of the producers, scenario writers, directors and actors, studio production is divided mainly into the following departments:—

(1) Art, (2) scenic and construction, (3) properties, (4) model making, (5) make-up, (6) floor and production, (7) camera, (8) sound, (9) laboratory and (10) editing and cutting.

### **RECRUITMENT.**

In general three types of workers are engaged, (1) page boys and messengers at the age of 14, (2) boys from public, secondary, central, technical and art schools between the ages of 16 and 19; while some firms prefer boys who have completed the Cinematograph Course at the Regent Street Polytechnic for the technical departments and (3) experienced technicians.

Girls and women are employed sometimes in the editing and cutting department, and experienced shorthand-typists are engaged in the floor and production department as continuity girls. The qualities demanded for all departments are general alertness, adaptability, and willingness to work the long hours which are frequently entailed. Page boys and messengers have

opportunities later of entering some of the departments as junior assistants, but if not suitable they are discharged at about the age of 18.

## DESCRIPTION OF THE DEPARTMENTS.

*Art Department.*—This department is organised on the lines of an architect's office and the permanent staff includes artists, sculptors, quantity surveyors and architectural draughtsmen. The art director is responsible for designing the sets, and working drawing or "blue prints" are prepared to scale and distributed to the scenic and construction, properties or model making departments. The art director also supervises the building of the sets and is responsible for the dressing, which may include curtains and furniture, sometimes period, scenery, etc.

Cartoon films are made usually by firms specialising in this work. A staff of artists draw the main sketches, and the connecting "animation" sketches are drawn by assistant artists. The "movements" produced by the animators are made to synchronise with the sound track, which is recorded before drawing commences. The drawings are then copied on to celluloid, which is coloured and photographed on two or three negatives according to the colour process in use. This method is the same as colour photography of natural objects.

*Scenic and Construction Department.*—Scenic artists, sign-writers, carpenters, plasterers and metal workers are employed. Sets are made full size from the measurements on the blue prints received from the art department. Boys sometimes assist the skilled workmen and have opportunities to learn the various trades, but in some studios the rushed nature of the work precludes the possibility of training.

*Properties and Model Making.*—The property master usually has an extensive knowledge of carpentry, upholstery and metal work and is responsible for supplying the small articles required for dressing a set. Many articles are constructed from papier mâché, and artificial flowers are also made. The general work is similar to that associated with a stores department, and all articles are carefully indexed.

Models, such as engines, omnibuses, boats, etc., are sometimes made and photographed to obviate expense. Frequently the background of a set may consist of working models of people, animals, etc. A boy starts as an assistant in these departments and progress is dependent on the possession of an inventive faculty. An elementary knowledge of mechanics, optics, and chemistry is a useful asset.

*Make-up Department.*—Experienced hairdressers and beauty specialists are usually engaged, but sometimes boys from art schools are trained in the work. The principal artists are made

up by the experts but the "supers" normally make up themselves. The large companies have fairly extensive wardrobes, but sometimes garments are hired from one of the theatrical costumiers in the West End, and any necessary repairs or alterations are carried out by the dressers who are loaned by the costumiers during the period of a production.

*Floor and Production Department.*—The director as a rule has an assistant director who acts in an administrative capacity and is responsible for the smooth and efficient working of a production. The assistant director arranges for the artists to be called to the studio and compiles lists of necessary properties required from the properties department. The work of the continuity girl is important and arduous. She has a full typed copy of the scenes and dialogues and must be constantly on the alert to verify the focal lengths of the camera lens, ensure that the necessary properties are in position, artists are prepared for entrances and are wearing the correct clothes for a particular scene. High intensity arc lights are controlled by semi-skilled electricians, under the supervision of experienced electricians.

*Camera Department.*—In this department boys start by holding a number board which is photographed to indicate the beginning and end of a scene. They can proceed to a position as first assistant or focus man, which entails measuring the distances between the camera and the artists. By this means a boy with initiative can become a camera operator with prospects after a number of years of securing a position as chief camera man and lighting specialist.

*Sound Department.*—Boys sometimes assist the technicians in manipulating the microphone boom and in cleaning the apparatus. In some cases they work as "clapper boys" which entails clapping two boards at the beginning and end of a scene as a mark for synchronising the sound and picture. This latter work is done usually, however, by the number board boy (see Camera Department above). An assistant has opportunities to become a boom operator, which entails placing the microphone in the most advantageous position for sound reception. The next step is recording on sound cameras, and thus to work as a recordist, who sits at a monitor panel and, by means of controls, is able to regulate the voice intonations and keep "effects" noises to reasonable limits. Sometimes it is necessary to match the sound track to silent "shots". In that case teams of four electricians project into a theatre the picture, voice, "effects" and music, which are controlled by the recordists, and the synchronisation is recorded on to a single film. This is known as "dubbing" or "mixing". The chief recordist is usually a qualified electrical engineer.

*Laboratory.*—The negatives are developed and printed. Negative cutting is specialised work done by men and requires particular care, as the spoiling of a strip of negative may necessitate a re-take, which would involve considerable inconvenience and expenditure. There are many interesting adjuncts such as “fading” and trick photography. Developing machine operators work in a dark room, but recently new types of developing machines have been installed by which means the operations can be carried out in daylight. Assistants are trained by working with the experienced technicians.

*Editing and Cutting Department.*—The film containers are indexed and stored in this department.

The editor is responsible for the sequence of the film by making cuts and joins as stipulated by the director. Assistants sometimes learn the joining of negatives and films and the avenue of subsequent progress is via assistant cutter, cutter and assistant editor, to editor. Women are employed mainly on joining work, and extreme care is necessary in handling the machine.

### WAGES.

Page boys and messengers start at about 15s. per week and junior assistants are paid about 30s. per week. These amounts are sometimes increased when heavy travelling expenses to the studio are incurred. The average wages paid exceed the normal amounts in other industries, but employment tends to be irregular and a large proportion of experienced workers are engaged only for the duration of a particular production.

### HOURS.

The normal hours are about 48 per week but this number is often exceeded when a production is in progress.

### DISTRIBUTION.

The large producers usually conduct their own distribution of films from West End offices, while other firms act solely as distributors. The latter are generally known as “renters” and arrange to distribute the films produced by the smaller companies and by foreign firms. The work is similar to that associated with a publishers business. A fairly large clerical staff is maintained, divided generally into sections for publicity and sales, and an accounts section dealing, *inter alia*, with accounts, general correspondence and secretarial work (see page 10).

*Film Department.*—Films are repaired and joined, and some firms construct advertising films known as “teasers” and “trailers”. Boys are engaged in packing and despatch work

but this sometimes entails a fair amount of night work for older boys. Girls proceed to the packing and despatch of posters and examining and joining films. Joining and repairing films is skilled work.

### RECRUITMENT.

Boys and girls start as messengers at the age of 14 and those who are not absorbed into the clerical staff at about the age of 16, have opportunities offered in the film department.

### WAGES.

Boys and girls start at about 15s. per week and progress to about 20s. per week at the age of 18. An assistant despatch manager earns about 50s. per week and a manager between £4 and £5 per week. Women packers earn between 25s. and 30s. per week and a skilled film joiner can earn up to £4 per week.

### HOURS.

The normal hours are 44 to 48 per week.

### EXHIBITING.

*Projection.*—The projection room, in which there are at least three operators or projectionists, contains the machinery necessary for the reproduction of the sound and picture. The apparatus in use consists of picture projectors, high intensity automatic mirror arc lights, effects projector and spot lights, control panels for operating all lighting and colour effects in the auditorium, and sound reproducing equipment. The projection rooms are large and well ventilated and not hot enough to be injurious to health. The effects of glare on the eyes can be obviated by the use of shields and coloured spectacles.

### RECRUITMENT.

Boys start in cinemas as pages between the ages of 14 and 15 and girls as usherettes between the ages of 16 and 18. A smart appearance is necessary. Boys at the age of 16 with a knowledge of electricity are sometimes recruited for the projection room.

### UNIFORM STAFF.

After about two years a smart page-boy is transferred into the projection room as an assistant; alternatively he may become a junior attendant. Junior attendants proceed to such positions as attendants and foremen in charge of male attendants and the cleaning staff. Usherettes have opportunities of progressing to positions as chief usherette, cashier and chief cashier.

## TECHNICAL STAFF.

An assistant in the projection room acts generally as a messenger. He learns to join films, and during a performance examines and re-winds. There is no definite training scheme; much depends on the individual initiative, but an ambitious boy should acquire a good knowledge of electricity.

The 3rd projectionist is responsible for cleaning sound equipment, testing valves, etc. During a performance he threads up the film which may consist of three to six reels to the projector, and prepares the change-over machines. He also controls the spot lighting.

The 2nd projectionist examines the sound equipment and replaces fuses in the fuse boxes. He is responsible usually for the smooth working of the apparatus while a performance is in progress, and controls the stage curtains.

The chief projectionist is in charge of all the complicated electrical equipment throughout the theatre, which demands a wide knowledge of electricity. He controls the tone and volume of the " sound " by means of rectifiers.

## WAGES.

Page boys start at about 10s. or 12s. per week. An assistant in the projection room starts at about 17s. 6d. per week, a 3rd projectionist is paid about 22s. 6d. to £2 10s. per week, a 2nd projectionist about £2 5s. to £3 10s. per week and a chief projectionist between £3 and £5 5s. per week according to the type of cinema. Junior attendants are paid about 20s. or 25s. per week, attendants £2 5s. to £3 per week and foremen about £3 10s. per week. Usherettes start at about £1 per week and proceed to about 30s. per week. A chief usherette is paid about 35s. per week, a cashier up to £2 5s. and a chief cashier up to £2 10s. per week.

## HOURS.

The normal hours of duty for the junior staff under the age of 18 years are 40 per week, for women 45 to 50 hours, and for men 55 to 60 hours per week.

## PHOTOGRAPHY.

### ORGANISATION.

Photography is divided into two main branches. (1) Original or studio work which includes photography for advertising; commercial work (catalogue, fashion, building, etc.), and portraiture. (2) Factory work which deals mainly with the developing, printing and enlarging of amateur photographs, and mass printing of postcards, film " stills " etc., for the trade.

## STUDIO WORK.

*Portraiture.*—This work tends to be seasonal, the busy time extending from September to Christmas, and in the West End, during the Season of the Courts. Some firms utilise the slack season for developing the commercial side of their business. During the months of January and February some employers pay fees for trade pupils to attend a School of Photography for such subjects as lighting, background and posing.

*Commercial Photography* is sometimes taken up as an extension of business by portrait photographers, but is usually a distinct branch offering more opportunities for advancement than portraiture, to those with good ideas and initiative.

*Advertising Photography.*—This branch has come to the fore in recent years and offers almost unlimited scope to those with ideas and a keen sense of advertising values.

*Special branches* include X-ray and other medical work, press photography and free lance press work. Few women are employed in the latter branch at present. The work entails irregular hours, and often the carrying of heavy cameras.

*Training.*—An assistant in a small studio would obtain experience in all sections such as enlarging, developing, printing, retouching, spotting, finishing and mounting, but in large studios specialisation is general, and one or two only of the sections would be learned.

*Retouching and finishing.*—Girls generally specialise in this work as a lightness of touch is essential. The work is not suitable, however, for girls with defective eyesight.

*Operating.*—This section offers more opportunities for boys, though girls are finding increasing openings in portraiture. There is generally a restricted scope for girls as operators in commercial studios.

*Receptionists.*—Good posts are available in large studios for girls with a suitable personality. A knowledge of shorthand, typing and book-keeping is an advantage.

## RECRUITMENT.

A knowledge of drawing, good eyesight and a suitable personality are essentials for studio work.

*Apprentices.*—A few of the high-class studios engage boys and girls as premium pupils or apprentices at about the age of 16.

*Learners* start at about 16 years of age, and preference is given to girls who have completed the two-years Course at the L.C.C. Trade School, Bloomsbury, where the curriculum includes training in most sections of the trade. (See page 264.)



*Messengers.*—Boys and girls are engaged sometimes at the age of 14 as messengers and, if suitable, have opportunities to learn studio work when they attain the age of 16. Messengers are recommended to take up amateur photography and to attend the Evening Institutes which provide instruction in the study of types of cameras, exposures, developing, printing and enlarging (see page 264).

### WAGES.

Messengers start at about 10s. per week in a portrait studio, and at about 14s. per week in a commercial studio.

*Learners* at the age of 16 receive about £1 to 25s. per week, rising to about 40s. or 50s. per week, and in special cases to supervisory posts with salaries of £3 10s. to £5 per week.

*Receptionists* start at about 30s. per week, and salaries up to £3 per week are paid to the best type.

*Male Assistant Operators* and *Darkroom Assistants* start at about 30s. per week and rise to about 50s. or 60s. per week.

*Experienced Operators.*—Further progress is dependent solely on individual initiative, but salaries up to about £5 per week are obtainable in the special branches, while in press photography and commercial studios operators may earn £6 per week and upwards.

### HOURS.

The usual hours for studios are from 9 a.m. to about 6 p.m., and to 1 p.m. on one afternoon during the week.

### FACTORY WORK.

A number of girls and a few boys commence between the ages of 14 and 16 on elementary work such as washing prints and are employed subsequently on developing, printing and enlarging amateur photographs. Girls, if adaptable, are trained in spotting, retouching, etc., but mechanical processes are largely used. This work is definitely seasonal, the busy time being in the summer. Some firms, however, transfer the workers to other sections during the slack season.

### WAGES.

Boys and girls entering at the age of 14 start at about 12s. per week and at 16 at about 20s. per week. Women earn normally about 35s. per week, men about 60s. per week and up to 40s. and 80s. respectively in the busy season.

### HOURS.

The hours are usually about 48 per week, and more during the busy season.

## FURNITURE AND FURNISHING TRADES.

### FURNITURE AND CABINET MAKING.

#### AREAS.

The industry is carried out mainly in the areas of Camden Town, Edmonton, Hackney, Holloway, King's Cross, Leyton, Poplar, Shoreditch, Southall, Tottenham, Walthamstow, Willesden and the West End.

#### PRODUCTION.

Furniture of high-class and exclusive design is made throughout by hand but mass productive methods are used in the manufacture of large quantities of medium and cheap grades.

#### RECRUITMENT.

Boys must be capable at hand-work, and drawing ability is necessary for some branches of the trade. Some firms prefer boys from technical schools. Boys between the ages of 14 and 16 start as *indentured apprentices* or as *learners*. They are often employed for some time on general workshop duties, and progress eventually to simple operations under the supervision of skilled workers.

#### TRAINING.

A feature of the trade is the number of small firms, and the degree of specialisation. These firms frequently make one type of article—dining room tables for example—or sometimes part of an article—table legs—for other firms. An all-round training is obtainable usually in a small workshop doing a good and varied class of work. In some mass production factories training is inadequate, as the work is sectionalised into a number of operations, one of which only may be learned. Attendance at an evening institute is essential to ensure progress in all branches. (See page 260.)

#### TOOL KITS.

A large and expensive kit of tools is eventually required in most branches. Assistance in purchasing this can often be obtained from various charities, or sometimes the employer will advance on repayment terms.

#### OCCUPATIONS WITHIN THE INDUSTRY.

In a large cabinet-making shop several classes of workers would be found representing distinct but allied trades, such as *cabinet makers*, *chair-frame makers*, *wood turners*, *wood carvers* and *veneers*.

*Cabinet Makers.*—The choicer kinds of wood, such as oak, mahogany and walnut are worked by the cabinet maker. All kinds of furniture are made by a skilled cabinet maker, except chairs.

*Chair-frame makers.*—Chair-frame making, i.e., “show wood” as distinct from “stuff-over” chair making is akin to cabinet making and is equally delicate and skilled. The chair-frame maker has different methods of working, however, and uses different tools. A cabinet maker and a chair maker would not normally be interchangeable.

*Wood Turner.*—The wood turner works on a turning lathe both for the cabinet and chair-frame maker. To some extent hand work has been superseded by machinery, but there is still much wood turning of a skilled nature done with hand tools.

*Wood Carvers.*—This is a highly skilled branch of the trade requiring very special training. The development of machine moulding and shaping, however, has limited the demand for hand-carving. The most skilled branch is church and architectural work in which the study of architectural forms and periods is essential.

*Veneerers.*—The work is highly skilled and consists in matching and blending very thin sheets of ornamental wood, which are joined by tape, then glued over other wood. About 30 types of exclusive and beautiful woods are used for the purpose.

## WAGES.

*Indentured apprentices* are paid in accordance with the following scales:—

	Entering at			
	14-15		15-16	
	Per week.		Per week.	
	s.	d.	s.	d.
1st year	10	0	12	0
2nd „	15	0	17	0
3rd „	21	0	23	0
4th „	28	6	30	6
5th „	40	0	42	0

*Learners* at the age of 14 start at 12s. 6d. per week, and proceed by half-yearly increments to 9½d. per hour at the age of 18, and to the full rate at the age of 21.

The full rate for skilled cabinet makers, chair makers, wood turners and wood carvers is 82s. 3d. per week, and for architectural wood carvers a minimum of 97s. 11d. per week. Skilled veneerers earn from 78s. 4d. to 86s. 2d. per week.

## HOURS.

The recognised hours in the trade are 47 per week.

## FRENCH POLISHING.

### AREAS.

The trade is carried out mainly in the neighbourhood of the cabinet making trade.

### ORGANISATION.

Large firms of cabinet makers usually have a polishing department, but smaller firms often sell furniture "in the white" to wholesale firms. The latter may polish on the premises, but often give the work out to small firms specialising in polishing, known as piece masters. Men are employed in polishing large articles, women and girls on the lighter class of work. The work is inclined to be intermittent, the trade being slack in winter. Methods of applying the stain by a cellulose spray process are increasing, and superseding much hand work.

### RECRUITMENT.

Boys and girls start as learners at the age of 14 or 15. Strength and endurance are necessary, and artistic taste for the best class of work, such as copying antique furniture. Learners begin by sand-papering and filling. They proceed eventually by putting on the first coats of stain under the direction of a skilled polisher, and subsequently to the polishing of small articles.

### DESCRIPTION OF PROCESSES.

The surface of the wood is first sand-papered. It is then subjected to a process known as "filling" to obtain a perfectly smooth surface and the correct basic colour. The stain is then applied in liquid form. For high class furniture this is always done by hand, the rubbers being made of some soft material such as cotton wool. The application of stain and rubbing require considerable hand pressure. The work is not easy to learn, as the method of matching colours is difficult, and it takes a considerable time to obtain the correct "touch" necessary for a good finish.

### WAGES.

Boys and girls start at about 10s. or 12s. per week. The full rate for men polishers is 80s. 3½d. per week and for women 52s. 10d. per week.

### HOURS.

The recognised hours are 47 per week.

## UPHOLSTERY.

### AREAS.

The industry is found mainly in the areas of the Borough (Walworth), Camden Town, Edgware Road, Edmonton, Hackney, King's Cross, Leyton, Shoreditch, Tottenham, Walham Green, Willesden and the West End.

### ORGANISATION.

Upholstery, including draperies, is carried out in workshops attached to retail establishments and in workshops and factories manufacturing for the trade. The work includes stuffing, springing and covering chairs, settees, etc., cutting and making loose covers, curtains and pelmets; making and fixing of blinds; walling; covering floors with carpet, lino, rubber and cork; all sections of bedding.

### RECRUITMENT.

Boys and girls start at the ages of 14 or 15 and the work offers opportunities for those of average intelligence. Artistic taste is necessary in addition to manual skill. Formal apprenticeship under indenture is sometimes served, but informal apprenticeship or learnership is more usual. Male upholsterers are apprenticed for five years, with the exception of the carpet and blinds section, which is four years. In the case of girls it is four years throughout, and some firms prefer to engage girls who have completed a two-years' course at a technical school, which is regarded as a year of apprenticeship.

### TRAINING.

The branches of the trade are separate, and a full training in all is possible in large retail firms. Normally, however, a boy is trained to become either an upholsterer, mattress maker, blind maker, blind fixer or carpet planner.

Girls learn machining and hand sewing in the high class trade. Where upholstery is done on a large scale, however, and there is much sub-division, they may take a larger part in the processes of manufacture, but the upholstery of heavy furniture is not suitable for women.

Learners should seek a thorough training in the appropriate branch of the work, and not learn merely one operation.

### MAIN BRANCHES OF THE TRADE.

(1) *Upholstery*.—Upholstery "stuff-over" includes the cutting of covers—nearly always done by men, though women sometimes cut lighter materials—setting in webbing and springs.

stuffing the arms, seats, back, etc., of sofas and chairs with horsehair, fibre or down, and covering. The work calls for a considerable amount of skill, and in a good shop a boy should be trained to do the work right through. The hand sewing and machining of covers, and sewing in cording, is done by women and girls. Chair caning is a separate trade and is often done by women and girls.

(2) *Mattress Making*.—The filling used for mattresses, divans and box springs normally consists of wool rugging, kapok, hair, sisal, coconut fibre or lintafelt, the latter being a type of raw cotton. These materials are received in the factory in coils or pads. They are uncoiled by means of machinery and then teased out on a carding machine. In the divan and box spring making section the frame making is done by wood workers and the insertion of springs which are laced down and secured by strips of canvas, is a skilled operation, usually carried out by men. The filling of mattresses and pillows is a hand operation done by men, and the tufting is done by machinery. The sewing of covers and cases is done by women by means of power machines.

(3) *Blind and Curtain Making*.—Cutting and making of curtains and blinds, including the metal work, is usually done by men, but women and girls are employed on curtain machining and other processes.

(4) *Blind and Curtain Fixing*.—Fixing is done by men at customers' houses, and for this reason is given only to reliable workmen. A blind maker sometimes takes up fixing work.

(5) *Carpet and Lino Planning*.—The work is carried out usually in private houses, but sometimes measurements only are taken, and the material cut in the workshop. Skill is required in cutting the covering to advantage to avoid waste.

**WAGES.**

The scales of wages are as follows:—

—	Boys.	Girls.	
		Engaged direct.	From Technical School
	s. d.	s. d.	s. d.
1st year ... ..	12 0	11 0	—
2nd year... ..	17 0	15 6	17 0
3rd year... ..	23 0	22 0	23 6
4th year... ..	30 6	30 6	32 0
5th year... ..	42 0	—	—

*Carpet and Blind Section.*

The rates are from 17s. per week at the age of 16, rising to 43s. per week at the age of 21.

The rates for men in all sections vary from a *minimum* of 1s. 9d. per hour, and for women from a *minimum* of 1s. per hour.

**HOURS.**

The recognised hours in the trade are 47 per week.

**LAMP SHADE MAKING.**

**AREAS.**

House furnishing firms sometimes make lampshades, but more usually firms specialise in the manufacture and are found mainly in the areas of the City, Ealing, Tooting, Wimbledon and the West End.

**ORGANISATION.**

The trade is normally divided into three sections:—(1) designing, (2) the making of wire shapes or frames, mainly by men and boys, and (3) frame covering or mounting, by women and girls.

**RECRUITMENT.**

*Boys* start as messengers at 14 or 15 years of age and after a year or so are taught frame making. Nimble fingers and an average intelligence are necessary.

*Girls* start at the ages of 14 or 15. Ability at needlework and an artistic sense are essential qualifications. The work is light and pleasant and suitable for girls who are not very strong. An art school training is desirable for those entering the design section.

**DESCRIPTION OF THE PROCESSES.**

*Designing.*—The most skilled part of the trade is in designing and carrying out the designs in colour. Girls copy the designer's work and should be capable ultimately of making their own designs in accordance with the style approved by the firm.

*Frame Making.*—The wires are cut and bent into the shape required, then soldered or spot welded. A moderate degree of skill is necessary. Boys usually take from three to five years to become skilled in the work. Women and girls are sometimes employed on wire work for lighter frames.

*Frame Mounting.*—The covers are made of silk, parchment, vellum or of a synthetic material. Silk is stretched over the

frames, and stitched by hand, the edges are trimmed with braid or fringe, and sometimes with beads or embroidery. The joining of the parchment, vellum, and the synthetic material is not difficult, but the work requires care and neatness.

*Boys* start at about 12s. per week and the skilled rate for frame making is from 55s. to 75s. per week.

*Girls* start at about 12s. per week, and after about three years are paid at piece rates. A skilled moulder earns about 40s. per week on piece work. Copyists can earn up to 40s. per week and designers up to 60s. per week.

### **HOURS.**

The hours are usually 44 per week, but overtime is worked during the busy seasons.

## **GAMES AND SPORTS REQUISITES MANUFACTURE.**

### **AREAS.**

The firms carrying out these occupations are centred mainly in the areas of the Borough, City, Croydon, Enfield, Holloway, Penge, Richmond, Shoreditch, Tottenham and Walham Green.

### **BRANCHES OF MANUFACTURE.**

Manufacture is carried out by large firms making a great variety of articles and by small firms, including one-man businesses, specialising in one or more particular lines. The occupations include branches of trades referred to elsewhere, and similar methods of manufacture are employed. The wood and leather working trades play a large part. Thus the making of billiard tables, gymnastic apparatus, tennis and goal posts, croquet balls and mallets, chess and other games boards, etc., is mainly woodwork and is carried out by cabinet makers, joiners and wood turners, while metal parts are made or fitted up from castings in a metal shop by fitters, turners, blacksmiths or brass finishers. Similarly the making of footballs, punchballs, cricket bags, boxing gloves and other leather equipment is carried out by leather workers. Rubber athletic goods are mainly manufactured by rubber manufacturers, and often made up by the makers of sports goods, as, for instance, in making batting gloves for cricket or covering tennis balls. In a large factory the workers may be engaged in the manufacture of a variety of articles, according to the demand and the season.



There are a few branches of manufacture which are sufficiently individual to require particular notice. These are referred to below:—

### RACKET MAKING.

The making of rackets of all kinds is a trade in itself in which some firms specialise. Rackets are made mainly by hand, though where made in large quantities there is also a certain amount of machine work. A lamination of three or more strips of ash, beech or birch is first prepared to form the frame. These strips are glued, bent round a former to the exact shape of the head required, a wedge of walnut or other timber inserted, and then clamped at the shoulders. When set, the former is taken out and the rough frame partly machined. Handle pieces are glued, and then shaped by a spindle machine. The holes for the strings are drilled, sometimes by machine, and the frame passes to other workers, who shape, bevel and finish the racket by hand. The frame is then sandpapered. Shoulders are bound with fabric binding and the frame finally cellulose polished, usually by women and girls. The next process is stringing with gut, which is skilled work, although recently machine stringing has been introduced.

*Recruitment.*—In firms making high-class rackets, boys at the age of 14 are sometimes apprenticed under a written agreement for five years to frame making or stringing, and sometimes learn both, working with skilled journeymen. In large factories learnership is more usual and the processes are more sub-divided.

*Wages.*—Boys start straight from school, getting from 10s. to 15s. per week, and in the fifth year a boy should earn 30s. to 40s. per week. A skilled hand-workman can earn on piece-work £5 per week and up to £6 10s. per week during the busy season. Rates up to £3 per week are earned by workers on machine processes. Girls start at about 12s. per week, and women earn up to about 35s. per week.

*Hours.*—The normal hours are 47 per week.

### CRICKET BAT MAKING.

In making cricket bats, lengths of willow are split into clefts and stored for seasoning. They are then shaped, either by being chopped out by an axe or draw knife, but more usually roughly shaped by a machine. In this form they pass to the blade maker, who shapes them with a plane and "stock-scraper," a tool resembling a spoke-shave. The edges and face are pressed in a machine to harden them, and the splice is cut. The handles are made by the handlemaker of strips of cane cut square by machine and glued together. The end is cut or sawn into a wedge to fit the splice and the handle is then glued to the blade.

After that the handle is turned to the proper size by a wood turner. The bat is then finished off, and the handle bound. Hockey sticks are made in much the same way, except that the head is first steamed and bent.

*Recruitment.*—Boys between the ages of 14 and 16 are sometimes formally apprenticed to bat making, for five years, in which case they should learn to make the bat throughout, but learnership is more common.

*Wages.*—Boys start at about 12s. to 14s. per week, and a skilled workman on piecework earns about £3 per week and up to about £6 per week during the busy season.

*Hours.*—The normal hours are 47 per week.

### GOLF CLUB MAKING.

Clubs are made mostly by sports goods manufacturers and also in a small way by professional golfers, attached to golf courses, who usually have a shop for making and repairing golf clubs, and employ one or more club makers, and sometimes boy apprentices. The heads of the clubs are made of iron or wood, the latter having certain pieces of metal and horn fitted by the club maker. Steel shafts of rustless metal are now largely used almost to the exclusion of hickory shafts. Iron heads are bought by professionals ready forged, but manufacturers employ skilled forgers and grinders. Wooden heads are cut out roughly by band saw and turned roughly to shape on a copying lathe. Sometimes persimmon is bought roughly shaped from America. The heads are then fitted up to the proper shape with a rasp and weighted with lead. Grips of leather or other material are finally added, and the heads polished.

*Recruitment.*—Formal apprenticeship is not usual. A boy starts at about the age of 14 to 16 and works for four or five years as a learner. A boy working in a professional's shop generally aims at becoming a professional and should have some aptitude for the game.

*Wages.*—Boys start at 12s. to 15s. per week, and a skilled man is able to earn up to about £4 per week, and up to £6 per week during the busy season.

*Hours.*—The normal hours are 47 per week.

### TENNIS BALL MAKING.

Tennis balls and other rubber balls are made in moulds and then inflated to the required hardness. This is usually done by rubber goods manufacturers, who also sometimes cover the balls with cloth, but it is also carried out by sports goods makers. The cloth is cut by a press into two sections and then fastened to the ball with a rubber solution. The seams are

sometimes sewn but nowadays more usually vulcanised. The work of covering is done by women and girls and is paid for at piece rates.

*Recruitment.*—Learnership is usual and boys and girls start at the age of 14.

*Wages.*—Learners start at between 10s. and 15s. per week. A skilled female worker can earn 25s. to 40s. per week, and a skilled male worker about £4 per week on piecework during the busy season.

*Hours.*—The normal hours are 47 per week.

### SHUTTLECOCK MAKING.

Shuttlecocks vary between 75 and 85 grains in weight, and a cork base one inch in diameter is used into which 16 feathers with a top spread of  $2\frac{1}{2}$  inches are fixed. Rough feathers are sorted and cut by guillotine, then despatched for cleaning and bleaching. The bleached feathers are then cut to shape by machine. The work bases, sometimes weighted with small pieces of lead, are covered with white kid. Holes are then drilled for the feathers, which are fixed by hand, and stitched together about half an inch from the base. The work, which is light and repetitive, is done by women and girls.

*Recruitment.*—Girls start as learners, and nimble fingers are essential.

*Wages.*—Learners are paid from 10s. to 12s. 6d. per week. An experienced worker can earn up to 35s. per week, and up to 50s. per week during the busy season.

*Hours.*—The normal hours are 47 per week.

### TOY MAKING.

#### AREAS.

The industry is carried out mainly in the areas of Acton, Borough (Southwark), Hornsey, King's Cross, Lewisham, Stepney, Shoreditch, Stratford, Tottenham, Walthamstow, and Wimbledon (Merton).

#### TRADE BOARD.

The Toy Manufacturing Trade Board regulates minimum rates of wages for both time and piece workers.

## ORGANISATION.

Toy making is divided into a number of branches, the chief being:—

- (1) Wheel toys made of metal and wood.
- (2) Simple wooden toys and games.
- (3) Clockwork toys and cast metal toys.
- (4) Soft toys, animals, dolls, etc.
- (5) Miscellaneous toys, moulding, chemical, optical, etc.

## TRADE PROCESSES.

The making of wooden, metal and wheel toys involves the use of processes common to other trades such as sheet metal work, woodwork, etc., adapted to the particular needs of the toy industry and consists mainly in assembling and painting wooden and metal parts which have been cut out in a machine shop, or stamped in a press. There is much sub-division of operations performed by men and women, though the making of press tools for pressing out metal parts calls for the employment of skilled press tool makers (see Engineering, page 66). This branch appears to offer less facilities for the employment of juveniles than the craft trades with which they are associated. The manufacture of the best type of toy perambulator is carried on in conjunction with the manufacture of perambulators proper. The parts which constitute the mechanism in clockwork toys are stamped out by automatic machines, and the work of assembling is carried out by women and girls. The processes in connection with soft toys and cast metal toys are sufficiently individual to require particular notice, and are referred to below.

## SOFT TOYS.

Soft toys are stuffed toys, and consist of an outer covering of material filled to the required shape with kapok, wood-wool or straw. The outer covering of these toys is sometimes made of cloth or soft leather, such as kid or chamois, but for "animals" a specially woven fabric with a nap or pile is used. Wire is used in forming the skeletons of this class of toy; while the numerous accessories such as artificial eyes, toy bells, wheels, etc., are obtained ready made from other sections of trade. An expert designer plans the shapes and number of pieces of material required. The cutting out is done by hand with ordinary scissors and the machining by treadle or power-driven sewing machines. Stuffing with kapok, wood-wool or straw consists in pushing small wads of the material through an aperture left for the purpose in the cover. The wads are worked into the required positions by means of a short stick or similar implement. The finishing operations include the putting in of eyes,

the marking, by means of stitching or colour, of eyebrows, nostrils, fingers, toes, claws, etc.; the sewing on of pieces of material to indicate ears, tongue or tail and the sewing on of bells, toy harness, ribbons and other adornments. This work is done mainly by women and girls, and offers opportunities for progressive employment.

### CAST METAL TOYS.

This class of work carried out by men and boys calls for careful handling, as none of the usual operations of cleaning up a casting by filing, etc., can be performed satisfactorily on the tiny models. The casting is required to be clean and perfect when it leaves the mould, which is in two halves. The resultant parts of toys are hollow lead castings, which are coloured and assembled. Sometimes there are movable parts, such as the arm of a soldier, in which case a small boss is left on the "body" which passes through a corresponding hole left in the "arm"; the two being secured by flattening the end of the boss. The finishing work involved in putting in the features, shoulder straps and similar details, demands greater skill and care than for the groundwork, such as the colouring of the body of a horse or the scarlet tunic of a soldier. The painting of small lead toys is done by hand by women and girls, but spray painting is used sometimes for the larger ones.

### WAGES.

The wages in the toy making trade, except in certain cases where it is subsidiary to another trade, have been regulated as stated above by a Trade Board, and those at present applicable are indicated in the Trade Board notice (Y. 16). Boy workers under 15 are entitled to a *minimum* rate of 14s. per week, and girls 10s. 6d. per week. The *minimum* time rate for adult male workers of 21 years and over is 52s. per week; for wood cutting machinists, 63s. per week, and for women 29s. per week, but piece work rates yield not less than a 10 per cent. increase above the time rates.

### HOURS.

The normal number of hours declared by the Trade Board is 48 per week.

## GLASS MANUFACTURE.

### AREAS.

The industry is carried out mainly in the areas of Canning Town, Deptford, Ealing, Hackney, Harrow, Hayes (Mdx.), Leyton, New Southgate, Shoreditch, Wembley and Woolwich.

## BRANCHES.

Glass bottles are made by either machine or hand methods, and for the manufacture of bulbs and tubes, e.g. incandescent electric lamps, mass production methods are adopted. Blown domestic glassware is made by hand.

## RECRUITMENT.

In the manufacture of hand-made glass, boys start between the ages of 14 and 16, and are employed in the glass house in glass cutting, warehousing and packing. Girls are employed mainly in the manufacture of bulbs and tubing, and start at about the age of 14. In bottle manufacture the work is carried on continuously day and night, and in view of the necessity for night shift working, boys are not employed under the age of 16 in the actual making of bottles by automatic methods.

## DESCRIPTION OF THE PROCESSES.

### *Automatic Bottle Manufacture.*

*Mixing the Raw Materials.*—In the process of automatic bottle making the first step is mixing the raw materials, consisting chiefly of limestone, sand and soda-ash. Manual labour is required for handling the materials and for weighing the required quantities, but the mixing is usually done mechanically. The sand is shovelled from bins into a barrow, which is wheeled by a man on to a weighing machine. Limestone is handled similarly, as is the broken glass ("cullet") which is mixed with the other ingredients, and such minor ingredients as decolourising materials. The "batch", as the mixture is called, is taken usually by an automatic conveyor, to the furnace, where it is heated to a high temperature so that the materials are fused together to form molten glass. This process is done by adult male labour, usually on day work.

*Bottle-making.*—The machines which automatically make or "blow" bottles are attended by operators and assistant operators. The operator is in charge of a bottle-making unit which consists of a forming machine, conveyor, and automatic stacker. The molten glass in the furnace or "tank" is extruded through a small hole in the feeder and the required quantity of molten glass is cut off by automatic shears. This piece of hot molten glass slides down a chute into the mould, mounted on the forming machine, which may carry from two to eight moulds. The hot glass is converted into a finished bottle by the operations of this machine, and it is then placed, usually by mechanical means, on to a conveyor. The bottles, still hot, are conveyed to the front of a long oven known as an "annealing lehr" where an automatic device known as a "stacker" picks them

off the conveyor and places them in order on to an extremely slow-running belt which carries them through the lehr or annealing oven. Sometimes, with complicated bottles, it is necessary to take them from the bottle-making machine by hand or to take them from the conveyor and place them into the lehr by hand. There is, therefore, a certain amount of labour around this machine for this purpose, these workers being called "takers-in". A shift mechanic is usually attached to each crew of workmen, together with a crew foreman. When the bottle has passed through the annealing process to the cold end of the lehr, the bottles are examined by sorters. This is a fairly highly skilled operation, as there are many possible defects which might be found in a bottle at this stage of manufacture. Sorters start as learners at about the age of 18.

*Decorating Departments.*—The bottles are often decorated by vitreous enamelling or aciding. In the former process male labour is used for handling crates of bottles, washing them by machinery and handing them to women who are engaged in making transfers for labels or in operating automatic decorating machines. Male workers also take the finished bottles to the decorating lehr and handle them for packing and despatch.

*Semi-Automatic or Hand Bottle Manufacture.*

In other bottle works boys to begin with are employed as "takers-in", that is to say they carry the hot bottles, after they are made, on a shovel to the annealing lehr. There are prospects of advancement to employment on semi-automatic machines, where the boy forms one of a gang, of which the other two members are men, and his job is the finishing or blowing up of the bottle.

*Manufacture of Blown Domestic Glassware by Hand-methods.*

In the making of hand-made glass the glass blower is provided with a "chair" which has two parallel arms sloping downwards towards the front, and with blowing irons which are lengths of tubing about 42 ins. long tapering to a mouthpiece. On the blowing iron he gathers the molten glass from the furnace, and by blowing down the tube the glass expands and is shaped by the different tools, which are U-shaped pieces of steel, with either steel-pointed or wooden ends, wooden bats and shears. Having "gathered" the necessary amount of glass on the end of his iron he rolls the lump on a steel table called a "marver", in order to even out the corrugated surface and to make it symmetrical. He then starts blowing. If he blows with the iron up in the air the glass expands sideways, while if he blows with the iron pointing downwards the weight of the soft glass and the air elongates and expands the glass. By sitting in his "chair" and rolling the iron up and down the sloping arms with one hand, the blower can shape the bubble of glass by means of the tools.

The bottom of an article is always completed first, and, if a wine-glass is being made, after the bottom of the bowl has been finished, the stem is formed by dropping on some molten glass off another iron, which is then shaped by a metal-ended tool; the foot is made similarly. The glass is then broken away from the blowing iron and is held by the foot in a spring clamp on the end of a solid rod. The opening of the bowl is then heated until soft, the rough fractured edge is cut off by shears, and the bowl is opened out with the aid of a wooden-ended tool.

### WAGES.

The wages for boys vary from about 12s. per week at the age of 14, to 24s. per week at 16, and to about 30s. per week at 18. Sorters start at about 1s. 1d. per hour, and proceed to 1s. 7d. per hour, plus a good time-keeping bonus of 5s. per week. "Takers-in" on automatic bottle making earn from 50s. to 60s. per week, assistant operators and operators from £4 to £5 5s. per week, shift mechanics from £5 7s. 6d. to £6 15s. per week, and foremen from £7 10s. to £8 10s. per week. In the hand-made glass section the top rate is about 2s. 4d. per hour.

In the bulbs and tubes section girls start at 13s. per week at the age of 14, and proceed to 26s. per week at 18, and 30s. per week at 21.

### HOURS.

The hours in the industry vary from an average of 42 per week, worked by shift workers, to between 44 and 48 by other workers.

## JEWELLERY AND PRECIOUS METAL TRADES.

### GOLD AND SILVER SMITHING.

#### AREAS.

The trade is centred mainly in the areas of King's Cross and the West End.

#### BRANCHES OF THE TRADE.

The work is divided into three main branches:—(1) large work, such as plate, tea-pots, caskets, etc.; (2) small work, such as brooches, bracelets, cigarette cases, tops of scent bottles, etc.; (3) small special work, such as chain making and ring making. The branches are distinct and the workers are not normally interchangeable. The use of machinery is general, but the best work is done by hand.



## RECRUITMENT.

Boys start straight from school, and in the more highly skilled branches of the precious metal trades, that is, smithing, embossing and chasing, or engraving are generally apprenticed under a formal agreement for five to seven years. Apprenticeship is sometimes found in the other branches, but more usually boys are employed as learners, and often start as shop boys.

Ability at drawing and design is necessary, while healthy lungs and good eyesight are essential.

## DESCRIPTION OF THE PROCESSES.

The main sections of the trade, which are quite distinct, are as follows:—

*Smithing.*—The best work done in London is mainly large or wrought work. The article to be produced, whether cup, chalice, tray, salver, etc., is beaten or "raised" out of sheets of silver or gold with a hammer on an anvil, the anvils being of various shapes and sizes, according to the form of the article, and the smith works either from a model or a drawing. When the metal becomes too hard by hammering, it is annealed or heated red hot to soften it and the work is then continued until the article is completely shaped. It is next passed on to be embossed, or chased, if necessary. Certain parts, such as handles, etc., are made separately, and attached with solder. The best silver spoons and forks are forged, that is, hammered from a bar of metal, but this is a trade in itself, and is a very small one. Such articles are now generally stamped out. Solid silver or gold designs, figures or heads, for example, are moulded in a foundry, and then finished by being chased by hand. Designs in art metal are made in a similar way. The open decorative work in silver and gold is done in high-class work by saw piercing (see Jewel mounting, page 124), but in cheaper work it is stamped out.

*Spinning.*—Instead of being beaten by hand, articles such as cups, bowls, etc., are sometimes spun. Metal spinning is carried out on a lathe, and any metal which is sufficiently ductile can be spun, for example, silver, copper, iron, nickel, brass, etc. Spinning consists in pressing a sheet of metal cut into a circular form against a pattern or "chuck" made of wood or cast iron the outside corresponding to the shape of the article required. The metal is fixed in a lathe against the pattern, and as they revolve together it is forced by a spinning tool or "burnish" made of a blunt steel rod to take gradually the shape of the pattern. Much care is necessary, as there is some risk of being cut by the edge of the revolving metal. When it

becomes too hard by working, the metal has to be annealed to prevent cracking. The completed parts of an article are then soldered together. Spinning is suitable for round articles only, and is used for making a large variety of articles of sheet metal by silversmiths, coppersmiths, electro-plate workers, lamp workers and others. It is a more rapid method than beating, and requires skill and care, but does not permit of the same artistic treatment as in wrought work.

*Embossing and Chasing.*—Embossing and chasing are two methods of working designs in relief. Embossing is done from the inside of the article by pressing the metal with a blunt tool, known as a "snarling iron." Chasing is the finishing on the outside by means of a mallet and chasing tools, and for this purpose the inside is strengthened by pitch. Sometimes articles are both embossed and chased, and sometimes when the metal is too thin to admit of embossing they are chased only. Chasing and embossing are both highly skilled, calling for artistic treatment. The demand for cheap stamped articles has affected the trade however, and much of the high-class work is now engine turned.

*Engraving.*—This is particularly fine work done with an engraving tool, and with the aid of a magnifying glass. As a rule gold and silver smiths send their work out to an engraver, and do not do it themselves. The work is highly skilled, and engravers work for a variety of trades.

*Polishing.*—The work of polishing is much the same as in polishing jewels. It is done usually by men and boys with circular buffs and mops, worked on lathes. Great care and long experience in dealing with a large variety of articles is necessary to make an expert polisher, but this is not considered a highly skilled branch of the trade. Women sometimes do polishing, particularly on the goldsmithing side. It is rather dirty work, as the materials used are generally lime, sand and rouge.

*Burnishing.*—A very high finish is put on by burnishing. This consists in rubbing the surface with a burnishing steel or agate stone, and is generally done by women and girls. Sometimes articles are only partly burnished, that is to say, in places where it is difficult to polish with a mop.

## TRAINING.

The best training is obtained in large shops of good standing, where, though only one section of the work may be learned, a variety of work can be seen. Attendance at an evening institute is essential to derive experience in more advanced practical work and design (see page 262).

## WAGES.

Apprentices and learners start at 10s. per week, and normally receive the skilled rate at the age of 21. Skilled workers are able to earn £4 per week, and upwards.

## HOURS.

The normal hours are 47 per week.

## JEWELLERY MAKING.

### AREAS.

The high-class hand-made jewellery trade is centred in the areas of King's Cross and the West End. Cheap and imitation gold and silver jewellery is made in the East End, but this is mainly a Birmingham trade.

### RECRUITMENT.

Boys enter the trade as indentured apprentices, from the ages of 14 to 16, either to mounting, setting or gem cutting. The apprenticeship is for five to seven years, according to the age at which they enter and must be completed by the age of 21. There is generally a period of probation for about six months, which is deducted from the period of apprenticeship. Many employers prefer to engage boys who have attended a day technical school (see page 262).

Boys must have ability at drawing, be prepared for small work, have dexterous fingers and very good sight. The work is light, however, and height and strength are not important. Girls are apprenticed to polishing, for a period of three years. The work is highly skilled but very fine and delicate, the metals mostly used being platinum and gold. Owing to the value of the materials dealt with, a very responsible type of juvenile is required.

### TRAINING.

Apprentices are placed under the personal charge of qualified workmen, but are not allowed to work on the precious metals until they have nearly completed the period of apprenticeship. Attendance at continuation classes in technical schools is compulsory from 5 p.m. to 7 p.m. on two days each week, until the age of 18 years. Certificates of attendance and progress are submitted from the schools to the employers.

## BRANCHES OF THE TRADE.

There are several distinct branches as shown below:—

*Designing.*—Most manufacturers employ their own designers and artists, whose work consists in producing exclusive and artistic designs for individual customers. In some of the larger firms as many as a dozen artists are employed. Smaller manufacturers who are unable to keep an artist constantly employed on their premises, utilise free lance designers, who work for various firms. (See page 16 “ Commercial Art ”.)

*Mounting.*—Mounting includes the making of jewellery of all kinds, apart from the setting in of gems. In a firm of manufacturing jewellers doing high-class work an apprentice should learn all branches of mounting, that is to say, the making of rings, chains, bracelets, pendants, clusters, etc., though when out of his time a workman generally specialises in making particular articles, for example, rings or bracelets. Certain articles, such as signet rings or small ornaments, are stamped out of metal and then finished by hand, but most high-class jewellery is made by hand throughout from sheet metal, the mounters sitting round a bench and working either from drawings or from casts in plaster of paris. The tools of a mounter are various, but not expensive, and consist of files, hand-drills, blow pipes, saws and “ scorpers,” the latter being small chisels of varied shapes and sizes. The saw is a very fine fret saw, and is used for cutting out perforations in mounts. This is known as saw piercing, a method also employed in goldsmiths’ and silver-smiths’ trades. A very skilled mounter sometimes can make his own tools.

For chasing and engraving connected with jewellery mounting, see under “ Goldsmithing,” page 122.

*Polishing.*—The first polishing is given before setting. Polishing is also skilled work. The mountings are first sandpapered and rubbed with a stone like a slate pencil to remove the marks of the tools. They are then revolved in a lathe and polished by circular buffs or mops, treated with polishing powder. The greatest care is needed in order to avoid injuring delicate mountings. The mounting receives a final polish after it has been to the setter, and in the case of elaborate mountings this is done by hand with thread treated with rouge. Polishing is now usually done by women and girls.

*Gem cutting.*—A considerable number of gem stones are specially cut to the mounts provided by the manufacturing jeweller, this being largely the reverse of the practice prevailing years ago, when it was usual to mount according to the stones to be employed. Gem cutting is a highly skilled occupation and is known as lapidary work. It includes the cutting from rough material of rubies, sapphires and emeralds, which are eventually

made up into jewellery by manufacturing jewellers; and covers all precious and semi-precious stones other than diamonds. The process in connection with the latter is slightly different and is done mainly on the Continent, at Antwerp and Amsterdam. The finer cutting is considered to emanate from the latter town. Some diamond cutting is still practised in London, but it consists mostly in cutting odd pieces of rough, re-cutting old stones and repairing broken ones. The mounts are returned to the manufacturing jeweller, with the gems set temporarily in wax.

*Setting.*—All gems are set into the mounts by a setter, a distinct trade from the mounter. The chief tool of a setter is a "scorper," described above, with which he fixes the gems into the prepared mounts. The work of a setter is highly skilled, especially in the setting of elaborate clusters of precious stones.

### WAGES.

Boys start at about 12s. per week, and a skilled workman on full time earns about £4 per week. Highly skilled men earn considerably more. Mounters are usually paid at time rates, and setters at piece work rates. Gem cutters earn from 1s. 9d. to 2s. per hour.

Girls start at about 10s. per week, and proceed to a minimum rate of 1s. per hour at the age of 21. A skilled worker earns up to 1s. 6d. per hour.

### HOURS.

The recognised hours in the trade are 47 per week.

### ELECTRO-PLATING.

#### AREAS.

The work is carried out mainly in the areas of Borough, Camden Town, King's Cross, Tottenham and the West End.

### TECHNICAL DESCRIPTION.

Electro-plating is the process by which metal articles are covered with a thin or heavy coating of gold, silver, copper, brass, nickel, etc., by what is known as an electrolytic process. The articles are immersed in a bath containing certain chemicals and the particular metal required, through which a current of electricity is passed, the result being that a coating of metal is deposited on the article to be plated, the thickness varying with the strength of the current, the time that the article is immersed, and the amount of metal contained in each gallon of solution.

Firms who do electro-plating sometimes manufacture the articles to be plated as well. The manufacture is carried out by the same means employed in the case of silver articles (see page 121). The metal generally used is nickel silver.

### RECRUITMENT.

In high-class work boys sometimes serve an apprenticeship to plating or polishing of four to seven years, according to the age on entry, but usually start as messengers at the age of 14 and are trained subsequently as learners. Girls are seldom apprenticed, but work as learners for two or three years, from the age of 16. The work is not suitable for juveniles with tendencies to rheumatism.

### DESCRIPTION OF THE PROCESS.

*Dipping.*—The first process in electro-plating is to remove from the surface to be treated all grease, dirt, rust, verdigris, fire marks, etc., and in the case of replated articles the old lacquer and plating, which would interfere with the proper deposition of the new plating, and to expose a clean surface of virgin metal. This is done by a variety of means, chiefly by immersing the articles in various chemical solutions. This is known as "pickling" and "dipping". Different types of plating require different kinds of prepared surface. Sometimes a polished surface and sometimes a dull surface is needed, consequently different treatment is required. Dipping requires a good deal of experience, but is not in itself highly skilled work. After the surface is cleaned it has in some cases to be polished.

*Polishing* is done in much the same way as in silver polishing (see page 122), except that sometimes in the preparatory work with hard metals the emery wheel has also to be used. Polishing requires considerable skill and experience in view of the large range of articles to be polished and the treatment required by different metals.

*Coating.*—After the preparation of the surface, the coating takes place, the articles being suspended in the prepared baths by wires. The work of suspending them on the wires is sometimes done by women and girls. When the coating process is complete, the articles are dried in sawdust, cleaned, scratch brushed, polished and burnished, as in silver work.

*Lacquering.*—When the plating is designed to give an ornamental finish, as in the case of black and brass, black and copper, etc., the finish is preserved for years by the application of a coloured or colourless lacquer. This lacquer may be applied either hot or cold by dipping, spraying or brush, according to the nature of the lacquer. Lacquering is done by women and girls. Practice is required, but not much skill.

## **PROGRESS OF EMPLOYMENT.**

Apprentices and learners are trained by working with experienced workmen and start usually by drying the articles in sawdust. Though the actual coating is automatic, there is much to be learned in electro-plating, especially in firms where every kind of plating is undertaken. The expert plater should have some technical knowledge of chemistry, electricity, and if possible, metallurgy, if he is to be more than a routine worker. This knowledge may be obtained by attendance at technical classes (see page 262), combined with practical experience.

## **WAGES.**

Boy apprentices and learners are paid 10s. per week at the age of 14 and proceed to a rate of 34s. 6d. per week at the age of 20. Girls commence at 12s. per week at the age of 16 and rise to 18s. per week at 18. The adult rate is 1s. 6d. per hour for men and 10d. per hour for women, but specially skilled workmen earn higher rates.

## **HOURS.**

The usual hours in the trade vary from 47 to 52 per week.

## **LAUNDRY TRADE.**

### **AREAS.**

Laundry firms are established in most areas, but the trade is centred mainly in Acton, Battersea, Brixton, Camberwell, Hackney, Holloway, Leyton, Shepherd's Bush, Staines, Walham Green and Willesden.

### **TRADE BOARD.**

A Trade Board regulates minimum wages for both time and piece workers.

### **DEVELOPMENT.**

The old-fashioned type of laundry is gradually being superseded by large modern laundries where the most up-to-date methods are used, and where the ventilation and other conditions are generally good. There is a considerable amount of hand ironing for best-finished work, but most firms now have a cheaper machine finished service, while others provide a bag-wash service, when the articles are returned partly dried to customers.

## RECRUITMENT.

Entrants should have medium strength and average physique as the occupation, except on checking and sorting, is not likely to be suitable for those with heart weaknesses, or tendencies to rheumatism. Girls start between the ages of 14 and 17. A high degree of personal cleanliness is required by good firms, and overalls are sometimes supplied. The greater part of the work is semi-skilled and calls for common sense and dexterity. A few of the branches, however, such as "best general" hand ironing, require both skill and experience. Personal knowledge of the tone and type of individual laundries is very necessary in giving advice to girls. In the receiving offices there are openings for girls of a semi-clerical type. Van boys start at the age of 14, and, if suitable, are transferred to the wash-houses at about the age of 16 or 17. Facilities are available for workers to attend special technical classes at the Institution of British Launderers Ltd., 17, Lancaster Gate, W.2. See also page 263 for trade classes.

## DESCRIPTION OF THE PROCESSES.

The work is divided into a number of processes and it is not usual to move from one process to another, though in small firms several of the processes would be carried out by the same individuals.

*Collecting.*—All large laundries collect by van or motor.

*Checking, marking and sorting.*—The articles are checked with the customers' lists and sorted into groups according to the treatment required. Unmarked articles must be marked and damaged articles noted. Flannels, silks and woollens have to be separated from linens and cottons; articles requiring starching from those not requiring starching. Articles requiring special treatment for removal of stains are picked out. Sorting has to be done carefully and quickly, and it is carried out by women assisted by girls.

*Washing.*—Mechanical rotary washers, tended by men and boys, are used, consisting of a watertight container of metal with a revolving metal cage within, in which the clothes are placed and are brought into contact with water and cleansing materials in the container. Hot water and steam are used for washing and various changes of cold water for rinsing off. "Blueing" is usually done by adding liquid "blue" to the rinse water. Delicate materials, the best flannels and badly soiled articles are washed sometimes by women by hand. Rubber boots and aprons are supplied free to the workers.

*Drying.*—The hydro-extractor is used in the place of the old-fashioned wringer or mangle. The hydro-extractor, driven by



either steam or electricity, is tended by men and boys, and consists of a metal bowl with an inner cage of metal, which spins very rapidly, driving out the moisture by forcing the articles against the sides of the cage into a firm mass. The articles are opened out either by hand or by a revolving cylinder known as a "tumbler." Some articles, such as bath towels, are passed through a heated drying chamber.

*Calendering.*—The calender is a type of ironing machine which consists of a heated metal cylinder—or cylinders—revolving in a curved metal bed, which is heated also. A gloss is imparted to linen or cotton articles; skill being required in feeding the articles into the machine at the right angle to avoid creases. Women and girls do the feeding and the taking off. The articles are then folded and are ready for sorting.

*Starching.*—Starched articles require different treatment. Starch is applied by women and is generally used cold but occasionally hot. It has to be worked in by hand or in a starching box in which articles are kept moving. Special devices are used for partly starched articles such as shirts.

*Ironing and folding.*—(a) *Machine Ironing.*—In addition to ironing by calender, many articles are ironed by large gas-heated irons known as "glad irons," or by a steam press. Shirt-fronts and cuffs are ironed by a gas-heated roller working on a horizontal table, and sometimes finished by hand. Collars are ironed, folded, shaped and finished by various machines. (b) *Hand Ironing.*—This is skilled work. It is used for best finished work, and is known as "best general" ironing. In small hand laundries flat irons are usually heated by gas or a coke stove. In large laundries irons are usually heated by gas or electricity and can be kept at an even temperature. Ironing is often paid for at piece-work rates.

*Examining, Packing and Delivering.*—The finished articles are examined, sorted and checked against customers' lists and missing articles traced. This is responsible work and probably the pleasantest in the laundry trade. It is carried out by women and girls. Articles are then packed and arranged in districts for delivery.

### SHORT TIME.

The trade is fairly regular, though in certain districts it may be seasonal, when workers may be placed on short time.

### WAGES.

The *minimum* rates at present fixed by the Trade Board for girls under 15 years are 12s. per week and rise to at least 32s. at the age of 20. A skilled ironer on piece-work may earn from 34s. to 40s. per week. Boys under 15 start at 10s. and

The ordinary Public Holidays are given usually with full pay and most firms give a week's holiday in the summer to the regular employees.

### **HOURS.**

The usual hours are 47 per week. The trade is slack during the first three months of the year, but with the exception of a few temporary hands, the majority of workers are regularly employed.

## **LEATHER MANUFACTURE AND MADE-UP LEATHER GOODS.**

### **AREAS.**

Leather manufacture is carried out mainly in the areas of Bermondsey, Borough, King's Cross, Mitcham and Wimbledon, and the making-up of leather goods chiefly in Bermondsey, Borough, City, Dagenham, Hackney, King's Cross, Leyton, Shoreditch, Walthamstow, Willesden and the West End.

### **MANUFACTURE.**

The manufacture of leather can be divided into two main classes:—(1) heavy leather, and (2) light leather.

The first includes products made from the "hides" of the ox, cow, heifer, bull, such as sole leather, belting, harness, case leather and upholstery leather.

The second class includes the products from the "skins" of the sheep, goat, calf, and from certain reptiles, such as show upper leathers, box calf, glacé kid, glove and clothing leathers, also many kinds of fancy leathers.

The heavy leather industry is mainly one for male workers, although much of the tedious and laborious work has been greatly reduced by the use of machinery and mechanical adjuncts.

### **RECRUITMENT.**

Formal apprenticeship is unusual, though a few boys are employed to learn the trade throughout as apprentices, generally unindentured; sometimes indentures are signed with a view to training for supervisory positions—these boys are generally the sons of tanners. The trade is not unhealthy and is suitable for a strong boy of about sixteen years of age.

In the light leather factory, although the initial stages of the processes are wet ones as in heavy leathers, the skins being much lighter and smaller, can be handled more easily, and younger boys and sometimes girls and women are employed.

In the finishing of light leathers a good deal of art and craftsmanship is required. On the dressing side, apprenticeship was formerly the rule but the old methods which depended upon skilful manipulation by hand are now largely replaced by machine processes. There seems little scope for formal apprenticeship, except for boys who are training as foremen, and require a knowledge of most of the processes; this, and a scientific knowledge of the materials used, can only be acquired by long experience, supplemented by technical study. Boys are trained without indenture for currying and fellmongering and to operate shaving and splitting machines.

Classes in the science and technology of leather manufacture are held at the Leathersellers' College in Bermondsey. All boys aiming at supervisory posts should attend this course, as the study of the technical side of tanning is important.

### DESCRIPTION OF PROCESSES.

*Heavy leather tanning.*—The tanner receives hides from the butcher in a salted condition; each hide folded separately in a neat bundle, the salt acting as a preservative which prevents putrefaction. The hides are soaked in fresh water with the object of removing salt, blood, etc., and are then placed into lime solutions, where they remain from seven to fourteen days. The action of the lime is to loosen the hair so that it can be easily removed, also the hide swells and plumps up. The hair is removed by machine. The hide is now fleshed, adhering fat and flesh on the inner side of the hide is cut off, either by hand or machine. The next process is scudding or removing any short hairs that remain, this is done on a beam by hand with a blunt-edged knife. In the case of sole, harness or belting leather the hides are now rounded, i.e., cut into four portions, butt, shoulder, and two bellies, whilst hides to be tanned for other purposes such as upholstery leather are not rounded. The lime is removed by suspension in dilute acid solution. The hides are then placed in tanning liquor made by treating various vegetable materials, such as barks, with water to extract the tannin; the hides progress through successive pits of increasing strength until complete penetration has taken place; this takes from one to eight months, depending on the thickness of the hide and the nature of the tan liquor. Sometimes the hides are split during tannage, i.e., divided into two portions of the same area, grain side and flesh side, by the band knife splitting machine. Both parts are used for different purposes, the grain often being used for upholstery and cases, the flesh for curried stout upper leather. After tanning, sole leather is scoured, oiled on the grain, semi-dried, rolled under a heavy roller by machine and on drying out is ready for use.

*Currying or Dressing.*—Leather such as belting and harness must be more flexible than sole leather, the butts on completion of tannage are shaved or split to a level substance, and are now ready to be dressed or curried. The next process is to incorporate grease into the leather, this can be done by hand, or mechanically in a drum with hot greases; when sufficient grease has been absorbed by the leather, the superfluous is removed from the surface. The leather is then dried, stained and polished.

*Light Leather Processes.*—Light skins, sheep and lambs, are usually received by the tanner from a fellmonger in the form of pelts, i.e., with the wool removed and in the limed condition. The fellmonger as a rule is mainly concerned with the wool. He buys the skins which are washed in pits to remove blood and dirt. The next process is to paint the skins on the flesh side with a strong solution of sulphide thickened with lime; this has the effect of loosening the wool in a few hours. The wool is pulled from the skin, which is now termed a "pelt", is well washed and then placed into lime pits. When a sufficient number has accumulated they are sent by the fellmonger to the tanner. The skins can now be tanned for fancy leather or linings, or split, the flesh side being converted into chamois leather by an oil tannage, while the grain side, known as a "skiver", is tanned for bookbinding leather, jewel cases, pocket wallets, etc. Further processes in the manufacture of light leather include dyeing by paddles and drums, glazing and graining for such as glacé kid, embossing for fancy effects and imitation reptile leathers, etc. The application of science, and the introduction of chrome tanning has revolutionised the making of shoe upper leather, box calf, and glacé kid. The process is a very quick one, and the finishing operations involve a good deal of mechanical treatment, such as dyeing in revolving drums, glazing, graining and ironing. Many of these operation are carried out by women and juveniles.

## WAGES.

Boys at the age of 14 years start at about 15s. per week, and at 16 at about 22s. per week. A skilled man, at time rates, earns 66s. per week. Much of the work is paid at piece rates, which yield about 80s. per week. A labourer is paid 55s. per week. Girls at the age of 16 start at a *minimum* rate of 16s. per week, and semi-skilled women from the age of 20 are paid a *minimum* rate of 34s. per week. Payment is made usually in respect of National Holidays.

## HOURS.

The normal hours are 48 per week.

### MADE-UP LEATHER GOODS.

The work differs very much with the quality of the goods. High-class dressing-cases, for instance, are made throughout by skilled male labour, generally by a single individual, women and girls doing the leather sewing and seaming. Leather cases and other articles are also made in large quantities by repetitive processes, and in this case there is much subdivision of operations, women and girls having a larger share in the making, though the most skilled part of the work is done mainly by men. Small fancy leather goods, ladies' bags and pocket cases, for example, are sometimes made throughout by women and girls. Speaking generally, the manufacture of highly-finished, hand-sewn leather goods is undoubtedly a very skilled trade, but the same cannot be said of the cheap grades of goods made either of leather, canvas, paper or other material. The fancy side of the trade is light and pleasant.

### RECRUITMENT.

Boys and girls start at the age of 15 years. The best training is to be obtained with small firms doing high class work, and in this case only does there appear scope for formal apprenticeship. Boys are apprenticed by such firms for five years as case makers. Formal apprenticeship for girls is very uncommon, but in some firms girls have the opportunity of learning the making of light and fancy goods right through as learners. In the high class fancy trade there is scope for girls of good taste. Where goods are produced in quantity by sectionalised processes, boys, and more particularly girls, are apt to continue at one operation in which they become highly skilled. Employers are, however, usually ready to help those who show initiative and are anxious to learn by giving them the opportunity of learning several processes. Learners should take any opportunity they have of doing this, even if it means a temporary fall in earnings at piece rates.

Evening classes are available at the Cordwainers' Technical College, St. John's Lane, E.C.1, where instruction is provided in fancy leather work, handbag making, leather goods design and costing, also solid case work.

### DESCRIPTION OF THE PROCESSES.

*Leather Cutting.*—This is invariably done by men with a hand knife from patterns of cardboard or zinc. The cutting is similar to upper cutting in making boots (see page 138), and boys are trained as cutters. Paper or cardboard linings are cut by guillotine.

*Preparing.*—This consists in setting the part together ready for stitching. The amount of preparing varies in accordance with the kind of article made. No fine distinction can be drawn between "preparing" and "finishing", see below, which are often done by the same individuals, especially in high-class work. The two processes together include a large number of different operations, some of which are sometimes carried out before stitching and sometimes after, according to the organisation of the work. Where the work is sectionalised these operations are done either by men and boys or women and girls. Men generally do the most skilled parts, i.e., fitting covers over metal frames, riveting frames, setting-in locks, clasps, etc., and women the lesser skilled, i.e., glueing-in linings, attaching handles, etc.

*Stitching or Closing.*—Except in the case of very heavy goods, stitching is done by women and girls generally, and in the best kind of goods always by men by hand. Two needles are used, one in each hand, and specially prepared waxed thread. Marks for the holes are made with a pricking iron and the hole is bored by the sewer with an awl. Leather stitching is skilled work, but machines have been introduced, and their use, except for high-class goods, is likely to increase. Girl leather-stitchers should take any opportunity they have of learning machine stitching or another section of the trade, e.g., lining. The light goods such as pocket cases are sewn with an ordinary sewing machine, the edges for folding over having first be shaved or "skived" in a skiving machine to make them fit closely.

*Finishing.*—This has been partly explained above. It consists in making and setting in holders for fittings, attaching straps, handles, etc., seaming, quilting and fixing silk linings, polishing and other operations done partly by men and partly by women. Some of the embellishment work calls for a high degree of skill.

### SADDLE AND HARNESS MAKING.

Owing to the effect of the motor car on the use of harness, this is a declining trade. Many saddle makers, to fill up their time, have turned to the production of leather cases and goods of all kinds. Saddles and harness are still made by contract for the Government and other large users. Manufacture in these cases is carried out in factories and the work is largely repetitive, with the usual sub-division of processes. Skilled men do the cutting and preparing and women do the sewing. Saddles and harness for private orders are still made throughout by skilled individual workmen. Formerly apprenticeship was served in this trade for seven years, but this appears now to be rare, as the trade is not encouraging new recruits, and skilled workmen are mostly middle-aged. A scheme of apprenticeship

covering 5 to 7 years is recognised by the Saddlers' Company who grant certificates of proficiency both in Saddlery and Harness Making and also in Leather Goods Manufacture at the completion of apprenticeship. The Company are also prepared to consider applications for premiums under their Apprenticeship Charity. It is, however, only where there are definite prospects in view that a boy can be advised to accept apprenticeship in the Saddlery and Harness Making side of the trade.

### WAGES.

The scales of *minimum* rates paid to juveniles are as follows:—

<i>Age.</i>	<i>Boys.</i>	<i>Girls.</i>
15/16 years	16s. per week	15s. per week.
16/17 years	19s. per week	17s. per week.
17/18 years	23s. per week	20s. per week.
18/19 years	27s. per week	23s. per week.
19/20 years	33s. per week	26s. per week.
20/21 years	40s. per week	

Skilled male workers at the age of 21 years and over who have served four years in the trade are paid *minimum* time rates of 60s. per week, and skilled female workers at the age of 20 years and over, who have served three years in the trade are paid *minimum* time rates of 30s. per week. Piecework rates yield about 72s. per week to men and about 36s. per week to women. The rates of pay are minima in all cases, and much higher rates are paid to workers engaged in the production of high-class goods and good quality work.

Payment is made in respect of all National holidays (six in number in each year) or their equivalent, subject to the workers completing six months' service with any particular firm.

### HOURS.

The normal working week is 48 hours.

### BOOT AND SHOE MAKING AND REPAIRING.

#### AREAS.

*Machine Made.*—Grays (Essex), Hackney, Leyton and Tottenham.

*Hand Made.*—West End.

### TRADE BOARD.

Rates of pay in the hand made and repairing sections of the trade are governed by the Boot and Shoe Repairing Trade Board. The manufacture of leather footwear on a large scale is excluded from the scope of the Board.

## FACTORY MADE BOOTS AND SHOES.

There are many distinct machine operations on which men and women are employed. Boots and shoes of a high quality are produced in stock sizes of the same pattern and to the inexperienced person may be almost indistinguishable from hand made work.

### RECRUITMENT.

Boys and girls are engaged as learners at the age of 14, and a good type of factory worker is employed. In the large factories one or two only of the processes may be learned, but much depends on the initiative of the learner; better opportunities exist in the smaller factories for a wider training.

### CORDWAINERS' COLLEGE.

Classes are held for boot manufacture and boot repairing at the Cordwainers' College, St. John's Lane, E.C.1. Ordinarily, pattern cutting can only be learned in this way. Firms usually encourage attendance, and some pay the fees for their workers.

### DESCRIPTION OF FACTORY PROCESSES.

*Pattern Designing and Cutting.*—The designing of new types of shoes is the most skilled part of this section. Patterns are cut sometimes from individual measurements of customers, but usually are standardised. They are designed on cartridge paper and duplicated in materials such as fibre-board, metal, or fibre-board bound with metal. Men are engaged usually on this work.

*Clicking.*—The cutting of leather for uppers is carried out by men and is referred to as "clicking". Machine clicking is usually confined to the less expensive material; good quality leather is usually cut out by hand. In machine clicking the leather is placed in a block and a knife made to the shape of a pattern is pressed through the leather by automatic action. The leather is cut from whole skins, and skill is necessary in selecting leather suitable for different parts of the upper, in matching colour shades, avoiding holes or defects in the skins, and in preventing waste in cutting. Linings and fittings are cut from less durable material, a process which is entrusted to improvers as a preliminary training for clicking.

*Upper Making (Machining) or Closing.*—Parts of the uppers including the linings, are sewn by women and girl machinists. This is known as "closing". In addition they prepare the uppers for machining, which entails skiving (or shaving) parts of the uppers, turning edges or "folding", the fitting in of linings, eyeletting, attaching straps, inking and glossing.



*Bottom-stock Cutting.*—This is the cutting of soles and heel pieces from thick leather. Knives of the required shape are pressed automatically through the leather by means of a press machine. This work is carried out by experienced men, while the less skilled men cut the stiffeners for the uppers and the middle or insoles.

*Making (Lasting and Finishing).*—The upper, for which stiffeners have been prepared and set in, is drawn over a wooden last—or shape—and is first temporarily attached to the inner sole. The “welt”, or strip of leather to which the outer sole is later attached is then sewn to the inner sole and the upper. The outer sole is stitched with waxed thread to the welt, which projects beyond the upper to leave space for the stitching. Certain light shoes are sewn without a welt, and high grade light shoes are “lasted” inside out to conceal the stitches. The heels are built up separately, or, in the case of many types of ladies’ wear, ready-made heels of wood are used. The heels are usually attached by machine and this completes the operation of “making”. “Finishing” is the term applied to the final shaping, trimming and polishing of the soles and heels. These are usually machine processes, carried out by men and boys. Lasts are made by woodworking firms to the orders of boot makers.

*Stockroom.*—The final operations of cleaning, dressing and polishing the uppers are performed in the stockroom, by women and girls, who also pack the boots and shoes into cardboard boxes for warehousing.

*Nursery Shoe Making.*—The manufacture of nursery shoes is similar to that for adults, but not so complicated or skilful. Most of these shoes have the soles stuck on to the uppers instead of sewn. This is done by means of a cellulose or rubber solution, after which they are placed in a machine under air pressure for the sole to be fixed securely. Women and girl operatives predominate, but men are employed in the “clicking”, sole cutting and finishing departments, where boys have opportunities to learn these processes.

## WAGES.

Boy and girl learners start at about 12s. per week. Men earn on piece rates from about £3 10s. to £5 per week, and women earn up to about £2 per week. This section of the trade has special arrangements for payment to be made during holiday periods, based on equal weekly contributions from employers and employees.

## HOURS.

The hours in this section of the trade are 46 per week.

## HAND-MADE BOOTS AND SHOES.

“ Bespoke ” work, i.e., hand-sewn footwear is sometimes made for stock, and a bespoke boot maker usually does repairs by hand as well. Making by hand is carried out in workshops belonging to individual firms, or by out-working boot makers, who rent a small workshop, or bench in a workshop. The retailer takes the necessary measurements, then the uppers are made in the firm’s workshop, or sometimes purchased. The uppers, together with the necessary materials and lasts, are given to the out-worker. The out-worker “ makes ” and may “ finish ”, but frequently the “ finishing ” is carried out in the workshop of the retailer, or by another out-worker.

### RECRUITMENT.

Firms engaged in hand boot-making do only high-class work and require an intelligent type of learner who is keen to learn and become skilled in the intricacies of the trade. There is little formal apprenticeship; boys learn the trade by working with skilled men, and girls learn machining.

### DESCRIPTION OF HAND-MADE PROCESSES.

The processes are generally similar to those for machine-made articles, with the following differences:—

*Clicking.*—Clicking is performed by hand by cutting round the pattern, which is laid on the leather.

*Closing.*—The uppers are usually stitched, i.e., closed, by machine except for certain types such as shooting boots or golfing shoes, where waterproofness is highly important. A waxed thread is used, and the closing is done by hand. In sewing the uppers to the soles by hand the thread is made of twisted strands of hemp headed with a hog’s bristle; holes for the thread being made by an awl.

### SURGICAL BOOT MAKING.

This is a special branch of the trade, but the actual making of the boot is not different from ordinary hand-sewn boot-making. Designing, fitting and adjusting the boots to the needs of malformed feet, demand the highest skill and a good knowledge of anatomy. In special cases the preparation of plaster casts is sometimes necessary. An experienced hand boot-maker can proceed to this highly paid branch of the trade.

### BOOT AND SHOE REPAIRING.

The work is similar in principle to the making of hand-made boots and shoes. An efficient repairer should have a good general knowledge of all the processes, including riveted work, i.e.,

nailing the soles to insoles and uppers, and should be able to sew both uppers and soles by hand and machine. In the past it was usual for a boot repairer to open a small shop on his own account, but now boot repairing has become a highly mechanised trade, carried out normally in workshops where modern machinery is installed.

### WAGES.

As stated above the *minimum* rates in this section of the trade are governed by a Trade Board, but piece work rates normally yield wages in excess of the *minima*. For boy indentured apprentices under the age of 15 the *minimum* rate is at present 7s. per week, and for boy and girl learners under the age of 15 the *minimum* rate is 9s. 6d. per week. The *minimum* time rates for adult male workers range from 57s. to 72s. per week, according to the work on which they are employed, and from 41s. to 57s. a week for adult women workers. For further information see Trade Board notices D. (50) and (51).

### HOURS.

The normal hours in this section of the trade are 48 per week.

## MISCELLANEOUS TRADES.

### BRUSH AND BROOM MAKING.

#### AREAS.

The main areas for this trade are Borough (Southwark), Camberwell, Hackney, Harrow, Holloway, King's Cross, Romford, Stepney, Tooting, Walthamstow, Willesden and Wood Green.

#### BRANCHES.

Most of the work is now carried out in factories with the help of machinery, but skilled hand work is done in small workshops or in private houses. The conditions in factories are generally good. Most of the skilled work is done by men, but the making of cheap brushes by machine is mainly unskilled women's work.

The trade is divided into a number of distinct branches, which include the making of (1) household articles, such as hair, clothes, boot and scrubbing brushes, and street brooms, (2) tooth, nail and shaving brushes, with ivory and bone handles, (3) house painters' and artists' brushes, (4) varnish brushes and (5) circular brushes.

## TRADE BOARD.

The Brush and Broom Trade Board regulates minimum rates of wages for both time and piece workers. Girls should apply for a learners' certificate. (See Appendix C.)

## RECRUITMENT.

*Boys* usually start at the age of 14, and although some are apprenticed for four or five years to particular branches of the skilled hand trade, most are employed without apprenticeship.

*Girls* are not apprenticed, but are employed as learners on processes performed by women.

## DESCRIPTION OF PROCESSES.

Except in small workshops, the worker is engaged usually on one process only. Stocks and handles are usually made of wood or bone, but may be of ivory, celluloid, vulcanised fibre, rubber, etc. Wood handles and stocks are sometimes purchased ready made, but if made in the workshop, the work is done by male labour partly by hand and partly by machine. The boring is done by hand by men, or by machine by men and women. The making of bone handles is largely done by machinery. Shin bones of cattle are used; the shaping of the handles is men's work, and the drilling is generally done by women.

*Preparation of Materials.*—The hair, bass, fibre, etc., is given the general name of "materials". The word "bristle" is reserved for the hair of the pig, hog or boar, and it is illegal to describe other materials as bristle. The material is "dressed" by sorting and mixing according to length, colour and quality, and if necessary by bleaching and dyeing, although in some cases it is bought ready dressed. The process is skilled hand work, generally done by men, but women share to some extent.

*Fixing the Material.*—Four methods are used for filling household brushes, viz. "drawn", "trepanning", "pan-setting" and machine work. *Drawn work* consists in placing the material in a loop of wire which is pressed through the hole in the stock from the back. The wire is pulled taut and the "knot" of material is thus secured in the hole. This work is done mainly by women and girls, and the method is used also in making tooth and nail brushes. The *trepanning* method is used for the best hair brushes when the stocks are in one piece. Drawholes are bored lengthwise through the stock to meet the drilled holes. Wire is run through the drawholes, and loops pulled through the drilled holes; knots are inserted in the loops, and drawn into position when the wire is tightened. *Pan-setting*, which is used for large household brooms, is skilled hand work generally done by men, although women are sometimes employed. The "knot" of bristle or other filling

material is dipped into heated pitch, then tied with hemp, after which it is again dipped and inserted with a twist into the hole in the stock. *Machine filling* is rapidly taking the place of drawing, trepanning and pan-setting for certain qualities of brushes. The knot is pressed into the hole in the stock by means of a plunger or punch, and is fixed by a metal staple. Women and girls are mainly employed. The material for *house painters'* and *artists'* brushes is fastened to the handles by hand by skilled male workers and one worker makes a brush throughout. Women and girls usually make *varnish* brushes. The material is bundled, then put into a tin container and secured by cement or by a vulcanizing process. The handle is put into the other end of the container, and riveted by machinery. The general principle in the making of *circular* brushes by machine is to use a length of lacquered mild steel, or galvanised iron wire, which is bent in the shape of a large hairpin; the material is inserted evenly by hand between the strands and by a rotary movement of the machine, the strands are twisted into a spiral which forms the circular brush. This work is done usually by men.

*Finishing*.—The bristles, etc. are shaped and trimmed off, and the stocks and handles finally shaped, polished and varnished. If necessary, as in the case of wire drawn brushes, the backs are fixed on by screws or glue. This work is done by both male and female workers.

### WAGES.

As stated above, the *minimum* rates payable are agreed by a Trade Board as indicated in the notice M (49), but employers often pay higher rates than these *minima*. The minimum for boys and girls under 14½ is fixed at 9s. per week, but usually they are paid about 12s. per week. The minimum for men is 45s. to 56s. per week, and for women 26s. per week (if employed on certain male processes women receive the rate appropriate to men). Men on hand work are usually paid piece rates and are able to earn £3 per week or more, according to age and experience. These rates vary, however, according to the official cost of living figures. Some firms pay wages for the public holidays.

### HOURS.

The recognised hours of employment are 48 per week.

### CIGAR MAKING.

#### AREAS.

Manufacture by hand and machine is carried out mainly in the areas of Camberwell, City, Shoreditch (Clerkenwell) and Stepney.

## EMPLOYMENT.

The hand made trade is affected by seasonal demands, the busy season being from September to Christmas. Owing to the fall in consumption of cigars fewer workers are employed on hand made work than formerly. Machine work is less subject to seasonal fluctuation.

## TRADE BOARD.

Minimum rates of pay have been fixed by the Tobacco Trade Board.

## RECRUITMENT.

Boys and girls start at the age of 14 years. An indentured apprenticeship for 5 years is served either to making by hand or to sorting and/or bundling. Women and girls are mainly employed by large firms for machine work. Nimble fingers are essential for all branches.

## DESCRIPTION OF THE PROCESSES.

Cigars are made either entirely by hand—sometimes with the aid of wooden moulds—or by machines. The skill consists in making the cigar of uniform weight and shape which will burn evenly right through.

*Stripping.*—The tobacco is imported from abroad in large bales or cases of tightly pressed leaves. It is opened out and damped or “liquored” with water. The leaf is then separated by hand from the hard centre rib. This is known as “stripping” and is done by women and girls.

*Filler Making.*—The inside of the cigar, or “filler” is made up of selected but not necessarily perfect leaves. Juveniles start by making bunches from the filler as a preliminary to making cigars throughout.

*Hand Wrapping.*—Hand-made cigars are made by both male and female labour. The “filler” is wrapped in a broad piece of tobacco, known as a “binder” or “bunch wrapper”. The wrapped filler or bunch is then wrapped in a thin outer cover of specially picked and perfect leaves, which have been shaped by hand or machine. A trained worker should be able to wrap with either hand. The end of the wrapper is fixed with a tasteless gum called tragacanth.

*Mould Wrapping.*—Where moulds are used in shaping the “fillers”, the work is less skilled, and women and girls are mainly employed.

*Machine Making.*—The filler is automatically selected and arranged according to the shape of cigar required. It is then placed on the binder leaf, rolled by an automatic reproduction

of the hand-rolling process, enveloped in the wrapper, gummed and finally, in the form of a complete cigar, delivered to the removal trays. The machines are attended by women and girls.

*Sorting and Bundling.*—Cigars are trimmed, examined, banded, sorted and bundled. Cigar sorting and bundling, which consists of sorting according to colour and texture, is skilled work done by either women or men and includes the repair of defects.

*Whiff Making.*—Whiffs are made partly by machine, but rolled by hand. Tobacco leaf which is too small for cigar making is used for this purpose. Whiff making is usually the first stage in training for cigar making.

### WAGES.

Boy and girl apprentices to cigar making start at 13s. and 10s. 6d. per week respectively, and usually after the first year of apprenticeship piece-work rates are paid. Piece-work rates yield 39s. and 31s. 6d. per week respectively during the fifth year of apprenticeship. Workers in other sections are paid minimum time rates starting at 17s. 6d. per week for boys and 14s. per week for girls, at the age of 14, and proceed by half yearly increments to a minimum time rate of 61s. 6d. and 38s. 6d. respectively, at the age of 21. Piece-rates yield to adult workers between about 40s. and 50s. per week for women, and about 70s. to £5 per week for men. For further information see Trade Board notice N (16). Some firms pay wages for the public holidays, and the large firms usually allow a week's holiday with pay during the summer.

### HOURS.

The normal hours declared by the Trade Board are 48 per week.

## DENTAL MECHANICS

### DESCRIPTION.

The dental mechanic makes dental plates and other remedial appliances from gutta-percha, vulcanite, metals (including gold and platinum) and thermo-plastics. The mechanic does not make artificial teeth, which are factory made, but fits them to dental plates. This work demands care and skill, and the metal part of it is not unlike jewellery work. He works under the direction of a dentist, who provides the necessary measurements or a model of the patient's mouth.

*Workshops.*—A mechanic may work in the private workshop of a dentist, or for a firm of dental mechanics undertaking work for a number of dentists.

## RECRUITMENT.

Mechanical aptitude, good eyesight and a knowledge of elementary science are essential qualifications.

*Formal apprenticeship* for three or five years is usual though sometimes boys start as *learners* without an agreement. *Premiums* are not normally required.

## TRAINING.

In the workshop it is rarely possible to obtain a full training in all sections, with the result that while the trade is overcrowded, a demand exists for fully qualified mechanics. In consequence, apprentices and learners should supplement their workshop experience by attending appropriate evening classes (see page 253).

*Examinations.*—The City and Guilds of London Institute has recently adopted a syllabus and regulations. The examinations are in two stages, Intermediate and Final. The subjects include Chemistry, Physics, (Heat, Electricity and General Physics) Dental Metallurgy and Dental Mechanics.

## WAGES.

Apprentices and learners start at about 7s. 6d. per week at the age of 14, and at about 12s. 6d. to 15s. per week at 16, rising to 22s. 6d. at the age of 19. A craftsman is paid up to about £3 10s. per week, but occasionally specially skilled men can earn £5 per week or more.

## HOURS.

The hours range from 48 to 54 per week.

## HORTICULTURE.

Horticulture is the craft of growing plants for decorative or commercial purposes, and presents three main openings:—(1) private gardens, (2) commercial, (3) parks and public gardens. A large proportion of the work is unskilled, and advantage should be taken of the facilities indicated below for semi-scientific training. See also "Choice of Career", Series No. 23 (Agriculture, Horticulture and Forestry).

### PRIVATE GARDENS.

A good general introduction into the cultivation of plants is obtainable, usually, in private gardens, but the training varies in accordance with the size and nature of the establishment.



### COMMERCIAL.

Firms usually specialise in certain crops, and this section may be sub-divided as follows:—

(a) *Glasshouse work*.—The chief areas are Waltham Cross, Waltham Abbey, Cheshunt, Broxbourne, Hoddesdon and Nazeing, known generally as the Lea Valley district, where the crops include tomatoes, cucumbers, carnations, roses and other cut flowers.

(b) *Nurseries* for the production of flowering plants, shrubs and trees, also landscape work. Cut flowers are grown extensively in the Uxbridge area.

(c) *Market gardening*, which is the production of vegetables in fields and frames. The main areas are Feltham and Sidcup.

### PARKS AND PUBLIC GARDENS.

A few boys are employed as learners in the Royal Parks. Hyde Park, Kensington Gardens, St. James' Park, Regent's Park and Greenwich Park are regarded for the application of wages rates as inner London, and Bushey Park, Hampton Court Gardens and Richmond Park as outer London. Learners are trained for gardening and general work. At the age of 18, if efficient, they are put on to men's work and are permanently employed. Applications for employment should be made to the Office of Works, Royal Parks Division, Storey's Gate, S.W.1. Similar facilities are available in the Parks Departments of some Local Authorities, but boys under the age of 18 are not employed in the parks under the control of the London County Council.

### RECRUITMENT.

Boys and girls start as apprentices or as learners between the ages of 14 and 16, and efforts should be made to obtain a wide general experience. Boys should be fairly strong as much of the work is of a heavy nature, and girls need nimble fingers, especially for disbudding chrysanthemums. Boys assist in general work such as weeding, pricking out seedlings, preparing boxes and pots for seeds and bulbs, erecting and dismantling wind resisting screens, proceeding eventually to digging, soil sifting, mixing soils, planting, hoeing, staking, pruning, cutting and rogueing. The latter operation consists in eliminating the growths which have reverted to type. Charge hands are responsible, usually, for fertilizing and propagating. Girls are engaged on the lighter work such as disbudding chrysanthemums, picking out side shoots on tomato plants, stringing, tying up, collecting and carrying the cut blooms and crops to the packing sheds. Women are employed, usually, on sowing seed, box repairing, grading, bunching and packing, and sometimes on picking.

## TRAINING.

*Farm Institutes.*—Junior Scholarships tenable for a year at Farm Institutes are awarded by the Ministry of Agriculture and Fisheries to:—

(a) Sons or daughters of agricultural workmen or of working bailiffs, small-holders and other rural workers whose means and method of livelihood are comparable with those of agricultural workmen. These candidates should be 16 years of age and have at least one year's experience in practical work.

(b) Bona fide workers who have been engaged in paid employment for a period of about three years.

There is no written examination, and the normal method of selection is by interview. Scholars may have opportunities of a second year's study by means of an Extended Junior Scholarship, while those who do exceptionally well may qualify for a Senior Scholarship and attend a diploma course. Further particulars and a list of Farm Institutes may be obtained on application to the Ministry of Agriculture and Fisheries, 10 Whitehall Place, S.W.1.

Some County Councils offer to residents within their areas scholarships for courses at a Farm Institute. These scholarships usually cover the whole or part of the cost of tuition and may include a maintenance allowance.

*Student Gardeners.*—Young men between 20 and 25 years of age with at least 4 years experience in private, market, or public park gardening are eligible to be appointed as Student Gardeners at The John Innes Horticultural Institution, Mostyn Road, Merton, S.W.19., The Royal Botanic Gardens, Kew, and the Royal Horticultural Society School, Wisley, Surrey. An amount of about two guineas per week is allowed for subsistence, and experience may be obtained in various branches of gardening, including the propagation and cultivation of hardy shrubs, perennials and alpine plants, soils and fertilizers, fruit growing in the open and under glass, glasshouse work and garden designing. Students attend lecture courses in elementary science, horticultural science and the science of plant diseases, and receive assistance to prepare for the Royal Horticultural Society's examinations. (For evening classes see page 262.)

## WAGES.

Apprentices and learners start at between 12s. and 16s. per week, rising to about 30s. per week at the age of 18. The normal rate for a labourer is about one shilling an hour and women earn between 30s. and 40s. per week. Assistant gardeners and charge hands are paid between 50s. and 65s. per

week and foremen and head gardeners receive about £5 per week. Further posts are obtainable as superintendents, instructors for school garden work, school advisory officers, etc.

### **HOURS.**

The usual hours are 52 per week, starting at about 6.30 a.m. in the summer, and 42 in winter from about 8 a.m. Workers must be prepared when necessary to work overtime on Saturday afternoons and Sundays.

### **NEON TUBE SIGNS.**

#### **AREAS.**

The industry is still in its infancy and the important firms are located in the districts of Deptford, Shepherd's Bush, Wembley, Westminster and the West End.

#### **DEVELOPMENT.**

The development is due mainly to the red neon filled tube which is visible in inclement weather. Luminous gas discharge tubes are now employed not only for advertising, but also for such purposes as aircraft signals, aerodrome and beacon lighting, and the interior decoration of buildings.

#### **TECHNICAL DESCRIPTION.**

The illumination is obtained by passing an electric discharge through the gas which has been pumped into the glass tube, and for this purpose electrodes or terminals are attached to either end of each section of tubing. These are wired to the electric supply mains, and when necessary the current is built up to a high voltage of about 10,000 by means of transformers. The gases used normally are neon, argon, helium, and mixtures including mercury vapour. Coloured glasses are used also in conjunction with the luminous gases and vapours to produce different coloured effects in the luminous tubes. Neon produces an orange red light; deep red is obtained by filling a ruby coloured tube with neon. Argon with a trace of neon gives a blue light. Argon in itself has practically no illuminating properties, but acts as a carrier for mercury vapour; therefore, a small amount of triple-distilled mercury is pumped into the tube with the gas. Green is obtained by pumping this gas into an amber tube. Helium gives a pearl white light, and helium in an amber tube produces a gold colour, but the use of helium is restricted to some extent, as approximately three times the current is required to illuminate it.

## RECRUITMENT.

Boys are recruited for general work at the age of 14, and sometimes have opportunities to learn glass bending; but for the drawing office the entering age is about 16 years, and boys with ability in machine drawing and lettering, are normally obtained from central, technical or art schools. In the initial stages they are engaged on elementary duties such as writing out labels, card indexing or filing drawings, and proceed eventually to tracing work and the finished drawings. Similarly boys from technical and secondary schools who are interested in physics are employed to assist in the highly skilled work of pumping or filling tubes with gas.

## DESCRIPTION OF THE PROCESSES.

The factory is usually divided into six sections (1) the drawing office, (2) glass bending, (3) gas filling, (4) making and assembling electrodes and transformers, (5) sheet metal work, (6) wood work.

*Drawing Office.*—The drawings are made to the required size of the lettering which will constitute the sign, and are then traced in reverse on to asbestos paper. All drawings are filed for any necessary duplication or replacement of the tubes.

*Glass Bending.*—Soda glass and lead glass is used, and as the technique for the two kinds is different, the workers usually specialise on one type. The glass is bought from the manufacturers in tubes, or canes, usually five or ten feet long. The intricate bends and curves are obtained by placing the heated glass on the asbestos paper and bending the glass to correspond with the drawings. The work is highly skilled, and requires dexterous fingers, great concentration and constant practice. Normally boys are not taught glass bending in the workshop, but a boy with initiative has the opportunity to watch the skilled workmen and to practise in his spare time. By attending evening classes such as those which are available at the Borough and the Northampton Polytechnics, he would be able eventually to qualify as a glass bender.

*Gas Filling.*—Prior to gas filling the tubes are washed with a dilute acid, rinsed with distilled water, and dried by hot air pressure, to eliminate any impurities which would affect the subsequent illumination. The filling or pumping, of the tubes with gas is a highly skilled operation, which is performed by a qualified man known as a pumper.

*Electrodes and Transformers.*—The electrodes, or terminals, are made of either stainless steel, copper, nickel or Swedish iron. They are gas freed, and encased in a bell glass which is joined to the tube. The electrodes and transformers are normally made and assembled by the individual firm, but sometimes they are

bought ready made. Boys have opportunities to learn glass blowing by forming the bell glasses. The coil winding for the transformers is done, generally, by women, and the assembling by men.

*Metal and Woodworking Shops.*—In these shops are constructed the bases for the letters, and the cases which are sometimes used to house the signs. Sheet metal or teak are used, and the painting is usually done with spray guns. Some firms make galvanised iron beacons, on which tubes are mounted, for flashing signals to aircraft at night. Boys learn the work by assisting the skilled men.

*Erection and Maintenance.*—The erectors and maintenance staff are skilled electricians, and older boys sometimes have opportunities to learn this work; they must be able to work at heights.

### WAGES.

The ordinary worker recruited at the age of 14 is paid about 12s. per week. If he possesses the necessary initiative he can become a skilled worker and earn the appropriate rate of pay. Glass benders earn up to 2s. 3d. per hour. Sheet metal workers 1s. 5d. per hour, carpenters 1s. 8d. per hour. Electricians receive a rate from 1s. 10d. to 1s. 11½d. per hour, and their assistants from 1s. 5½d. to 1s. 7d. per hour.

Boys in the drawing office start at 15s. to 20s. per week, and as experienced draughtsmen may earn up to £5 per week. Designers often exceed this amount.

Boy assistants on pumping commence at 15s. to 17s. 6d. per week and as pumpers proceed to about £3 per week. The chief pumper is paid up to £6 per week.

### HOURS.

The normal hours of duty in the factory are 48 per week, and for the erection and maintenance staff 47 per week. Overtime rates are paid for work in excess of these hours.

## TOBACCO PIPE MAKING.

### AREAS.

Tobacco pipes are manufactured mainly in the areas of Battersea, Camden Town, City, Edgware Road, Hackney, Shepherd's Bush, Stepney and the West End.

### BRANCHES OF THE TRADE.

The processes in the making of a pipe are much sub-divided, and there is a good deal of work done on machines operated by men and women. There are two distinct branches of the trade: (1) bowl making and (2) mouth-piece making and fitting.

## RECRUITMENT.

Boys and girls start as learners at the age of 14. It is advisable for a boy to learn the work in a small workshop where there is not much sub-division of labour. In a large factory he may learn only one process. Girls begin at unskilled work such as staining the bowls, and learn machine operations as vacancies occur.

## DESCRIPTION OF THE PROCESSES.

*Bowl Making.*—The briar roots are obtained roughly shaped from abroad, and men do the final shaping and boring by machine. High class work is sometimes done by hand. The bowls are then surfaced by means of sand-paper wheels operated by men and women. Examining and grading is skilled work done usually by men.

*Mouth-piece Making and Fitting.*—Sheets of vulcanite and amberoid are cut by a guillotine machine and men operate the turning machines. The work is skilled, requiring care. The fitting of the mouth-piece to the bowl is skilled work done usually by men.

*Finishing.*—Mouth-pieces and bowls are polished by men and women by means of pumice powder worked against a machine wheel lined with felt. The final staining and polishing by buffing machines is done by girls.

## WAGES.

Boys and girls start at about 12s. to 15s. per week. A skilled man earns from 1s. 6d. to 2s. per hour, and a skilled woman from 10d. to 1s. 2d. per hour.

## HOURS.

The normal hours in the trade are 48 per week.

## UMBRELLA MAKING.

### AREAS.

Manufacture is carried out mainly in the areas of the City, Leyton and the West End.

### EMPLOYMENT.

The trade is seasonal, the busy period being from June to the end of November. In umbrella making women workers considerably outnumber men.

### STICK MAKING.

The sticks for umbrellas and walking-sticks are made by stick-makers, who also sometimes make umbrellas complete as well. Sticks are made by men and boys and there is much subdivision of processes. The sticks, especially in the case of umbrella sticks, are often cut out and shaped by machinery and then varnished and finished by hand. The most skilled part of stick-making is the straightening of sticks or canes and bending and fixing the handles.

### STICK MOUNTING.

Stick mounting, that is to say, making and fixing of gold, silver and metal mounts, is a separate trade, but is done by stick manufacturers. In reality it is a branch of precious metal work (see page 120), but for the most part is not highly skilled.

### FRAME MAKING AND FITTING.

The trimmed sunshade trade has declined rapidly, attributable to the growing favour of the coloured "en tout cas," which can be used for all occasions. In the manufacture of umbrellas and "en tout cas" the making of the frames and fitting them to the sticks is done as a rule by men and boys, and also the cutting of the covers and fixing them round the stick.

### MACHINING AND FINISHING.

Women and girls machine the covers and sew them to the metal ribs. They do the finishing as well, that is, the attachment of tips, linings, tassels, bands, etc. Sometimes they are employed on frame work.

### WAGES.

Boys and girls start at 14 as learners, at 10s. to 12s. per week. After a period of training lasting a few months to a year they are often put on piece work. The full time rate for a skilled man is about £3 per week, and for a woman about 30s. per week, but these rates are sometimes increased by piece work.

### HOURS.

The normal hours are 48 per week, but overtime is worked during the busy period.

### PAPER MANUFACTURE.

#### AREAS.

The manufacture of machine-made paper is carried out extensively at Dartford and Orpington. Art papers are sometimes made by the paper manufacturers, but the coating is done

usually by firms specialising in the work, situated mainly in Acton, Camberwell, Hayes (Mdx.), Willesden and Wimbledon. Paper board, or cardboard, is manufactured mainly at Grays, Poplar and Wimbledon.

### RECRUITMENT.

Boys and girls start as learners between the ages of 14 and 16 and boys when old enough, must be prepared to work the night shifts. They should be strong and active; good eyesight is essential. Juniors entering the trade at the age of 15 years or over must serve a probationary period of six months. Boys assist the skilled workmen, and if suitable have opportunities to become skilled. Girls are engaged mainly on sorting and examining the finished work. (For evening classes see page 265).

### DESCRIPTION OF THE PROCESSES.

The raw materials for machine-made paper consist of (1) Wood Pulp—chemical or mechanical, (2) Esparto grass, (3) Rags or cuttings of cotton or linen. These materials used in varying proportions produce many types of papers. A considerable tonnage is consumed as writing paper and for general printing purposes, while large quantities are required for newspaper and magazine printing.

Esparto and linen or cotton material have to be subjected to preliminary boiling treatments with chemicals before they can be used in the papermaking process. Chemical wood pulp under certain conditions is bleached; while mechanical wood pulp is used without further treatment.

The material is fed to a beater, which consists of a rotating drum fitted with blunt knives revolving in a trough of water; the knives on the drum pass very close to another set of knives fitted to a stationary bed-plate—the pulp material being torn and cut between the two sets of blades. To the beater may be added (1) fillers—a fine mineral powder, such as China clay, which serves to fill the pores in the paper, thereby improving the structure and surface of the sheet, (2) dyestuffs—if the paper is to be coloured, (3) size—if the paper is to resist the effect of ink, so that it may be written upon without "feathering".

The beating operation being completed, the pulp is run into a circular tank called a stuff chest, in which agitators revolve on a vertical shaft, to keep the fibres and water thoroughly mixed and of uniform consistency. From the stuff chest the pulp is pumped into a service-box, from which it flows in a regulated stream mixed with a definite quantity of water, depending upon the required thickness and weight of the paper. The pulp then passes through strainers, and resembling watered-down milk flows on to the "wire" of the paper machine. This "wire" is an endless horizontal wire-gauze belt which travels



over rollers; when the mixture of water and fibres reaches it, the water runs through the gauze leaving the fibres, fillers, dyestuffs, and sizing upon the gauze in the form of a thin sheet, which is the beginning of the sheet of paper. The dewatering action is assisted by suction boxes beneath the wire, and the process causes a certain amount of cohesion to take place between the fibres. Between the suction-boxes and on the upper side of the wire cloth is the "dandy roll" which revolves at the same speed as the wire, and imparts the "watermark" to the paper. It consists of a skeleton roller, covered with wire gauze, and the device which it is desired to impart to the finished sheet is woven in wire and stands out in relief. The pulp and wire cloth then pass under the blanket-covered couch roll, the pulp being conveyed by a travelling endless felt between two pairs of heavy press-rolls, from which the paper is led over a number of drying cylinders heated internally by steam, by which means the surplus water is evaporated.

The paper is then passed between chilled-iron rolls, which compress it and impart a certain amount of finish to the surface; it is finally wound on a large reel. These large reels may then be taken to machines called "slitters", which cut the paper longitudinally so that two or more narrower reels are produced. Or the large reel may go to a "cutter", where the paper is cut longitudinally and transversely, thereby producing individual sheets of paper: cut paper is examined, sorted, and counted into reams by girls. The packing is done by men.

*Cardboard.*—The term "Cardboard" is a very wide one covering types made of various substances, of varying thickness, used for many purposes. The largest tonnage is that for the manufacture of cartons and cardboard boxes, of which the chief raw material is waste paper. The method of manufacture is similar to that for paper, but a cylinder machine is used instead of a flat machine in the formation of the sheet. In the cylinder machine the wire gauze travels round cylinders immersed in the mixture of fibre and water; the water flows through the gauze, leaving a deposit of fibre.

Cardboards of all kinds consist of several thin layers of material, which adhere together. This is attained by wrapping the wet sheet from the cylinder mould, after it has passed through presses to extract water, round a horizontal cylinder: this revolves as many times as layers are required in the finished board. The wet board is then cut along the length of the cylinder, it falls off as a sheet, and is removed for drying.

*Coated Papers.*—The demand by printers for a paper having a smooth surface for half-tone printing, has led to the surface coating of paper with an emulsion containing a large proportion of the substances which are used for filling or loading. China clay and casein, and sometimes glue or starch are mixed with

water, while dyes are added if a particular colour is required. The body paper is run over a roller revolving in a trough containing the coating material, which is levelled off on the paper by means of mechanical brushes, and the wet coated paper is carried off in festoons through a long drying chamber. When dry it is passed alternately through heated compressed paper and steel rollers, which impart a high finish. The processes are repeated if coating is necessary on both sides of the paper. The reels are cut into sheets as described above, and the sheets into smaller pieces by means of a guillotine.

### **WAGES.**

Boys at the age of 14 start at 12s. 6d. per week proceeding to 5d. per hour at 16, and to 10½d. per hour at 20 years of age. Male adult workers are divided into three classes. Class 1 included machinemen and beatermen. Class 2—super-calendermen, reelers and cuttermen. Class 3—labourers. Class 1 receive a minimum rate of 1s. 5d. an hour, Class 2, 1s. 2d. an hour and Class 3, 1s. 1d. an hour for shift work, and 11½d. an hour for day work. In addition, Classes 1 and 2 are paid a tonnage rate, dependent on output. Girls at the age of 14 are paid 11s. per week, proceeding to 19s. per week at 16, and to 28s. per week at 18 years of age. Women earn between 30s. and 35s. per week on piece rates.

### **HOURS.**

The normal hours are 44 per week on the three shift system. Day workers are employed for 48 hours per week. Most firms allow six days' holiday a year, with pay.

## **PAPER BAG MAKING.**

### **AREAS.**

Paper bags are manufactured mainly in the areas of Bermondsey, Borough (Southwark), Enfield, King's Cross, Leyton, Shoreditch, Stepney, Tottenham, Walham Green and Willesden.

### **TRADE BOARD.**

Minimum rates of wages have been fixed by the Paper Bag Trade Board. Girl learners should apply for certificates. (See Appendix C.)

### **MACHINE WORK.**

Bags in a variety of shapes and sizes are made as a rule entirely by machinery fed by women and girls, who outnumber the men and boys employed. Large orders are usually carried out on machines which cut, fold, glue and print the bags. The

skill in the making of paper bags consists in setting and adjusting the machinery which is done by male workers, known as machine tacklers.

### HAND WORK.

Where bags are made throughout by hand, the cutting is done by men and the making by women and girls. This occurs only, however, where small orders or special types of bags are required, for which the machinery is unsuited. Some kinds of bags require finishing by hand, e.g., carrier bags with string handles.

### RECRUITMENT.

Boys and girls start as learners at the age of 14. Girls sometimes learn hand making but usually become machine feeders, and in general learn the feeding of several kinds of machines. Boys are trained as cutters or as machine tacklers.

### WAGES.

The rates of pay are indicated in Trade Board notice P (17). Boy learners under the age of 15 start at not less than 14s. per week (time rates). Male workers of 21 and over are entitled to *minimum* rates of 52s. 6d. to 66s. per week, according to the work on which they are employed.

Girl learners under 15 start at not less than 9s. 6d. per week, but the rates paid are in general higher than the minimum. Adult women workers are paid a *minimum* time rate of 29s. per week, but piece rates yield not less than 31s. per week. Employment is regular, and some firms pay wages for public holidays.

### HOURS.

The normal hours declared by the Trade Board are 48 per week.

### PAPER BOX MAKING.

#### AREAS.

The trade is centred mainly in the areas of Battersea, Bermondsey, Borough (Southwark), Croydon, Grays (Essex), Hackney, King's Cross (Finsbury), Leyton, Shoreditch, Walthamstow and Wimbledon.

### TRADE BOARD.

The minimum rates of wages have been fixed by the Paper Box Trade Board.

## ORGANISATION.

Paper or cardboard boxes are made by firms specialising in the manufacture of these products, and to a limited degree by stationery and other firms for boxing their own manufactures. The boxes are made of a variety of materials—cardboard, plain and corrugated, strawboard, millboard, leather board, etc., and in a large variety of shapes and sizes, both rigid and collapsible, according to the purpose for which they are designed, from small boxes for jewellery to the large boxes for tailors and milliners.

## RECRUITMENT.

Boys and girls start as learners at about the age of 14. Women and girls are employed either as machine attendants or on making plain or fancy boxes by hand. Boys either learn cutting, which is a skilled operation, or attend machines which make complete boxes. The work demands cleanliness, dexterity and neatness.

## DESCRIPTION OF THE PROCESSES.

In the making of the highest class of fancy box where small quantities or specially designed boxes, e.g., for the Christmas trade, are required, male workers do the cutting by hand shears, and the rest of the manufacture is completed mainly by hand. This is highly skilled work.

The plainer types of boxes when required in large quantities are made by machinery with a variety of processes under factory conditions. The work is done mainly by women and girls.

The most usual box shape is rectangular. This type is either made from one piece of material, the lid being made separately, or where this method would mean large waste of material, the boxes are made of separate pieces fastened together. The chief processes of making rectangular boxes are as follows:—

*Cutting.*—The material is cut as a “blank” to the size required. A power driven guillotine knife is used for cutting a number of blanks at the same time. The guillotine operative must calculate the size required for a box of given dimensions, and avoid waste. In cutting lids, he must allow for the thickness of material. This work is done by men, and boys are trained by working next to experienced hands.

*Scoring.*—The “blank” is then placed in a scoring machine which marks lines with a cut or groove, on which the box must be folded. The corners are next cut out by machine, and the blanks are then in the form of a cross. The cover is treated in a similar manner. For deep boxes, the sides and bottom are made separately and attached, to avoid waste in corner cutting. Scoring is normally done by women and girls.

*Corner staying and ending on.*—The box is then folded into shape and may have the edges joined together, by strips of gummed paper or calico, by wire stitching or by metal strips. This work is done by women by hand or machine.

*Covering.*—The boxes and lids are sometimes covered with paper. This is usually done by women and girls by machinery or by hand.

*Cartons or Collapsible Boxes.*—In the case of cartons or collapsible boxes such as are used for sweets or cigarettes, the material is cut and scored and sometimes printed by a machine in the form of a flat or rotary press, in which there is set a "forme" as in printing, the forme being arranged both to cut or crease the material. The setting of the forme is highly skilled work and is done by men. Boys are sometimes trained as forme setters. Feeding the machine often requires great care and is entrusted to the smartest girls.

The waste material is then removed by boys or girls by hand. This is known as "breaking down".

## WAGES.

The rates of pay are indicated in Trade Board notice B. (21). Boy learners under 15 years of age start at not less than 14s. per week. Skilled male workers at 24 are entitled to a *minimum* rate of 66s. per week, and for unskilled work, 49s. per week. Girl learners who enter the trade between the ages of 14 and 16½ are entitled to *minimum* time rates varying between 9s. 6d. and 11s. 6d. per week, but usually they start at about 12s. per week. For women workers the *minimum* time rate is 29s. 6d. per week, but a skilled worker employed on a piece work basis can earn from a *minimum* rate of 31s. 6d. per week up to about 40s. per week. Employment is regular, and some firms pay wages for public holidays, and allow a week's summer holiday with pay.

## HOURS.

The normal hours declared by the Trade Board are 45 per week. Overtime is paid at a minimum rate of time and a quarter.

## STATIONERY MANUFACTURE.

### AREAS.

The making of stationery, that is to say, the preparation of paper for sale, including cutting, stamping, printing and binding, is carried out mainly in the areas of Bermondsey, Borough (Southwark), Camberwell, City, Harrow, King's Cross (Clerkenwell), Shoreditch, Stepney, Tottenham, and Willesden.

## RECRUITMENT.

The trade employs male and female labour, the latter being in the majority. Boys and girls start direct from school as learners at about 14 or 15 years of age. Boys are trained as cutters, and girls usually as machine "feeders" and "takers off". The work requires quickness and care, but, except in a few processes, not any particular skill.

## BRANCHES OF THE TRADE.

*Paper Cutting and Packing.*—The paper is cut by power driven guillotine, or other cutting machine, into the sizes required for writing paper, envelopes, ledgers, or wrappings. The cutting is done by men and the packing by boys.

*Envelope Making.*—Envelopes are made by women and girls. The paper has to be folded, cemented and gummed. Generally, the whole of the work is done by automatic machines, and the operators only feed the machines, and band, pack, and box the envelopes. In the case of high-class envelopes, the folding and gumming is done by hand. Girls start usually as packers or folders. The machinery used often requires great skill in setting and adjustment. This is done as a rule by skilled mechanics, but selected boys are trained as machine setters by some firms.

*Relief Stamping.*—On note-paper used for business purposes, the addresses, designs, etc., are usually printed, but on high-class note-paper they are stamped in raised and coloured letters from a steel die which is usually made by a firm of die-makers. Die-making is a highly-skilled metal-working trade. Stationery firms sometimes employ die-makers. The die is set in a press, which is often operated by a girl, and the inking of the die is mechanical. The work cannot be regarded as skilled.

*Gummed Paper Making.*—The making of gummed, stay and tape paper, passe-partout binding, etc., used in the manufacture of paper boxes and for other purposes is often carried on as a separate trade. The processes consist in coating the paper with adhesives, cutting into sheets and coils, sorting, finishing and packing. The work is mostly done by machinery fed by women and girls. There is a certain amount of hand gumming which is done by women.

*Show, Index and Other Card Making, Luggage Labels, etc.*—Such cards and labels are cut out by machinery, which sometimes does the printing as well. Small orders are printed by hand on platen machines (see Printing, page 169). Show-card mounting is done by girls and consists in pasting pictures or designs on the cards, and adding some device for hanging.

The mounting of Christmas Cards is a special branch of show-card work, but is not usually done by firms making ordinary stationery.

*Note Book and Ledger Making.*—A number of stationery-making firms also make note, ledger and account books (see under Printing, page 170).

### WAGES.

Boys start at about 14s. per week, and proceed by half-yearly increments to minimum rates of 19s. per week at 16, 29s. per week at 18 and 51s. per week at 20. Adult male workers earn 66s. 6d. to 75s. per week (time rates) according to their occupations. The learners' scale for girls starts at 11s. per week at the age of 14, and proceeds by half-yearly increments to 18s. 6d. per week at 16, to the full time rate of 36s. per week at 18. Women piece-workers earn at least 40s. 6d. per week. The large firms grant full pay for the public holidays, and usually an additional week as summer holiday.

### HOURS.

The normal hours are 48 per week.

## PIANO AND MUSICAL INSTRUMENT MAKING.

### AREAS.

Pianos are manufactured mainly in the areas of Battersea, Camberwell, Camden Town, Holloway, Lewisham, Tottenham and Wood Green. Stringed instruments—West End. Pipe Organs—Acton, Brixton, Camden Town and Willesden. Brass and Wood Wind Instruments—Acton and West End. Drums—Edgware Road and Willesden.

### PIANOFORTE MAKING.

Pianoforte making is the most important branch of the trade. The iron frames, keys and actions are supplied by firms who specialise in these components. The smaller firms are often slack in the summer season and work overtime from September to Christmas.

### RECRUITMENT.

Pianoforte making is skilled work throughout. During formal apprenticeship for three or five years from the age of 14, boys attend the Music Trades School, Northern Polytechnic, for one full day per week. The Music Trades school also trains boys for three years, full time, from 14 to 16, after which they enter the trade without apprenticeship, as improvers. Apprentices usually learn one or at most two branches of the work. In a large factory the journeymen also specialise in one branch. Girls are not employed in this section of the trade.

## DESCRIPTION OF THE PROCESSES.

*Back Making.*—This is skilled joinery. The parts are cut out by machinists and then fitted and glued by joiners. (See page 35).

*Belying and Marking-off.*—Belying is the fitting of the soundboard and setting it into the back. The soundboard consists of long strips of spruce; sometimes imported and sometimes bought ready glued together as boards. The soundboard is fitted with a treble and bass bridge to carry the strings, and has bars on the back, also made of spruce, to give the board a slight camber. This work is skilled joinery.

*Marking-off* is the process of pinning the bridges ready for the stringing process.

*Stringing.*—The stringer then attaches the strings and applies a tension sufficient to allow them to maintain their position until the rough tuner pulls them up to pitch (chipping-up).

*Part Making.*—This includes the veneering of case-work, including toes, trusses and music rests. This is skilled cabinet work.

*Fitting Up.*—The ends of the case are fixed to the strung back as a foundation and the rest of the case-work is fitted to this structure. This is skilled cabinet work.

*Finishing.*—This is the setting in of the action, keys, pedals, etc., after which the instrument is regulated and fly-finished.

*Fly-finishing.*—This is the fitting of the music desk, door mouldings, hinges, etc.

*Toning and Tuning.*—Toning is the shaping and surfacing of the felt hammer-heads to give the requisite purity of tone, by skilled "needling" of the felt. Tuning is the establishment of the exact pitch of each note, and takes several years to learn, beginning with "chipping-up" which is done by boys, and followed by rough tuning and fine tuning.

## WAGES.

Boys straight from the elementary schools start at 12s. 6d. per week. After a year they receive increases every six months, reaching full rates at 21. There is a certain amount of piece-work in the industry, but the recognised rate is 1s. 9d. per hour.

## HOURS.

The normal hours are 47 per week.

## ACTION MAKING.

Action making consists in making and assembling the parts of the hammers which strike the strings, covering them with felt or leather and fixing them into the action bearers. The



action hammers are made of wood with small metal attachments. The wood is cut out and moulded by wood machinists and divided up into small parts by circular slicing saws. The parts are next put through a number of operations, being drilled, bored, centred, etc., by automatic machines. The wood and metal parts are then assembled with a variety of processes and the felt or cloth covering is added. This work is done by women and girls. Men and boys screw the hammers into the action bearers and regulate and finish the actions.

*Recruitment.*—The work is mainly semi-skilled. Boys and girls start as learners. Boys become wood machinists or action finishers and girls generally continue at a single process at which they become expert.

### WAGES.

Learners start at about 12s. per week, proceeding to 10½d. per hour for boys and 7d. per hour for girls at the age of 18. The full minimum rates for men are 1s. 9d. per hour and for women 10d. per hour.

### HOURS.

The normal hours are 47 per week.

### KEY MAKING.

Key making is on the whole more skilled than action making and is mainly joinery work done by men and boys, though some of the simpler processes are also done by women and girls. Specially constructed boards are first prepared and sometimes weighted with lead. The keys are then marked or "set-out" on these boards and holes bored through which the key pins pass. Wooden frames are also constructed for holding the keys and holes bored for the key pins. A strip of celluloid is then glued to the keyboard and the marked keys are cut out of the board by hand and fret saws. Where ivory covering is used, specially prepared ivory strips are attached after the keys are cut. The keys are then finished by a variety of processes, being smoothed, the edges of the covering rounded and the covering polished. The black keys of ebony or stained wood are then attached with glue. This work is done by boys or girls. Finally the keys are set into the frame, spaced and regulated. This again is skilled men's work.

*Recruitment.*—Boys and girls start as learners, and generally learn certain processes only, but in small shops boys may learn the trade throughout.

### WAGES.

The rates and conditions for boys are the same as in piano-forte making. Girls start at 12s. per week proceeding to 7½d. per hour at the age of 18 and to an adult full minimum rate of 10d. per hour.

**HOURS.**

The normal hours are 47 per week.

**PIPE ORGAN MAKING.**

This is a small trade and is divided into four branches—(1) Metal workers who make the pipes; (2) Wood workers who make the bellows, keys, action, soundboard, wood pipes, etc.; (3) Voicers and tuners who regulate and tune pipes and (4) Electrical work.

Organs are generally made to individual order. They are built up in the shop, tested and taken down, and re-erected in their permanent position. The organ builder should have knowledge of all branches of the trade and is frequently required to travel, sometimes abroad.

*Recruitment.*—Formal apprenticeship for five years and learnership are both found. Usually a boy starts as a learner with a voicer or tuner at the age of 14, and if suitable is offered an apprenticeship in one of the branches at 16.

**WAGES.**

Learners start at about 13s. 6d. per week, and indentured apprentices are paid 11s. per week for the first year, rising to 40s. per week at 20½ years of age. A period of eight months is served as an improver from the age of 21, at rates varying from 1s. 5d. to 1s. 9d. per hour. The full minimum rate is 1s. 10d. per hour.

**HOURS.**

The normal hours are 47 per week.

**BRASS AND WOOD INSTRUMENT MAKING.**

The making of brass and wood instruments is a small but highly skilled trade. The trade is confined to men and no unskilled labour is employed.

*Recruitment.*—Boys enter the instrument making trade as informal apprentices at 14 and are apprenticed to one or other branch for five years. They then serve two years as improvers.

**BRASS INSTRUMENTS.**

In making brass instruments, that is to say, cornets, bugles, bombardons, etc., there are four distinct branches of the trade.

*Bell Making.*—The bell maker makes the trumpet or "flare" and also the tubes, both conical and cylindrical, of which brass instruments are composed out of sheet brass, which is cut out and joined together. The tubes are then fitted on shaped mandrels of hard metal and "drawn" through a leaden ring to make them smooth and of the exact size.

*Valve and Piston Making.*—The valve and piston maker bends the small tubes (knuckles) and joins them with solder and fits the parts of the pistons.

*Instrument Making.*—The maker puts the complete instrument together setting in the completed valves and pistons. He has to bend and join with solder all the tubes and make and fix the brass ties which keep the instrument rigid. This is very skilled work. A bombardon, for instance, has more than 200 parts.

*Polishing and Finishing.*—This work requires great care. Instruments have first to be scraped to remove the solder, rubbed with emery and oil and then polished by machine mop or by hand. The finisher examines the instrument to see that every part is satisfactory.

In addition to these specialised workers, other workers, such as brass turners, spinners and engravers are also employed, but they need not be specially trained for instrument making.

### WOOD INSTRUMENTS.

The making of wood instruments, flutes, clarionettes, etc., is a separate trade, in which there are several branches.

*Roughing and Boring.*—The wooden instruments are first shaped from the rough wood and bored. This is wood-turners' work. The holes for the keys are then marked out and bored usually by the foreman of the shop. This is known as "setting out".

*Key Making.*—Key making is highly skilled metal work and is similar to jewellery work. The keys have to be made, joined with solder and fitted to their frame and to the instrument. Many small attachments have also to be made.

*Finishing.*—This consists of the springing and padding of the keys.

Saxophone making is a combination of brass and wood instrument making.

### WAGES.

The starting wage is about 14s. per week and improvers are paid 1s. 2d. or 1s. 3d. per hour. The minimum rate for a fully skilled man is 1s. 6½d. per hour.

### HOURS.

The normal hours are 48 per week.

### DRUM MAKING.

The making of drums is not so highly skilled except in the decoration of military drums, for which qualified artists are employed.

The shells of the drum, if of brass, are made by the bell maker and if of wood, are cut out in the wood shop. A drum maker makes and assembles the various parts and accessories of the drum and does the ordinary painting.

Boys are apprenticed for five years to drum making, starting at about 14s. per week. A skilled drum maker earns 1s. 6½d. per hour.

### **HOURS.**

The normal hours are 48 per week.

## **PRINTING AND ALLIED TRADES.**

### **AREAS.**

Printing establishments are found in all parts of London, but the main centres of the industry are the Borough (Southwark), City, King's Cross, Shoreditch and Westminster. The firms vary considerably in size, from the large establishments employing hundreds and, in a few cases, thousands, of workpeople to small businesses of the "one man and a boy" type.

### **DEVELOPMENT.**

Improved methods of production are frequently being introduced into the industry and both adult workers and apprentices need to keep abreast of the times. Mechanical composition, new kinds of machinery and the use of stereotyping and electrotyping processes are gradually transforming the former extensive practice of hand operations, particularly in letterpress and in illustrated work, and there are corresponding changes in the technique of printing.

### **BRANCHES OF THE INDUSTRY.**

There is a tendency among firms to specialise in certain classes of production, the varieties of which are numerous, but on broad lines the industry may be divided into two main branches, (1) the production of newspapers—daily, evening, weekly and periodical journals, and (2) jobbing and general printing and book production. The larger newspaper houses do not undertake jobbing work, but a few firms producing local newspapers also do general printing. The work in the two branches of the industry differs to a large extent, but there is considerable transfer of skilled workers from general printing to newspaper houses.

### **EMPLOYMENT.**

On the whole, employment is fairly regular although it is busiest in winter and there is a seasonal slackness in August and September.

## RECRUITMENT.

The normal procedure for a boy to qualify as a skilled operative in the industry is by serving a period of training from the age of 14 as an indentured apprentice. Vacancies are filled usually, by personal recommendations within the firms.

*Apprentices.*—A national scheme for apprentices has been prepared by the Joint Industrial Council for the industry. The Scheme provides for the appointment of Local Apprenticeship Committees representative of the Associations of Employers and Operatives to arrange for the selection and training of apprentices.

It is usual for apprentices to spend a probationary period varying from one to three months before being indentured. With the exception of a few sections the apprenticeship period is seven years. Among process workers, photogravure, warehouse, manufacturing stationers and monotype casters, the period is more generally five years, commencing at the age of 16, and in some other sections also a limited number of apprentices serve for the shorter period. In certain sections pre-apprenticeship training in a technical school is counted as part of the apprenticeship period, but before entering upon this training the boy should find an employer who will agree to take him as an apprentice at the termination of the technical school instruction. In all the skilled sections prospective apprentices must have reached a good standard of general education. Ability to read difficult manuscript, accuracy in spelling and punctuation, good eyesight and memory, for example, are essential to the apprentice compositor, copyholder and reader; machine minders require to be mechanically inclined, and lithographic workers should have a good sense of colour.

Process workers, designers, etchers and engravers must be good draughtsmen and artistic; in addition music engravers should have a good knowledge of music. A number of firms recruit their apprentices from junior assistants or messengers already in their employment, while others place the beginners in the warehouse or stores for a brief but valuable period before transferring them to a department for training in a particular section. The apprentices are usually selected by the manager, departmental foreman or overseer, and sometimes have to pass a written or oral test in reading and spelling.

*Learners* usually start at the age of 16 and serve for five years; except those in bookbinding and machine ruling, who generally start at the age of 14 and serve for seven years. Boys entering as layers-on are generally accepted as learners, which applies also to warehouse workers in some firms. The educational standard is not so high as for apprentices, but general

intelligence and adaptability are required, while physical strength and fitness are essential. Learners are normally engaged by the appropriate foreman.

Good general health is important, and boys with any tendency to chest weakness should not be encouraged to enter the industry, especially as compositors, monotype casters, stereotypers and electrotypers.

*Girls* are recruited at the ages of 14 or 15 sometimes as messengers but mainly for the bookbinding department. They generally serve as learners for three years; apprenticeship under written agreement is not usual for girls. The other sections in which girls are employed are; bronzing, embossing, ticket writing, map mounting and tracing. The principal characteristics of the work are quickness of action and adaptability in handling paper, semi-automatic machines, etc., and while a good standard of general intelligence is necessary, agility and suppleness of hands and fingers are essential qualifications; girls below normal height are unsuitable for the mechanical operations. The work in many of the departments in which girls are employed is clean, interesting, and not unhealthy for the girl of average education and physical fitness.

### DESCRIPTION OF THE SECTIONS.

*Compositors.*—The type from which impressions are to be obtained is picked out of the case, set up by hand and locked up in the "chase" ready for the printing machines. In the composing room the apprentice first learns to sort and distribute the type, thus becoming familiar with the different kinds. This is followed by simple work to ensure efficiency in spacing and punctuation.

During the last two years of the apprenticeship the boy is usually given opportunities to learn machine composition, where facilities exist in the works. On the Intertype and the Linotype machines the operator sets matrices by depressing the keys of a key-board (not unlike that of a typewriting machine), from which lines or slugs of type are cast on the same machine. The Monotype equipment consists of two machines, the key-board by which the perforations are made on a paper roll, and the caster, where the type is cast in single characters in the order set on the key-board, as shown by the perforations on the paper roll. At the conclusion of his apprenticeship the qualified man usually confines his employment to hand composition or becomes a composing machine operator.

*Copy Holders.*—These boys read the copy to the readers who correct the proofs of the compositors' work. This work is sometimes done by a junior apprentice and by boys who are not apprenticed. The work is inclined to be non-progressive for the latter, however, and unless there is a suitable vacancy

available at the time a boy becomes too old to remain a reader's boy he may be discharged. In morning newspaper offices copy holders are required for night work, but rarely become qualified readers or correctors of the press. Readers usually are qualified compositors.

*Letterpress Machine Managers (or Minders).*—The formes set up by the compositors, are passed to the letterpress machine minder who superintends the working of the machines which print the paper. This is skilled work requiring mechanical knowledge and experience in the adjustment of pressure and operation of machines, in addition to a knowledge of colour. The skilled operative, with whom is associated the layer-on (who feeds the paper into the machines) and, in newspaper offices, the machine assistant regulates the supply of ink to all parts of the printing surface, and secures the plates on the cylinders.

*Layers-On.*—In small printing firms this may be a separate section on which a youth would be engaged during boyhood only, but in the larger establishments it is part of the assistants work. Boys begin on small platen machines and learn to "make ready", i.e., correct any unevenness in the type pressure, and subsequently lay on the sheets on small or large flat-bed machines. They may transfer to larger offices as layers-on on large machines or to newspaper offices as assistants.

*Lithographers.*—Printing is sometimes reproduced from a specially prepared surface on stone or metal plates (aluminium or zinc). Pictures, maps and similar illustrated matter are produced usually by this process. In the first place the design to be reproduced has to be drawn on paper or on the stone and, if on the former, transferred to the stone or metal plate. Lithographic artists undertake this part of the work which calls for a high degree of skill and artistic talent. The printing off from these stones or plates is done by the lithographic printer who superintends the machines on lines similar to the letterpress machine minder, but in this work the mixing and printing of colours plays an important part.

*Stereotypers and Electrotypers.*—A stereotype is made by taking a mould of a forme of type or plates on papier mâché which is dried in a hot press and placed in a casting box into which molten metal is poured, producing a metal plate, a duplicate of the original. This is trimmed and mounted on a metal or wood block, and, if necessary, hardened with a coating of nickel. To make an electrotype a mould of the type or block is taken, usually in wax and a shell of copper is deposited on the mould by electrical deposition. The copper shell is then backed with metal and mounted on wood or metal to the required height for use in the printing machines. Stereotyping and electrotyping are used when a large number of copies, e.g., of newspapers and magazines, is required.

*Monotype Casters.*—The monotype caster attendant casts the type from the roll of paper which has been perforated for the purpose by the monotype keyboard operator. The work, which is largely of a mechanical character, and is sometimes heavy, demands care, experience and skill and good eyesight. Formerly there was risk of lead poisoning, but this has now been considerably reduced.

*Photo Process Workers.*—Process engraving is the preparation by photographic means of cylinders, plates or blocks from which pictures may be reproduced in line, half tone or colour. The production includes process block making and photogravure. In the former the design is transferred by photographic means on to a zinc or copper plate. The image is then etched by immersion in baths of acid leaving the original design in relief on the plate. Photogravure work consists in the preparation of an intaglio copper plate or cylinder (i.e., one on which the design is sunk), from which the required copies are printed. Advertisements, postage stamps, and the cheaper kind of periodicals are now printed by this method. Other process workers include designers and retouchers, photographic operators or cameramen and printers on metal, engravers, line etchers, etchers in half-tone and colour work, mounters and provers.

*Music Engravers.*—In addition to their skill as engravers, the men in this occupation should possess a knowledge of the theory of music as the work entails the accurate planning of the whole lay-out of the manuscript when received from the composer, including the fixing of the turn-over positions. The full scores have to be engraved as well as the positions of keys, clefs and staves; single parts must be distinguished from double, and verse lines underlayed from manuscript.

*Bookbinders and Machine Rulers.*—The bookbinding trade may be divided into (a) letterpress binding and (b) vellum or account book making. Machine rulers are found in the latter section; this is a separate occupation in London. An apprentice is rarely trained in both branches, and in some establishments an all-round training even in one section is sometimes not possible. The binding of the more expensive library books, account books and ledgers is done by hand by men and necessitates considerable skill. The binding of books produced on a large scale is done by machines, but in both sections the preparatory work of folding, gathering and collating the sheets and sewing them into book form by machine or hand is done by women and girls. So far as men and boys are concerned, the two main branches of the work are (i) forwarding, i.e., glueing the backs, rounding, backing or nipping, lining up, trimming edges, case-making and edge gilding and (ii) finishing, i.e., designing, blind tooling, gold tooling, treating end-papers and polishing. Other operations include decoration, marbling,



staining, edging. In machine ruling skill is required in making and adjusting the pens and the machine; but much of the work is monotonous. The various types of ruling from the faint to the more complicated patterns, have to be learned during the period of apprenticeship.

*Copper Plate Printers.*—For this form of printing the design or lettering is sunk below the surface of a copper plate instead of being raised as in letterpress work. For cheques, bank-notes and visiting cards, the plate is engraved by hand. The finer art-work is done by photographic methods. This section of the industry is declining in consequence of the development of cheaper methods of reproduction.

*Manufacturing Stationers.*—In some printing businesses this is an allied trade. (See page 160.)

*Warehousemen and General Assistants.*—These operatives are engaged upon a variety of work, in some branches of which there is a good deal to be learned, although the greater part of the warehouse work requires general capabilities, experience and strength, rather than a high degree of skill. A knowledge of the size and quality of paper, headings, cutting (including guillotine work), methods of folding, packing and stocking, is gained during the course of practical training.

*Engineers and Mechanics.*—In large printing houses there are a few openings for youths to train as engineers or mechanics. The superintending, repair and maintenance of large printing presses is a specialised engineering occupation and corresponds in certain respects to that of the general engineer. Similar types of men are employed in stationery manufacture.

*Brass and tool engravers, cutters (guillotine, box, book-binding and machine cutters), box-makers, electricians, telegraphists, ticket writers, joiners (on maintenance staff) and map mounters.*—In some of these occupations apprenticeship is the more usual method of entry, but learnership is more general among the assistants in the various departments in newspaper houses and publishing firms. There are a number of other occupations supplementary to the printing trade but necessary to it, e.g., transport workers, including motor drivers and van boys, box cycle carriers and general messengers.

## TRAINING.

Boys usually are trained by working with a skilled operative in the particular section. In some firms the training of a youth is the special concern of the foreman or overseer. The variety of work in the industry enables the beginner to be given simple straightforward jobs, working under supervision so that he may gradually work up to the more complicated jobs requiring a higher degree of skill. In all the skilled sections accuracy in the

detail of the work is fundamental to good training, and this calls for close attention on the part of the apprentice to the varied features of his work. Side by side with doing a simple job, the apprentice spends some time in helping the skilled worker, in laying out a complicated design, in adjusting an intricate machine or in producing a delicate etching.

*Girls* in the bookbinding department are employed in considerable numbers in folding, paging and numbering, interleaving, sewing, wiring and stitching, and to a limited extent on feeding paper into the ruling machine. Their work consists largely of operating delicately adjusted machines and some hand-work is involved; the operations are preparatory to the more highly skilled work of the qualified male bookbinder. Those engaged as copy holders or readers, however, do not usually qualify as correctors of the press.

*Technical Classes.*—An important feature in the printing industry is technical and art education. Many of the large firms insist on apprentices and learners attending classes appropriate to their occupation, and some allow apprentices time off to attend day classes during the normal working hours. The facilities available for technical and art instruction in the various sections in the industry are very good. The London School of Printing provides for three classes of students—(1) whole-time day classes specially organised for sons of employers, who will ultimately occupy posts of responsibility in the industry, (2) part-time day classes for apprentices in a variety of sections and for girls in bookbinding, (3) evening classes for students in all the skilled sections as well as for men and women engaged on clerical work, e.g., order, costing and estimating clerks. There are several other technical institutes where classes are available to those engaged in the industry including the Central School of Arts and Crafts. (See page 265).

### PROGRESS OF EMPLOYMENT.

*Youths* trained as compositors, letterpress machine minders, warehousemen, etc., in general printing houses, often transfer to more remunerative work in the same sections on newspaper production. Skilled men possessing a suitable personality and who have proved efficient in practical work and technical training, may become foremen or overseers; others may qualify as order, costing and estimating clerks. Managerial posts, however, are usually filled by men who have a general knowledge of the various departments in a printing office. In the smaller firms boys are often engaged as layers-on on platen or cylinder machines, but with this limited training they do not as a rule remain with the smaller firms—they frequently transfer to newspaper offices as assistants.

*Girl learners* are sometimes confined to one operation, but in most firms they learn two or three, and would qualify for transfer from one operation to another according to the amount and nature of the work in hand.

The employment of girls is subjected also to seasonal fluctuations, but opportunities for employment in adult life are, on the whole, good.

## WAGES.

*Apprentices and Learners.*—There is no established rate of wages for apprentices or for learners in the various sections. In most of them the usual amount in the first year is 10s. to 12s. per week, although in some establishments it may be as much as 17s. 6d. The rate in the last year is more varied ranging from 30s. to 45s. per week according to the firm and section. Firms in London do not require apprentices to serve an improvership period at the conclusion of the apprenticeship; the youths usually proceed at once to the minimum rate for a journeyman in the particular section. *Apprentice stereotypers and electrotypers* generally start at a later age than the apprentices in other sections and are paid from 16s. to 20s. per week in the first year and from 50s. to 80s. in the last year, according to the size of the firm and nature of the work.

*Boys* employed on cycle carriers, vans, etc., are paid amounts varying from 14s. to 18s. per week.

*Girls* in the first year are paid usually 8s. to 10s. per week and in the last year between 30s. and 35s. per week. The rate for the experienced worker varies from 42s. upwards per week according to the section and the class of work upon which she is employed.

*Journeymen's* wages in the majority of the sections are governed by agreements between the organisations of employers and of workpeople. The minimum weekly rates in the principal sections are:—compositors, hand, 89s., composing machines 96s., morning newspapers 160s., evening newspapers, 155s.; bookbinders and machine rulers, 80s.; lithographic printers, 82s. 6d. to 102s. 6d.; stereotypers and electrotypers, 119s. to 130s.; letterpress machine managers (jobbing office) 89s. to 108s. according to size of machine; layers-on, 73s. 6d.; and warehousemen 82s. 6d. Higher wages are paid to the skilled men when employed upon special work in their particular sections.

*Semi-skilled* workers' wages vary from 55s. to 70s. per week while the rates for motor drivers and other general workers correspond with those paid to similar workers in other industries.

## HOURS.

The normal working week is 45 hours in general printing houses, 38½ hours on morning newspaper production (machine compositors), and 42½ hours on evening newspapers. Night work is unusual except on newspapers, in the production of which the employment of boy labour is exceptional.

## WOODWORKING TRADES.

### COOPERING.

#### AREAS.

Manufacture is carried out mainly in the areas of Bermondsey, Canning Town, Hackney, Poplar and Tottenham.

#### ORGANISATION.

Coopering is the making of casks, either for containing liquids such as wine, beer, spirits, etc. which is known as "*wet*" or "*tight*" *coopering*, and is carried on largely in connection with brewing and the wine and spirit trade; or for holding such dry articles as cement, chemical products, etc. which is called "*dry*" *coopering*. There are also a few coopers who make churns, butter tubs, buckets and fancy tubs of all kinds, and are known as "*white*" *coopers*.

*Hand Coopers.*—Hand coopers are highly skilled workmen, special skill being necessary in the case of "*wet*" *coopering* since the casks must be made with great accuracy to be quite watertight, to resist considerable pressure and to contain an exact amount of liquid. A brewery cooper is regarded as the most experienced worker in the industry. "*Dry*" *coopering* does not call for the same degree of skill, and while a "*wet*" cooper is adaptable to all types of *coopering* a "*dry*" cooper is not interchangeable, except in some instances for "*white*" *coopering*. A hand cooper invariably finishes machine work.

*Machine Work.*—In the making of new casks, hand work has now been largely superseded by machinery. The operations carried out by the hand cooper, calling for both skill and strength, are performed with great precision and rapidity by machinery, mainly by unskilled or semi-skilled labour—machine feeders and others—working under the supervision of skilled machine setters.

#### RECRUITMENT.

*Apprentices* are employed by master coopers or other firms whose workshops are recognised by the Joint Industrial Council of the industry as affording adequate opportunities for the

apprentices to be efficiently taught the trade. Apprentices must not be less than 15 years of age or exceed 16 years at the time of becoming indentured. The number of apprentices employed by any one master cooper or firm must not exceed one apprentice to three journeymen, up to a maximum of four apprentices. A probationary period of three months is served, after which the apprentice is indentured until the age of 21 years, covering an apprenticeship of not less than five years. All necessary tools are supplied by the employer, and these become the property of the apprentice on the satisfactory completion of the apprenticeship. So far as practicable preference for employment is given to the sons of coopers. The conditions of apprenticeship are strictly enforced by the Coopers Union, and on completion of indentures the apprentice may apply to the Secretary for facilities to be tested in his work. An apprentice who passes this test successfully is certified by the Coopers Company as a qualified craftsman.

*Learners.*—Strong boys are engaged between the ages of 14 and 16 as learners for machine coopering. The most intelligent are selected ultimately as machine feeders, and may become machinists by gaining experience of several machines. A skilled machinist should learn to set his machine and to grind his own knives, but many machinists are unable to do this.

### DESCRIPTION OF THE PROCESSES.

The scheme of manufacture is similar whether the work is done by hand or by machine.

*Wet Coopering.*—The best casks in wet coopering are made of oak of considerable thickness. Staves are cut to the required length, shaped and jointed, then placed in position inside an iron hoop to form one end of the cask. In this state the staves are steamed to make them bend and the other ends are forced into place by a steel rope worked by a machine windlass. The cask is then secured at the top by a second iron hoop and the staves are held in place by two or more hoops fitted round the body. The ends of the cask are bevelled and grooves cut inside for the insertion of the top and bottom—i.e., heads—by machine. The heads are then forced into the grooves and the cask finally hooped by means of a specially designed machine. The hole for the bung is bored and the cask is finished except for cleaning and smoothing the outside.

*Dry Coopering.*—Less expensive woods are used and the staves are thinner and more easily bent so that iron hooping is frequently unnecessary.

*Machine Work.*—In machine made casks the cutting, shaping and jointing of the staves is done by woodcutting machinery.

## WAGES.

There are some differences in the rates paid to boys according to the industries to which coopering is attached. The time rate paid to apprentices and learners between the ages of 14 and 16 in their first year is about 13s. 0d. per week. Apprentices proceed to 49s. 8d. in their last year. The time rate for a skilled cooper is 74s. 5d. per week and for machinists 66s. 7d. per week. The work is generally paid for at piece rates which yield wages exceeding the above amounts.

## HOURS.

The normal hours are 47 per week.

## MACHINE WOOD-WORK.

### AREAS.

The main areas are Camden Town, Enfield, Hackney, Shore-ditch, Tottenham and Willesden.

### DEVELOPMENT.

Machine wood-work is a highly important branch of most of the wood-working trades and forms a stage in the manufacture of many wooden articles. The development of wood-cutting machines has been such that they can now be used for nearly all the operations formerly performed by a skilled carpenter, joiner or wood-turner. Machines are used for assembling large quantities of furniture of particular types or for any other articles of wood produced in large numbers. Thus planing, morticing, jointing, moulding, dovetailing, shaping, turning and even rough carving can all be done by machinery. Such different objects as mouldings and beadings of many kinds, gymnastic apparatus, barrels, cricket bat blades, twisted table legs, etc., are all turned out either partly or completely shaped by machinery.

### BRANCHES OF THE TRADE.

The trade includes (1) *Saw* gulleting (teeth cutting), tensioning, sharpening and brazing; (2) *Cutter* making, tempering and sharpening; (3) Setting-up and working of a number of different machines.

Sub-division of labour is general in large factories where saws, cutters and tools are prepared in a machine tool shop. Setting-up of machines and sharpening, however, is done by the individual machinist. In small factories a more extensive knowledge and experience is required, as the work is usually interchangeable. The most skilled workers are spindle and fourcutting hands.

## RECRUITMENT.

Good physique and mechanical ability are essential qualifications. Boys start between the ages of 14 and 16, sometimes as *indentured apprentices* for four or five years, but usually as *informal apprentices* or *learners*. Boys start as shop boys and eventually assist the skilled machinist by "holding-up" or "taking-off". Later they attend the machines under competent supervision, until they acquire the skill and care necessary for general work. Full experience is rarely obtainable in the factory, and attendance at an evening institute is necessary to obtain a comprehensive knowledge of the trade (see page 267).

## WAGES.

A wage of 10s. to 15s. per week is paid to shop boys. The rate for a wood-working machinist in the furniture trade is 82s. 3d. per week and a minimum rate of 86s. 2d. is paid to spindle and fourcutting hands.

## HOURS.

The normal hours are 47 per week.

## SAWMILLING.

### AREAS.

The main areas are Bermondsey, Hackney, Stepney and Stratford.

### MILLS.

Sawmills are of two kinds: those usually owned by timber merchants and do rough sawing—the conversion of trees into large planks and beams for the use of builders or for wood-working trades; and mills which convert the large timber into planks and billets of various sizes required for particular trades. The latter type of sawmill often forms part of a wood machine shop.

## RECRUITMENT.

Boys start as young labourers at about the ages of 15 or 16. They should be tall and strong.

## PROGRESS OF EMPLOYMENT.

The work is mainly of a labouring kind and there is no formal system of training. In rough sawing the work is normally too heavy for a boy, but in smaller mills boys are sometimes employed as light labourers or "takers-off" from the circular

or band saws which are power-driven. They are rarely engaged as feeders under the age of 18. Boys learn the trade by working with skilled sawyers. A sawyer should be able to sharpen and set his saws, though this is often done by a skilled saw doctor. It is an advantage to gain all-round experience by working with firms engaged in different kinds of sawmilling work.

### **WAGES.**

Boys start at about 12s. 6d. to 15s. 0d. per week. The full time rate for a sawyer and machinist is 78s. 4d. per week, but payment is often made at piece rates which yield wages exceeding this amount.

### **HOURS.**

The normal hours are 47 per week.

## **VEHICLE BUILDING.**

### **AREAS.**

The industry is carried out mainly in the areas of Acton, Brentford, Dagenham, Edgware Road, Hendon, Kingston, Shepherd's Bush, Southall, Walham Green, Westminster and Willesden.

### **TRADES WITHIN THE INDUSTRY.**

Formerly carriages and wagons were made of wood by the coach builder and cartwright, with the assistance of the wheelwright, coach smith, trimmer (upholsterer) and painter. Nowadays in high-class motor body building the work of the builder is divided into several branches and a number of additional trades have a share in the construction, varying with the class of work done by particular firms. In addition to those already mentioned, machine woodworkers, fitters, electricians, sheet metal workers, welders, cabinet makers, French polishers, electro platers and other workers are all found in modern high-class body building shops.

### **METHODS OF CONSTRUCTION.**

There is a wide difference between the luxurious motor bodies made to individual orders, and the cheaper bodies on light cars manufactured by mass productive methods, usually by the same firm who make the engine. In the latter case the bodies are made mainly of sheet metal stamped out into shape and fixed on a simple wooden frame. High-class bodies are made as a rule by firms who specialise in body making, and, as in the case of vans and carts, are made on a wooden skeleton, though there is a considerable amount of metal work as well. The construction of barrows, invalid carriages and perambulators, though simpler, does not differ materially from that of vans or motor bodies.



## RECRUITMENT.

Many firms recruit boys at the age of 16 direct from technical schools. *Apprentices.*—Some firms take apprentices for five years to the body building, smithing, trimming and wheel making branches, though others prefer an informal arrangement. For sign writing and armorial work there is a definite apprenticeship and attendance at evening classes is essential (see page 247). *Learners.*—Boys are engaged at the age of 14 in the coach painting branch, usually as paint shop boys. A capable boy can become a brush hand and then a painter.

## DESCRIPTION OF THE PROCESSES.

Though there is a wide difference in the elaboration and details of construction between the building of horse vans or carts and motor bodies either for private or commercial purposes, the general plan is similar. The chief difference being that in the case of the horse van, the under carriage, including the wheels, is built by the coach builder, while in the case of motors, the under carriage with the wheels (the chassis) is made by the makers of the engine, and only the body has to be built and fitted.

*Designers and Draughtsmen* are employed in the drawing office and usually a large scale drawing of the body is first made from which the craftsmen work.

*Body Building.*—The body is built on a wooden frame or skeleton, generally of oak or ash; beech, elm, mahogany and various made-up woods are also used for certain parts. The various sections of the frame, including the parts for the wheels, are cut out, shaped, bent and machined in the machine wood shop, leaving comparatively little fitting to be done by hand by the body builder. In the small shops a good deal of cutting out is still done by hand. This is a good training, but is naturally slow and cannot well compete with modern machine work. The body maker assembles and fixes the wooden parts of the body, and attaches the metal ties, brackets and plates where the strain has to be carried. The wooden frame work varies in form from the comparatively simple frame required for a cart or commercial van to the highly elaborate frame necessary in a high-class covered motor body with doors, windows, roof, etc. When the frame work is complete the gaps are filled in with panels, generally of mahogany, steel, aluminium, ply-wood, or some composition. The making of metal panels is a separate trade (see sheet metal work, page 69).

The body is then ready for mounting on and attaching to the under carriage or chassis and for fixing and setting in of windows, doors, etc. The body builder is responsible for carrying the work right through until the body is ready for the

painter and the trimmer, though in large works the actual operations may be considerably sectionalised. (For Technical Courses see page 266.)

*Coach Smithing.*—The coach smith is responsible for forging and fitting the iron work of the body under the directions of the body builder. He also makes the iron tyres for cart wheels. The coach smith is a highly skilled workman, he fits and finishes the work throughout and he has to work accurately. His tools are the hammer, file and drill. In high-class bodies the work of the smith is supplemented by the coach fitter and viceman. A boy starts by drilling holes for screws, and goes on to fitting and smithing.

*Wheel Making.*—The making and repairing of wheels is a separate trade. The spokes, nave and parts of the felloe are cut out sometimes in the machine shop, but in many cases these are bought ready made. The wheelwright puts the parts together and attaches the wheel to the axle. With the increase in motor transport the wheelwright's work is diminishing.

*Coach Painting.*—The skill required for coach painting varies considerably. The high finish, lining, graining, etc., found on high-class motor bodies calls for much skill, as also does the painting of crests and armorial bearings, or the sign writing, scroll work and decorations on commercial vehicles; but on the other hand the painting of a cart calls for no great skill and can be done by a brush hand. The usual method of painting is to apply the first rough coat or "primer" and then a "filler," the purpose of the latter being to make a perfectly smooth surface for the ultimate body colour. The number of coats of body colour used depends upon the colour and finish required, but many are applied on first class bodies, the last coats being the most important. To get the surface perfectly smooth the filler is periodically rubbed down with a wet emery cloth before the next coat is applied, several coats of varnish are added, the final coat being applied with great care in a dust-proof room. The best coach painting on commercial vehicles is done entirely by hand, but cellulose lacquer and synthetic enamel spraying methods are used in the case of cheaper bodies.

*Coach Trimming.*—The coach trimmer is responsible for making and fixing the upholstery of a body and also for covering hoods, etc. In cheap cars and in commercial vehicles the upholstery is of a simple character, but in high-class bodies the trimming compares with the most sumptuous domestic upholstery and calls for skilful craftsmanship. The methods employed by the trimmer are generally similar to those in domestic upholstery (see page 109) though owing to differences in technique the two types of upholsterers are not normally interchangeable. Women often do the sewing and machining.

*Finishing.*—This is only important in highly finished bodies, where special finishers, cabinet makers and joiners are employed. The work of the finisher is to attach the many accessories which are found on expensive cars. Ordinarily this would be done by the builder or the trimmer.

There are in addition semi-skilled workers in large shops. These include *drillers*, *strickers* (smiths' shop) and *brush hands* (painters' shop) also labourers.

### WAGES.

The wages vary considerably. The scale for apprentices and learners in most shops is 17½ per cent. of the minimum journeyman's rate, that is, about 12s. a week for the first year, rising to 50 per cent. in the fifth year.

The minimum rates per hour are as follows:—

Wheelwrights, joiners, body-makers, finishers, painters, smiths, trimmers, mounters, general machinists and sawyers	1s. 7d.—1s. 7½d.— 1s. 8½d.
Coach Fitters	1s. 6d.—1s. 6½d.— 1s. 7½d.
Vicemen	1s. 4d.—1s. 4½d.— 1s. 5½d.
Brush hands, hammermen or strikers, cellulose polishers	1s. 2½d.—1s. 3d.— 1s. 4d.
Labourers	1s. 2d.—1s. 2½d.— 1s. 3½d.

The lowest rate in each case is the basic minimum agreed upon for the London Area by the United Kingdom Joint Wages Board of Employers for the Vehicle Building Industry and the Trade Unions concerned; the intermediate rate has been agreed upon for men engaged in the manufacture of individual private bodywork (second grade) and on batch production, and in the manufacture and repair of buses, coaches and other vehicles licensed to carry passengers; the highest rate in each case applies to men engaged in the manufacture of private bodywork of the highest class. For certain firms engaged in high class coachwork minimum rates have been agreed which, except for labourers, are 1d. per hour higher than the highest rate shown for each of the respective classes of workers.

### HOURS.

The normal hours are 47 per week.

## WOODEN CASE MAKING.

### AREAS.

The industry is centred mainly in the areas of Bermondsey, Deptford, King's Cross, Poplar, Stepney and Stratford.

### RECRUITMENT.

Boys and girls start as learners at the age of 14. The work requires care and speed, but not any high degree of skill. Learners at first make themselves generally useful in the box room, assembling parts or assisting in the operation of machines, and later in operating them themselves. A machinist should learn to adjust the machine to different sized boxes, but would not be expected to do any repairs. Learners should aim at spending some time at the bench and learn to make boxes by hand. Boys are precluded from working at a bench, however, until they attain the age of 16, and then only if the proportion of workers does not exceed one learner to five adults; with the result that few are able to proceed beyond the grade of labourer. When older, some may have opportunities of employment in the sawmill. Girls and women are employed in making lighter types of cases and boxes.

### DESCRIPTION OF PROCESSES.

Wooden cases are made throughout either by hand or by machinery. *Handwork* is usual for the making of export cases, and where a few are required for some special purpose.

*Machine Work*.—The wood is sawn by band or circular saws to the required size and is then assembled in the box-making room. The nailing is done by machines of various types, the nails being fed automatically into slots and pressed into place. In the nailing of battens, etc., machines clamp the nails on the reverse side. Machinery is used also for cutting dovetail joints, and for inserting wire hinges where necessary.

### WAGES.

*Boys* start at about 4d. per hour, rising to 5½d. per hour at 16, and 1s. 0¼d. per hour at the age of 20½. The full rate for a wooden case maker is 7os. 6d. per week, and for a labourer 56s. 9½d. per week.

*Girls* start at about 4d. per hour, rising to 5½d. per hour at 16, to a full rate for women of 11d. per hour. The full rate is earned at the age of 21.

*Piece-work* rates are sometimes paid, which yield wages in excess of those stated above.

### HOURS.

The normal hours are 47 per week.

## DOMESTIC WORK.

The importance of domestic work and the variety of opportunities offered by the career merit the consideration of girls whose abilities tend towards an occupation of a practical nature. The changes which have taken place in recent years in household equipment and the attention which employers are now giving to working conditions have resulted in raising the status of domestic employees. The extended use of gas and electricity, in the home has led to the elimination of much of the rough domestic work; gas or electric heating and cooking, vacuum cleaners, electric irons, hot water installations, are some of the labour-saving inventions which have made domestic work easier. The equipment of a modern house is the result of much scientific research and its use calls for intelligence and interest if the best results are to be obtained.

Resident domestic work is one of the few women's occupations which supply regular and constant employment over a long period of years, and the problem of being too old at 40 does not arise. There is no unemployment among domestic workers and a fully qualified resident worker need never be out of a post. As employers provide maintenance as well as wages, the domestic worker is self-supporting from the outset. She can spend her earnings as she likes and is able to save a considerable portion of her income. Normally, resident workers in private houses are allowed one afternoon and evening off duty each week and every other Sunday afternoon and evening. An annual holiday, on full pay, varying from one to two weeks is a recognised custom.

Domestic work includes a variety of posts: employment in private houses and flats of all types, hospitals, nursing homes, schools, clubs and business houses, offers a wide choice. The increase in the number of easily run flats and small houses with labour-saving equipment has resulted in a constant and unsatisfied demand for general maids. In these homes there is the advantage of working directly in personal contact with the employer and of obtaining experience of value through the variety of the duties.

### PRIVATE RESIDENT DOMESTIC WORK.

Private resident domestic work embraces several quite distinct classes of workers which may be graded as follows:—

- (1) General maids.
- (2) Scullery maids, kitchen maids, cooks.
- (3) Between maids, housemaids, house parlourmaids, parlourmaids.

*General Maids.*

A young girl can become qualified as a general maid by entering a household where the mistress takes an active part in the work and is ready to train her in her duties. These would include any work which has to be done in the house such as cooking, cleaning, dusting, polishing and, probably, a small amount of washing and ironing. At the age of 17 to 18 years a girl would have gained valuable experience and, in due course, would become competent to carry out her duties without assistance.

*Scullery Maids, Kitchen Maids, Cooks.*

In large establishments each member of the staff has specified duties and a girl who, for example, may begin as scullery maid, has an opportunity of progressing to responsible work such as cooking if her abilities lie in that direction. In a household where a large staff is employed a young girl can start at 15 or 16 as scullery maid; she would be expected to undertake the cleaning of the kitchen premises and utensils at the outset. Her next step would be as kitchen maid where she would be responsible for cooking the servants' meals and for preparing and cooking vegetables for consumption in the dining room, in addition to assisting the cook generally. She would thus gradually become qualified to take a position later as a single-handed cook or as assistant to a chef. To take a job as single-handed cook in a household with a small domestic staff, she would be entirely responsible for cooking the food and cleaning the kitchen premises, dining room and hall. If, on the other hand, she elected to work for a time under a chef she would become qualified to take a position as head cook with a staff working under her and would be able to command good wages. In addition to the training given under the Central Committee's scheme, to which reference is made on page 186, valuable facilities for training are given at day and evening classes. Many employers provide opportunities for girls who wish to qualify in cookery at such classes.

*Between-maids, housemaids, house-parlourmaids, parlourmaids.*

A between-maid has to divide her time between helping in the kitchen and with the housework, and, consequently, works under at least two senior servants. Many girls receive their first domestic training in this capacity and decide later whether they wish to concentrate on work in the kitchen or on general housework. Mistresses frequently engage a well-trained between-maid as kitchenmaid or housemaid.

Housemaids are normally recruited at the age of 16 or 17. The prospects of advancement depend partly on the size of the establishment; the head housemaid may have two or three maids under her. The duties of a single-handed housemaid include

dusting and cleaning the living rooms, bedrooms and stairs, and cleaning boots. She will also assist the parlourmaid with the waiting at table and will be required to be "dressed" in time for tea in the afternoon. She will be expected to look after and mend the household linen.

The personal appearance of a house-parlourmaid is of greater importance than that of a housemaid as she always waits at table, answers the door bell and attends generally on the family. She has charge of the silver, china and glass, in addition to undertaking the duties of a housemaid. House-parlourmaids are recruited from girls with experience as housemaids at about 17 or 18 years of age.

A parlourmaid should be tall and have a good presence. Her duties include answering the door, charge of the silver, china and glass, and dusting the drawing-room. She has to set all meals, arrange flowers and wait at table, and should be able to carve and have a knowledge of the wines which are handed during each course. She may also be required to act as personal maid to her mistress or valet her master. Parlourmaids often receive their training under a butler, or are promoted from the position of house-parlourmaid.

### **HOSPITAL SERVICE.**

Hospital service provides a large field of employment for domestic workers of all grades. The most suitable openings for girls under 18 years of age are as kitchen maids, housemaids, dining-room maids, matron's and Doctor's maids in the staff quarters and nurses' homes. In the hospitals there is a demand for ward maids and kitchen maids, although in some hospitals, e.g. those under the authority of the London County Council, the age minimum for recruitment is 18 years.

There is definite specialisation of domestic work in hospitals, and, according to the girl's bent, she may choose either to progress on the kitchen staff or in general household duties. In the kitchens of many hospitals girls begin as scullery maids, later become kitchen maids, and ultimately assistant cooks and cooks. The head cook and her staff are responsible for the meals of patients on ordinary diet and for those of the staff. Apart from the kitchen staff, other domestic positions include ward maids, dining-room maids, dormitory maids, corridor maids, housemaids, pantry maids, between-maids and laundry maids.

Dormitory maids, dining-room maids and housemaids are employed mainly on cleaning, dusting, polishing and waiting at table in the nurses' homes and staff quarters. The duties of between-maids would be similar to those undertaken in private service (see page 184). Some hospitals have their own laundries and employ girls as laundry hands in the various sections; the work is similar to that undertaken in a commercial laundry (see page 128).

Girls entering hospital service are assured of good living conditions and plenty of companionship. Medical attention is provided when necessary, and the younger girls are given careful supervision. The domestic staff of hospitals is usually given indoor uniform, and annual holidays with pay are customary.

### TRAINING COURSES.

Apart from obtaining training by entering a household or hospital and acquiring knowledge of the duties while in employment, it is also possible to undertake a course of Domestic Training especially designed as a qualification for domestic work. Domestic Training Centres have been established by the Central Committee on Women's Training and Employment in co-operation with the Ministry of Labour and a number of these Centres have been established in various parts of the country including a Residential Training Centre at Lapsewood, Sydenham Hill, S.E.26, where 40 students can be accommodated. The Centre is in charge of a Superintendent and a staff of Domestic Science Teachers. The training is free and may extend to 13 weeks. Trainees, who must be at least 15 years of age, receive:—

- (1) Free board and lodging during training.
- (2) Free outfit.
- (3) Pocket money according to age.
- (4) A Railway Travelling Warrant to the Centre.

Instruction and practical training is given in cookery, housewifery, laundry work and needlework, and the girls in training carry out all the work of the house under the supervision of the teachers. In the needlework classes, students make an outfit which becomes their property when they go into situations. At the end of the Course each student is helped to find the post best suited for her, and former students are encouraged to use the Centre as a Club and to keep in touch with each other. Applications for training under the Central Committee's Scheme, should be made to the Employment Exchange or Juvenile Employment Bureau nearest to the applicant's home.

Domestic Training may also be obtained at, for example, the Campden Institute of Home Training, Lancaster Road, North Kensington; Newcomen's Educational Foundation Domestic Trade School for Girls, Newcomen Street, S.E.1; and the Blue Coat School for Girls at Greenwich. Courses are also available at Technical Institutes such as the Wandsworth Technical Institute, High Street, S.W.18; the Norwood Technical Institute, Knight's Hill, West Norwood, S.E.27; the South-East London Technical Institute, Lewisham High Road, S.E.4, and the North-Western Polytechnic, Prince of Wales Road, Kentish Town, N.W.5. Trade Scholarships for Domestic Training are also awarded. For other classes see pages 254 and 255.



## NURSERY WORK.

Many girls are attracted to work with children and hope to obtain posts as nursery maids or under-nurses with a view to training as children's nurses. While formerly there were opportunities for juniors in the nurseries of large families, to train under the older members of staff, such opportunities are now rare. Nursery nursing is recognised as a profession, for which specialised training is required, and for which Secondary School education is usually expected. Other qualifications needed are good health, correct speech and a liking for children, under all conditions. Training may be obtained at Nursery Training Colleges, where the course may extend from one to two years, or at Day Nurseries, where probationers are accepted for training usually over a period of two years. In Training Colleges, fees range from £50 to 140 guineas for training, board and residence. In all Day Nurseries probationers are resident, in some, a salary of £12 to £20 a year is paid during training. In others, fees of £12 to £60 are charged for the course, board and residence being provided. Nursery nursing students prepare for the examinations set by the Royal Sanitary Institute or the National Society of Day Nurseries, according to the type of training taken.

Scholarships in Mothercraft and Infant Welfare are awarded by the London County Council and are tenable at the North, Islington Infant Welfare Centre, the Violet Melchett Infant Welfare Centre and the Deptford Central Child Welfare Clinic. Particulars of these scholarships are notified in the London County Council Gazette.

For other classes see page 255.

Where a girl is anxious to work with children, she should consider the possibility of undertaking the specialised training in Nursery Nursing, if her educational qualifications are suitable. If such a course is not appropriate, employment as an under-housemaid is one of the more likely avenues to eventual employment with children.

The duties of the trained nursery nurse vary according to the size of the household. Where a large staff is maintained, one or more of the junior maids may have definite nursery duties under her direction. In a small household, the nurse herself may have to undertake most of the domestic work for her charges.

## WAGES.

It is unusual for a beginner in any branch of domestic work to be paid less than £22 a year. Girls of 16 years of age and younger who have had domestic training would receive £24 to £26 a year to begin, and girls of 17-18 years would have £26 to £28 a year.

The best financial prospects in domestic work are for those who specialise in cookery. The initial wages for juniors for kitchen work are the same as those paid to other domestic workers, but as experience and skill in cookery are acquired, the average rate of increase is higher than in other branches. An experienced cook may earn as assistant cook or cook-general up to £55 a year and the salary of a cook in charge of a large kitchen would range from £60 to £100 a year or more.

Housemaids and house-parlourmaids can earn from £40 to £45 with experience, and exceptionally may earn up to £70 a year. There are prospects of promotion in a large household for responsible women to such positions as assistant housekeeper and housekeeper in charge of staff. These posts carry salaries ranging from £100 to £200 a year resident.

The initial salary for a qualified nursery nurse ranges from £40 to £52 a year resident. After some experience has been gained, a nursery nurse may expect £80 to £100 a year resident or more according to her responsibilities and capabilities.

### DOMESTIC WORK FOR BOYS.

Boys are usually employed in private houses as house boys or kitchen boys. The work of a house boy at the outset includes cleaning brass, cutlery and boots, dusting, attending to callers in the absence of the senior staff and helping generally in the lighter domestic duties. Where a large domestic staff is employed the house boy may expect to become an under footman after three or four years' service dependent upon the age of entry and suitability as to experience and address. On promotion to the post of under footman the work would include, in addition to hall duties, waiting at table and possibly some valeting. In smaller households, house boys help the domestic staff generally and their duties would be more varied than as a member of a large staff where the work was specialised; they may sometimes be required to help in the garden and in the garage.

Kitchen boys duties mainly consist in cleaning the kitchen and cooking utensils and helping in the preparation of vegetables. In some households there are prospects of a boy receiving training in cookery and eventually becoming qualified as a cook.

The prospects for boys in domestic work depend upon inclination and ability to take advantage of every opportunity for gaining training and experience in order to become efficient. In kitchen work, to become an expert cook would be the ultimate aim. In household duties outside the kitchen the prospects would be, after promotion to under footman, to become a footman or butler-valet and eventually butler. With the migration of families to service flats and to smaller labour saving houses,

the number of butlers and footmen employed has considerably decreased but the trained domestic worker, who is able to adapt himself to circumstances should find opportunities for permanent remunerative work. Occasionally employers give facilities for their male domestic workers to be trained to drive a car with a view to their helping and deputising the chauffeur. This type of opportunity is, however, exceptional but it is quoted as an example of the adaptability which may result in a useful additional qualification being acquired.

### **WAGES.**

The initial wage for house boy or kitchen boy of 14-15 years is 7s. 6d. to 10s. per week, all found, rising to 15s. or 17s. 6d. per week at 18 years of age. At 18-21, wages for example as a footman, would range from £40 to £52 to begin and ultimately of £80 to £100 or more, per annum, for a senior position in a household.

### **HAIRDRESSING.**

Hairdressing offers opportunities both to boys and girls who have taste for this kind of work and have had a sound training, particularly in ladies' hairdressing, which is the most skilled branch of the trade. This latter branch is, however, very dependent on the prevailing fashion. The openings in high class West End establishments are limited, and the trade generally may be regarded as overcrowded.

### **BRANCHES OF THE TRADE.**

The foundation of a good training for girls should include board work, i.e., wig making, ladies' hairdressing, permanent waving, manicure, face and scalp massage. Boys should learn men's hairdressing, postiche and shaving in addition. Training in "beauty culture" may be obtained in a high class establishment, but there is a tendency for older assistants to specialise in this branch.

### **RECRUITMENT.**

Artistic ability, nimble fingers and a smart appearance are essential qualifications. Boys and girls enter the trade as (1) Apprentices from the ages of 14 to 17, (2) Junior Assistants between the ages of 16 and 18, (3) Lather boys and messengers at the age of 14.

### **APPRENTICES.**

Some firms take indentured apprentices for a period of three years, and sometimes premiums of 10 to 30 guineas are required. A form of agreement is desirable, and care should be taken to ensure a training in all recognised branches as shown above,

which should be stipulated on the indentures. Further information may be obtained from the Hairdressers' Registration Council, 20, Bloomsbury Street, W.C.1.

### **JUNIOR ASSISTANTS.**

Many firms in the West End prefer to engage as junior assistants girls and boys who have completed the two year and three year courses at Barrett Street Trade School and the Regent Street Polytechnic respectively. Intensive training for about six months is obtainable at private schools of hairdressing, but generally such training would be an introduction to certain sections only of the work. Junior assistants become senior assistants at the age of 21.

### **LATHER BOYS AND MESSENGERS.**

Boys sometimes begin as lather boys, and girls as messengers under no promise of training, and learn the trade as opportunities arise. This method may prove satisfactory in some branches, but is not suitable for those wishing to enter the high-class trade.

### **TRICHOLOGY.**

The Incorporated Institute of Trichologists provides facilities for training, where the curriculum includes such subjects as the recognition of maladies peculiar to the hair and scalp, hygiene, massage, also the elements of pharmacy, chemistry, physiology, and anatomy. Those who qualify as members of the Institute are known as trichologists, and such training is an additional qualification for hairdressing.

### **WAGES.**

Lather boys and messenger girls start at about 10s. to 12s. per week, boy and girl apprentices at about 5s. per week, rising to about 15s. per week in the third year. Junior assistants start at about 20s. to 25s. per week. Senior women assistants earn up to about 40s. per week and senior male assistants up to 50s. per week in the suburbs; these amounts are increased by about 10s. per week in the West End. In addition gratuities and about 10 per cent. commission on sales of toilet requisites are received. Fully trained men and women in high-class establishments receive a basic wage of £3 to £5 per week according to experience and ability. Some of the high-class hairdressing establishments engage qualified trichologists with practical hairdressing experience to undertake advisory work at salaries of about six guineas a week.

## HOURS.

The hours worked in the trade vary, but in the West End they are usually from about 9 a.m. to 6.30 p.m.; in the suburban trade the hours may range between 47 and 55 per week or more.

## HOTEL AND CATERING INDUSTRY.

The Hotel and Catering Industry is represented in London by a large variety of hotels, clubs and restaurants. There is, however, a wide difference between the elaborate and expensive meals offered in the type of hotel or restaurant necessitating French cooking and high-class service, and the more simple fare provided in smaller restaurants, cafes and light refreshment rooms.

## RECRUITMENT.

Practical experience in each branch is essential and juveniles must be prepared to start at the bottom. Generally, the qualifications required are a good appearance and manner, alertness, intelligence and physical fitness, while a practical knowledge of French, which is still the language of the restaurant, is an advantage. A preliminary training in cooking or waiting is advocated, such as that obtainable at the Hotel and Restaurant Technical School, Westminster; after a few years' experience, a "stage" abroad is an added qualification for the higher posts.

## HOURS.

Under the Shops Act, 1934, the employment of young persons engaged in the serving or preparation of food in a restaurant, is restricted to 48 hours per week, excluding intervals for meals and rest. The hours of duty of staff in attendance on visitors are fixed by each establishment, and consequently, may vary considerably.

## SECTIONS OF THE INDUSTRY.

The sections of the industry are as follows:—

- (1) Kitchen and service (including Pantry and Still-room).
- (2) Dining Room and Restaurant Service (including Buffet and Snack Bar).
- (3) Housekeepers' and Floor Staff.
- (4) Uniform Staff.
- (5) Managerial, Official and Control Staff.

## KITCHEN AND SERVICE.

The Kitchen Staff consists of kitchen porters, kitchen maids, porters, clerks, apprentice cooks, commis cooks, cooks and chefs (male and female). A large kitchen is organised into sections or "partis," each under the control of a Chef de Parti.

*Kitchen Boys and Apprentices.*—In large establishments the kitchen staff usually does not include women, and good opportunities are available for boys to be trained as cooks or chefs. A boy starts at about the age of 15, and earns about 12s. 6d. per week, with food provided. He has at first to do cleaning and learns to prepare food for cooking, also the use of kitchen utensils. It is important that there should be some clear understanding between the chef and the boy that instruction in cooking will be given as an apprentice or commis (learner) chef. In some first-class kitchens boys serve a three years' apprenticeship starting at 5s. to 10s. per week and food. Unless there is a definite arrangement of this kind, or a boy has had a preliminary technical school training, there is a risk that he may not progress beyond the grade of kitchen porter, or may obtain experience in one section or "parti" only of the kitchen, and so would lack the knowledge necessary for the higher posts. After serving an apprenticeship, or on completion of technical school training, a commis chef should earn about 35s. per week, and proceed up to £3 per week, according to his proficiency. After experience in all branches of the kitchen, his aim would be to become a "chef de parti," when he would be responsible for the work of a section of the kitchen.

*Kitchen Porters.*—A kitchen porter usually remains in the lower grades of kitchen work. He may start at about the age of 16, and his duties consist in cleaning cooking utensils, cleaning ranges, carrying fuel to fires and generally waiting on the cooks as required. The commencing wage is from 10s. to 12s. 6d. per week, and is increased according to age and experience so that at the age of 21 he would receive about 25s. to 30s. per week, living out, and from 21s. to 22s. 6d. per week living in.

*Kitchen Clerk.*—A kitchen clerk is employed, only in a large kitchen. He works under the chef, and his principal duty is to receive waiters' orders, pass them to the relevant parti, and "check out" the dishes. The work of an "aboyeur" is within this category. He has an expert knowledge of French and announces the orders to the kitchen, sometimes through a loud speaker. A kitchen clerk starts at about 15s. per week with food, and has opportunities to become a timekeeper or storeman at about £3 per week. An "aboyeur" earns about 70s. per week.

*Chef.*—A Chef de Cuisine or head cook in a large establishment is a position of great responsibility. He must be an expert

in the art of French cooking, and able to organise and control a large staff. His remuneration may range from £6 to £40 per week. Important posts are held also by women chefs.

*Female Kitchen Staff.*—In smaller hotels, restaurants, canteens, etc., the staff often consists of women. As a rule, where the staff is mainly male, the conditions are not suitable for a girl. Girls between the ages of 14 and 16 start as kitchen maids at about 10s. per week with food, lodging and laundry. It is important for those wishing to become cooks to start in a kitchen where there are definite opportunities of training under the instruction of a male or female chef; otherwise girls may be kept at rough unskilled work. In the majority of smaller restaurants women cooks occupy well-paid positions. The work is interesting, but girls must be constitutionally strong enough for a training and occupation which entails a considerable amount of physical exertion. There are good opportunities for promotion and really efficient cooks are in great demand.

Some girls at about the age of 16 become pantry maids, and stillroom or dispense maids. A stillroom maid is responsible for the making and preparation of tea, coffee, beverages and other light refreshments. Cutting bread and butter, boiling and poaching eggs, toast and sandwich making, are other important duties, also the issue of butter, cream, milk, etc., from the stillroom as required. The whole of the service including cleaning and washing up china, etc., would be undertaken. A dispense maid records and issues wines, spirits and other drinks from the dispense to the dining room, etc.

The wages of a woman cook range from 25s. per week, with food and accommodation, up to £3 per week as chef. A pantry maid receives about 18s. per week. Stillroom and dispense maids start at about 12s. per week, and may earn up to 35s. per week. The wages in all cases are slightly higher when the employee is required to sleep out.

### **DINING ROOM, RESTAURANT, ETC.**

*Waiters.*—Waiters are recruited partly from suitable page boys, or from boys who start as learners at about the age of 16. The duties of an assistant or "commis" waiter are to help the waiters generally by laying tables, carrying dishes from the kitchen, and waiting under supervision. A commis waiter does not receive orders from guests or make out bills. He is paid a weekly wage, receives his food, and sometimes a share of the tips given by customers. A well trained commis at the age of 16 or 17 may earn up to 30s. per week, including tips. After a period of about three years he may be promoted to take charge of a number of tables as "chef" waiter or "chef de rang". A waiter, in addition to supervising his assistant, must understand thoroughly the system in use at his establishment.

He must be able to take orders quickly, carry them out correctly and make out orders for the kitchen. After about three years as a chef de rang in a large establishment, he may specialise as a wine butler or become a head waiter, but an expert knowledge of French is necessary and sometimes a "stage" of about a year abroad on the Continent is essential. There are various systems by which waiters are paid. They are given a fixed wage by the employer and, in addition, receive tips or a share of them. Some hotels adopt the "tronc" system, by which tips are pooled and divided into certain proportions. Weekly earnings of £3 or more would not be exceptional for a waiter in a first-class hotel or restaurant.

*Head Waiters or Maitre d'hotel.*—Head Waiters are responsible to the restaurant or grill room manager for the supervision of chef waiters, etc., and would be in charge of a number of tables.

*Manager.*—The Manager is in charge of the staff in the restaurant or grill room, and holds a responsible post. He receives the public, is responsible for allocating tables, and ensures that guests are satisfied. The remuneration of a Manager may range between £500 and £1,000 per annum.

*Waitresses.*—Waitresses are employed in clubs, hotels, restaurants, tea and light refreshment rooms, eating houses and canteens. They work under a head waiter, except where female staff only are employed. A superior type of girl, usually not under the age of 18, is required in hotels and restaurants, and in the best class of tea and light refreshment rooms, but in some establishments girls may start at about the age of 15 as "runners" or table clearers. They are sometimes trained by working with experienced waitresses, but many large catering firms have special training schools. The wages vary, as they are sometimes supplemented by tips. Girls start at about 15s. per week with food. An experienced waitress might earn as much as 50s. per week including tips, but an average wage would be between 30s. and 35s. per week. Supervisors earn about 50s. per week, and a manageress from 50s. to £4 per week.

### **BUFFET, SNACK BAR, ETC.**

Boys enter this section usually between the ages of 16 and 18. Soda fountain and dispense bar work requires initiative and an inventive turn of mind. A dispense barman must be highly trained, and would be capable of taking charge of a small bar after about four or five years' experience. Other workers in this section include buffet attendants, carvers and sandwich cutters, cocktail mixers (American Barmen), bar-learners, barmen, barmaids, saloon or bar waiters, assistant cellarmen, cellarmen, head cellarmen and potmen. These workers, except barmen



and barmaids, generally live out, and the wages range from 20s. to 30s. per week with food to about £4 per week. Time off is allowed usually in the afternoons, during unlicensed hours.

### HOUSEKEEPERS' STAFF.

This section includes distinct classes of work, which are dealt with in the following groups:—

- (1) Corridor-maids, Chambermaids and housemaids.
- (2) Linen Maids.
- (3) Housekeepers and Head Housekeepers.
- (4) House Porters and Valets.

*Corridor Maids.*—These maids are recruited sometimes from girls between the ages of 16 and 18, who at first work under the direction of older maids. The duties are to keep the corridor and bathrooms clean, and to assist the chambermaid when she "turns out" a bedroom. The wage is from 10s. to 12s. per week with board, lodging and laundry. A comparatively liberal allowance of time off duty is given at stated times.

*Chambermaids.*—A chambermaid is sometimes promoted from the position of corridor maid, and may start with a weekly wage of 12s. 6d. to 15s., with board, lodging and laundry, at the age of 17 or 18. In large establishments, however, chambermaids are seldom under the age of 25. Wages are increased usually by tips received from visitors. She is responsible for the general cleanliness of the bedrooms of which she is in charge, making the beds and attending to the visitors. Her times off duty are similar to those of a corridor maid. In some establishments she may do valeting and unpacking, and also serve morning tea, etc. It is essential that she should be of a refined, quiet disposition and of undoubted integrity.

*Linen Maids.*—Girls at the age of 15 are sometimes employed as junior linen maids, to repair the household linen, usually by power or treadle machines, under the direction of a head linen maid. They receive a wage of 10s. per week, with board, lodging and laundry. A junior linen maid may be promoted to the position of linen maid at about 20 years of age with a wage of about 17s. 6d., rising to 25s. per week, living in. The work consists in attending to all linen, checking in and out when sent to the laundry, and sorting for repairs. A head linen maid may earn from 40s. to 50s. per week in a resident post, and is sometimes promoted to the position of housekeeper.

### UNIFORM STAFF—HALL.

*Page Boys and Lift Attendants.*—A post as page boy provides many opportunities for a smart boy owing to the number and variety of persons with whom he is brought into contact. Sometimes very small boys are preferred, but they must be sharp and good mannered. As a rule boys start at the age of 14 with

a wage from 7s. 6d. to 12s. per week, food and uniform provided. This wage is, in some cases, very much augmented by tips. The hours may be long and sometimes late, but sometimes time is given off in the afternoon. A certain number of page boys live in but the majority live out. A page boy may go on to be a lift attendant, porter, telephone operator, clerk or waiter, according to the type of boy.

*Porters.*—A second porter starts at about the age of 17 or 18. A pleasing and willing manner is essential, while a knowledge of languages is useful and paves the way to the senior posts. He assists generally in the hall with luggage, fetches taxis, etc. Other posts are Floor Porter, Night Porter, Hall Porter and Head Porter. These employees usually sleep out, and the wages range from about 15s. per week with tips in addition as second porter, to 30s. upwards as head porter.

There is also employment as a Basement Porter whose duties are cleaning the basement, staff quarters, etc. They start usually between the ages of 18 and 21, and if suitable have opportunities of promotion to the Uniform Staff.

### **CLUBS AND SERVICE FLATS.**

Club service provides a good training ground for boys who wish eventually to enter the industry. They start as page boys at the age of 14 at about 10s. per week with food and uniform provided. Tips are not usually received in clubs but to compensate for this a bonus dependent on length of service is paid, normally at August or Christmas. The hours are long, generally from 9 a.m. to 9.30 p.m. with an interval of free time during the afternoon. For this reason the management prefer to engage boys who live within a reasonable distance. A large number of boys "live in," but the accommodation provided is sometimes not satisfactory. After some experience as page boys they are promoted to posts such as lift attendants, assistant valets, waiters or hall porters.

### **MANAGERIAL, OFFICIAL AND CONTROL STAFF.**

The method of entry into this section may be through any of the channels enumerated above. Direct appointments are seldom made, apart from perhaps junior clerical staff, who are recruited at about the age of 16. A knowledge of shorthand and book-keeping is an advantage, while good arithmetic and language qualifications are essential.

### **BOY MESSENGERS (EXCLUDING POST OFFICE MESSENGERS).**

Apart from shop messengers, a number of boys are employed in London by messenger corps, cable and wireless companies, press agencies and certain large authorities. These boys as a

rule start at the age of 14, and receive about 15s. per week, but their prospects of absorption after messenger service differ considerably.

*Authorities*, such as the Port of London Authority, the British Broadcasting Corporation (see below) and the Metropolitan Water Board (see page 210) absorb the majority of their boy messengers in one capacity or another.

*Cable and Wireless Companies* retain a certain proportion of the messengers though the proportion absorbed varies with the different companies.

*Messenger Corps* boys and press messengers have generally to find fresh employment at about the age of 16 or 17.

### CONTINUATION CLASSES.

Many of the firms employing these boys are alive to the fact that at best only a proportion of their messengers can be given permanent employment and do their utmost to encourage attendance at evening classes or at special classes either in their own premises or at the London County Council Institute in Kingsway. Sometimes this is a strict condition of employment. The fees for attendance are paid by some employers, while others offer rewards in the way of increased pay for educational qualifications.

### ALTERNATIVE EMPLOYMENT.

The arrangements for continued education together with the advantages derived from good discipline, maintained through effective supervision, the smart appearance of the boys often assisted by the wearing of a uniform, and their frequent contact with other employers, appear to make it not difficult for these messengers to obtain new work. In some cases, employers make a special effort to assist the boys, and are prepared to release them at any time for alternative employment.

### PORT OF LONDON AUTHORITY.

There are special conditions attached to the employment of boy messengers with the Port of London Authority. These boys are engaged between the ages of 15 and 16 from a waiting list kept by the Authority, and application should be made at least three months before reaching the age of 15 years. Boys must have reached the top class at an elementary school and preference is given to those able to swim. There is also a strict medical test. It is important that these boys continue their education as they should pass an examination during the third year of service to qualify as assistant foremen. It is a condition of employment that failure to pass the examination means that the appointment will be terminated, but in the event of a vacancy there is a possibility of absorption into the labouring class.

*Assistant Foremen* are employed in the dock shed offices on such duties as tallying and checking. They are attached to the permanent pensionable staff of the Authority, commencing at a wage of 35s. per week and progressing to 77s. per week.

### **BRITISH BROADCASTING CORPORATION.**

Boys join the service of the B.B.C. as pages and office messengers on leaving school at the age of 14, and are expected to attend continuation schools. While there are opportunities of absorption on the clerical or house staffs such possibilities vary from year to year, and boys who cannot be so absorbed are required to leave on attaining the age of 18.

### **HOURS.**

The hours are usually 48 per week, on the basis of early and late shifts of eight hours per day. Older boys are sometimes required to work night shifts.

### **CIVIL SERVICE.**

The members of the Civil Service are responsible for carrying out the work of the different Departments of the State under the direction of Parliament. Ordinarily a fresh entrant to the Civil Service must be a natural-born British subject, the child of a person who is, or was at the time of death, a British subject. A qualifying or competitive examination has in most cases to be passed, and successful candidates, provided they satisfy the Civil Service Commissioners as to their character and that there are no disabilities on the score of health, may become "established" Civil Servants. Appointments are at first on probation—usually for a period of not less than one, or more than two, years—and candidates are confirmed in their appointments as and when they successfully pass their probationary period. Higher posts are attainable by promotion. Established service is pensionable; women civil servants are required usually to resign on marriage, but are eligible for a marriage gratuity if they have served for not less than six years.

### **TREASURY AND DEPARTMENTAL CLASSES.**

The established staff of the Civil Service is divided into two main groups; the Treasury Class group and the Departmental classes. The Treasury class deal with matters common to the Civil Service as a whole, and its members are interchangeable between the different departments. The Departmental classes are concerned with branches of work peculiar to particular Departments, e.g., Factory Inspectors under the Home Office, Postmen under the Post Office, etc., but such staff would only in exceptional circumstances be interchangeable between departments.

**EXAMINATIONS.**

Advertisements regarding forthcoming examinations usually appear on Thursdays in the Times and Daily Telegraph and Morning Post, but full information regarding openings in the Civil Service can be obtained from the Civil Service Commissioners, Burlington Gardens, W.1. Copies of question papers used at previous examinations are obtainable from H.M. Stationery Office, Adastral House, Kingsway, W.C.2. Brief particulars of examinations suitable for boys and girls are as follows:—

**TREASURY.**

Appointment.	Age Limits.	Subjects.	Wages.
Clerical Officers (B and G).	16-17	English, Arithmetic (Compulsory), Mathematics, Science, History and Geography and one language. (3 only may be offered.)	†£85 p.a. to £350 p.a. men. £262 10s. p.a. women.
Clerical Assistants (Girls).	16-17	English, Handwriting, Spelling, Arithmetic, Geography.	†28s. p.w. to 72s. p.w.
Typists and Clerk Typists (Women and Girls).	*16½-25	English, Arithmetic, Typewriting, Shorthand, French or Geography.	†30s. p.w. to 57s. p.w.

**DEPARTMENTAL.**

Clerical Officers (B and G).	16-17	As for Treasury Classes.	£75 or £85 p.a. to £240, £280 or £320 men. £240, £242 10s. or £262 10s. p.a. women.
<i>General Post Office.</i> — Sorting Assistants (Girls).	15-17	English, Reading, Manuscript, Arithmetic, Geography.	25s. p.w. to 60s. p.w.
Telegraphists and Counter Clerks and Telegraphists (Girls).	16-20	English, Handwriting, History, Geography, Arithmetic.	†15s. 6s. p.w. to 68s. 6d. p.w. (C.C. and Ts. 70s. p.w.).
Telephonists (Girls).	16-19	Reading and Copying Manuscript, Writing, Spelling, Arithmetic.	†21s. p.w. to 61s. 6d. p.w.
<i>War Office.</i> —Map Constructor Apprentices (B).	16-17	English, Arithmetic, Mathematics, Drawing, French or German.	23s. 6d. p.w. to £275 p.a.
<i>H.M. Land Registry.</i> —Probationer Mapping Assistants (B and G).	16½-18	Candidates who have obtained a School Certificate are submitted to an examination in Plan Drawing and Lettering.	28s. p.w. to £286 p.a. men. £250 p.a. women.

\* The upper age limit may be reduced to 21.

† Lower rates outside the London Postal Area.

‡ For those entering at the age of 19 or over the rates are at present under review.

The following posts as Boy Messengers and Girl Probationers in the General Post Office are open to boys and girls from elementary schools:—

*Post Office Boy Messengers.*—Boys are recruited as Messengers, either indoor or outdoor, between the ages of 14 and 14½, and are selected by the Post Office from boys recommended by the Employment Exchanges or Juvenile Employment Bureaux. These boys must come up to the educational standard required by the Post Office, and must also pass a medical examination. The starting wage is 12s. 6d. per week within the London Postal Area and 11s. per week outside. Uniform is provided and boots also in the case of outdoor boys.

The boys qualify for permanent retention by means of a General Examination which is held every half-year for those reaching 16 years of age during that half year.

Candidates who take the highest places in the General Examination and obtain a sufficiently high percentage of marks are considered, so far as vacancies allow, for appointment as Telegraphists in the Central Telegraph Office, or as Counter Clerk and Telegraphist in London during the six months following the half-year in which the examination was held, or for appointment as Sorter in London during the 12 months following the half-year in which they attain the age of 18. They also have opportunities of becoming Supervising Officers by promotion and Clerical Officers by a further limited competitive examination. The pay of Counter Clerks and Telegraphists rises to £5 1s. 6d. per week, Telegraphists to £4 19s. per week and Sorters to £4 15s. 6d. per week. For the boys who take lower places in the examination, appointments as Postmen are reserved, but after attaining the age of 18 they become eligible to take part in limited competitions for appointment as Sorters. The pay of a Postman rises to £3 9s. per week in London and £3 4s. 6d. outside, with lower rates outside a 12 miles radius from Charing Cross.

So far as openings are available, boys who qualify in the General Examination are also given the option of a course of training with a view to employment in the Engineering Department of the Post Office where they have good prospects of advancement if they show mechanical ability, or of employment in the Stores Department of the Post Office. (See page 202.)

*Post Office Girl Probationers.*—Girl probationers are selected by the Post Office from girls between the ages of 14 and 14½ recommended by the Employment Exchanges or Juvenile Employment Bureaux. They must come up to the physical and educational standard required by the Post Office, and must live within a reasonable distance of the office at which they are employed. They are employed as indoor messengers, at a starting wage of 11s. per week and on reaching the age of 16

are eligible to compete among themselves for a proportion of the vacancies for Telegraphists and Counter Clerks and Telegraphists. If they do not secure these posts, they are given appointments by the time they attain the age of 19 as Sorting Assistants or Telephonists, according to choice and so far as vacancies are available. (For rates of pay see above under "Examinations".)

Fuller information concerning situations as Boy Messengers and Girl Probationers is contained in leaflets issued by the Post Office, copies of which may be obtained from the Employment Exchanges and Juvenile Employment Bureaux.

*Sorting Clerks and Telegraphists.*—Recruitment for these posts, which are in post offices outside London, is effected by (1) examinations and competitions among staff, e.g., Boy Messengers, already employed by the Post Office, and (2) in the smaller offices, by selective nomination of local candidates. In the latter case vacancies are notified by the Head Postmaster, to local Secondary and Central Schools, and also to the Juvenile Employment Committee. Boys and girls nominated from Central Schools must have reached the top form. They start at 12s. 6d. per week and if selected for retention in the service after a probationary period of three months proceed to 15s. 6d. per week. Thereafter, when qualified, they receive 23s. 6d. per week at the age of 16; women rise to a maximum of £3 7s. 6d. per week, and men to £4 11s. 6d. per week, but these maxima are slightly lower outside a 12 mile radius from Charing Cross.

## HOURS.

The normal hours of the Civil Service in Headquarter Offices in London are seven a day for five days per week, with a half holiday on Saturday; the hours for the departmental classes vary as a rule between 44 and 48 per week.

## ANNUAL LEAVE.

Annual Leave with pay varies from 12 to 48 working days a year, according to the class and seniority of the individual concerned.

## GOVERNMENT INDUSTRIAL UNDERTAKINGS.

Various Government Departments are concerned with industrial undertakings in order to provide for the special needs of the Departments or for the Civil Service as a whole. In some cases the workers in these manufacturing departments have before them the prospect of becoming established, but in others this privilege has not at present been granted.

The actual work done in these departments is on the same lines as similar work done by private firms, and for the most part it is described under the particular trades. The chief industrial undertakings under the Government in which boys and girls are concerned are briefly referred to below.

### POST OFFICE ENGINEERING DEPARTMENT.

*Youths-in-Training.*—Boys are selected for the Engineering Department as "Youths in training" between the ages of 16 and 18½. As a rule they must have had a central or secondary school education, and study of electrical science at a technical college is a useful supplementary qualification. Boy messengers who show promise may also be selected. These youths are trained in engineering according to the Post Office requirements, and at 16 they start at 23s. 6d. per week within, and 20s. 6d. per week outside the London Postal Area. At about the age of 20, youths in training may be graded as "unestablished skilled workmen" as vacancies occur, if they obtain a "report qualified" from the Civil Service Commissioners as suitable for permanent employment. After five years' unestablished service they may be graded as "established skilled workmen," starting at 54s. per week, and rising to 70s. per week. These rates are slightly lower outside the London Postal Area. Higher posts, such as Inspectors or Assistant Engineers, are open to established skilled workmen with salaries up to £575 per annum.

The hours of duty are 48 per week.

### POST OFFICE STORES AND FACTORY.

The Post Office Stores Department controls the staffing arrangements of the Stores Depots and the Post Office Telephone Repair Factory. Vacancies for boys and girls of good physical and educational standards are notified to the Ministry of Labour, and preference is given to those residing in the northern suburbs of London. Boys are recruited at the age of 14 or 15 for the Stores Depots and Factory, and girls at the same ages for the Factory. All boys are required as a condition of employment, to attend Evening Classes until the age of 17 or 18.

*Stores Depots.*—Boys are employed on the lighter duties connected with the handling, examination and packing of stores, and are regraded as packers and porters at the age of 21. From this grade there are possibilities of promotion to the grades of storemen and warehousemen. About one-third of the posts in the depots are established, and to those posts unestablished men are eligible for promotion by selection. Normally a storeman becomes established after five years.

*Factory.*—Boys are recruited for work in connection with the repair of telephones and other electrical apparatus; their training is designed to fit them to become telephone mechanics,



instrument makers, fitters, cabinet makers, etc., at the age of 21. Girls become engineering tradeswomen, and are normally employed on coil winding, engraving, cord repair work, etc. The prospects of obtaining establishment in the factory are very remote, as, owing to the character of the work, the majority of the staff is unestablished.

*Wages.*—Boys start at 14s. per week at the age of 14; at 17s. per week at 15, and proceed by half yearly increments to 45s. per week at the age of 20½. Packers and porters are paid 49s. to 53s. per week; storemen 54s. to 65s. per week, and warehousemen 66s. 6d. to 79s. per week, according to service. Telephone mechanics are paid time rates ranging from 52s. per week to 76s. per week, according to age, but these rates are increased generally by piece work. Instrument makers, etc., are paid the appropriate trade rates. Girls receive from 12s. 8d. per week at the age of 14 to 30s. per week at 21 years of age, but these rates are increased also by piece work.

*Hours.*—The hours of duty are 48 per week, except in the cases of those men and women who are paid at trade rates, and who work the appropriate trade hours.

### ROYAL MINT.

Boys from technical schools are recruited at the age of 16 years as learners, some to such trades as engraving, die sinking, instrument making, fitting, turning, etc., while others are engaged on the coining processes, which include melting, rolling strip and cutting out coin blanks by machinery. After a probationary period of about six months, learners are required to attend an examination set by the Civil Service Commissioners in (1) Writing (including Copying Manuscript) and Spelling, (2) Arithmetic (first four rules, Money and Avoirdupois and Troy Weight). Successful candidates are appointed, eventually, as established workmen.

*Wages.*—Boys start at 15s. 6d. per week, and proceed by annual increments to 40s. 6d. per week after five years' service, and thence to a maximum rate of 63s. 9d. per week as established workmen. There are possibilities of promotion, however, to the craftsmen grades at rates varying from 63s. 9d. per week to £6 9s. 9d. per week.

*Hours.*—The normal hours are 47 per week.

### ROYAL ORDNANCE FACTORIES.

At the Royal Ordnance Factories (Woolwich, Enfield and Waltham Abbey) boys are engaged as messengers at the age of 14, and if suitable are transferred to unskilled work in one of the shops after about three months. There is a complete system of training in the trades represented in the Factories, and while

there is no Indenture of Apprenticeship, there is an undertaking that apprentices remain until they are 21. There are two classes of Apprenticeship relating to boys under the age of 18.

- (1) Trade Apprentices.
- (2) Engineering Apprentices.

*Trade Apprentices* are chosen normally from boys under 16 years of age, already employed in the Factories on unskilled work; satisfactory shop reports and evening class attendance are necessary qualifications. A considerable number of trades is covered connected with Mechanical Engineering and Building. The training is such as to make each apprentice a competent journeyman, so that he would be capable of taking his place in industry if not absorbed in the Factories.

Trade Apprentices must take an approved theoretical course at an Evening Institute.

Trade Apprentices of outstanding ability up to the age of 17½ years may be selected to compete for Engineering Apprenticeships.

*Wages.*—The present wages are 12s. at the age of 15 years rising to 34s. at the age of 20 years, subject to revision from time to time. Full journeyman's rate is reached at the age of 22 years.

*Engineering Apprentices.*—Entry is by open competitive examination, held annually in June for lads between the ages of 15 and 17 years of age on the first of September of the year of the examination. The standard of this examination is approximately that of the General School Certificate of the University of London. Successful candidates are required to be passed fit by the Medical Officer of the Factories.

The training includes a four year theoretical course at part-time day classes and a practical course in the shops and offices (including Drawing Office) until the age of 21 years. Selected apprentices at Woolwich are required to attend a full time (Sandwich) course in the fourth and fifth year. (See page 259.)

*Wages.*—The present wages are 12s. per week for the first year rising to 34s. per week in the fifth, subject to revision from time to time. Full journeyman's rate is reached at the age of 22 years. (See Engineering, page 72.)

*Hours.*—The normal hours are 47 per week.

### H.M. DOCKYARDS.

*Apprentices.*—Examinations are held once a year, in April, for Apprentices between the ages of 15 and 17 to the various skilled trades (including Shipwrights, Engine, Ship and Electrical Fitters, Electrical Station Fitters, Boilermakers, Copper-smiths, Founders, Joiners, Painters, Patternmakers, Plumbers, Ropemakers, Sailmakers, Smiths, etc.) in Dockyards at

Chatham, Sheerness, Portsmouth and Devonport. Apprentices are bound under an Indenture to serve for five years and work with skilled mechanics of their respective trades in workshops or on board ship. They also attend Dockyard schools. The subjects of the examination for entry as apprentices include Arithmetic, Mathematics, English, History and Geography, Science and Drawing. After five years' training apprentices are classed as probationers and become, if suitable, Dockyard Mechanics. As vacancies occur, Dockyard Mechanics may become established and so entitled to a pension. Apprentices may also be selected for special training with a view to qualifying for the superior posts of technical officers.

*Wages.*—Apprentices receive 6s. per week in their first year and 20s. in the fifth, with the addition of the cost of living bonus. Probationary mechanics receive 39s. per week, plus bonus and are advanced to the full mechanics' rate at the discretion of the Dockyard Officers.

*Unskilled Occupations.*—In addition to the skilled occupations referred to above, there are to be found in the Royal Ordnance Factories and His Majesty's Dockyards the semi-skilled and unskilled occupations which are ancillary to any large industrial undertaking of this kind. (See Engineering, page 65 and Shipbuilding, page 79.)

### **HIS MAJESTY'S STATIONERY OFFICE.**

In the Printing works under the control of His Majesty's Stationery Office boys are employed as apprentices under the ordinary trade conditions, to several branches of the Printing trade, and girls as learners in book-folding, stitching, etc. (See Printing, page 167.)

### **NATIONAL PHYSICAL LABORATORY.**

A few boys are employed in certain trades such as instrument making, fitting, turning, etc. A good training is to be obtained but there are doubtful prospects of retention after the age of 21.

### **MUNICIPAL SERVICES.**

Service under Local Authorities, namely the City Corporation, County Councils, Metropolitan Borough Councils, County Borough and Non-County Borough Councils, Urban and Rural District Councils, is in some ways similar to the Civil Service. These Authorities are concerned with public services of many kinds in their own locality, and to carry out the services, there are departments with administrative, legal or technical officers in control, assisted by clerical and technical staff, on a smaller scale, but similar to the departments of the Civil Service acting under Parliament.

## DEPARTMENTS.

Among the more important functions and services, any, or all of which may be provided by Local Authorities, are: (1) Administrative, legal and financial, including the Clerk's, Treasurer's and Accountant's Offices, (2) Health, including hospitals and asylums, maternity and child welfare, food inspection and analysis, and nuisance abatement, (3) Engineering and public works, including parks and planning, (4) Cleansing, sewage and house refuse disposal, (5) Rating and valuation, (6) Trading enterprises, including gas, electricity and transport, (7) Education, including schools, physical training, employment bureaux, libraries and museums, (8) Police and fire protection, (9) Housing and estate management, (10) Roads, sewers and bridges construction, maintenance and improvement, traffic control and safety devices, (11) Weights and measures inspection and Shops Acts administration, (12) Baths management, and (13) Public assistance. The work in departments of large Authorities tends to become sectionalised, but under smaller Authorities the work may be dealt with by fewer departments, and a wider range of experience may be obtained.

## RECRUITMENT.

The work of an important Local Authority is considerable both in volume and range, and requires a large staff of officials, mechanics and workmen connected with a variety of different industries and occupations in which there may be some scope for the employment of boys and girls. The work of Local Authorities lends itself on the whole, however, to the employment of adults rather than juveniles. Boys at the age of 14 are employed under the London County Council as laboratory monitors in central and secondary schools. They share, when practicable, in the instruction given to pupils, and attend a Day Continuation School for six hours a week. They are not retained, however, beyond the age of 17. Local Authorities rarely appear to have any special apprenticeship schemes, but so far as apprentices are employed in the work of departments the conditions are generally in accordance with the schemes or agreements recognised by the particular trades or industries concerned, most of which have been referred to elsewhere.

*Articled pupils* are sometimes taken by a qualified Town Clerk or Clerk of a Council, and also in the engineering and surveying department, but usually a premium for articles is required. Sometimes particularly suitable and promising junior clerical assistants are given these opportunities without the payment of a premium.

*Clerical Posts.*—Many Local Authorities prefer to select juniors at about the age of 16 from among those residing within the borough or county, and announce vacancies by means of

advertisements in local newspapers, or they file applications received from time to time and select candidates for interview from an approved list of those with the necessary qualifications, the list being made available for the Principal Officers of the various Departments upon a vacancy arising. The possession of a school certificate is necessary, usually, and in addition, a knowledge of shorthand and typing is sometimes required. The London County Council recruit boys and girls between the ages of 16 and 17 by means of an open competitive examination and boys between the ages of 16 and 18 for the Stewards' Offices attached to General and Special Hospitals. The possession of a General School or equivalent certificate is a necessary qualification for the latter posts. Further particulars of these appointments may be obtained on application to the Council.

A feature of the service is the method by which officers in the smaller Authorities acquire experience and a wider knowledge of local government administration. Particulars of vacancies are advertised in local government or technical publications, and filled after interview of suitable applicants.

Further particulars regarding recruitment and appointments are contained in the Choice of Career Series, No. 21—Local Government Services; No. 17—Nursing and Kindred Services; No. 4A—House Property Management for Women.

### **WAGES.**

Apprentices and trade learners are paid the rates applicable to the trades or occupations in which they are employed. Laboratory monitors start at 8s. 6d. per week, and at the end of a year are paid 17s. per week. They rise to 21s. per week at the age of 17. Juniors on clerical work may start at between £45 and £78 per annum and proceed by annual increments to salaries varying between £150 and £375 per annum. Higher scales are attained by promotion. Contributory superannuation schemes are applicable to a large number of municipal officers and these facilities will be extended to all municipal workers as from the 1st April, 1939.

### **HOURS.**

The hours range between 38 and 48 per week, and certain officers such as committee clerks are required for evening work. Annual leave with pay varies from 10 to 24 working days a year, in addition to Public Holidays.

### **GAS INDUSTRY.**

The staff of a gas undertaking consists of the management, administrative and technical staffs, skilled mechanics employed in the upkeep of plant and buildings, and unskilled workmen—mainly labourers and stokers.

The industry may be divided into the following sections:—

- (1) Manufacture, distribution and sale of gas and by-products of coal carbonisation.
- (2) Testing and fixing of fittings, stores and appliances.
- (3) Repairs to Plant and Buildings.

### **GENERAL RECRUITMENT.**

Boys are recruited at about the age of 15 and are graded into two classes. Under Class A are included boys engaged in heavy unskilled labouring work in the Carbonising, Coal, Coke, Breeze and Purification Departments, and under Class B, all other boys engaged in manual labour in the following Departments:— Engineering, Blacksmithing, Plating, Foundry, Mainlaying, Pipe and Gas Fitting, Retort Pipe Fitting, Retort Lid Fitting, Platelaying, Building, Stables, and also Crane Boys, Stores Boys and Messengers. Where the manufacture of chemicals is carried out by a gas company, a few boys are sometimes employed, but the work upon which they are engaged under the supervision of chemists and supervising staff is unskilled, and carried out on factory lines (see page 92).

### **GAS MANUFACTURE.**

Owing to the necessity for shiftwork and employment at night, all labourers and stokers are over 18 years of age. There are certain posts of responsibility, such as crane driving and charging machine operating, filled by promoted labourers. A stoker earns about 11s. 4d. to 11s. 10d. per shift of eight hours. The work has the advantage of being regular.

### **DISTRIBUTION AND SALES.**

On the distributive and sales side of the gas industry there are good openings for suitable boys as gas fitters, stove repairers, etc. Gas Companies do not, as a rule, make cookers, water heaters or other appliances, though they undertake extensive repairs to such apparatus. The development which has taken place in the design and construction of gas appliances and the extended uses of gas, both for domestic and industrial purposes, during recent years has called for a considerably improved technique on the part of the gas fitter. He must be a well-trained mechanic able to instal all types of appliances and to carry out their complete adjustment and servicing. Physically robust and intelligent boys, who show evidence of possessing some mechanical ability, obtain a general training as fitters, sometimes under a definite scheme of apprenticeship.

### **GAS FITTING APPRENTICES.**

Training usually combines experience on outside work as gas fitters' mates with progressive training courses in the workshop, where they have general training, working with fitters, brass

finishers, tinmen, carpenters and smiths. It is also usual to spend some time in the Stove and Meter Shops. In Greater London gas fitters have a recognised status under the Gas Fitters' Classification Scheme, and are graded into classes according to experience and examination results.

### REPAIRS TO PLANT AND BUILDINGS.

In this section boys are employed as apprentices in the following trades:—

Blacksmithing.	Engine Fitting and Turning.
Boilermaking.	Moulding (brass and iron).
Bricklaying.	Patternmaking.
Carpentry and joinery.	Plating and Riveting.
Electrician and Electrical Fitting.	Railway Wagon Repairing.
	Sheet Metal Working.

### WAGES.

The rates of wages in respect of Class A and Class B learners are as follows:—

Age.	<i>Class A.</i>			<i>Class B.</i>		
	<i>Heavy work.</i>			<i>Lighter work.</i>		
	<i>Per week.</i>			<i>Per week.</i>		
	<i>s. d.</i>			<i>s. d.</i>		
15 ... ..	17	4		15	4	
16 ... ..	19	3		17	4	
17 ... ..	22	2		19	3	
18 ... ..	34	10		31	11	
19 ... ..	37	9		34	10	
20 ... ..	40	9		36	10	

The wages of apprentices approximate to those shown above for Class B work. Acting Gas Fitters are paid 57s. 9d. per week, and Gas Fitters from 65s. 3d. to 74s. 3d. per week. Other workers are paid the appropriate trade rates.

### HOURS.

Excluding shiftworkers, employees generally work 47 hours per week. Gas Fitting apprentices, however, during a brief period of their training, sometimes work 44 hours per week.

### WATER DISTRIBUTION.

The distribution of water in the Greater London area is controlled mainly by one large Public Authority, the Metropolitan Water Board.

## RECRUITMENT.

Generally speaking, the recruitment of staff is on a temporary basis with the possibility of a permanent appointment after a few years.

*Office Staff.*—In the central office the junior male clerical staff is recruited from boys from secondary and central schools who must have passed certain recognised examinations. Some of these boys according to their qualifications have opportunities of entering the technical departments, the drawing office, for example, or the laboratory. Other boys start at the age of 14 as boy messengers and are as a rule absorbed as junior messengers with prospects of becoming senior messengers or inspectors. Girls of good education are employed in the office from the age of 16 as junior clerks or shorthand-typists.

*Laboratory.*—Juniors entering the laboratory are encouraged to study for a degree in Science. A certain number of boys at the age of 17 and upwards are employed as laboratory boys. Their work is of an unskilled character but they have opportunities of absorption as sample collectors, that is to say in taking samples of water for analysis.

*Engineering Department.*—A few boys at the age of 14 and upwards are engaged in the Engineering Department as apprentices under a definite scheme of apprenticeship lasting five years. A number of boys are also employed in the engine houses as junior cleaners, and subject to satisfactory service and ability, they have opportunities of rising to posts as cleaners and drivers. There are also boys engaged as shop boys, starting at the age of 15, who can become young labourers at about the age of 17. The most intelligent of these have opportunities of rising to posts as meter-readers, turn-cocks, and other outside grades of labour.

## WAGES.

Junior male clerks start at about £65 per annum and on the permanent staff can proceed by annual increments to £310 per annum. Girls start also at about £65 per annum, and on the permanent staff can rise to £170 per annum.

Boy messengers start at 16s. per week and rise to 21s. per week at the age of 16. Messengers at the age of 21 years receive 58s. 7d. per week and proceed by annual increments to 60s. 7d. per week whilst Senior Messengers proceed to 66s. 7d. per week. The rate for inspectors is from 60s. to 68s. 6d. per week.

Shop boys start at 18s. 6d. per week and rise to 28s. 6d. at the age of 17. Young labourers on full duties at the age of 17 are paid 34s. 3d. per week, and the rates for meter-readers, turn-cocks, etc., vary from 60s. to 68s. 6d. per week.

Laboratory boys start at 28s. 6d. per week and adult sample collectors receive a maximum of 67s. 6d. per week.



Apprentices start at 14s. per week and rise to 31s. 9d. per week for the fifth year of apprenticeship. Engine cleaners receive 60s. 7d. per week, and engine drivers 66s. 7d. per week with an additional 4s. per week if engaged on the rotation three-shift system.

### **HOURS.**

The normal hours of duty for clerks and shorthand-typists are 40½ per week. For other grades 47 per week, and for shift workers 48 hours per week.

### **HOLIDAYS.**

Leave amounting to 12 working days per annum with pay is granted to all employees who have completed 12 months' service, in addition to the usual National holidays.

## **ELECTRICITY GENERATION AND SUPPLY.**

Electricity is generated and distributed for heat, light and power purposes mainly through large power stations, which may be carried on by municipal authorities or supply companies, who supply the public, or by railways and industrial undertakings for their own purposes. The current is passed through main cables to sub-stations, from which it is distributed to the consumer. Engineering, in the equipment of Power Stations, is described in the chapter on Engineering and the following paragraphs relate to occupations connected with the generation and distribution of electrical current.

### **GENERATION.**

The power station in itself offers little scope for the employment of boys under the age of 18. The work is carried on in day and night shifts, and the staff consists of fitters engaged in the upkeep and repair of plant, switchboard attendants, engineers, stokers and labourers working under the Control of the Chief and Shift Engineers. In some sub-stations youths are employed as "switchboard boys" to train as switchboard attendants, but they are usually over 18 years of age. Sometimes a few boys are employed in the fitters' shop attached to the power station where the boys work with skilled fitters. There is seldom any formal apprenticeship, but intelligent boys can obtain a good all-round training, and may be absorbed as fitters, electrical wiremen, or switchboard attendants.

### **DISTRIBUTION.**

The distribution of electrical current offers employment to a greater number of young boys. The distribution is conducted through main (generally high-tension) cables carrying the main

current for heat, light or power, through service cables carrying current to houses, factories, etc., and through wires conveying the current within the houses or factories to the points required.

*Cable Laying and Jointing.*—The work of cable laying is mainly done by labourers, but cable jointing is skilled work. A jointer must have a routine knowledge of electricity in addition to experience in jointing itself, and, if capable of plumbing, can attain to the higher rate of pay applicable to “plumber jointers”. Usually an intelligent young labourer at about the age of 21 is selected by the foreman as mate to a jointer, and learns jointing in this way, working first on service cables and afterwards on mains. Plumber jointers are also specially trained by cable making firms. They work for a period after training as mates.

*Fixing and Repairing Electric Meters.*—Another type of work connected with the supply of electricity is the fixing and repairing of electric meters at the end of service cables. Skilled men are employed normally, but sometimes boys are trained in the stores and generating station, to fix, repair and test meters, and also on outside work with skilled workmen. Meter repairers can become inspectors of installation. The training conditions are similar to those of an electrician or wireman (see below).

### WAGES.

Improvers at the age of 16 are paid about 21s. per week, and become probationary craftsmen at the age of 23 at a rate of about 53s. per week. The rate for a mate is about 65s. per week. A fully qualified cable jointer receives a rate of about 76s. per week and a plumber jointer and a fully skilled meter repairer about 87s. per week.

### HOURS.

The normal hours are 47 per week.

### ELECTRICAL CONTRACTING.

The work of wiring houses, factories, etc., and the installation of electric plant for supplying heat, light and power is generally carried out by electrical contractors, but the wiring is sometimes done by electricity supply companies. The work is actually carried out on the premises of the consumer by electricians, assisted by mates, or apprentices. Boys working for contractors must be prepared to work and sometimes sleep away from home. Lodging allowances are paid under certain conditions. A journeyman in the electrical contracting industry should be capable of running the necessary electrical conductors from the meter to the various points in the premises, where the current is

required. He should understand the wiring of all domestic electrical appliances and be able to fix and connect up electric plant such as dynamos, motors, switchboards, etc. A certain amount of bench work is also necessary.

*Recruitment.*—Skilled labour is largely and increasingly supplied through informal apprenticeship for a period of five years ending at the age of 21. Youths who have worked as assistants to electricians, if showing aptitude, may sometimes have the opportunity of learning some parts of the above work. The journeyman must have a knowledge of electricity, but those qualifying for higher posts should have a more scientific knowledge and should attend technical classes to gain it. As a rule the employer will give every encouragement in this connection.

### WAGES.

The starting wage for boys varies from about 7s. 6d. per week and on the completion of the apprenticeship a period of at least one year is sometimes required to be served as an assistant before being engaged as a journeyman. The rate of wages during such period being between 80 and 90 per cent. of the fully qualified rate, provided the apprentice has attained the age of 21, and remains in the employ of the employer with whom he completed his apprenticeship. The rate for a fully qualified journeyman is 86s. 2d. per week at present, but this amount varies in accordance with the official cost of living figure.

### HOURS.

The normal hours are 47 per week.

## ROYAL NAVY.

### RECRUITING OFFICES.

The recruiting offices in the Greater London Area are at 85, Whitehall, S.W.1, 23, Eden Street, Kingston-on-Thames, and 77, The Grove, Stratford, E.15.

Boys can enter the Navy with a view to training either as Seamen or Skilled Mechanics (Artificers).

### SEAMEN.

Boys are eligible for entry into the Seaman Class between the ages of 15 and 16½ years. They must reach a good physical standard in proportion to their age, and must have very good eyesight. Before joining they must have the written consent of their parents. Boys receive a free clothing outfit. They are classed at first as Second Class Boys and receive 5s. 3d. per week with free rations. After about 12 months' preliminary training at a training establishment on shore they go to sea as Ordinary

Seamen. Their avenue of promotion is up to Chief Petty Officer through the grades of Able Seaman, Leading Seaman, and Petty Officer. A Chief Petty Officer receives 52s. 6d. per week upwards, with free rations wherever possible; otherwise an allowance is paid.

*Signalling and Wireless Telegraphy.*—After a short period of training certain boys are selected to undergo a special course of training either in signalling or wireless telegraphy. As Signal Boys or Boy Telegraphists they receive 8s. 9d. per week and are rated as ordinary signalmen or telegraphists at the age of 18. The Chief Yeoman of Signals or Chief Petty Officer Telegraphist receives 56s. per week and upwards with free rations or an appropriate pay allowance.

A limited number from the Seaman and Signal or Telegraphist Classes can reach the rank of Warrant Officer, and provision is made for promotion to Commissioned rank for a small number of specially promising ratings of the Seaman and Signal or Telegraphist Branches.

At the Training Establishments a number of boys are selected by examination after a few weeks, to form an Advanced Class with the object of giving them a course which will fit them later on for advancement, and for the higher technical duties.

### ARTIFICER APPRENTICES.

Boys are entered by examination twice annually as Artificer Apprentices for training for the Artificer Branches. The two examinations are held annually as follows:—

(1) In April. This examination which is for boys of central school standard, is an open competitive examination, conducted by the Civil Service Commission and is held at various centres in the United Kingdom. The final date for the receipt (at the Civil Service Commission, Burlington Gardens, London, W.1) of applications to compete is 1st March.

*Age limits.*—Candidates for the examination must be not less than 15 years of age on the 1st May following the examination and must not have attained their sixteenth birthday on 1st May.

(2) In October. This examination is a limited one, open to boys recommended by Education Authorities and is held locally at the schools appointed by the recommending authority, the papers being set by the Admiralty. The final date for receipt at the Admiralty of recommendations is 1st October.

*Age limits.*—Candidates for this examination must be not less than 15 years of age on the 1st January following the date of the examination and must not have attained their sixteenth birthday on the 1st January.

*Medical Examination.*—Candidates successful at the educational examination must pass a medical examination, but to prevent subsequent disappointment, a preliminary medical and dental examination can be arranged at certain centres.

*Training.*—Successful candidates are entered for training at one of H.M. Mechanical Training Establishments in the branch, i.e., Engine Room, Electrical, or Ordnance, to which the candidate is allocated—the candidate's preference being considered, so far as is practicable.

The training consists of a course of  $4\frac{1}{2}$  years general and technical education in addition to workshop instruction. The course is divided into two parts; Part 1 occupying the first two years and Part 2 the remainder. Apprentices who fail to pass in either Part 1 or Part 2 will as a rule be discharged unless special circumstances should justify their retention, when they will be re-examined after a further period of training.

Apprentices who are successful in the passing out examinations are rated Artificer 5th Class and are drafted for a further period of training to:—

- (a) Sea in the case of Engine Room Artificers.
- (b) Torpedo School in the case of Electrical Artificers.
- (c) Gunnery School in the case of Ordnance Artificers.

On completion of this training they are rated Acting Artificers 4th Class and drafted to sea-going ships. Promotion thereafter is dependent upon service and experience, subject to continued good behaviour.

*Wages.*

	<i>Per week.</i>	
	<i>s.</i>	<i>d.</i>
<b>Artificer Apprentice.</b>		
1st year ... ..	5	3
2nd year ... ..	7	0
3rd year ... ..	10	6
4th year ... ..	14	0
<b>Artificer.</b>		
5th class ... ..	39	1
<b>Acting Artificer.</b>		
4th class ... ..	56	0
<b>Artificer.</b>		
4th class ... ..	56	0
3rd class ... ..	63	0
2nd class ... ..	66	6
1st class ... ..	70	0
<b>Chief Artificer.</b>		
2nd class ... ..	73	6
1st class ... ..	80	6

These rates of pay are in addition to food and clothing and awards of good conduct badge pay of 3d. per day for each badge to which the Artificers are eligible after three, eight and 13 years' service.

Subject to certain conditions, Chief Artificers and Artificers are eligible for promotion to Warrant Rank, and provision is made for promotion to Commissioned Rank of a small number of specially promising unmarried Engine Room Artificers between the ages of 21½ and 24½ years.

### SERVICE AND PENSIONS.

The normal period of service is 12 years, which begins from the age of 18 for men entering at an earlier age, but this period can be continued in order to qualify for a pension. After 22 years' service from the age of 18, life pensions are granted.

Full particulars and any further information can be obtained from the Secretary of the Admiralty, Whitehall, S.W.1.

## THE ARMY.

### RECRUITING OFFICES.

The recruiting offices in the Greater London area are at Great Scotland Yard, Whitehall, S.W.1, The Barracks, Hounslow, The Barracks, Kingston-on-Thames, The Barracks, Mill Hill, N.W.7, 20, Grove Crescent Road, Stratford, E.15, and Frances Street, Woolwich, S.E.18.

### RECRUITMENT.

*Non-Tradesmen.*—The normal age for enlistment into the Regular Army is 18 years. A limited number of boys between 14 and 18 years of age are eligible, however, for enlistment for training as Bandsmen, Buglers, Drummers, Pipers, etc., preference being given to boys with some knowledge of music. No boy can be accepted unless he has passed the top standard at an elementary school. Parents' or guardians' consent is necessary before the enlistment of a boy can be proceeded with. Boys desirous of enlisting for training as Trumpeters in the Royal Artillery have to undergo a special educational test before they can be accepted. The terms of enlistment are nine years with the Colours and three years in the Army Reserve as from attaining the age of 18 years.

*Apprentice Tradesmen.*—Boys who are between the ages of 14 years and 16 years 4 months, can enter the various technical Corps of the Army for training in the various trades appropriate to the Corps. They must pass an examination, held annually

in January and July, consisting of two written papers in English and Arithmetic, and an intelligence test. The minimum pass mark is 50 per cent. in each subject. Before a boy is permitted to compete at the educational examination, he must attend a recruiting office for medical examination. The minimum height and weight standard is 4 feet 7 inches and 72 lbs.

### TRADES.

The following is a list of the principal trades for which boys are enlisted as Apprentice Tradesmen:—

<i>Trade.</i>	<i>Corps and Training Centres.</i>
Artificer, R.A. ... ..	Royal Artillery, Military College of Science, Woolwich.
Armourer ... ..	Royal Army Ordnance Corps, Cosham, Hants.
Draughtsman ... ..	Royal Engineers, Chatham.
Surveyor ... ..	Royal Engineers, Chatham.
Instrument Mechanic ...	Royal Corps of Signals, Catterick Camp, Richmond, Yorks.
Operator (Signals) ...	Royal Corps of Signals, Catterick Camp, Richmond, Yorks.
Electrician (Signals) ...	Royal Corps of Signals, Catterick Camp, Richmond, Yorks.
Clerks ... ..	Royal Army Service Corps, Aldershot.

Blacksmith.  
Bricklayer.  
Carpenter and Joiner.  
Coppersmith.  
Electrician.  
Fitter.  
Instrument Mechanic.  
Mason.  
Painter and Decorator.  
Tinsmith and Whitesmith.  
Turner.  
Wheeler.

Boys for these trades are enlisted for general service and are posted after training at the Army Technical School (Boys) Chepstow, to one of the following corps:—

Cavalry of the line.  
Royal Engineers.  
Royal Corps of Signals.  
Royal Tank Corps.  
Royal Army Service Corps.  
Royal Army Ordnance Corps.

**AGE LIMITS.**

Boys for training as Artificers, R.A., Instrument Mechanic, Operator (Signals), Electrician (Signals) and Armourers, Royal Army Ordnance Corps, must have attained the age of 14 years and be under the age of 14 years 9 months on the date of enlistment.

Boys for training in other trades (except bricklayer) must have attained the age of 14 years and be under the age of 15 years 5 months on the date of enlistment.

Boys for training as bricklayers must have attained the age of 15 years 8 months and be under the age of 16 years 4 months on the date of enlistment.

All boys must be within the age limits given above on the date of enlistment, not the date of examination or date of application. Since the date of enlistment will be approximately six months after the date of the examination, the minimum and maximum ages at which a boy may compete at these examinations, calculated from 1st July and 1st January are:—

<i>Trades.</i>	<i>Minimum age.</i>		<i>Maximum age.</i>	
	<i>Years.</i>	<i>Months.</i>	<i>Years.</i>	<i>Months.</i>
Artificer, R.A., Instrument Mechanic, Operator (Signals), Electrician (Signals) and Armourer ... ..	13	6	14	3
All other trades except Bricklayer ... ..	13	6	14	11
Bricklayer ... ..	15	2	15	10

**PERIOD OF SERVICE.**

Apprentice Tradesmen enlist in the Regular Army for a term of 12 years, from the dates on which they attain the age of 18 years (i.e., they serve for approximately 15 or 16 years) as under:—

(a) In the case of boys selected for training as artificers, R.A., in the Royal Artillery, or as armourers in the Royal Army Ordnance Corps, the whole of the period of 12 years (after they attain the age of 18 years) with the colours.

(b) In the case of all other boys, of the period of 12 years (after they attain the age of 18 years), eight years with the colours and four years in the Army Reserve.

Boys enlisted under (a) above, or those who, having first enlisted under (b) are afterwards permitted to extend their engagements to complete 12 years (after they attain 18 years of age) with the colours, may, if they are desirous and recommended, in due course re-engage to complete 21 years' colour service (reckoned from the date of attaining the age of 18 years) and so qualify for pension.



## TRAINING.

In the case of boys enlisted for training as artificers, R.A., or armourers, Royal Army Ordnance Corps, the period of training occupies approximately  $4\frac{1}{2}$  to 5 years. In other trades (except bricklayer), the period of training occupies approximately 3 years, whilst bricklayers are trained in about 2 years.

For the first two or three weeks, boys are given a certain amount of regimental training, i.e., drill and gymnastics, after which they go into the workshops and begin their technical training.

Educational training is continuous throughout apprenticeship, except in cases where it is necessary to concentrate entirely on technical training during the last year. Boys are thus given every opportunity to obtain their Second and First Class Army Certificates of Education before they are posted to the ranks. Possession of these certificates is a big asset to the soldier and enhances his prospects of promotion.

## PROMOTION.

On posting to the ranks, ex-apprentice tradesmen who show keenness in their work have prospects of promotion to non-commissioned and later on to warrant rank, whilst opportunities also exist for selected non-commissioned and warrant officers to be advanced to the rank of commissioned officer.

In addition to the above, a total of five cadetships at the Royal Military Academy and the Royal Military College are open annually by competition for selected soldiers between 18 and 19 years of age who have been trained as apprentice tradesmen.

## HOLIDAYS.

Leave, varying from five to eight weeks a year with full pay and an allowance for rations, is granted during August, at Christmas and at Easter. In addition, special week-end leave may be allowed between those periods. Facilities are available also for reduced travel rates on all railways.

## WAGES.

The rate of pay during training is 6s. 5d. to 11s. per week, according to proficiency, with rations, quarters and uniform. After the age of 18 years the rates vary from 15s. 9d. to 35s. per week for a private and at the age of 21 from 22s. 9d. to 40s. 3d. per week. The rate paid to non-commissioned and warrant officers is up to 98s. per week.

## ROYAL AIR FORCE.

Boys are accepted for training as:—

(1) Aircraft Apprentices, (2) Boy Entrants, (3) Apprentice Clerks. The methods of entry are different, and it is not possible for an accepted candidate to be transferred from one category to another. The full regulations regarding entry and training are contained in the pamphlets A.M.15, A.M.54 and A.M.9, respectively, copies of which may be obtained on application to The Inspector of Recruiting, Boys' Department, Royal Air Force, Victory House, Kingsway, W.C.2.

### AIRCRAFT APPRENTICES.

*Age Limits.*—Candidates for entry must have attained the age of 15 years and be under the age of 17 years on the 1st day of January or August, respectively.

*Method of Entry.*—Entry is normally by competitive examination—held in November (for entry in January) and in June (for entry in August). The competitive examinations are conducted at numerous local centres. Prospective candidates who possess approved first school certificates showing passes in mathematics and in specified science subjects may be exempted from the examination.

*Method of Application.*—If a prospective candidate is still at school or has recently left, he should apply (through the Headmaster) to the local education committee for the requisite nomination to enable him to undergo the examination (or to obtain exemption therefrom). If he has left school for more than a short period he should make application to the local juvenile employment bureau (under the local education committee) or to the nearest juvenile advisory committee (through the local employment exchange). Nomination forms are supplied only to approved nominating authorities and not to individual applicants.

*Training, etc.*—Aircraft apprentices receive a three years' technical training (with continued general education) in one of the following skilled trades: fitter, wireless operator mechanic, fitter (armourer), instrument maker. Their initial engagement is for 12 years' regular Air Force service from the age of 18 together with the period of training previous to attainment of that age. At the conclusion of the training period, a limited number of apprentices may be granted cadetships leading to permanent commissions in the Royal Air Force. Opportunities exist also for a larger proportion to be selected later for training as airman pilots or air observers. A limited number of permanent commissions are granted each year to airman pilots and to airmen of the rank of warrant officer. Re-engagement after the initial

12 years of service (to complete 24 years in all) is limited by the requirements of the Service. Airmen (ex-aircraft apprentices) discharged after 12 years' service normally receive a gratuity of £100, provided that they are accepted for enlistment in the Royal Air Force Reserve for a period of four years.

*Rates of Pay.*—The rate of pay is 7s. per week during the first two years, with rations, quarters and uniform, and 10s. 6d. per week in the third year. On classification as aircraftmen, aircraft apprentices start at rates varying from 24s. 6d. to 38s. 6d. per week. Pay increases with advancement in rank, and a Warrant Officer earns up to 115s. 6d. per week. Airmen selected for duty as pilots receive pay at rates varying between 87s. 6d. and 108s. 6d. a week. Others may be selected as Air Observers and receive rates ranging from 63s. to 80s. 6d. per week.

### BOY ENTRANTS.

*Dates of Entry.*—Entries normally take place twice a year—in February and September. A third entry may be made in May, if required.

*Age Limits.*—Candidates must have attained the age of 15 years 9 months and be under the age of 17 years 3 months on the first day of the month of entry. Preference may be given to applicants who have attained the age of 16 years.

*Methods of Entry.*—There are two methods of entry—(i) by invitation and (ii) by direct enlistment:—

(i) Candidates who, as the result of the competitive examination for the entry of aircraft apprentices, are not offered vacancies as apprentices may be invited by the Air Ministry to apply for enlistment in February or in September as boy entrants.

(ii) Boys of the prescribed age and the requisite educational standard who desire to enter as boy entrants and not as aircraft apprentices may apply to an approved nominating authority for direct enlistment.

*Method of Application.*—A candidate for direct enlistment should apply for a nomination to the local education committee (through his Headmaster if still at school) or to the local juvenile employment bureau or juvenile advisory committee. Copies of the nomination form may be obtained from an approved nominating authority.

*Educational Standard.*—Candidates who apply for direct enlistment must have received a good general education, including instruction in mathematics and science to a standard normally reached after attendance at a junior technical, central, or secondary school to the age of 15½ or 16 years.

*Training, etc.*—Boy entrants are trained for 12 to 16 months (according to trade) in the skilled trades of armourer, photographer and wireless operator. The initial engagement is for nine years' regular Air Force service from the age of 18 in addition to the period previous to the attainment of that age. Airmen who enter the service as boy entrants may be selected for training as airman pilots or air observers. For airman pilots and warrant officers there are opportunities of advancement to commissioned rank. Extensions of service beyond the original nine years and re-engagements to complete 24 years are limited by the requirements of the Service.

*Rates of Pay.*—During training boys receive 5s. 3d. per week, with rations, quarters and uniform, then 7s. per week until the age of 18. Aircraftmen start at rates varying from 22s. 9d. to 35s. per week. Pay increases with advancement in rank, and a Warrant Officer earns up to 105s. per week. Airmen selected for duty as pilots receive pay at rates varying between 87s. 6d. and 108s. 6d. per week. Others may be selected as Air Observers and receive rates ranging from 63s. to 80s. 6d. per week.

### APPRENTICE CLERKS.

*Dates of Entry.*—Entries take place quarterly—in January, April, July and October of each year.

*Age Limits.*—Prospective candidates must have attained the age of 15 years 6 months and be under the age of 17 years 3 months on the first day of the month of entry.

*Method of Entry.*—Candidates are selected from among applicants who possess an approved first school certificate.

*Method of Application.*—Application must be made on A.M. Form 1334, copies of which may be had on application to The Inspector of Recruiting, Royal Air Force, Victory House, Kingsway, W.C.2.

*Training, etc.*—Apprentice clerks receive 18 months' training (with continued general education) and are subsequently employed on accounting or general clerical duties in the Royal Air Force. Their terms of engagement are generally similar to those described above for aircraft apprentices. Re-engagement after the initial 12 years' service (to complete 24 years in all) is limited by the requirements of the Service. Airmen (ex-apprentice clerks) discharged after 12 years' service normally receive a gratuity of £100, provided that they are accepted for enlistment in the Royal Air Force Reserve for a period of four years. Airmen who enter as apprentice clerks may be selected for training as pilots. For pilots and warrant officers there are opportunities of advancement to commissioned rank.

*Rates of Pay.*—During the first year of training, an apprentice clerk receives 7s. per week, with rations, quarters and uniform,

and then 10s. 6d. per week until classified as an aircraftman. Aircraftmen start at rates varying from 21s. to 31s. 6d. per week. Pay increases with advancement in rank, and a Warrant Officer earns up to 98s. per week. Airmen selected for duty as pilots receive pay at rates varying between 87s. 6d. and 108s. 6d. a week.

### MERCANTILE MARINE.

A sea career usually appeals to the boy who desires an outdoor life, yet it may offer scope to the mechanically minded boy and to the boy who desires an indoor occupation. The avenues of employment open to such boys are service on deck, in the engine room, and in the wireless and catering departments, respectively.

#### MEDICAL EXAMINATION AND SIGHT TEST.

Applicants must be physically sound, and good eyesight is essential, particularly for service on deck. Before seeking employment or training, candidates should be medically examined and for the deck department should undergo the Board of Trade form and colour vision test at one of the Mercantile Marine Offices, shown below:—

133, East India Dock Road, Poplar, E.14.	Mondays and Tuesdays. 10 a.m. to 12 noon.
Connaught Road, Victoria Docks, E.16.	Wednesdays and Thursdays. 10 a.m. to 12 noon.
Dock Street, E.1.	Fridays and Saturdays. 10 a.m. to 12 noon.
Tilbury, Essex.	Thursdays and Fridays. 10 a.m. to 12 noon.

#### NAVIGATING OFFICERS.

The outdoor boy who aspires to become a Navigating Officer, is usually apprenticed for four years and, if desired, this can be arranged with a Company not requiring a premium; the minimum age for apprenticeship is 16 years. During apprenticeship boys are taught the practical work of a seaman, also the duties of an officer. The initial expense for the provision of uniform and navigation books is approximately £25. A form of indenture is issued by the Board of Trade, also by individual shipping companies and the Shipping Federation. For further particulars see "Choice of Career" Series No. 8, "The Merchant Navy (Navigating Officers)."

## DECK HANDS.

For other outdoor boys initial service is in the capacity of deck boy, starting at the age of 15 or later. After serving one year the deck boy becomes an Ordinary Seaman, and after a further two years he is entitled to the rating of Able Seaman. The deck hand who has completed four years' service at sea is eligible to sit for the examination of Second Mates at the age of 20 years.

## ENGINEER OFFICERS.

The mechanically minded boy may become a Junior Engineer Officer, and is expected to have served not less than four years ashore as an apprentice engineer or journeyman, in the making or repairing of steam or internal combustion engines, such as would be recognised as affording a useful training for a Marine Engineer. No time served before the age of 15 years is accepted. Time spent at an approved day technical school or in attending evening classes, may be accepted as equivalent to part-time workshop service. For further particulars see "Choice of Career" Series No. 16 (Engineering), and the Board of Trade regulations relating to the examinations of Engineers.

## WIRELESS OPERATORS.

A Wireless Operator is required to possess a certificate of proficiency issued by the Postmaster-General. It is usual to undertake a course of training for approximately one year at one of the recognised schools of instruction; the addresses may be obtained on application to the Inspector of Wireless Telegraphy, Telecommunications Department, General Post Office, E.C.1.

## CATERING DEPARTMENT.

*Stewards.*—The boy seeking an indoor occupation may find a career in the catering department suitable to his liking. The work of a steward embraces all the important duties connected with the personal comfort of passengers and crew. Useful preliminary experience may be obtained on cargo steamers and the boy who can show a measure of adaptability and willingness, has the prospect of promotion after some years to Second Steward and thus to Chief Steward.

*Cooks.*—Initial employment may be in the galley as a galley boy, or as an assistant steward. Every ship's cook is required to hold a certificate of competency, issued by one of the schools of nautical cookery approved by the Board of Trade. The London school is at the Sailors' Home and Red Ensign Club, Dock Street, London, E.1. Other schools are at Cardiff, Glasgow, Hull, Liverpool and South Shields.

## TRAINING.

It is usual for deck boys and beginners in the catering department to undergo a course of training before being sent to sea. The time spent in training as a deck boy is considered as part qualification for the rating of Ordinary Seaman.

Boys between the ages of 15 and 18½ may apply for training at the Gravesend Sea School. The physical standard is high, and applicants must produce good references. The training is for 10 weeks and includes free board and lodging. On the satisfactory completion of training, boys are placed in employment as vacancies occur. The only expense to applicants is the provision of a sea kit and the fare to Gravesend. Full information concerning training, and the forms of application may be obtained from the local Committees for Juvenile Employment.

The following institutions are primarily intended for boys of good character in poor circumstances, and the expenses are met mainly from charitable funds:—

<i>Names of Schools.</i>	<i>Age of Admission.</i>	<i>Length of Course.</i>
Training Ship "Arethusa," Rochester, Kent ...	13½-15	17 months.
Training Ship "Exmouth," Grays, Essex ...	12-15½	2½ years.
Training Ship "Warspite," Grays, Essex ...	14-16	1 year.
Prince of Wales' Sea Training Hostel, Church Row, E.14 ...	14½-16	6 months.

The parents of boys, where they can afford to do so, are expected sometimes to pay part of the expenses for training. A certain number of boys from these institutions also go direct into the Royal Navy.

## WAGES.

Under the Shipping Federation Scheme apprentices receive wages as follows:—£10 for the first year, £12 for the second, £18 for the third, and £20 for the fourth year, together with a sum of £5 payable on the satisfactory completion of apprenticeship. A deck boy starts at approximately £2 15s. per month, and after 12 months' service is rated as O.S. at £4 10s. per month. After a further year he receives £5 17s. 6d. per month and after three years' sea service is rated as A.B. at £9 per month.

Beginners in the catering department receive about £3 10s. per month and become assistant stewards at £7 10s. per month, or qualified ship's cook at £10 10s. to £12 10s. per month. On passenger liners assistant stewards are paid £8 5s. per month and there are many opportunities for advancement.

A Navigating Officer (Third Officer) and an Engineer Officer (Fourth Engineer) commence at £12 per month. It has been decided to introduce a pension scheme shortly when the pay will be increased to £12 10s. per month.

A wireless operator's wages start at £7 17s. 6d. per month, and rise automatically by stages to a minimum of £13 16s. 3d. per month after three years' service on articles, after which period the wages vary from the foregoing minimum to a maximum of £20 11s. 3d. per month according to the tonnage and classification of the ship to which the Operator is appointed; in addition, an Operator receives certain allowances when serving on registered tankers, foreign ships, and for prolonged periods abroad, etc.

## TRANSPORT SERVICES.

The operations of a Main Line Railway Company cover a very wide field; including Accountancy, Advertising, Air Traffic, Architecture, Canals, Cartage, Chemistry, Civil Engineering (including Signal and Telegraph), Commercial matters, Continental traffic, Docks engineering and dredging, Docks and Steamship traffic, Electrical engineering, Electric Train services, Estate management, Foreign agencies, Goods traffic, Hair-dressing, Horse management, Hotels and catering, Legal, Locomotive running, Marine engineering, Mechanical engineering (manufacture and repairs), Medical services, Motor engineering, Passenger traffic, Photography, Police, Printing, Rating, Refreshment rooms, Road traffic, Secretarial, Staff management, Staff welfare, Statistical, Steam Train services (passenger and freight), Stores (purchasing, storage and issue), Surveying, Traffic operating, Warehousing, Wireless operating, etc. Many of these are dealt with, so far as they relate to London, under the appropriate industries. This section is confined to the transport of passengers, minerals and goods, and the services necessary thereto. See also "Choice of Career" series No. 24 "Transport."

In addition to the higher administrative staff, the staff of a Railway Company may be classified under the following main groups:—

- (1) Clerical.
- (2) Traffic Operating.
  - (a) Station and Depot Staff, e.g., shunters, signalmen, guards, porters, etc.
  - (b) Enginemen, i.e., drivers, motormen, firemen and cleaners.
- (3) Carriage and Wagon, e.g., washers and cleaners, examiners, greasers, etc.



(4) Goods, e.g., checkers, loaders, porters, capstanmen, etc.

(5) Permanent way and signal and telegraph.

(6) Workshops—maintenance and repair work.

Generally these groups are not interchangeable. Though it is possible for boys to start in one group and be transferred to another as vacancies occur, normally they would remain in the groups in which they start. Within the groups themselves there is considerable scope for promotion and certain posts on the higher salaried staff would be attainable from more than one group. A district Inspector, for instance, might come either from the clerical or traffic operating groups. Employees are liable to be transferred outside the Greater London area, and the acceptance of this obligation is usually a condition of employment.

### RECRUITMENT.

*Clerical Grades.*—Boys from elementary, central and secondary schools enter between the ages of 15 and 17. Some railways have an examination at entry and further examinations for promotion to senior clerkships. Senior Clerical Staff are divided into five grades and above the highest grade (Class 1) there are Clerical positions in the "Special" Class which carry higher remuneration. Promotion from one class to another is made on merit as vacancies occur. Boys in London at the age of 15 start as juniors at £45 per annum. Class 1 clerical positions rise to a maximum of £360 per annum.

Girl clerks' and women's posts are also classified. Girls start at the ages of 16 to 18. In London they receive 21s. 6d. per week at age 16 and rise normally by annual increments to a salary of 64s. per week, which is the maximum of Class 2. The maximum for Class 1 is 74s. per week, and there are also a few "special" class posts carrying higher rates.

#### *Traffic Operating Grades.*

(a) *Station and Depot Staff.*—Boys start usually as boy porters, van guards, lamp boys or in a signal box. Under the age of 16 the rate of pay is 16s. per week, and 20s. per week at 16 years of age. They draw the adult rate at the age of 20 if appointed to an adult grade. Promotion lies through a variety of grades. In the higher grades, for example, a "special" class signalman or yard foreman receives a wage of 75s. per week, the rates of pay for other grades being rather less. There is scope for further promotion in this Department in such grades as district relief signalman, district inspector (traffic) and sometimes to local station master.

(b) *Enginemen.*—Boys start usually at about the age of 16 as cleaners in the engine sheds and receive 24s. per week. Others starting at the age of 17 receive 30s. per week. They pass on

to be firemen and drivers or motormen. A qualified fireman is paid on a scale rising from 57s. to 72s. per week and an engine driver or motorman rises to a maximum of 90s. per week. Drivers, motormen and firemen receive 3s. per week extra in London. Promotion to fireman and driver depends upon vacancies and ability to pass an eyesight test, also a test on the manipulation, etc., of a locomotive. The time taken to reach these grades varies on different railways. There are further opportunities of promotion to locomotive shed foreman.

*Carriage and Wagon.*—Boys usually start as junior oilers and greasers, the commencing rates of pay being the same as for juniors in the Traffic Operating Grades. Generally, the line of promotion is to carriage and wagon examiners (rate of pay 60s. per week) thereafter to chargeman examiners (rate of pay up to 68s. per week), but in certain cases they may be transferred to positions in the Workshop grades.

*Goods.*—The Goods Department is responsible for the collection and delivery of merchandise traffic and for the loading and unloading thereof at the starting, transshipping and terminal points. Boys start as vanguards or porters. Their promotion lies through various grades as vacancies occur, up to such posts as working foremen (62s. per week) and supervisory foremen at higher rates. On some railways transfer of staff is possible between the Goods and Traffic grades. *For parcel and goods delivery (vanguards and drivers) see below under Transport of Goods.*

#### *Permanent Way Staff and Signal and Telegraph Staff.*

The permanent way staff consists of labourers, relayers, lengthmen, sub-gangers and gangers with further prospects of promotion to permanent way inspectors. This work is heavy, being connected with the upkeep of the permanent way, and boys are not employed. Recruitment is at about the age of 21 and upwards from young labourers, often ex-Service men. On the signal and telegraph side there are opportunities for boys to be trained as wiremen, linemen or installers. A chief lineman rises to a maximum of 72s. per week.

*Workshops.*—Boys, other than apprentices, are recruited into the workshops usually between 14 and 16 years of age, starting at 12s. per week, and continue on labouring duties with possible promotion into the semi-skilled grades in later years. Apprentices are recruited at about 16 years of age at a wage of 16s. per week. Apprenticeship is available in trades such as Fitting, Turning, Coppersmithing, Moulding, Patternmaking, Blacksmithing, Cabinetmaking, Coach Building, Trimming (Upholstery), Painting, etc. The normal period of Apprenticeship is five years during which period, attendance at technical classes is advisable. Scholarships are sometimes awarded by the Directors. There is normally no guarantee of retention after

the completion of apprenticeship, but apprentices who are retained are paid at a "loosing rate" and reach the full craftsman's rate after a period. Details of the conditions of apprenticeship and the rates of pay, can be obtained upon application to the individual Railway Companies.

The craftsmen in these trades are classified into three grades and the rate of pay of a craftsman in the highest grade is about 50s. per week, according to trade, plus 16s. 6d. per week bonus.

In the main workshops many workers are employed on piecework, and the piecework prices are designed to yield to the normal worker not less than 33½ per cent. over the time rate.

### LONDON PASSENGER TRANSPORT BOARD.

With the exceptions of the Carriage and Wagon, Goods and Workshop Sections, the foregoing is generally applicable so far as the Railway Section of the Board's undertaking is concerned. Special conditions regarding certain grades and particulars of additional grades in the Board's Road Transport Sections are as follows:—

*Clerical Grade.*—Boys are recruited at ages 16 to 16½ from secondary and central schools and must have obtained the General School Certificate or an equivalent certificate. They start at £55 per annum at 16 years of age, rising to £65 per annum at age 17, and enter Class 5 at a minimum salary of £90 per annum at age 18. The five classes have fixed minima and maxima and vacancies in the higher classes are filled by promotion of existing staff on the basis of merit and suitability. The maximum Class 1 salary is £360 per annum, and further promotion is possible to the "Special", "Executive" and higher classes. Women clerks are recruited only between the ages of 18 and 24, the educational qualifications for purely clerical posts being the General School Certificate or an equivalent certificate. In the case of stenographers speeds of 110 words per minute shorthand and 45 words per minute type-writing are required, whilst in the case of machine operators a reasonable standard of efficiency in operating is necessary. At the age of 18 they receive 34s. per week, rising to a maximum salary of 64s. per week in Class 2. The maximum for Class 1 is 74s. per week and there are also a few "Special Class" posts carrying higher salaries.

*Bus, Tram and Trolleybus Services.*—The operation of these services in London offers openings only to adults. In the Bus Service drivers are recruited between the ages of 26 and 35 and conductors between 24 and 35, while in the Tram and Trolleybus Services, drivers start between the ages of 26 and 35, and

conductors between 23 and 35. They have to pass a strict enquiry by the Police before they can obtain a licence, and are then trained as conductors or drivers. A Bus driver receives from 82s. 6d. to 90s. per week, and a conductor 78s. to 84s. per week. Drivers and conductors in the Tram and Trolleybus Service receive from 71s. to 80s. per week. Bus conductors have opportunities to become drivers. There is a line of promotion to higher grades, such as Inspectors, District Inspectors or Superintendents; vacancies in these latter grades are filled by the promotion of existing staff.

*Garages and Depots.*—In the garages and depots of buses and trams, workers of varying degrees of skill are engaged on advertisement fixing, washing, cleaning, oiling and carrying out adjustments and minor overhauls. These employees are over 21, and are classified into skilled, semi-skilled and unskilled grades according to their duties. Boys are sometimes engaged in the garages as messengers at the age of 14, and start at 11s. 9d. per week. At the age of 16 they are regraded as "youths" and assist the craftsmen and assistant craftsmen. They have opportunities to become general hands and assistant craftsmen at rates varying according to the shift worked from 65s. 7d. to 67s. 7d. and 72s. 6d. to 74s. 5d., respectively. In the Tram and Trolleybus Services the maintenance and repair of the machinery, overhead lines, cables, etc., and the upkeep of the permanent way are looked after by special gangs of workmen, skilled and unskilled, who as a rule are over 21.

*Workshops.*—Substantial repairs to vehicles are carried out in central workshops and not as a rule at garages or depots. This work is a branch of engineering and coach building and boys are employed as trade apprentices, for which application must be made prior to the candidate's sixteenth birthday. Boys are required to undergo a medical examination, followed by a simple educational test, and if these are passed successfully, they are invited to attend a competitive examination for any existing vacancies. A probationary period of three months is served by the apprentice, after which the Indentures are signed. A sum of £5 is normally required to be deposited by way of guarantee, but this is returned on the satisfactory termination of apprenticeship. Apprentices are paid according to the scale applicable to the Section in which employed. In the Railway Section they commence at 20s. per week; in the Bus Section 15s. 8d. per week, and in the Tram and Trolleybus Section 17s. 7d. per week. They receive half-yearly or yearly increments according to the scale until the age of 21. There is no guarantee of continued employment after that age but if retained in the service after completion of apprenticeship they are graded as craftsmen, at rates from 71s. 6d. to 90s. 1d. per week, dependent upon the section in which employed and the class of work performed.

### CONTINUED EDUCATION.

Though attendance at educational classes is rarely compulsory for the junior staff, the Main Line Railway Companies and the London Passenger Transport Board encourage self-education in their young employees and, in many cases, arrange special classes in railway work at large centres. Occasionally, correspondence classes are held as well. The London Passenger Transport Board have a Scheme for the refund, subject to certain conditions, of educational and examination fees. Attendance at classes is important for all juniors who aim at reaching posts of responsibility, and particularly for those in the clerical grade for whom there are sometimes special qualifying examinations to be passed before they proceed from the junior to the adult grade. Junior clerks in the service of the London Passenger Transport Board, however, are not required to pass a qualifying examination, in view of the standard of the educational qualifications required on appointment to the Board's service. The higher educational needs for juniors in the Railway service are met by the courses on railway and other subjects which are held at the London School of Economics in preparation for examinations such as those arranged by the Institute of Transport.

### HOLIDAYS, ETC.

All staff after 12 months' service receive an annual holiday with pay ranging from 6 to 12 working days, dependent upon the undertaking and the grade in which employed (with the exception of certain Building Trade staff where normal Trade conditions apply). Longer holidays with pay are granted to the higher supervisory and clerical grades. Other privileges granted at the discretion of the Management are tickets at reduced rates, and except in the case of certain workshop staff, free passes for holiday purposes for a main-line employee and his family.

In the case of the London Passenger Transport Board free travel facilities over one of the sections of the Board's services (i.e. Railways, Central Buses, Country Buses or Trams and Trolleybuses) are granted to new entrants to the Board's service. In addition, Wages and Supervisory Staff engaged on the Board's railway services only are granted (within the discretion of the Board) certain cheap railway ticket facilities for themselves, their wives and their children. Salaried and Supervisory Staff are required, upon establishment, and subject to passing a medical examination, to join the Board's Superannuation Fund. As in the case of the Main Line Railways, salaried staff are eligible for pensions on retirement. Retiring and death benefits are received also under certain conditions by wages grade employees; uniform is supplied to certain grades.

## HOURS.

The 8-hour day and 48-hour week apply, except to the workshop staff, whose weekly hours are 47 and headquarters' clerical staff whose weekly hours are 38. Under normal conditions regularity of employment is assured. Additional pay is allowed to the majority of grades for overtime, Sunday and night duty.

## TRANSPORT OF GOODS.

In the transport of heavy goods by horse van or motor lorry—coal, furniture, building material for example—boys under 18 are seldom employed as the work is too heavy, but in the lighter kinds of van work and the delivery of parcels both by Parcels Delivery and Railway Companies, boys are frequently employed as vanguards especially on horse vans. The work and conditions are similar to those found in connection with Retail Distribution (see page 24), and a proportion only of the boys can normally be absorbed as drivers. Large firms can often absorb van boys in other ways, e.g. in warehouses or factories.

The position of vanguards on Railways is somewhat more favourable. They are employed, wherever necessary, in the delivery of parcels and goods. Owing to the large staffs employed by Railway Companies there are good opportunities of absorption in the traffic operating or goods departments for van boys who cannot be absorbed as drivers.

## THAMES LIGHTERMEN AND WATERMEN.

Boys wishing to be lightermen, i.e., navigators of craft for carrying merchandise, or watermen i.e., navigators of boats carrying passengers must obtain a licence issued by the Port of London Authority. As a rule a lighterman also has a waterman's licence.

## RECRUITMENT.

A lighterman's work is rough and heavy, and he is exposed to all kinds of weather day and night. The work therefore is suitable only for a strong boy, who has a desire for a vigorous life in the open air.

Recruitment is mainly hereditary and boys start as apprentices between the ages of 14 and 16. The term is from five to seven years and the boy is indentured on a form prescribed by the Watermen's Company to a Freeman of the Company, who is required to cause the apprentice to be taught his trade.

In the first instance it is necessary for a boy to seek an employer who is a Freeman of the Watermen's Company, but the employer, while giving a boy the opportunity of learning

his work, does not usually accept any responsibility for his training. Most watermen and lightermen are Freemen of the Company, and the normal way of becoming a Freeman is through apprenticeship.

#### **WAGES.**

Wages vary from 3s. to 4s. 6d. per day for the first two years; after that wages are paid usually on an agreed scale, being different for day and night work. The full adult rate is 13s. per day, but this amount is increased usually by night work and overtime.

#### **HOURS.**

The normal hours are eight per day.

### **THE ZOOLOGICAL GARDENS.**

#### **AREA.**

Camden Town.

#### **RECRUITMENT.**

The keepers employed in the Zoological Gardens, except where special qualifications are required, are recruited at about the age of 16. A smart type of elementary school boy is required, possessing good health and physique. There is normally a long waiting list of applicants. Boys are accepted for a month on trial, and if they appear suitable and are able to pass the strict medical examination, they become helpers, with possibilities of promotion to the grade of keeper. Girls are employed, temporarily, in the "Pet's Corner" during the summer months, but normally they have had previous experience as kennel maids.

#### **WAGES.**

Boys start at 15s. per week, proceeding to rates from 55s. to 70s. per week as helpers and keepers.

#### **HOURS.**

The normal hours during the summer months are from 7 a.m. to 7 p.m. daily, with one day off a week and one Sunday off in four. In winter the hours are from 7.30 a.m. to 4 p.m.

## APPENDIX A.

## JUVENILE ADVISORY COMMITTEES APPOINTED BY THE MINISTRY OF LABOUR.

Battersea J.A.C., Employment Exchange, Beechmore Road, Battersea Park Road, S.W.11.

Bermondsey J.A.C., Employment Exchange, Brunel Road, Rotherhithe, S.E.16.

Borough J.A.C., Employment Exchange, 236, Walworth Road, S.E.17.

Brixton J.A.C., Employment Exchange, 372, Coldharbour Lane, Stockwell, S.W.9.

Camberwell J.A.C., Employment Exchange, Collyer Place, Peckham, S.E.15.

Camden Town J.A.C., Employment Exchange, 104-6, Kings Road, Camden Town, N.W.1.

Chelsea and Fulham J.A.C. (Walham Green E.E.), Employment Exchange, Wyfold Road, Fulham S.W.6.

Chelsea Sub-Office, Hall of Remembrance, Flood Street, Chelsea, S.W.3.

Dagenham J.A.C., Central Hall, Heathway, Dagenham.

Deptford and Greenwich J.A.C., Employment Exchange, 15, Deptford Bridge, S.E.8.

East Ham J.A.C., Employment Exchange, 473, Barking Road, East Ham, E.6.

Finsbury and Holloway J.A.C. (King's Cross E.E.), Employment Exchange, Barnsbury Road, Penton Street, N.1.

Gt. Marlborough Street J.A.C., Employment Exchange, 155-157, Gt. Portland Street, W.1.

Hackney and Stoke Newington J.A.C., Employment Exchange, Spurstowe Terrace, E.8.

Holloway J.A.C., Employment Exchange, Medina Road, Seven Sisters Road, N.7.

Kingston-on-Thames J.A.C., Employment Exchange, Water Lane, Kingston-on-Thames, Surrey.

Lewisham J.A.C., Employment Exchange, Holbeach Road, Catford, S.E.6.

Poplar J.A.C., Employment Exchange, Burdett Road, Limehouse, E.14.

Romford J.A.C., Employment Exchange, North Street, Romford.

St. Marylebone and Paddington J.A.C. (Edgware Road E.E.), 26-27, Castlereagh Street, Marylebone, W.1.

Shepherds Bush J.A.C., Employment Exchange, Sulgrave Road, Hammersmith, W.6.

Shoreditch J.A.C., Employment Exchange, 57, Kingsland Road, Shoreditch, E.2.

Stepney J.A.C., Employment Exchange, Settles Street, Commercial Road, E.1.

Sutton J.A.C., Employment Exchange, Manor Lane, Sutton, Surrey.

Tooting J.A.C., Employment Exchange, 220, Upper Tooting Road, Tooting, S.W.17.

Westminster J.A.C., Employment Exchange, 25, Marsham Street, S.W.1.

Wimbledon J.A.C., Employment Exchange, 192, Merton Road, Wimbledon, S.W.19.

Woolwich J.A.C., Employment Exchange, Spray Street, Woolwich, S.E.18.



**SPECIAL COMMITTEES WORKING IN CO-OPERATION WITH THE MINISTRY OF LABOUR.**

- The After-Care Association for Blind, Deaf and Crippled Children.  
2, Old Queen Street, S.W.1.
- London Association for the Care of Mentally Defective.  
Shell Mex House, Strand, W.C.2.
- London Central Schools Employment Committee.  
Employment Exchange, 1-3, King Street, Snow Hill, E.C.1.
- Secondary Schools Head Masters' Employment Committee.  
Queen Anne's Chambers, Tothill Street, Westminster, S.W.1.
- Secondary Schools Head Mistresses' Employment Committee.  
Queen Anne's Chambers, Tothill Street, Westminster, S.W.1.

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**APPENDIX B.**

**CLASSES IN CONNECTION WITH CERTAIN TRADES AND OCCUPATIONS.**

The list attached shows various types of Classes in connection with most of the trades and occupations referred to in the Guide. All the schools and institutes mentioned are situated within 15 miles of Charing Cross and the addresses are given below. Generally speaking, the day courses are preparatory to entry into definite occupations, while evening classes are for persons already at work. Further information about classes should be sought either from the Heads of the Schools and Institutes concerned, or from the Education Officer responsible for the district.

For addresses of Commercial and Evening Institutes see pages 237-243.

*Addresses of Technical Schools, Institutes, Polytechnics, etc.*

- Acton Technical College, High Street, Acton, W.3.
- Barrett Street Trade School, Oxford Street, W.1.
- Battersea Day Continuation School, Latchmere Road, Lavender Hill, S.W.11.
- Battersea Polytechnic, Battersea Park Road, S.W.11.
- Beaufoy Institute, Prince's Road, Vauxhall Street, S.E.11.
- Blackheath, Lee, Lewisham and Greenwich School of Arts and Crafts, Lee Road, S.E.23.
- Bloomsbury Trade School, 43, Queen Square, W.C.1.
- Blue Coat School for Girls, 58, Point Hill, Greenwich, S.E.10.
- Borough Polytechnic, Borough Road, S.E.1.
- Brixton Day Continuation School, 54-56, Brixton Hill, S.W.2.
- Bromley School of Craft and Industrial Design for Girls, Egerton Lodge, Park Road, Bromley.
- Bromley Technical Institute, Central School, Wharton Road, Bromley.
- Camberwell School of Arts and Crafts, Peckham Road, S.E.5.
- Campden Technical Institute, Lancaster Road, W.11.
- Central School of Arts and Crafts, Southampton Row, W.C.1.
- Chelsea Polytechnic, Manresa Road, S.W.3.
- Chiswick Polytechnic, Bath Road, Bedford Park, W.4.
- City of London College, Ropemaker Street, E.C.2.
- City Day Continuation School, Golden Lane, E.C.1.
- Clapham School of Art, 6, Edgeley Road, High Street, S.W.4.
- Clapham Trade School, 373, Clapham Road, S.W.9.
- Co-operative Hall Centre, Enfield High Way, Enfield.
- Cordwainers Technical College, St. Johns Lane, E.C.1.
- Croydon Polytechnic, Scarbrook Road, Croydon.

- Dartford Technical College, Dartford.
- Ealing Technical Institute, Warwick Road, Ealing.
- East London Day Continuation School, Olga Street, Medway Road, Bow Road, E.3.
- Edmonton Technical Institute, and Edmonton Junior Technical School for Girls, Church Street, N.9.
- Epsom Technical Institute, Church Street, Epsom.
- Erith Technical College, Erith.
- Goldsmith's College, New Cross, S.E.14.
- Hackney Technical Institute, Dalston Lane, E.8.
- Hammersmith Day Continuation School, 50, Brook Green, Hammersmith, W.6.
- Hammersmith School of Building and Arts and Crafts, Lime Grove, W.12.
- Hammersmith Trade School, Lime Grove, W.12.
- Harrow Technical School and School of Arts and Crafts, Station Road, Harrow.
- Hornsey School of Arts and Crafts, Crouch End Hill, N.8.
- Islington Day Continuation School, Offord Road, Barnsbury, N.1.
- Kilburn Polytechnic, Priory Park Road, Kilburn, N.W.6.
- King Edward VII Nautical School, Passmore Edwards Sailors' Palace, 680, Commercial Road, E.14.
- Kingston-upon-Thames Technical College and School of Art, Kingston Hall Road, Kingston-upon-Thames.
- L.C.C. Technical Institute for Distributive Trades, 66, Horseferry Road, S.W.1.
- Leathersellers Technical College, Tower Bridge Road, S.E.1.
- Leyton Technical College, Adelaide Road, Leyton, E.10.
- London School of Nautical Cookery, The Sailors Home and Red Ensign, Dock Street, London Docks, E.1.
- London School of Printing and Kindred Trades, 61, Stamford Street, S.E.1.
- Newcomen's Foundation School, Newcomen Street, Borough, S.E.1.
- Northampton Polytechnic, St. John Street, E.C.1.
- Northern Polytechnic, Holloway Road, N.7.
- North Western Polytechnic, Prince of Wales Road, N.W.5.
- Norwood Technical Institute, Knights Hill, S.E.27.
- Paddington Technical Institute, Saltram Crescent, W.9.
- Ponders End Technical Institute, Ponders End, Enfield.
- Putney School of Art, Oxford Road, S.W.15.
- Redhill Technical Institute, Redhill.
- Regent Street Polytechnic, Regent Street, W.1.
- Royal School of Needlework, Exhibition Road, S.W.7.
- St. Martins School of Art, 15, Charing Cross Road, W.C.2.
- St. Marylebone Day Continuation School, 78, East Street, Baker Street, W.1.
- St. Vincents Day Continuation School (Girls only), Carlisle Place, Westminster, S.W.1.
- School of Building, Ferndale Road, Brixton, S.W.4.
- School of Engineering and Navigation, High Street, E.14.
- School of Photo-Engraving and Lithography, 6, Bolt Court, Fleet Street, E.C.4.
- Shoreditch Technical Institute, Pitfield Street, N.1.
- Sidcup School of Arts and Crafts, Grassington Road, Sidcup.
- Sir John Cass Technical Institute, Jewry Street, E.C.3.
- Smithfield Meat Trades Institute, Great Saffron Hill, E.C.1.
- Southall Technical College, Beaconsfield Road, Southall, Middlesex.
- South East Essex Technical College, Longbridge Road, Dagenham.

- South East London Day Continuation School, 210-212, Lewisham High Road, S.E.4.  
 South East London Technical Institute, Lewisham High Road, S.E.4.  
 South Hackney Day Continuation School, High Street, Homerton, E.9.  
 South Norwood Polytechnic, Selhurst Road, Norwood, S.E.25.  
 Southwark and Bermondsey Day Continuation School, Morley College, 61, Westminster Bridge Road, S.E.1.  
 South-west Essex Technical College, Forest Road, Walthamstow, E.17.  
 Spring Grove Polytechnic, London Road, Isleworth.  
 Sutton and Cheam Technical Institute, Sutton.  
 Teddington Art School, Church Road, Teddington.  
 Tottenham Polytechnic, High Road, N.15.  
 Trades Training School, 153, Great Titchfield Street, W.1.  
 Wandsworth Technical Institute, High Street, S.W.18.  
 West Ham Municipal College, Romford Road, Stratford, E.15.  
 Westminster Technical Institute, Vincent Square, S.W.1.  
 Willesden Technical College, Denzil Road, Willesden, N.W.10.  
 Wimbledon Technical College, Gladstone Road, S.W.19.  
 Woolwich Day Continuation School, Vicarage Road, S.E.18.  
 Woolwich Polytechnic, William Street, S.E.18.

*Addresses of Commercial and Evening Institutes.*

- Ackmar Road Evening Institute, Parsons Green, S.W.6.  
 Ackland Evening Institute, Fortress Road, Kentish Town, N.W.5.  
 Addison Gardens Evening Institute, Blythe Road, W.14.  
 Albion Road Evening Institute, Stoke Newington, N.16.  
 Algernon Road Commercial and Technical Evening Institutes, Hendon, N.W.4.  
 Ancona Road Evening Institute, Brewery Road, Plumstead, S.E.18.  
 Aristotle Road Evening Institute, High Street, Clapham, S.W.4.  
 Ashburnham Men's Evening Institute (Junior) Uperne Road, Kings Road, S.W.10.  
 Athelney Street Evening Institute, Bellingham Estate, Catford, S.E.6.  
 Balaam Street Evening Institute, Plaistow, E.13.  
 Balham and Tooting Commercial Institute, Tooting Broadway, S.W.17.  
 Banstead Evening Institute, Central School, Banstead.  
 Barnes and Mortlake Evening Institute, Gilpin Avenue, East Sheen, S.W.14.  
 Basnett Road Evening Institute, Lavender Hill, Battersea, S.W.11.  
 Bath Street Evening Institute, Old Street, St. Luke's, E.C.1.  
 Beaufoy Institute, Princes Road, Kennington Cross, S.E.11.  
 Beddington and Wallington Evening Institute, Sandy Lane South, Wallington.  
 Beethoven Street, Evening Institute, Kilburn Lane, Queens Park, W.10.  
 Bell Lane Commercial and Technical Evening Institute, N.W.4.  
 Belmont Council School, Harrow Weald.  
 Berkshire Road Evening Institute, Wallis Road, Hackney Wick, E.9.  
 Bermondsey Settlement, Farncombe Street, Jamaica Road, S.E.16.  
 Beverley Evening Institute, Blake's Lane, New Malden.  
 Bexley Heath Boys' and Mens' Central Evening Institute, Church Road.  
 Bexley Heath Girls' and Womens' Central Evening Institute, Belvedere Road.  
 Bexley Heath Upland Evening Institute, Church Road.  
 Bexley Welling Central Evening Institute, Elsa Road.  
 Blackfriars Evening Institute, Gray Street, Great Charlotte Street, Blackfriars Road, S.E.1.  
 Bostall Lane Evening Institute, Abbey Wood, S.E.2.  
 Bow and Bromley Commercial Institute, Malmesbury Road, Coborn Road, Bow, E.3.

- Brentford Evening Institute, Boston Manor Road, Brentford.  
 Brockley Road Evening Institute, Brockley, S.E.4.  
 Brixton Commercial Institute, 54-56, Brixton Hill, S.W.2.  
 Brixton Evening Institute, Cowley School, Cowley Road, S.W.9.  
 Buckingham Gate Evening Institute, Wilfred Street, Palace Street, S.W.1.  
 Bulstrode Evening Institute, Heston.  
 Burghley Evening Institute, Highgate Road, N.W.5.  
 Burnt Ash Council School, Burnt Ash, Bromley, Kent.  
 Camrose Council School, Edgware.  
 Cann Hall Road Evening Institute, Leyton, E.11.  
 Capworth Street Evening Institute, Leyton, E.10.  
 Carlton Vale Evening Institute, Willesden, N.W.6.  
 Carshalton—West Central  
 Carshalton—Stanley Park Road } Local Secretary,  
 Carshalton—St. Helier } 147, Carshalton Park Road, Carshalton.  
 Cassland Road Evening Institute, Well Street, South Hackney, E.9.  
 Catford Commercial Institute, Brownhill Road, Rushey Green, Catford,  
 S.E.6.  
 Cavendish Road Evening Institute, Sistova Road, Balham, S.W.12.  
 Central School Evening Institute, Lower Richmond Road, Mortlake, S.W.14.  
 Central School, Evening Institute, Lonsdale Road, Barnes, S.W.13.  
 Cephas Street Evening Institute, Mile End, E.1.  
 Chaucer Mens' Institute (Junior) Westcott Street, Tabard Street, Borough,  
 S.E.1.  
 Cheam Evening Institute, Central School, Chatsworth Road, Cheam.  
 Childeric Road Evening Institute, Clifton Hill, New Cross Road, S.E.14.  
 Childs Hill Commercial and Technical Evening Institute, Dersingham Road,  
 N.W.2.  
 Chiswick Evening Institute, Belmont Schools, Belmont Road, Chiswick,  
 W.4.  
 Clapham Junction Commercial Institute, Plough Road, St. John's Hill,  
 Clapham Junction, S.W.11.  
 Church of England School, Epping.  
 Church Street Evening Institute, Stoke Newington, N.16.  
 Church Fields School, Woodford, Essex.  
 Clerkenwell Evening Institute, Compton Street, Goswell Road, E.C.1.  
 Clifden Road Council School, Twickenham.  
 Cobourg Road Evening Institute, Camberwell, S.E.5.  
 Colls Road Evening Institute, Queens Road, Peckham, S.E.15.  
 Coopers Lane Men's Institute (Junior), Grove Park, S.E.12.  
 Cormont Road Evening Institute, Myatts Park, S.E.5.  
 Cosway Street Evening Institute, Marylebone Road, N.W.1.  
 Council School, Shepperton.  
 Crawford Evening Institute, Warner Road, Camberwell New Road, S.E.5.  
 Crayford Central Evening Institute, Iron Mill Lane, Crayford.  
 Creek Road (Branch) Evening Institute, Deptford, S.E.8.  
 Crouch End and District Junior Evening Institute, Crouch End School,  
 Park Road, N.8.  
 Curtain Road Evening Institute, Whitechapel High Street, E.1.  
 "Cyril Jackson" Men's Evening Institute (Junior), Northey Street, Three  
 Colt Street, E.14.  
 Dalston Women's Institute, Dalston Central School, Wilton Road,  
 Dalston, E.8.  
 Daniel Street Evening Institute, Gossett Street, Bethnal Green Road, E.2.  
 Dempsey Street Evening Institute, Jubilee Street, E.1.  
 Deptford Park Evening Institute, Evelyn Street, Deptford, S.E.8.  
 Devonshire Hill Evening Institute, Tottenham, N.15.  
 Downham Commercial Institute, Goudhurst Road, L.C.C. Downham  
 Estate, Bromley, Kent.

- Downham Men's Evening Institute (Junior), Durham Hill School, Downham Estate.
- Downhills Evening Institute, Tottenham, N.15.
- Drew Road Evening Institute, West Ham, E.16.
- Dulwich Commercial Institute, The Friern School, Peckham Rye, S.E.22.
- Ealing Junior Evening Institute, County School for Boys, Ealing Green, W.5.
- Eastcote Lane Council School, South Harrow.
- Ecclesbourne School, Ecclesbourne Road, Thornton Heath.
- Ecclesbourne Road Evening Institute, New North Road, N.1.
- Edgware Commercial Evening Institute, High Road, Edgware.
- Elizabeth Street Evening Institute, High Street, North Woolwich, E.16.
- " Elliott " Evening Institute, Merton Road, S.W.18.
- Eltringham Street Evening Institute, York Road, S.W.18.
- Enfield Road Evening Institute, Kingsland Road, N.1.
- " Ennersdale " Evening Institute, Leahurst Road, Lewisham, S.E.13.
- " Ensham " Evening Institute, Mitcham Road, Tooting, S.W.17.
- Esher, Cobham Evening Institute, Central School, Cobham.
- Ethelburga Street Evening Institute, Battersea Bridge Road, S.W.11.
- Ewell, Stoneleigh Evening Institute, Central C School, Sparrow Farm Road.
- Fairfield Road Evening Institute, Bow Road, E.3.
- Fairclough Street Evening Institute, Backchurch Lane, Commercial Road East, E.1.
- Faunce Street Evening Institute, Harmsworth Street, Kennington Park, S.E.17.
- Finchley Evening Institute, The County School (near Squires Lane), Great North Road, North Finchley, N.12.
- Finsbury Park Evening Institute, Blackstock Road, N.4.
- Fircroft Road Evening Institute, Glenburnie Road, Upper Tooting, S.W.17.
- Fleet Road Evening Institute, Agincourt Road, Hampstead, N.W.3.
- Flora Gardens Evening Institute, Dalling Road, Hammersmith, W.6.
- Fossdene Road Evening Institute, Victoria Road, Charlton, S.E.7.
- Frankham Street Men's Institute (Junior), Deptford High Street, S.E.8.
- Friar Street Evening Institute, Blackfriars Road, S.E.1.
- Friern Barnet Evening Institute, Ferrand Park, N.11.
- Fulham Commercial Evening Institute, Childerley Street, Fulham Palace Road, S.W.6.
- Fulham Palace Road Evening Institute, Hammersmith, W.6.
- Furness Road Evening Institute, Furness Road, N.W.10.
- George Gascoigne Central School, Queens Road, E.17.
- Gifford Street Men's Institute (Junior), Caledonian Road, N.1.
- Glendale County School, Glendale Avenue, Wood Green, N.22.
- Glenister Road Evening Institute, Blackwall Lane, Greenwich, S.E.10.
- Glyn Road Evening Institute, High Street, Homerton, E.5.
- Goodrich Road Evening Institute, East Dulwich, S.E.22.
- Goldbeaters Evening Institute, Thirleby Road, Burnt Oak, Edgware.
- Gopsall Street Evening Institute, Whitmore School, Bridport Place, N.1.
- " Gordon " Evening Institute, Grange Hill Road, Well Hall, S.E.9.
- Gorringe Park Evening Institute, Streatham Road, Mitcham.
- Grays Intermediate Evening Institute, Hathaway Road, Grays, Essex.
- Great College Street, Evening Institute, Kentish Town Road, N.W.1.
- Greenford Evening Institute, Coston School, Oldfield Lane, Greenford.
- Greenwich Commercial Institute, Blackheath Road, Greenwich, S.E.10.
- Grove Vale Evening Institute, Goose Green, Dulwich, S.E.22.
- Hammersmith Commercial Evening Institute, West Kensington Central School, William Street, W.14.

- Hanwell Junior Evening Institute, St. Annes School, Springfield Road, Hanwell.
- Hanworth Road Council School, Hampton.
- Haselrigge Road Evening Institute, Bedford Road, S.W.4.
- Hawley Crescent Evening Institute, Kentish Town Road, N.W.1.
- Hayes Senior School, Townfield, Hayes, Middlesex.
- Headstone Council School, Pinner.
- Heckford Street Evening Institute, Brook Street, Ratcliff, E.1.
- Hendon Senior Evening Institute, County School, Golders Rise, N.W.4.
- Herolds Institute (Men's Junior), Drummond Road, Bermondsey, S.E.16.
- Heston Evening Institute, Heston.
- Highbury Commercial Institute, Laycock Street, Upper Street, N.1.
- Holly Walk Technical Institute, Enfield.
- Honeywell Road Evening Institute, Wandsworth Common, S.W.11.
- Hotham Road Evening Institute, Charlwood Road, Putney, S.W.15.
- Hugh Myddelton Commercial Institute, St. James' Walk, Clerkenwell, E.C.1.
- Huntingfield Road Evening Institute, L.C.C. Estate, Roehampton, S.W.15.
- Ivydale Road Evening Institute, Nunhead, S.E.15.
- Ingram School, Ingram Road, Thornton Heath.
- John Ruskin School, Tamworth Road, Croydon.
- Keetons Road Evening Institute, Jamaica Road, Bermondsey, S.E.16.
- Kennington Commercial Institute, Kennington Road, Kennington Park, S.E.11.
- Kentish Town Men's Institute (Junior), Holmes Road, N.W.5.
- Kilmorie Evening Institute, Stanstead Road, Forest Hill, S.E.23.
- Kingsbury Evening Institute, Edgware Road, Kingsbury, N.W.9.
- Kingsgate Road Evening Institute, Messina Avenue, Kilburn High Road, N.W.6.
- "Kingsway" Evening Institute, Wild Street, Drury Lane, W.C.2.
- Kingston Road Council School, Staines.
- Lancasterian Evening Institute, Tottenham, N.15.
- Lavender Hill Evening Institute, Amies Street, Lavender Hill, S.W.11.
- "Laycock" Evening Institute, Highbury Station Road, N.1.
- Laysterne Men's Evening Institute (Junior), Brunswick Place, City Road, N.1.
- Lena Gardens Evening Institute, Shepherds Bush Road, W.6.
- Leo Street Evening Institute, Asylum Road, Peckham, S.E.15.
- Lollard Street Men's Evening Institute (Junior), Kennington Road, S.E.11.
- Lombard Wall Evening Institute, Woolwich Road, Charlton, S.E.7.
- London Fields Evening Institute, Westgate Street, The Triangle, E.8.
- Longford Senior School, Tachbrook Road, Twickenham.
- Lucas Vale Evening Institute, Lewisham High Road, S.E.8.
- "Lyulph Stanley" Evening Institute, Camden Street, St. Pancras, N.W.1.
- Maida Vale Commercial Institute, The Essendine School, Essendine Road, Shirland Road, Maida Hill, W.9.
- Mansford Street Evening Institute, Old Bethnal Green Road, E.2.
- Mantua Street Evening Institute, Falcon Road, Clapham Junction, S.W.11.
- "Marlborough" Evening Institute, Draycott Avenue, Chelsea, S.W.3.
- Martin Evening School (Opposite Church Lane), East Finchley, N.2.
- Marylebone Central Evening Institute, 64, High Street, Marylebone, W.1.
- Marylebone Commercial Institute, Upper Marylebone Street, Great Portland Street, W.1.
- Merton Central Evening Institute, Church Lane, S.W.19.
- Middle Row Men's Evening Institute (Junior), Kensal Road, W.10.

- Millfields Road Evening Institute, Lower Clapton Road, E.5.  
 " Millwall " Evening Institute, Glengall Road, Poplar, E.14.  
 Mitcham Lane Evening Institute, Mitcham Lane, Streatham, S.W.16.  
 " Moberley " Evening Institute, Harrow Road, Paddington, W.9.  
 Molesey Evening Institute, Central School, Ray Road.  
 Monnow Road Evening Institute, Southwark Park Road, S.E.1.  
 Mora Road and Wykeham Evening Institute, Willesden, N.W.2.  
 Morden Terrace Evening Institute, Lewisham Road, S.E.13.  
 Mottingham Evening Institute, Council School, Ravensworth Road,  
 Mottingham, S.E.9.  
 Mulgrave Place Evening Institute, Wellington Street, Woolwich, S.E.18.  
 Munster Road Evening Institute, Fulham, S.W.6.  
 Muswell Hill and District Junior Evening Institute, Coldfall School, Coldfall  
 Avenue, Muswell Hill, N.10.  
  
 Napier Street (Branch) Men's Evening Institute (Junior) Shepherdess  
 Walk, N.1.  
 New Park Road Evening Institute, Brixton Hill, S.W.2.  
 Newport Road Evening Institute, Leyton, E.10.  
 Norbury Manor School, Stanford Road, Norbury, S.W.16.  
 North Battersea Women's Evening Institute, Raywood Street, Battersea  
 Park Road, S.W.8.  
 North Kensington Central School, St. Marks Road, W.10.  
 Northside Evening Institute, Northside Council School, North Finchley,  
 N.12.  
  
 Oldfield Road Evening Institute, Stoke Newington Road, N.16.  
 Old Oak Evening Institute, Old Oak Estate, Mellitus Street, W.12.  
 " Old Palace " Evening Institute, St. Leonards Street, Bromley, E.3.  
 Olga Street Evening Institute, Roman Road, Bow, E.3.  
 Oliver Goldsmith Commercial Institute, Peckham Road, S.E.15.  
 Orleans Boys School, Napoleon Road, Twickenham.  
 Orpington Evening School, Central School, Charterhouse Road, Orpington.  
 Oval School, Oval Road, Croydon.  
  
 Page Green Evening Institute, Tottenham, N.15.  
 Page's Walk Evening Institute, Old Kent Road, S.E.1.  
 Parkhurst Evening Institute, Tottenham, N.15.  
 Park Walk Evening Institute, Kings Road, S.W.10.  
 Percy Road Council School, Hampton.  
 Perivale Evening Institute, Perivale School, Sarsfield Road, Perivale.  
 Plassy Road Evening Institute, Sangley Road, Catford, S.E.6.  
 Plum Lane Evening Institute, Plumstead, S.E.18.  
 Plumstead Evening Institute, High Street, Plumstead, S.E.18.  
 Pope Street Evening Institute, Foots Cray Road, New Eltham, S.E.9.  
 Portobello Road Evening Institute, Notting Hill, W.11.  
 Princeton Street School, Bedford Row, W.C.1.  
 Pound Lane Evening Institute, Willesden, N.W.10.  
 Princess May Road Evening Institute, Stoke Newington Road, N.16.  
 " Pulteney " Evening Institute, Peter Street, Berwick Street, Soho, W.1.  
  
 Queens Road Commercial Institute, Dalston, E.8.  
 Queens Road Evening Institute, Queens Road, Wimbledon, S.W.19.  
  
 Raglan Road Council School, Bromley, Kent.  
 Ranelagh Road Evening Institute, Warwick Junior School, Ranelagh Road,  
 S.W.1.  
 Rangefield Evening Institute, Rangefield Road, L.C.C. Downham Estate,  
 Bromley, Kent.  
 Raynham Road Evening Institute, Edmonton, N.9.

- Regents Park Central Evening Institute, Capland Street, Grove Road, N.W.8.
- Ricardo Street, Evening Institute, Kerbey Street, E.14.
- Richmond Road Evening Junior Technical Institute, Kingston-upon-Thames.
- Risinghill Street Evening Institute, Penton Street, N.1.
- Robert Browning Men's Institute (Junior), King and Queen Street, East Street, Walworth, S.E.17.
- Rockmount Senior School, Upper Norwood, S.E.19.
- Roman Road Evening Institute, Old Ford, E.3.
- Rosendale Road Evening Institute, Dulwich, S.E.21.
- Rotherhithe New Road Evening Institute, Lower Road, Rotherhithe, S.E.16.
- Rowan Road Evening Institute, Mitcham.
- Royal Hill Evening Institute, London Street, S.E.10.
- Russell Road Evening Institute, Custom House, E.16.
- St. Dunstan's Road Evening Institute, Fulham Palace Road, W.6.
- St. Giles in the Fields Evening Institute, Endell Street, W.C.2.
- St. Helier Evening Institute, Canterbury Road, Morden.
- St. John's Road Evening Institute, Hoxton, N.1.
- St. Mark's Senior School, St. Marks Road, Teddington.
- St. Mary Cray Evening School, { Central School, Hearn's Rise, St. Pauls Cray.  
Council School, High Street, St. Mary Cray.
- Salisbury Road Evening Institute, Willesden, N.W.6.
- Sayer Street Evening Institute, New Kent Road, S.E.17.
- Senior Council School Evening Institute, Wellington Avenue, E.4.
- Senior Street Evening Institute, Harrow Road, W.2.
- Senrab Street Evening Institute, Charles Street, Stepney, E.1.
- Shelburne Road Evening Institute, Hornsey Road, Holloway, N.7.
- Sherbrook Road Evening Institute, Dawes Road, S.W.6.
- Shillington Street Evening Institute, Battersea, S.W.11.
- Sidcup Evening Institute, Central School, Alma Road and Blackfen Road, Sidcup.
- Sigdon Road Evening Institute, Dalston Lane, Hackney, E.8.
- South Islington Evening Institute, Ritchie Street, Liverpool Road, N.1.
- Southall County School, Boyd Avenue, Southall.
- Southampton Street Evening Institute, Camberwell, S.E.5.
- Southgate County School, Fox Lane, Palmers Green, N.3.
- Southwark Commercial Institute, The Paragon School, Searles Road, New Kent Road, S.E.1.
- Spring Grove Evening Institute, Heston.
- Stanhope Street Evening Institute, George Street, Hampstead Road, N.W.1.
- Stanley Road Council School, Stanley Road, Teddington.
- Stanley Street Evening Institute, Mornington Road, New Cross Road, S.E.8.
- Star Lane Evening Institute, Canning Town, E.16.
- Starcross Evening Institute, Starcross Street, Hampstead Road, N.W.1.
- Stationers Evening Institute, Denton Road, Hornsey, N.8.
- Stepney Commercial Institute, Myrtle Street, Commercial Road East, E.1.
- "Stewart Headlam" Men's Institute (Junior), Portman Place School, Globe Road, Green Street, E.2.
- Stillness Road Commercial Institute, Brockley Rise, Honor Oak Park, S.E.23.
- Sunnyhill Road Evening Institute, Streatham High Road, S.W.16.
- Surrey Square Evening Institute, Old Kent Road, S.E.17.
- Swaffield Road Evening Institute, The Grove, S.W.18.
- Swan Street Evening Institute, Minorities, E.1.
- Sydenham Evening Institute, Kirkdale, Sydenham, S.E.26.



- Tavistock School, Tavistock Grove, Croydon.  
 Teddington Art School, Church Road, Teddington.  
 Thomas Road Evening Institute, Burdett Road, Limehouse, E.14.  
 Tollington Evening School, Tetherdown, Muswell Hill, N.10.  
 Tollington Park Evening Institute, Marriott Road, Tollington Park, N.4.  
 Tolworth Evening Institute, Central School, Fullers Way, Surbiton.  
 Tower Bridge Evening Institute, Fair Street, Tooley Street, S.E.1.  
 Trinity County School, Bounds Green Road, Wood Green, N.22.
- Upper North Street Men's Institute (Junior), Upper North Street School,  
 East India Dock Road, E.14.  
 Upper Hornsey Road Commercial Institute, Seven Sisters Road, Holloway,  
 N.7.  
 Upton Lane Evening Institute, Forest Gate, E.7.  
 Uxbridge Senior School, Greenway, Uxbridge.
- " Vauxhall " Evening Institute, South Lambeth Road, Vauxhall, S.W.8.  
 Vernon Square Evening Institute, Kings Cross Road, W.C.1.  
 Vicarage Road Council School, Sunbury-on-Thames.
- Waddon School, Cooper Road, Waddon.  
 Walworth Evening Institute, Mina Road, S.E.17.  
 Water Lane Evening Institute, Stratford, E.15.  
 Wembley Hill Evening Institute, High Road, Wembley.  
 Westbourne Road Evening Institute, St. James Road, N.7.  
 Wesley Road Evening Institute, Willesden, N.W.10.  
 Western Road Evening Institute, Mitcham.  
 West Hill Evening Institute, Broomhill Road, High Street, Wandsworth,  
 S.W.18.  
 Westhorne Men's Evening Institute (Junior), Nesbit Road, Briset Road,  
 S.E.9.  
 West Norwood Evening Institute, Carnac Street, Gipsy Road, S.E.27.  
 Westminster Bridge Road Evening Institute, Westminster Bridge Road,  
 S.E.1.  
 Westminster Commercial Institute, Millbank, L.C.C. School, Erasmus Street,  
 S.W.1.  
 West Square Evening Institute, St. George's Road, S.E.11.  
 Westville Road (Branch) Evening Institute, Askew Road, W.12.  
 Whitehall Place Evening Institute, Forest Gate, E.7.  
 " Whittington " Evening Institute, Highgate Hill, N.19.  
 William McGuffie School, Greenleaf Road, E.17.  
 Wix's Lane Evening Institute, North Side, Clapham Common, S.W.4.  
 Wood End Evening Institute, Wood End School, Wood End Lane,  
 Northolt.  
 Woodcroft Evening Institute, Goldbeaters Grove, Burnt Oak, Edgware.  
 Woods Road Evening Institute, Peckham, S.E.15.  
 Woolmore Street Evening Institute, Cotton Street, E.14.  
 Woolwich Commercial Institute, Bloomfield Road, Plumstead Common  
 Road, S.E.18.

Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For Persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Bakery and Confectionery</i>	Borough Polytechnic (Two years wholetime course for youths 16-19).	Borough Polytechnic (Confectionery, Bread Making, Modelling and Design) and South East Essex Technical College.	The Acland Evening Institute.
<i>Boot and Shoe Making</i>	Cordwainer's Technical College (Two years course, boys 13-16). Senior College for Young Men 16 and over.	Cordwainer's Technical College (Pattern cutting, Last Fitting, Clicking, Hand and Machine finishing).	Mansford Street, The Pulteney and Sigdon Road Evening Institutes.
<i>Building and Allied Trades.</i>	School of Building, Brixton; Hammersmith School of Building and Arts and Crafts; Hackney, South East London and Westminster Technical Institutes; Northern Polytechnic (Junior School for boys 13-16 entering operative building trades). Senior Schools at School of Building, Brixton; Northern and Regent Street Polytechnics for students preparing for Managerial or more responsible posts in the building trades. Brixton and Hammersmith Schools of Building (part time classes for apprentices).	As in Column (2) and Acton, East Ham, Erith, Harrow, Richmond, Southall, and Wimbledon Technical Colleges; Finchley Evening Institute (16 years and over); Ealing, Leyton, Walthamstow and Wandsworth Technical Institutes; Kingston-upon-Thames Technical College and School of Art; Willesden Technical College and School of Arts (16 years and over); Croydon and Tottenham Polytechnics.	Aristotle Road, Bexley and Welling Central, Clerkenwell, Crawford, Ensham, Ethelburga Street, Flora Gardens, Grove Vale, Hanworth Road, Kilmorie, Lavender Hill, Lombard Wall, Lyulph Stanley, Millwall, Moberly, Page Green, Mulgrave Place, Percy Road, Rising Hill Street, Shelburne Road, Sherbrooke Road, Sigdon Road, Stanley Street, Walworth and West Hill Evening Institutes; Dartford and Epsom Technical Colleges; Richmond Road Evening Junior Technical Institute.

*Brickwork* ... ..

School of Building, Brixton ;  
Hammersmith School of Building  
and Arts and Crafts ; North-  
ern Polytechnic ; Woolwich  
Polytechnic.

Acton, Ealing, Harrow, Southall  
and Wimbledon Technical Col-  
leges (16 years and over) ;  
Borough, Northern, Spring Grove  
and Woolwich Polytechnics ;  
Finchley Evening Institute (16  
years and over) ; Kingston-  
upon-Thames Technical College  
and School of Art ; School of  
Building, Brixton ; Willesden  
Technical College and School of  
Art ; Trades Training School.

Moberly Evening Institute ;  
Richmond Road Evening  
Junior Technical Institute.

*Carpentry and Joinery*

School of Building, Brixton ;  
Hammersmith School of Building  
and Arts and Crafts ;  
Northern Polytechnic ; Regent  
Street Polytechnic ; Woolwich  
Polytechnic.

Hammersmith School of Building  
and Arts and Crafts ; Ealing,  
Hackney, Harrow, Leyton, Pon-  
ders End, Southall, South East  
London, Wandsworth and Wim-  
bledon Technical Institutes ;  
Borough, Croydon, Northern,  
Regent Street, Spring Grove,  
Tottenham and Woolwich Poly-  
technics ; School of Building ;  
School of Engineering and Navigation ;  
Acton Technical Col-  
lege ; Finchley Evening Insti-  
tute ; Kingston-upon-Thames  
and Willesden Technical Col-  
leges and Schools of Art ; West  
Ham Municipal College ; South  
East Essex Technical College ;  
Trades Training School.

Aristotle Road, Clerkenwell,  
Crawford, Ensham,  
Ethelburga Street, Fircroft  
Road, Flora Gardens, Grove  
Vale, Hanworth Road, Kil-  
morie, Lavender Hill, Lombard  
Wall, Lyulph Stanley, Mitcham  
Lane, Moberly, Monnow Road,  
Mulgrave Place, Percy Road,  
Raglan Road, Shelburne Road,  
Sherbrooke Road, Sigdon Road,  
Stanley Street and West Hill  
Evening Institutes ; Rich-  
mond Road Evening Junior  
Technical Institute.

Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Building and Allied Trades—cont.</i> <i>Masonry ... ..</i>	School of Building Brixton, Hammersmith School of Building and Arts and Crafts, Northern Polytechnic.	Acton Technical College, Ealing, Harrow and Southall Technical Institutes, Finchley Evening Institute (for boys 16 years and over), Borough, Northern, Spring Grove and Woolwich Polytechnics, School of Building, Brixton, Hammersmith School of Building and Arts and Crafts, Trades Training School.	—
<i>Mosaic and allied forms of wall and floor decoration.</i> <i>Painting and Decorating.</i>	Central School of Arts and Crafts  Hornsey School of Arts and Crafts, School of Building Brixton, Hammersmith School of Building and Arts and Crafts, Northern Polytechnic, Woolwich.	Central School of Arts and Crafts  Borough, Chiswick, Northern, Regent Street, and Tottenham Polytechnics, Trades Training School. Woolwich, Camberwell, and Hammersmith Schools of Arts and Crafts, Beckenham, Hackney, Wandsworth and Wimbledon Technical Institutes, School of Building, Brixton, Kingston-upon-Thames and Willesden Technical Colleges and Schools of Art.	—  Crawford, Flora Gardens, Grove Vale, Moberly and Shelburne Road Evening Institutes. Bromley School of Art.

*Painting and Sign-  
writing.*

Finchley School of Arts and Crafts

Crafts, Borough Polytechnic,  
Hammersmith School of Building.

*Plastering* ... ..

School of Building, Brixton;  
Hammersmith School of Building  
and Arts and Crafts; Northern  
Polytechnic.

Camberwell and Hammersmith  
Schools of Arts and Crafts,  
Croydon, Northern, Spring  
Grove and Woolwich Polytechnics,  
School of Building, Brixton;  
Willesden Technical College and  
School of Art, Ealing, Harrow,  
and Southall Technical Institutes;  
Finchley Evening Institute and Acton  
Technical College (for boys 16 years and  
over); Trades Training School.  
South East Essex Technical College

Kingsway, Mansford Street,  
Marylebone Central, Moberly,  
Pulteney, Shelburne Road, Sigdon  
Road, Stanley Street,  
Evening Institutes.  
Crawford, Flora Gardens,  
Moberly and Shelburne Road  
Evening Institutes.

*Pottery and Tile Making*

*Plumbing* ... ..

School of Building, Brixton;  
Hammersmith School of Building  
and Arts and Crafts, Northern  
Polytechnic, Regent Polytechnic.

Trades Training School, Acton  
Technical College (16 years and  
over), Borough, Croydon, Northern,  
Regent Street, Spring  
Grove, Tottenham and Woolwich  
Polytechnics. Ealing,  
Finchley Evening, Hackney,  
Harrow, Southall, Wimbledon  
and Woolwich Technical Institutes.  
Paddington, Richmond  
Road Evening Junior, South  
East London and Wandsworth  
Technical Institutes. Hammersmith  
School of Building and  
Arts and Crafts. Kingston-upon-  
Thames, and Willesden Technical  
Colleges and Schools of  
Art. School of Building, Brixton;  
South East Essex Technical  
College.

Barnes and Mortlake, Crawford,  
Flora Gardens, Grove  
Vale, Lyulph Stanley, Moberly,  
Richmond Technical, Sigdon  
Road, Shelburne Road, and  
Stanley Street Evening Institutes.

Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For Persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Building and Allied Trades—cont. Ventilating and Heating</i>	School of Building, Brixton. Northern Polytechnic.	Acton Technical College. (16 years and over). Borough, Northern and Regent Street Polytechnics. School of Building, Brixton. Wandsworth and Westminster Technical Institutes. Ponders End Technical (16 years and over).	—
<i>Slating and Tiling ...</i>	—	Acton Technical College } Finchley Evening Institute. } 16 years and over	—
<i>Technical Drawing</i>	North Western Polytechnic. Shore-ditch Technical Institute.	Ealing, Harrow and Southall Technical Institutes. Woolwich Polytechnic. Acton Technical College } Finchley Evening Institute. } 16 years and over Bell Lane, and Childs Hill Commercial and Technical Evening Institutes. Ealing, and Shore-ditch Technical Institutes. Algernon Road, Goldbeaters, Hayes (Townfield Senior) Kingsbury, Ponders End, Southall (County School) Ux-	As Column (3) and Martins Evening School; Belmont, Camrose, Eastcote Lane, Headstone and Kingston Road, Council Schools. Balaam Street, Belvedere Road, Brentford, Carlton Vale, Central School, Central School for boys, Crayford Central, Devonshire Hill, Downhills, Drew Road, Graham Road, Hanwell Junior, Lan-

*Catering*

... ..

Battersea, Borough, Chelsea, Northern and Regent Street Polytechnics (for women and girls) Westminster Technical Institute (Boys (3 years' course of Training for Chefs, 2 years' course for Waiters)). Clapham Trade School (Girls—tea room cookery). London School of Nautical Cookery (Men and Boys as ships' cooks and stewards).

bridge (Senior School, Greenway), and Wembley Hill Evening Institutes. Borough, and Spring Grove Polytechnics. Harrow Technical School of Arts and Crafts (16 years and over).

casterian, Merton Central, Mora Road and Wykeham, Mottingham, Northside, Orleans, Pound Lane, Raynham Road, Russell Road, Salusbury Road, Sidcup, Spring Grove, Star Lane, Upton Lane, Water Lane, Wood End Evening Institutes, Greenford (Coston School) Hounslow (Bulstrode, Spring Grove and Heston).

*Civil and Municipal  
Services—  
Administrative*

... ..

Preparation for junior posts given in all Day Continuation Schools.

Battersea, Chelsea, Northern, North Western, Regent Street and Woolwich Polytechnics. Clapham Trade School (Refresher Courses for Women) Westminster Technical Institute (Refresher Courses for Men).

Students are prepared for examinations for various Civil and Municipal Service appointments in the Council's Commercial Evening Institutes throughout London, also at City of London College, North-Western and Regent Street Polytechnics; Wandsworth Technical Institute, and Kingston upon-Thames Technical College and School of Arts.

Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Clerical and Commercial Occupations.</i>	Chiswick and Regent Street Polytechnic, City of London College. Part-time Courses at all Day Continuation Schools and Wandsworth Technical Institute.	Commercial Institutes situated in every district. South East Essex Technical College.	Junior Commercial Institutes with courses in preparation for the senior Institutes situated in every district. Kingsway Institute. (Special Course 5.30—7.30).
<i>Auctioneers and Estate Agents.</i>	—	Kingston-upon-Thames Technical College and School of Art.	—
<i>Commercial Art and Publicity Design.</i>	Camberwell, Central, Croydon, Hornsey and Sidcup Schools of Arts and Crafts; Chiswick, Regent Street and Woolwich Polytechnics; Ealing Technical Institute, South East Essex, Walthamstow and Willesden Technical Colleges; Harrow and Kingston-upon-Thames Technical Colleges and Schools of Arts and Crafts; Hammersmith School of Building and Arts and Crafts. Westminster School of Art.	L.C.C. School of Photo-Engraving and Lithography; Borough, Chiswick, North Western, Regent Street and Woolwich Polytechnics; Camberwell, Central, Leyton and Sidcup Schools of Arts and Crafts; Beckenham, Bromley, St. Martin's and Westminster Schools of Art; Teddington Art School, Erith and Hackney Technical Institutes; South East Essex and Willesden Technical Colleges; Harrow and Kingston-upon-Thames Technical Colleges and Schools of Arts and Crafts; West Ham Municipal College; Finchley, Martin, and Northside	—



<i>Secretarial Work</i>	...	City of London College (girls of 17)	Bow and Bromley, Clapham Junction, Fulham, Highbury, Kennington, Marylebone and Woolwich Commercial Institutes, Norwood and Wandsworth Technical Institutes, Regent Street and North Western Polytechnics, City of London College, Kingston-upon-Thames Technical College, and School of Art, South East Essex Technical College.		
<i>Solicitor Clerk Courses</i>		—	City of London College, Balham, Fulham, Highbury, Hugh Myddelton, Kennington, Upper Hornsey Road, and Westminster Commercial Institutes.	—	
<i>Clothing Trades.</i>					
<i>Corsets</i>	...	...	Bloomsbury Trade School (also part time for girls in employment).	Bloomsbury Trade School.	—
<i>Dressmaking</i>	...	(Girls) Borough, Kilburn, North Western and Woolwich Polytechnics; Barrett Street, Bloomsbury, Clapham and Hammersmith Trade Schools, Erith, Paddington, Shoreditch and South East London Technical Institutes, Camberwell School of Arts and Crafts, Hornsey School of Arts, Bromley School of Craft, Edmonton Junior Technical School for Girls, West Ham Municipal College.	As Column (2) and in addition: Northampton Polytechnic, Kingston-upon-Thames Technical College and School of Arts, and South East Essex Technical College.	As in Column (2) and Dempsey Street, Flora Gardens, Fulham Palace Road, Mansford Street, Moberly, and Sherbrooke Road Evening Institutes. Richmond Road Evening Junior Technical Institute.	

Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For Persons over 17. (3)	For Persons 14 to 18. (4)
<i>Clothing Trades—cont.</i>			
<i>Dressmaking (Wholesale and Power m/c)</i>	Shoreditch and Paddington Technical Institutes (2 years).	Shoreditch Technical Institute	Shoreditch and South East London Technical Institutes.
<i>Embroidery (Hand and m/c)</i>	Borough and Regent Street Polytechnics, Shoreditch Technical Institute (2 years) Barrett Street Trade School, Central School of Arts and Crafts, Hornsey School of Arts and Crafts, Bromley School of Craft.	As in Column (2) and Northampton Polytechnic, Camberwell School of Arts, South East Essex Technical College.	As in Column (2).
<i>Embroidery (hand only)</i>	Kilburn Polytechnic	Clapham and Hammersmith Trade Schools for Girls, Kilburn Polytechnic, Paddington Technical Institute, Royal School of Needlework, Hornsey School of Art.	As in Column (3).
<i>Furriery</i> ... ..	—	Northampton Polytechnic	Clerkenwell and Dempsey Street Evening Institutes.
<i>Glove Making</i> ...		South East Essex Technical College.	—
<i>Ladies Tailoring</i> ...	Barrett Street, Bloomsbury, Hammersmith and Clapham Trade Schools (for girls) Borough, Kilburn, North-Western, and Woolwich Polytechnics. Erith and Paddington Technical Institutes, Hornsey School of Arts and Crafts. West Ham Municipal College, Edmonton Junior Technical School for Girls.	As in column (2) and Northampton and Regent Street Polytechnics, Kingston-upon-Thames Technical College and School of Arts. Borough Polytechnic (men) South East Essex Technical College.	—

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<i>Lingerie</i> ... ..	Bloomsbury Trade School (also part-time for girls in employment) St. Vincents Day Continuation School; Borough, Kilburn Northern and Woolwich Polytechnics.	As in Column (2) and North Western Polytechnic; Hornsey School of Arts and Crafts, South East Essex Technical College; Edmonton, Norwood, South East London, and Wandsworth Technical Institutes, Carlton Vale, Furness Road, Mora Road and Wykeham, Pound Lane, Salusbury Road and Wesley Road Evening Institutes.	—
<i>Millinery</i> ... ..	Barrett Street, Bloomsbury, Clapham and Hammersmith Trade Schools, Paddington Technical Institute, North-Western and Woolwich Polytechnics, Hornsey School of Art, Bromley School of Craft.	As in Column (2) and Kilburn Polytechnic, South East Essex Technical College.	As in Column (2)
<i>Shirt and Pyjama Cutting.</i>	—	Borough Polytechnic	—
<i>Tailoring</i> ... ..	Regent Street Polytechnic (Junior Technical School for boys 13-16, three years course. Major course from 16 years of age) Shoreditch Technical Institute (Girls 1 year).	Borough and Regent Street Polytechnics, Sir John Cass Technical Institute.	Dempsey Street, Mansford Street, Moberly, Pulteney, Roman Road, and Sigdon Road Evening Institutes, Shoreditch Technical Institute.
<i>Tailor's Cutting</i> ...	—	Regent Street Polytechnic, Sir John Cass Technical Institute.	—
<i>Waistcoat Making</i> ...	Borough Polytechnic (Girls)	Borough Polytechnic (Girls)	—
<i>Dental Mechanics</i> ...	—	Borough Polytechnic	Acland, Marylebone Central and West Hill Evening Institutes.

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Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Distributive Trades</i> ...	L.C.C. Technical Institute for Distributive Trades (instruction for young persons (14-18 years) entering the main London Stores) Smithfield Institute (Meat Trade), Ealing Technical Institute, Enfield Co-operative Hall.	L.C.C. Technical Institute for Distributive Trades (16 years and over) Croydon, Northern and Regent Street Polytechnics, Wandsworth Technical Institute and West Ham Municipal College (Grocery) Smithfield Evening Institute (Meat Trade) Enfield Co-operative Hall (Greengrocery, Butchery and Grocery) Ealing Technical Institute (Drapery, Outfitting and Grocery) Southgate Evening Institute (Advertising and Salesmanship) South East Essex Technical College. Barrett Street Trade School ((Men and Women) Salesmanship) North Western Polytechnic (Advertising).	Marlborough Evening Institute Dartford Technical Institute (Grocers' Course).
<i>Window Display</i> ...  <i>Domestic Work.</i>	Hornsey School of Arts and Crafts, Willesden Technical College. North Western Polytechnic, Blue Coat School for Girls, L.C.C. Campden Institute of Home Training, Newcomen's Foundation School, and South East	Borough and Woolwich Polytechnics.  —	Willesden Technical College.  —

<i>Cookery</i>	... ..	National Training College of Domestic Subjects, Borough, Northern and North Western Polytechnics, Hammersmith Trade School for Girls (two years) South East London Technical Institute (Junior School for Girls 13½-16 years) Westminster Technical Institute (Day Technical School for Boys) West Ham Municipal College (3 years course) South East Essex Technical College (Part-time).	As in column (2) and in addition, Clapham Trade School for Girls and Regent Street Polytechnic.	As in column (2).
<i>Nursing</i>	... ..	Kilburn Polytechnic (17-19 years) (preparatory to Hospital Training).	—	—
<i>Nursery Nursing</i>	...	Northern Polytechnic, Wandsworth Technical Institute. Islington and St. Vincent's Day Continuation School.	—	—
<i>Engineering and Allied Trades.</i>	...	Borough, North Western, Regent Street and Woolwich Polytechnics, Erith, Hackney, Paddington, Ponders End and Wandsworth Technical Institutes, School of Engineering and Navigation, and South East London Technical Institute (Full time day courses two or three years for boys proposing to enter the engineering trades) West Ham Municipal College.	As in column 2 and Richmond Road Evening Junior Technical Institute, Finchley Evening Institute (16 years and over) South East Essex Technical College, Croydon Polytechnic.	See Electrical and Mechanical Engineering.

Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For Persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Engineering and Allied Trades—cont. Aeronautical Engineering.</i>	Northampton Polytechnic (senior course).	Croydon and Northampton Polytechnics, Kingston - upon - Thames Technical College and School of Art. School of Engineering and Navigation.	—
<i>Electrical Engineering</i>	Battersea, Northampton, Regent Street and Woolwich Polytechnics (Senior Courses) West Ham Municipal College, Dartford, Erith, Paddington and Southall Technical Institutes. Croydon Polytechnic (Part-time).	Battersea, Borough, Croydon, Northampton, Regent Street, Tottenham and Woolwich Polytechnics. Dartford, Erith, Hackney, Leyton, Paddington, Ponders End, Richmond Road Evening Junior, Southall, Walthamstow, Wandsworth and Wimbledon Technical Institutes; School of Engineering and Navigation; Harrow, Kingston-upon-Thames and Willesden Technical Colleges and Schools of Art. Acton and Richmond Technical Colleges. West Ham Municipal College, Finchley Evening Institute, South East Essex Technical College.	Acland, Aristotle Road, Beaufoy, Clerkenwell, Dempsey Street, Downhills, Gordon, Heston, Lavender Hill, Lombard Wall, Lyulph Stanley, Mansford Street, Moberly, Monnow Road, Mulgrave Place, Ponders End Technical. Purrett Road, Rising Hill Street, St. Johns Road, Shelburne Road, Sherbrooke Road, Stanley Street, Thomas Street, Walworth and West Hill Evening Institutes; Dartford and Edmonton Technical Institutes.



*Gas Engineering* ...

*Instrument Making*

*Mechanical  
Engineering.*

Northampton Polytechnic (Full time day course for boys proposing to enter watch, clock and instrument making trades).

Battersea, Northampton and Regent Street Polytechnics (senior courses) Kingston-upon-Thames Technical College and School of Art. West Ham Municipal College. Dartford, Erith and Southall Technical Institutes.

Erith, South East London, Westminster and Wandsworth Technical Institutes. Chiswick, Regent Street and Tottenham Polytechnics. Sir John Cass Technical Institute (full technology). School of Engineering and Navigation.

Northampton Polytechnic.

As in column (2) and Acton and Richmond Technical Colleges. Willesden Technical College and School of Art. Harrow Technical School of Arts and Crafts. Hackney, Leyton, Southall, Walthamstow, Wandsworth and Wimbledon Technical Institutes. Borough and Woolwich Polytechnics. School of Engineering and Navigation.

Kilmorie, Martin Evening School, Merton Central, Monnow Road, Stanley Street, Sidcup and West Hill Evening Institutes.

The Clerkenwell, Ensham, Lyulph Stanley, Marylebone Central, Shelburne Road, Sigdon Road and West Hill Evening Institutes.

Acland, Aristotle Road, Bexley Heath Boys Central, Buckingham Gate, Carlton Vale, Clerkenwell, Crawford, Ennersdale, Ensham, Flora Gardens, Furness Road, Goldbeaters, Gordon, Grove Vale, Kilmorie, Lavender Hill, Lombard Wall, Lyulph Stanley, Mansford Street, Marlborough, Marylebone Central, Millfields Road, Millwall, Moberly, Monnow Road, Mora Road and Wykeham, Mulgrave Place, Oldfield Road, Park Walk, Plum Lane, Pound Lane, Pulteney, Plumstead, St. Johns Road, Salisbury Road, Shelburne Road, Sherbrooke Road, Sigdon Road, Stanley Street, Thomas Street, Walworth, Wesley Road, West Hill, Childs Hill Commercial, and Richmond Road Evening Junior Technical Institutes.

Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For Persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Engineering and Allied Trades—cont. Metal Plate Work ...</i>	—	Borough, Northampton, Northern, Regent Street and Woolwich Polytechnics, Hackney, Leyton, Paddington, Ponders End, Richmond Road Evening Junior, South East London and Wandsworth Technical Institutes, Willesden Technical College and School of Art.	Goldbeaters, Lyulph Stanley, Mansford Street, Moberly, Shelburne Road and Stanley Street Evening Institutes.
<i>Motor and Aero Metal work. Motor Body Building</i>	Regent Street Polytechnic (for boys from about 13 years of age). See woodworking trades	— —	— —
<i>Motor Engineering</i>	(Senior Courses) Battersea and Northampton Polytechnics.	Battersea, Borough, Croydon, Northampton, Regent Street and Woolwich Polytechnics, Hackney, Leyton, Paddington, Southall and Wimbledon Technical Institutes, Acton and South East Essex Technical Colleges, Kingston - upon - Thames and Willesden Technical Colleges and Schools of Art. School of Engineering and Navigation.	Aristotle Road, Carlton Vale, Clerkenwell, Dempsey Street, Gordon, Lyulph Stanley, Moberly, Mora Road and Wykeham, Mulgrave Place, Pulteney, Shelburne Road, Sherbrooke Road, Stanley Street, Wesley Road, and West Hill Evening Institutes.



<i>Optical Work... ..</i>	Northampton Polytechnic (senior course).	Northampton Polytechnic, Kingston-upon-Thames Technical College and School of Arts.	Lyulph Stanley, Clerkenwell and Marylebone Central Evening Institutes.
<i>Oxy-Acetylene Welding</i>	—	Borough, Croydon and Northampton Polytechnics, Acton Technical College, Dartford, Southall, Westminster and Wimbledon Technical Institutes, South East Essex Technical College.	Stanley Street Evening Institute.
<i>Electric arc welding ...</i>	—	Borough and Northampton Polytechnics, Westminster Technical Institute, South East Essex Technical College.	Dartford Technical Institute.
<i>Radio Engineering ...</i>	Northampton Polytechnic ...	Borough, Croydon, Northampton and Northern Polytechnics, Norwood, Southall and Wimbledon Technical Institutes. West Ham Municipal College, Ponders End Technical Institute (16 years and over) South East Essex Technical College. School of Engineering and Navigation.	Sidcup Evening Institute
<i>"Sandwich" Full time course in Mechanical and Electrical Engineering.</i>	Woolwich Polytechnic (senior course for employees of local works alternating with employment).	—	—
<i>Sanitary Engineering</i>	Regent Street Polytechnic ...	Battersea Polytechnic ...	—
<i>Structural and Civil Engineering.</i>	Senior courses : Battersea, Northampton and Regent Street Polytechnics.	Battersea, Borough, Northampton, Regent Street and Woolwich Polytechnics, Hackney, South East London and Westminster Technical Institutes.	—

Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For Persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Engineering and Allied Trades—cont. Telegraphy and Telephony.</i>	—	Battersea, Borough, Croydon, Northampton, Regent Street and Woolwich Polytechnics (telephony only). Ealing and South East London Technical Institutes, Acton Technical College (Employees of Post Office Engineering Dept.), Kingston-upon-Thames and Willesden Technical Colleges and Schools of Art, Wimbledon Technical College (Post Office Employees).	—
<i>Welding (see Oxy-Acetylene and Electric Arc). Wireless and High Frequency.</i>	—	Regent Street Polytechnic ...	Mora Road and Wykeham and Salisbury Evening Institutes.
<i>Furnishing Trades— Cabinet and Furniture Making.</i>	Shoreditch Technical Institute (three years' full-time course) Central School of Arts and Crafts (Part-time classes).	Beckenham, Camberwell, Central and Hammersmith Schools of Arts and Crafts, North Western and Regent Street Polytechnics. Beckenham, Leyton and Shoreditch Technical Institutes.	Acland, Carlton Vale, Clerkenwell, Crouch End, Furness Road, Goldbeaters, Gordon, Grove Vale, Greenford, Hanwell, Lyulph Stanley, Mansford Street, Mora Road and

<i>French Polishing</i> ...	—	Kingston - upon - Thames Technical College and School of Arts, West Ham Municipal College. Uxbridge Senior School (Greenway) South East Essex Technical College.	Wykeham, Millfields, Moberly, Perivale, Ponders End, Pound Lane, Raynham Road, St. John's Road, Salusbury Road, Shelburne Road, Sigdon Road, Stanley Street, Tollington, Trinity County, Wesley Road and Wood End Evening Institutes.
<i>Upholstery</i> ...	Borough and Kilburn Polytechnics, Hammersmith Trade School, Shoreditch Technical Institute (boys, 3 years' course, girls 2 years'), Edmonton Junior Technical School for Girls, Bromley School of Craft.	North Western and Northern Polytechnics, Shoreditch Technical Institute, South East Essex Technical College. Central School of Arts and Crafts (Men), Hammersmith Trade School and Borough Polytechnic (Women), North Western Polytechnic and Shoreditch Technical Institute (Men and Women).	Grove Vale and Lyulph Stanley Evening Institutes. Hammersmith Trade School and Shoreditch Technical Institute (Girls), Grove Vale, Lyulph Stanley, Mansford Street, Roman Road, St. John's Road, Shelburne Road, Sigdon Road, Evening Institutes.
<i>Carpet Planning</i> ...	—	—	Marlborough Evening Institute.
<i>Gas, Water and Electricity Supply—</i> <i>Gas Supply</i> ...	Day Classes for Apprentices at Westminster Technical Institute.	Croydon and Regent Street Polytechnics, School of Engineering and Navigation, South East London, Wandsworth and Westminster Technical Institutes. Grays Intermediate Evening Institute.	Gas fitting courses at : Kilmorie Road, Stanley Street and West Hill Evening Institutes.
<i>Glass.</i> <i>Glass Blowing</i> ...	Regent Street Polytechnic ...	Borough, Northampton and Regent Street Polytechnics.	—
<i>Neon Lighting</i> ...	Northern Polytechnic ...	Northampton Polytechnic ...	Shelburne Road Evening Institute.

Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Glass—cont.</i> <i>Stained Glass</i> ...	Hornsey School of Arts. Central School of Arts. Erith Technical Institute (Saturday mornings).	—	Bromley School of Art.
<i>Hairdressing.</i> ...	Barrett Street Trade School (girls and women only) Regent Street Polytechnic (boys only).	Barrett Street Trade School (women only) Regent Street Polytechnic (men and women).	Barrett Street Trade School (girls only) Dempsey Street Evening Institute.
<i>Trichology</i> ...	Regent Street Polytechnic ...	South East Essex Technical College, Regent Street Polytechnic.	—
<i>Horticulture</i> ...	Chelsea Polytechnic, South East Essex and Wimbledon Technical Colleges.	Chelsea, Croydon and Spring Grove Polytechnics South East Essex and Wimbledon, Technical Colleges, Sir John Cass Technical Institute, Wembley Hill Evening Institute.	—
<i>Jewellery, Precious Metals, Clocks and Watches.</i> <i>Jewellery and Silver-smithing.</i>	Central School of Arts and Crafts (Junior Technical School for boys (three year course)) Hornsey School of Arts and Crafts. Erith Technical Institute.	Hackney and Sir John Cass Technical Institutes. Chelsea Polytechnic (Mineralogy of Gemstones), Beckenham School of Art, Camberwell School of Arts and Crafts, South East Essex Technical College.	Sidcup School of Arts and Crafts.
<i>Diamond Mounting</i>	—	Sir John Cass Technical Institute Central School of Arts and	

<i>Horology (Clocks and Watches).</i>	Northampton Polytechnic. (Junior Technical School of Horology and Instrument Making.)	Northampton Polytechnic ...	Clerkenwell and Shelburne Road Evening Institutes.
<i>Laundries Job Dyeing and Cleaning. Laundry Work ...</i>	Borough Polytechnic (two years course for girls of 14) (Also course for older girls wishing to prepare for higher posts in Laundries.)	Borough Polytechnic (laundry work, maintenance and chemistry).	—
<i>Leather Manufacture and made up Leather Goods.</i>	Leathersellers Technical College (Tanning, Dyeing and Finishing of all types of leather (16 years)) Cordwainers Technical College (Senior courses in fancy leather and solid edge goods).	Cordwainers Technical College (Fancy Leather work, solid case work and leather goods manufacture) Leathersellers Company's Technical College (as Column 2) South East Essex Technical College.	Clerkenwell and Mansford Street Evening Institutes.
<i>Boot and Shoe Manufacture.</i>	Cordwainers Technical College (Junior and Senior courses).	Cordwainers Technical College ...	Mansford Street, Pulteney and Sigdon Road Evening Institutes.
<i>Meat Trades ...</i>	Smithfield Meat Trades Institute (13 years to 14½ years full time) (part time 16 years and over).	As in Column (2) (16 years and over).	—
<i>Mercantile Marine ...</i>	School of Engineering and Navigation (two years' whole time course for boys intending to become apprentices in the Mercantile Marine (13-14 years)). King Edward VII Nautical School (Day course in preparation for Board of Trade Examinations (about 18 years)), Sir John Cass Technical Institute (Cadet course for youths intending to go to sea).	As in Column (2). School of Engineering and Navigation (Naval Architecture courses).	—

Trade or Occupation (1)	Day Classes. (2)	Evening Classes.	
		For persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Miscellaneous Trades and Professions.</i>	City Day Continuation School (part-time day courses for P.O. boy messengers), Kingsway Evening Institute (special day courses for messenger boys generally), Hammersmith and Southwark Day Continuation Schools, Tavistock School.	—	—
<i>Chiropody</i> ...	—	Chelsea Polytechnic	—
<i>Film Industry</i> ...	—	South East Essex Technical College	—
<i>Flour Milling</i> ...	Battersea Polytechnic (seniors) ...	Battersea Polytechnic and School of Engineering and Navigation.	—
<i>Navy, Army and Air Force.</i>	Day Continuation Schools (part-time day courses for boys entering the Air Force).	—	—
<i>Overseas Employment</i> ...	Battersea and Chelsea Polytechnics (day classes in domestic subjects for young women training for colonial life).	—	—
<i>Photography</i> ...	Bloomsbury Trade School for Girls (junior and senior full-time courses), Regent Street Polytechnic (two years' course in photography and cinematography).	Battersea, Borough, Chelsea, Northern, Regent Street and Woolwich Polytechnics, Bloomsbury Trade School for Girls, Harrow and South East Essex Technical Colleges.	Eltringham Street, Robert Browning, Saint Dunstons Road, Stewart Headlam, Upper North Street Junior Men's and Sidcup Evening Institutes (amateur photography (young men 14-18)).

*Paper, Stationery, Paper  
Box and Bag Making.*

*Piano and Musical  
Instrument Making.*

*Printing and Allied  
Trades.*

*Restaurant Trainees ...*

Northern Polytechnic (courses for junior and senior students proposing to enter the music trades—tuition includes piano-forte construction, tuning and repairs. Player maintenance and repair. Principles of radio and radio servicing, elements of television. (Part-time classes for apprentices.)).

London School of Printing, etc., School of Photo-Engraving and Lithography, Camberwell, Central and Hornsey Schools of Arts and Crafts, North Western Polytechnic (part-time classes for apprentices), Chiswick Polytechnic.

Westminster Technical Institute (day technical school for boys).

Battersea Polytechnic (paper making and testing), Borough Polytechnic (commercial paper), London School of Printing (paper for printers), School of Photo-Engraving and Lithography (lectures on paper making and testing), Dartford Technical Institute and South East Essex Technical College.

Northern Polytechnic (course covers subjects mentioned in column (2) with the addition of violin construction, bow making and repairs and brass band instrument making).

As in column (2)  
South East Essex Technical College.

Lyulph Stanley Evening Institute.

Clerkenwell, Crawford, Dempsey Street, Grove Vale, Kingsway, Lyulph Stanley, Mansford Street, Moberly, Oldfield Road, Roman Road, St. John's Road, Shelburne Road, Sherbrooke Road, Sigdon Road and Stanley Street Evening Institutes.

Trade or Occupation.  (1)	Day Classes.  (2)	Evening Classes.	
		For Persons over 17. (3)	For Persons of 14 to 18. (4)
<i>Rubber Trades ...</i>	Northern Polytechnic (courses for junior and senior students proposing to enter the rubber trades).	Northern Polytechnic	—
<i>Transport— (Railway and Road)</i>	School of Engineering and Navigation (part-time courses for tramway apprentices).	North Western Polytechnic, Catford, Dulwich, Hammersmith and Kennington Commercial Institutes, Ealing Technical Institute, South East Essex Technical College, Croydon Polytechnic (railway permanent way classes).	—
<i>Woodworking Trades— Motor Body and Commercial Vehicle Building.</i>	Acton Technical College (part-time for apprentices), Regent Street Polytechnic.	Borough and Regent Street Polytechnics, Trades Training School.	—
<i>Woodcarving ...</i>	Central School of Arts and Crafts, North Western Polytechnic, Shoreditch Technical Institute.	Camberwell and Central Schools of Arts and Crafts, Hammersmith School of Building and Arts and Crafts, Blackheath and Putney Schools of Art, Chelsea and Regent Street Polytechnics, Shoreditch and Westminster Technical Institutes, Trades Training School.	Richmond Road Evening Junior Technical Institute, Edmonton Technical Institute, Wembley Hill Evening Institute.



*Woodworking Machinery*

Hammersmith School of Building and Arts and Crafts, School of Building, Brixton, Northern and Regent Street Polytechnics.

Hackney Institute, Hammersmith School of Building and Arts and Crafts, Northern Polytechnic, School of Building, Brixton, Kingston - on - Thames and Willesden Technical Colleges and Schools of Art, Leyton and Southall Technical Institutes, South East Essex Technical College.

## APPENDIX C.

## TRADE BOARDS—LEARNERS' CERTIFICATES.

Trade Boards are statutory bodies, established under the Trade Boards Acts, 1909 and 1918, composed of representatives of employers and workers in equal numbers together with three independent "Appointed Members." Their main purpose is to fix minimum rates of wages in certain specified trades. Such rates, when confirmed by the Minister of Labour, must be paid by all employers in the trade and are enforceable at law.

Trade Boards can, when fixing minimum rates of wages, distinguish between the rates for learners and the rates for workers other than learners. A list of the Trade Boards who have made this distinction in rates is given below.

*Special Conditions in respect of Learners' Rates.*

In fixing special rates for learners, Trade Boards are empowered to make the payment of these rates dependent on the observance of certain conditions. For full particulars as to the conditions, reference should be made to the respective Trade Board Notices. Certain Trade Boards provide for a scheme of Apprenticeship as distinct from the scheme for learners and these two schemes should not be confused. In general it may be said that the conditions attached by the Boards to the learners' rates are

- (a) the provision by the employer of reasonable facilities for practically and efficiently learning the Trade or a particular branch of the Trade or certain specified processes;
- (b) the issue of a certificate by the Trade Board to the Learner.

The Trade Board may permit the first employment of a learner for a probation period (generally not exceeding four weeks) without a certificate or registration but if the employment is continued the period of probation is included in the period of learnership.

*Procedure.*

(a) Application is made jointly by the employer and worker on a form to be obtained from the Secretary of the Trade Board.

(b) The certificate is sent by the Trade Board to the worker and a form of notification of registration to the employer.

(c) On the termination of employment or the completion of the period of learnership, the employer enters the particulars on the notification form and returns it to the Trade Board. The certificate is returned to the worker suitably endorsed.

(d) When fresh employment as a learner is taken, the certificate with particulars of previous employment determines the rate to be paid by the new employer, who enters the date of the commencement of the new employment on the certificate and sends it to the Trade Board for renewal. It is returned by the Trade Board to the worker and a notification of registration is sent to the new employer. All changes in employment during the period of learnership are notified in this way. Both employer and worker are thus aware when the period of learnership is completed and the higher rates become payable.

It is important for both the employer and the learner to see that the procedure is fully carried out; the employer because failure to register the worker as a learner renders him liable to the payment of a higher rate and

other penalties; the learner because the certificate is evidence that he—or she—has passed through a period of learnership and if he has not this evidence he may experience difficulty in making good his claim for increase of wages in accordance with the scale fixed for learners. The possession of a certificate also acts as a reminder to an employer that he has responsibilities in affording the worker facilities for learning the trade.

*List of London Trades in which Trade Boards have made arrangements for Learners' Certificates. February, 1938.*

1. Boot and Shoe Repairing (including bespoke making).
- \*2. Brush and Broom.
- \*3. Corset.
- \*4. Dressmaking and Women's Light Clothing.
5. Fur.
- \*†6. General Waste Materials Reclamation.
- \*7. Hat, Cap and Millinery.
8. Made up Textiles.
- \*9. Wholesale Mantle and Costume.
- \*10. Ostrich and Fancy Feather and Artificial Flower.
- \*11. Paper Bag.
- \*12. Shirt Making.
- \*13. Tailoring, Ready-made and Wholesale Bespoke.
14. Tailoring. Retail Bespoke.

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\* Girls only.

† In this trade Learnership conditions apply only during the first three months.

## APPENDIX D.

## CHOICE OF CAREER SERIES.

	<i>No.</i>	<i>Price.</i>
Accountancy ... ..	6	4d. (5d.)
Agriculture, Horticulture and Forestry ...	25	4d. (5d.)
Architecture ... ..	5	3d. (3½d.)
Banking and the Money Market ... ..	12	4d. (5d.)
Clerical and Secretarial Work (Women) ...	19	3d. (3½d.)
Commerce ... ..	10	2d. (2½d.)
Dentistry ... ..	14	3d. (3½d.)
Domestic Science (Women) ... ..	9	3d. (3½d.)
Engineering ... ..	16	6d. (7d.)
Insurance ... ..	13	4d. (5d.)
Journalism and Publishing ... ..	18	4d. (5d.)
Laundry Management (Women) ... ..	7	2d. (2½d.)
Law ... ..	15	4d. (5d.)
Librarianship ... ..	11	3d. (3½d.)
Local Government Services ... ..	21	3d. (3½d.)
Medicine ... ..	20	4d. (5d.)
Merchant Navy (Navigating Officers) ...	8	3d. (3½d.)
Natural Sciences ... ..	1	3d. (3½d.)
Nursing and Kindred Services ... ..	17	4d. (5d.)
Pharmacy ... ..	2	2d. (2½d.)
Retail Distribution ... ..	23	2d. (2½d.)
Social Work (Women) ... ..	22	3d. (3½d.)
Surveying, Land and Estate Agency and Auctioneering ... ..	4	3d. (3½d.)
Transport ... ..	24	4d. (5d.)
Veterinary Surgery ... ..	3	2d. (2½d.)
General Guide to Careers for Secondary School Girls ... ..		6d. (7d.)
General Guide to Careers for Secondary School Boys ... ..		6d. (7d.)

Copies may be purchased direct from H.M. Stationery Office, Adastral House, Kingsway, W.C.2, or through any Bookseller. Post free prices in brackets.

## APPENDIX E.

JUVENILE EMPLOYMENT BUREAUX UNDER THE CONTROL OF LOCAL EDUCATION  
AUTHORITIES WITHIN FIFTEEN MILES OF CHARING CROSS.

Acton J.E.B.	...	...	47, Avenue Road, Acton, W.3.
Ashford (Middlesex) J.E.B.	...	...	Woodthorpe Road Schools, Ashford, Middlesex.
Barking J.E.B.	...	...	Public Offices, East Street, Barking, Essex.
Beckenham & Penge J.E.B.	...	...	292, Kent House Road, Beckenham, Kent.
Bexley Heath J.E.B.	...	...	Twydall House, Brampton Road, Bexley Heath.
Brentford & Chiswick J.E.B. (Sub-office)	...	...	11, Town Hall Buildings, Chiswick, W.4. Portsmouth, The Butts, Brentford.
Bromley J.E.B.	...	...	Municipal Buildings, Tweedy Road, Bromley, Kent.
Canning Town	...	...	see West Ham.
Croydon J.E.B.	...	...	6, Wellesley Road, Croydon, Surrey.
Dartford J.E.B.	...	...	11, Essex Road, Dartford, Kent.
Ealing J.E.B. (Sub-office)	...	...	Education Office, Town Hall, Ealing, W.5. Greenford J.E.B. Public Library, Oldfield Lane, Greenford, Middlesex.
Edmonton J.E.B.	...	...	Education Office, Brettenham Road, Edmonton, N.18.
Enfield J.E.B. (Sub-office)	...	...	Education Office, Elm House, Gentleman's Row, Enfield, Middlesex. Enfield Highway Branch Library, Enfield.
Erith J.E.B.	...	...	Council Offices, Erith, Kent.
Feltham J.E.B.	...	...	9, Hounslow Road, Feltham, Middlesex.
Finchley J.E.B.	...	...	5, The Hawthorns, Regents Park Road, N.3.
Grays J.E.B.	...	...	Education Offices, Quarry Hill School, Grays, Essex.
Harrow J.E.B.	...	...	75, High Street, Wealdstone, Middlesex.
Hayes J.E.B.	...	...	2, Queens Crescent, Hayes, Middlesex.
Hendon J.E.B.	...	...	Education Offices, Town Hall, Hendon, N.W.4.
Heston & Isleworth J.E.B.	...	...	6, Lampton Road, Hounslow.
Hornsey J.E.B.	...	...	Town Hall, Hornsey, N.8.
Ilford J.E.B.	...	...	Cleveland Road, Ilford, Essex.
Kingsbury J.E.B.	...	...	3, Suncrete Parade, Kingsbury, Middlesex.
Leyton J.E.B.	...	...	Kirkdale Road, Leytonstone, E.11.
Mitcham J.E.B.	...	...	Education Offices, 36, Upper Green East, Mitcham.
Richmond, Surrey J.E.B.	...	...	Education Offices, Parkshot, Richmond, Surrey.
Ruislip J.E.B.	...	...	Manor Farm, Ruislip.
Sidcup J.E.B.	...	...	9, Hatherley Road, Sidcup, Kent.
Southall J.E.B.	...	...	Educational Office, County School, Villiers Road, Southall, Middlesex.
Southgate J.E.B.	...	...	Education Offices, 96, Natal Road, New Southgate, N.11.
Staines J.E.B.	...	...	67, Thames Street, Staines, Middlesex.
Stratford	...	...	see West Ham.
Teddington J.E.B.	...	...	6A, Park Road, Teddington, Middlesex.
Tottenham J.E.B.	...	...	Education Offices, Philip Lane, South Tottenham, N.15.
Twickenham J.E.B.	...	...	82, Clifden Road, Twickenham.

Uxbridge J.E.B.	...	...	Central Hall, Park Road, Uxbridge, Middlesex.
Walthamstow J.E.B.	...	...	Old Monoux Grammar School, High Street, Walthamstow, E.17.
Wembley J.E.B.	...	...	13, Wembley Hill Road, Wembley, Middlesex.
West Drayton J.E.B.	...	...	32, Station Road, West Drayton.
West Ham J.E.B.	...	...	13, Water Lane, Stratford, E.15. and 171, Barking Road, Canning Town, E.16.
West Wickham J.E.B.	...	...	1, High Street, West Wickham, Kent.
Willesden J.E.B.	...	...	Pound Lane, Willesden, N.W.10.
Wood Green J.E.B.	...	...	Education Office, 10, Stuart Crescent, Wood Green, N.22.

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