Office and Works Catering

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runner of those services as we know them today. Robert Owen's progressive outlook was however not always favoured by his board of directors, but the testimony lies in the fact that in seven years there were only nine deaths among the 300 boarders catered for. Doctor Henry Grey MacNab described Robert Owen's achievements in a work entitled *The New Views of Mr. Owen of Lanark Impartially Examined*, in which he said, " The building erected for a public kitchen was of considerable dimensions, being 150 feet in length by 45 feet broad and three stories in height. The ground floor comprises two spacious kitchens, a bakehouse, store-rooms, and Superintendents' departments. The upper stories are divided each into two equal compartments, those on the first being designed for ating rooms and the two above for lecture and reading-rooms. The obvious effect of such an establishment besides many mpanying advantages, is to diminish the expense while s the comforts of living to the inhabitants in general, omy of fuel and attendance, and by the cheaper e nutritious preparation of food which may be thus ned."

It should be remembered that by far the greatest number those employed in industry were children under the age 16 and at Lanark they were well looked after. Only two lept in a bed, the straw of which was changed once a month, sheet covered the bed-ticks and one or two pairs of blankets, according to the season, were supplied to each bed. Their undergarments were changed and washed once a week.

Their food was simple, a breakfast consisted of porridge with milk in summer and with a mixture of molasses in winter. For dinner, they had barley broth made from fresh meat, the beef was then divided into pieces weighing seven ounces per person and a plentiful supply of potatoes. On meatless days, five ounces of cheese was given to each child. This diet was varied by herrings in winter and fresh butter in summer.

There is little wonder that on such a diet the death rate amongst juvenile workers in those mills was the envy of the country. Needless to say there was no labour shortage in those mills, nor were there any labour troubles.

But it was not until the middle of the nineteenth century that large-scale feeding came into its own. Besides large industrial concerns, the Army took a sudden interest in the feeding of troops through the prolonged activity of Alexis Soyer. This young man at the height of his career placed his talents at the service of those he called " that industrial class—the backbone of every free country—the People " and it was his sincere wish to improve the feeding habits of the multitude. Indeed he was possibly the first training instructor in the art of cooking for large numbers, as one of his first assignments on his initial visit to the Barrack hospital at Scutari, having observed the chaotic conditions caused by an ever changing staff of cooks, was to appoint a permanent supervisor and issue recipes and instructions for guidance. It was not until 1855 in the Crimea, that his boiler—the Soyer boiler still used today as standard equipment—was accepted, for he found that " there appeared to be a perfect mystery when any plain little common-sense thing was prepared." He also found that tea was prepared in the copper that had previously been used for soup, so he invented the " Soyer teapot," which appears to have been the forerunner of the modern multipot.

At home progress continued over the years. With the increased industrialisation of the country more problems arose. Late in the nineteenth century there was a general awakening in the minds of industrialists that health and production did have some relationship, and gradually the abstract quantity we call morale appeared.

It was then that great industrialists like Sir Titus Salt and the brothers Richard and George Cadbury, among many of the more enlightened employers, started planned feeding arrangements for their workers. About this time was also the beginning of factory legislation regarding canteens, for in 1867 a Statutory Order was made forbidding the eating of meals by women and children in any room where glass cutting took place.

From this, and the *Factory Act* of 1891 which compelled employers of persons engaged in certain trades to provide

separate messrooms, derived a number of Acts embodying present-day regulations.

War-Time Development

So, through the years the thought developed that, from a welfare angle, it was most desirable that employees should be attracted away from their place of work during the meal break, and at the end of the first World War, there were something like a thousand canteens throughout the country. With the gradual return to normal life a general attitude of apathy towards industrial catering crept in, but with the onset of the second World War the problem of feeding the worker grew a thousandfold. It was found that a quarter of the absenteeism was due to neurosis—neurosis or poor morale, whatever it might be called. Besides the lack of energy value in some of the meals there was the monotony of meals—the psychological starvation—a vital factor in the development of morale. The Ministry of Food was quick to realise this factor and tried to compensate for it by arranging that canteens should be given some preference to extra food-stuffs available to offset some of the main food shortages.

Industrialists as well as the Government began to show a deeper appreciation of the worth of workpeople and a greater concern for their welfare than ever before. The fruits of the study of efficient groups of workers operating essential plant and machinery in the best possible environment, and the necessity to maintain the efficiency of the human element in industry was seen in the recognition of the factory and office canteen as an integral part of industry, as a service of which the employer and the employee can justly be proud.

Chapter Two

Provision of Catering Facilities

INDUSTRIAL catering is now such an established feature in industry that the canteen has become almost as important a part of the modern factory or office as the workshop or sales office. With the trend of population outwards from the industrial centres, more and more main meals are taken away from home, a fact which is increasingly recognised by enlightened managements. Good and adequate meals may not be the prime cause of good work, but they are a powerful incentive. A canteen which can produce a well cooked meal at a reasonable price, in pleasant surroundings, has some influence on attracting and holding labour—a point regarded by many firms as being of great importance.

Good Meals—Better Production

There may seem to be little connection between production figures and Yorkshire pudding, but it might conceivably be argued that the rise in the one is directly related to the quality of the other. At any rate, it is indisputable that the best work comes from the contented worker and a good meal goes a long way towards creating that feeling.

Progressive managements have realised that, apart from the decrease of absenteeism due to sickness, greater efficiency in the workroom and more contentment among the staff, the provision of a canteen is a useful social service. The continued employment of married women in industry with their

own problems of shopping, with long journeys to work, and the relatively high cost of cafe or restaurant meals, is a further justification of the necessity for providing catering services.

Terminology has in some way tended to create a barrier, or a difficulty, that has to be surmounted.

The use of the word "canteen" instead of "dining-room" has served in some places to put a handicap on well equipped kitchens and well furnished rooms built to serve industrial workers. The word "canteen" was too reminiscent of music hall jokes about old army canteens, stodgy foods and urn flavoured tea.

The Measure of the Meal

Industrial catering today is far removed from this and every member of a canteen staff looks, or should look, on the job not as just feeding workers in a canteen, but as a skilled trade which attracts not only the eye but the appetite as well. The standard of meals should not be measured only by their nutritional value. The customer entering a works dining-room must feel that he is in a good type restaurant, where he will obtain a meal served by a staff pleased to see him. Not only must the staff convey this sense, but the manager, manageress or supervisor should have that personality that makes a good host as well as a good administrator. Adequate equipment, good food well cooked and served, comfort and a pleasant atmosphere, suggest a well run catering service.

THREE WAYS OF CATERING

The problem of management is how best to achieve this kind of service at an economic cost, remembering that the service will not always be self supporting. How will management go about it? Here are three ways:

(*a*) Direct Management by a person appointed by and responsible to the organisation requiring the service.

(*b*) Management by an outside catering contractor.

(*c*) Management by a committee of employees on behalf of the organisation. This method is usually limited to industrial canteens and is very much in the minority

compared with (*a*) and (*b*). The catering service may be operated as one of the functions of a club.

Direct Management

Here the organisation retains entire control and does the job itself and it is considered to be the best method, as the fullest consideration can be given to the welfare angle and the agreed policy of the company, which is to see that the employees get the maximum service. It is vitally important when the catering is the direct responsibility of the organisation that the selection of the catering manager or manageress is carefully made, that his or her loyalty and integrity are, as far as can be possible, well assured.

Management by a Catering Contractor

The advocates of this method claim that it relieves management of a considerable amount of responsibility for the day to day operation of the catering service. It can be carried out in three ways : (1) contract (2) management (3) consultancy.

Under (1) the contractor accepts full responsibility for running the canteen on agreed terms, either meeting certain operating costs, or receiving a payment from the organisation. This method will relieve the organisation of the responsibility of running the canteen, while enabling it to retain its control and authority on matters of policy and principle in the establishment. Having accepted agreed terms, it is the responsibility of the contractor to make a profit or loss.

In many instances the catering contractor will only make himself responsible for the cost of food, wages, insurance, replacement of light equipment and utensils, etc. Other costs such as fuel, replacement of equipment, maintenance and capital depreciation of plant, have to be borne by the company. Where the establishment is a small one, contractors may embody in their contract a nominal provision such as 5 per cent on turn-over for management fees. Other contracts may contain a clause for a subsidy on wages for some isolated catering departments known to produce a loss. Another

clause may mean that the company will agree to pay the contractors any loss which may be incurred resulting from the handling of the contract. Such contracts may provide for six months' notice on either side.

The person appointed to manage this type of catering must obviously be able to satisfy in a dual capacity : first, his employers, by making their required profit each week, and secondly, by trying to give full value and service to customers.

Under (2) the management of a canteen is taken over by a caterer who will work under and be responsible to an appropriate executive of the organisation. He will work to a budget and produce costs on an agreed basis to cover specified periods. Any profit which is made is passed back to the company, and any loss is refunded to the contractor, who also receives a fee or percentage of turn-over for his services.

Under (3) organisations who do not wish to use the services of a contractor as such, seek the advice of a specialist who, for a fee, will carry out a survey and make a report and put forward recommendations. Beyond the report and recommendation stage, he may have no further contact with the organisation. Or he may be engaged under contract to carry out his recommendations or be retained as a permanent consultant at an agreed annual fee to carry out periodic inspections and give advice on special problems.

In both (2) and (3) the organisation retains control and authority.

Management by Committee

While management by a committee of employees may have some advantages in that those who use the catering service might be considered to be the best judges of how it should be run, committees suffer from the disadvantage that they lack permanence, do not necessarily possess any skill in management and, by reason of their impermanence fail in continued responsibility.

An advisory committee whether of employees or a joint committee of employees and management is a different kind

of body, accepting no responsibility for control and day to day management, and, if properly constituted, refraining from interference in the day to day operation of the canteen. It can be a very useful body.

A different situation arises where the catering service operates as part of the functions of a club, where some degree of permanence and authority permits the acceptance of responsibility. The legal position of the club should of course be ascertained.

Chapter Three

Types of Catering Services

WHETHER it be for an office, a factory or for both, much of the success of a catering service will depend upon the manner in which it is introduced. There should be a clear answer to the question "why should employees use the canteen, dining-room or restaurant, whatever it is called?" Must they because there are no other facilities locally, or will they because it is more convenient, cheaper and better than they can find outside?

Selling the Service

The idea of a catering service should be "sold" to employers if good support is to be expected. The danger is that it might be "over sold," start off with a flourish and then lose support because it fell short of what the customers were led to expect. Employees are generally, and often illogically, severely critical of an industrial catering service and the possibility of friction or discontent from that cause can be removed if the fullest consideration is given to catering "ways and means."

It is the little things that count in a canteen service. Does it merely supply or does it *sell* meals? Are they *served* and not just dished out? Is the menu board, as distinct from the menu itself, attractive, can it be easily read, does it *sell*? Is the counter clean, well lighted, and are the counter-hands clean, healthy looking and pleasant? If the kitchen can be

seen is it an unattractive sight? Are food trolleys clean and the cakes, or whatever else is on them, displayed attractively?

Criticism often arises from petty points. To repeat, does the canteen "sell" itself to the customers? If it does not, no type of service will command support.

There are bound to be complaints but it is when they are badly handled that trouble can arise.

TYPES OF SERVICE

The kind of catering service given will depend to some extent on the type and construction of the building, the accommodation available, the number of customers to be served, the timing of the meals and the number of sittings required. The most important factor is probably the cost of labour and the ability of that labour to maintain a rapid flow of meals to the customers. Staggered breaks of half-hour intervals lead to a greater economy in space as each seat in the dining-room can be used several times.

Hatch Service

Where speed is the deciding factor the hatch system is to be recommended as it enables the customer to collect his food quickly, eat it and release his chair in the canteen for a further sitting of customers.

The counter is divided into a number of hatches directly connecting the kitchen and the dining-room. Each hatch is numbered and the number corresponds with a numbered item on the menu. The menu board should be displayed as near the canteen entrance as possible so that the customer can make up his mind about his requirements before he reaches the centre of the canteen. Thus he can see that his favourite dish of stewed steak and mashed potatoes and cabbage is available at hatch number 4, whilst roast beef and vegetables is available at hatch number 2. Separate hatches are used for different items of the menu, and if a sequence once established is maintained, confusion and congestion are avoided.

Before the start of the meal break the kitchen staff has to assemble the complete dinner on plates and pack them into

ponderance of female labour. (Fig. 4) In the main it has been found that women, especially the younger ones, prefer to bring a snack lunch of cake, light sandwich or apple augmented by a cup of tea purchased from the canteen. Often this " preference " is a case of necessity as many of the lower wage group feel that they cannot afford the charge for the full meal served in the canteen. The snack bar, consisting of a long counter on which is displayed a wide variety of goods, with tables for four or six set in informal groups around the room is the answer. A cashier collects the payments. Extra seating may be in the form of stools round the walls with a small ledge let in the walls to accommodate cups and plates. Items on the menu should range from hot soup, hot pies, sandwiches with an assortment of attractive fillings, salads, seasonable fruit, pastries, cut cake and a variety of hot beverages and cold drinks.

Business hours often rule out the possibility of shopping in the evening, and the snack bar idea will be welcomed by those who wish to take a quick lunch and do their shopping chores in the lunch interval.

The Canteen Shop

The canteen shop was mainly developed in factories, offices, etc., which were remote from or lacked the necessary transport to the normal retail traders. In many instances the canteen shop is merely a kiosk, operated by the canteen staff, for the sale of cigarettes, tobacco and confectionery. During the second World War business in the canteen shop expanded and many other items were included. This was particularly convenient for those working shift system with little free time during normal shopping hours.

In the post-war years there has been great opposition from local traders to this scheme but provided the necessary Customs and Excise licence to sell cigarettes and tobacco is obtained, the local early-closing day arrangements are observed, and the goods are not sold in competition with the local traders, there is no difficulty—the canteen trading account benefits and the shop operates successfully.

Where executives have their meal in a separate room, the service may be one of those described, but is usually of the cafeteria type, the individual choosing a meal from a selection of food. Sometimes a semi-service is provided in the form of tables laid up with cutlery, tumblers, water jugs and probably a table-cloth. A cover charge is usually placed on the main dish to offset the extra overhead cost. (Fig. 5)

Directors' Dining-Room

Here the accommodation, decoration, furnishings, etc., may be very much the same as that provided for the executives. Where important visitors are likely to be entertained it will be on a more lavish scale.

A full waitress service is provided, special or extra dishes may be available, and, where the meal is not a director's perquisite, a higher price is charged to cover special food, etc., and service overheads.

Chapter Four

Tea Services

THE tea break habit has become firmly established as a necessary part of industrial working and has become closely involved in the daily factory or office routine.

An efficient tea service can only be achieved where full co-operation exists between management, caterer and employee. Before planning a service a preliminary survey is required to obtain basic information about the practice in the industry and the organisation, works or office routine and regulations, number of staff and their location throughout the building, tea break times, etc.

Generally speaking, the survey will largely determine the nature of the tea scheme, for the company policy and its factory and office regulations have to be considered when deciding whether :

(*a*) There is to be a rest break. If so, for how long and whether simultaneous for all staff or staggered.

(*b*) Tea is to be served at the factory bench or office desk with no rest break.

(*c*) Cups are to be supplied, or must the employee provide his own ?

(*d*) The employees go to the tea.

(*e*) Tea is taken to the employees.

In general the consideration of those factors results in the adoption of one of two main types :

(1) A fixed point where the employee goes for tea, or

(2) Mobile—where tea is taken to the employee at the bench or desk.

Certain circumstances may require a combination of both, with a mobile service to part of the factory, the other part taking tea from a static point. Furthermore, the tea may be made at that static point or delivered in bulk from a central tea station.

PLANNING THE SERVICE

Having decided the policy, the catering manager must give thought to some physical planning points, remembering that the service must be adequate so that the rest break cannot be readily abused :

(*a*) Are the employees spread evenly throughout the factory or office, or are they concentrated in some areas in tight groups with sparsely populated areas in other sections ?

(*b*) Are there different floor levels ?

(*c*) Are there a number of storeys ?

(*d*) Are there lifts available of suitable size to accommodate tea trolleys ?

(*e*) Are gangways or corridors wide enough for trolleys to operate ?

(*f*) Is there sufficient space to enable small tea-making points to be established throughout the works and offices where freshly made tea could be served to groups of 150/200 persons ?

(*g*) What is the best grouping, bearing in mind that one person can only serve between 80 and 100 employees in a reasonable time ?

Having considered all these factors a decision has to be reached as to whether the tea scheme can be allied to existing canteen facilities or arranged independently.

If a tea service point or kitchen is to be constructed as a separate department it should be situated as centrally as possible among those to be served and be near main water, drainage and heating sources.

The construction features should largely follow normal kitchen practice with walls tiled to at least 6 feet up and with the ceiling finished with a matt finish enamel paint.

Corners should be protected with steel angles and battens fixed to the walls to prevent damage by trolleys.

Sliding doors are advantageous to provide a clear passage for trolleys. The floor should have a hard-wearing, easily cleaned, non-slip surface such as quarry tiles with curved skirting to the walls and corners, and a covered floor gulley to facilitate washing down.

Sufficient space should be allocated to the tea station for the work it has to do and although the size will vary with existing circumstances, a rough guide can be applied as follows :

Trolley kiosks	*Size*	*Total area*
1 trolley	10′ by 7′	70 sq. ft.
2 trolleys	13′ „ 10′	130 „
4 trolleys	20′ „ 12′	240 „
8 trolleys	22′ „ 20′	440 „
20 trolleys	44′ „ 20′	880 „

The position of the equipment should be carefully planned to give a smooth sequence and the layout be such that cross traffic is avoided. Important considerations are :

1. Storage.
2. Weighing or measuring.
3. Boiling water and provision of clock or timing device.
4. Storing during infusion and prior to despatch.

Storage

Lock-up accommodation in the form of a cupboard or small store-room should be situated in a cool dry place with metal bins or wooden chests for the storage of tea and sugar. Tea chests are awkward and heavy to handle, so use should be made of a tea chest trolley constructed of non-corrodible highly polished metal, on castors and with a hinged metal cover which hermetically seals the contents of the chest when the plywood lid is removed. Milk should be stored in a refrigerator and provision made for milk churns, crates and milk bottles.

If snacks and cakes figure in the tea scheme, ventilation is important and racks for bakers' trays should be supplied.

A plain-top preparation table is necessary for measuring

tea, sugar and milk in the correct quantities and an additional table for preparing and allocating snacks. Shelves and metal runners below the tables are useful to accommodate trays. Of particular importance is the weighing or measuring of tea, and scales or suitable measures should be provided for both tea and sugar. Different blends of tea, according to whether the leaves are large or small, take up different amounts of space. It is important therefore to have tea measures suitable for the blend being used, unless tea for each brew is weighed and packeted.

Boiling Water and Provision of Timer

An efficient water boiler (which can be heated by steam, gas or electricity) is essential, so that a given quantity of boiling water is available at a given time. The correct capacity must be calculated to meet the peak demand, allowing a margin for heating multipots and teapots.

The boiler should be so installed that the draw-off tap discharges direct into the tea-making receptacle, or it may be :

(*a*) mounted on the counter for teapots.
(*b*) arranged with a low level bench below it for loose multipots.
(*c*) fixed at a height on a stand or cantilever brackets to enable trolleys with multipots to pass beneath.

To time the infusion correctly every tea-making point should have a clock. This should be in a prominent position to check infusions and operation schedules.

An improvement on the clock is a process timer, which is a type of alarm which rings at the end of a pre-set time—but one timer is required for each multipot or teapot used at each water point.

Storing During Infusion and Prior to Despatch

The multipots or teapots should first be heated inside with boiling water to prevent the incorrect infusion of the tea leaves. After rinsing, the infuser, containing the dry tea (1½ ozs. per gallon) should be placed in position and the correct amount of boiling water poured in. The tea should be stirred,

using a wooden spoon, and the lid of the multipot replaced and taken from the water point. After 5 minutes' infusion, remove the lid, stir and withdraw the infuser, then replace the lid. A clear area should be provided for parking trolleys during this infusion period. A rack or receptacle should be available nearby for the infusers when they are taken out of the multipots, and a small bin, with a strainer basket, provided for emptying tea leaves.

A double sink with sterilizing unit and draining board are needed if crockery has to be washed by hand. The crockery should then be placed on racks, shelves or in drawers ready for the next service. In large establishments a dish-washing machine is merited and desirable.

Storage of Utensils and Cleaning Materials

Facilities for the storage of utensils in a hygienic condition is of paramount importance. The bright, spick and span appearance of equipment has a strong psychological effect on customers. There should be a weekly check of equipment and utensils to decide what requires to be replaced or repaired.

After cleaning, the multipots should be stored with the lids off and the taps open. All milk apparatus should be first rinsed in cold water, then sterilized with boiling water. Wooden spoons should be kept in the drawer. Accommodation in the form of a cupboard is required for the storage of brooms, mops, buckets, spout brushes and for suitable containers for detergents.

When the tea service is on a large scale a small office should be installed for the supervisor for record keeping, checking and handling money, and controlling the despatch of tea to the various sections. In addition a small staff room is desirable for personal clothing, and a toilet in the absence of other accommodation.

TEA MAKING

Having made the tea and bearing in mind the old maxim " the better the tea, the better the cup," attention must be

given to when and how the milk is to be added as the resultant cup of tea depends a lot on this operation.

When milk is added to tea in bulk it deteriorates in 15 minutes, losing both colour and flavour. Unless employees bring their own cups it is advisable to milk the cups before the service commences, using a measure for each cup to avoid variation in the standard of the cup of tea. If the service is at a fixed point from a kiosk or counter and cups are supplied, the same procedure can be easily and efficiently adopted. The simplest measure is a small ladle but this method is slow. An automatic measure which dispenses a measured quantity of milk by the operation of a pump handle, or the use of a flexible nozzle, enables a whole tray of cups to be milked in a very short time.

Where it is necessary to add milk to the teas in bulk, this should only be done at the last possible moment before service. For a multipot which is going to take longer than 15 minutes to empty, milk can be measured into a large, heated teapot which is then filled with tea from the multipot. Service from the teapot and repeat the process when the teapot is empty

Alternatively a device incorporated with a multipot will dispense tea and milk directly into a cup in the correct proportion by simply turning a single tap. It will also serve tea without milk, or milk alone. The device can be fitted to any multipot or supplied complete with the multipot. (Fig. 6)

Sweetening the tea also brings its problems. The ideal method is to allow the customer to add sugar. If this is not practicable the best method of sweetening the tea in bulk is to make a syrup with some of the hot tea from the multipot or teapot, add it to the tea and thoroughly stir. The practice of adding dry sugar to the dry leaf in the infuser before filling the multipot is a bad one because much of the sweetness is thrown away with the used tea leaves. Similarly, adding sugar to tea in the pot, although better than the method just described, is not satisfactory because the sweetness is not evenly distributed. There is a simple machine which dispenses a measured quantity of granulated sugar directly into cups at the time of service. Any size of measure from 1 dram to

5½ drams can be supplied according to the requirements of the individual user.

Automatic Tea-maker and Dispenser

The Peerless Bruin makes fresh tea—as hot as poured from a teapot—yet tea of uniform quality can be dispensed at a speed of one cup every two or three seconds. A measured quantity of milk is delivered into every cupful of tea from a separate automatically operated reservoir. The machine will go on endlessly making and pouring fresh tea as long as the magazine is changed and the milk replenished. Demanding little attention, the Bruin answers the need for freshly made tea, untainted and unspoiled, served at high speed. Simple pressure with a cup against the dispenser lever triggers off simultaneous and complete automatic actions which result in a fresh cup of tea being made every time one is drawn off. The machines may be left for up to two hours without stewing. An electric heater maintains the tea at 165-170°F.

Pressure against the dispenser lever causes boiling water to pass through a segment of a tea magazine by automatic rotation of the magazine lid and a quantity of fresh, dry tea is brought into use with each cup. (Figs. 7, 8)

The machine is made in two models. One will continue to deliver tea so long as the magazine of tea is charged and the milk replenished after 165 cups (when 150 have been drawn off a bell rings to warn the staff). Another requires replenishing after 225 cups have been drawn off (a warning is given after 210 cups).

Canteen Counter Service. When the canteen is centrally situated and works processes necessitate workers taking tea in the canteen, it is usual to stagger breaks. There should be a clear interval between each break, and the seating capacity and the number of service points available considered when determining the numbers to be served at each break. If cups are provided, they should be milked before the service starts and the trays placed ready on the counter. Sufficient cups of tea, using teapots, should be poured out just prior to the break to help speedy service. Multipots should

only be necessary in cases of an exceptionally fast service.

Kiosks. Small tea-making and serving points suitably sited throughout the premises are sometimes provided. An area of approximately 8ft. by 6ft. is sufficient to serve up to 300 persons with tea and snacks over a period of 30/40 minutes with tea made in and served from teapots.

Each kiosk can give a service to individuals or to stewards collecting for a group. A system whereby bay numbers are illuminated by the kiosk attendant when tea is ready to be served and workers from that bay collect tea is one that works satisfactorily. Approximately 20 employees can be served at one time without delay and congestion.

Trolley Service. This is probably the most popular method and takes tea directly to the employees. It can serve the entire factory or offices simultaneously (if sufficient staff and trolleys are available) or in staggered breaks. It can also provide service to bench, machine or office desk over a period.

When a usual 10 minutes break is permitted, service must be completed in 1½ minutes. To achieve this not more than 80 persons can be served from any one trolley with both tea and a snack and then only if tea is poured before the break signal is given. It is advisable to operate the group system whereby one representative collects the tea and snacks for a group of 16/20 persons. This avoids congestion and improves the rate of service. In this case the trolley girl would collect the order and payment from each group representative first thing in the morning and immediately after lunch. This allows the exact number of snacks to be prepared. The snacks and cups of tea for each group are then placed in the group tray ready for collection when the break signal is given.

When there is no break from work one trolley may be able to serve up to 150 persons with tea and snacks, but this will depend upon the density of people and distances to be covered. It must be remembered that if tea is to have a beneficial effect it must be served at the time when it is most needed, i.e., in the middle of a shift.

A trolley service may be operated from one or more tea-making points. It is desirable wherever possible to have one central tea station to ensure a standard cup of tea made unde

direct supervision but the layout of the premises may necessitate a number of smaller tea-making points under the control of a trained tea service operative.

When tea is taken to the office desk, two girls can normally serve one hundred cups of tea and snacks in approximately half an hour, provided that the people to be served are on not more than two floors and are easy of access.

Central Tea Station. Situated in a central position of the works or offices convenient to the various departments it is to serve, the station operates as a self-contained unit with facilities for making and serving tea and despatching it to the respective points in multipots or by trolley. (Fig. 10)

Equipment

Teapots should be used whenever possible and should have removable infusers to allow the leaves to be taken out when the tea has had its 5-minute infusion. The 4-pint and 6-pint sizes are most easily handled and the one gallon size is the largest that can be conveniently handled by women. Earthenware or stoneware pots are excellent but, owing to their weight and constant handling they are liable to breakage. Stainless steel pots are excellent and those made from good quality aluminium are also satisfactory.

Multipots are insulated containers made in various sizes, the three gallon being most useful for use when tea has to be served at a considerable distance from where it was made. Multipots should be made with linings of stainless steel and with infusers of the same metal, and these should be at least six inches wide to permit the full infusion of the leaf. The material of the outer casing is not so important as this does not affect the quality of the tea. Appearance is, however, a consideration, and stainless steel or anodised aluminium are both durable and attractive.

Chapter Five

Choice of Site

It is only in recent years that the planning of canteens has provoked interest at Board Room level. So often a canteen has been built to conform with the ideas of an architect, embodying some aesthetic, but wholly impractical, architectural features. In post-war planning, however, more thought has been given to the practical working details of the building and the advice of specialist practical catering consultants sought.

In the case of most small firms employing up to 250 persons, the canteen forms part of a larger building, but on many factory sites of 1,000 employees or over separate buildings away from the main blocks have been erected solely for canteen and welfare purposes.

There are natural advantages in both schemes. Where the canteen is within a larger building, the initial cost will be less, and in the morning and afternoon breaks the worker can be served direct. On the other hand, many employees enjoy a short walk in the fresh air from their place of work to the canteen in a separate building. It is also more convenient if games and recreation rooms have been included and socials and dances are to be organised.

In planning it is essential to remember that lack of adequate preliminary preparation will cause set-backs in the actual operation. First a policy decision has to be made as to whether the canteen is to consist simply of a kitchen and dining-room, or whether there is to be a kitchen, several dining-

rooms for different levels of staff, and recreational facilities. Following this an estimate should be made of the number of persons to be catered for, taking into account the proportion of juveniles, men and women, the type of work they do, and any local amenities which may operate to the detriment of canteen patronage.

For an average size canteen, the essential accommodation necessary will be :—

(*a*) Kitchen.
(*b*) Storage.
(*c*) Administrative office.
(*d*) Serving and washing-up facilities.
(*e*) Dining-room or rooms.
(*f*) Catering staff cloakrooms.
(*g*) Customers' cloakrooms.

Where a canteen is to be built as an independent building, several requirements must be filled.

Siting Problems

First, the distance from the main works to the canteen must be taken into consideration. A long distance to be covered from the works to the canteen will result in complications such as poor patronage, requests from the workers for the provision of a covered way for bad weather and extra time involved in providing works tea service.

In choosing the actual site, it should be borne in mind ıat there should be a natural fall between the kitchen and the main sewerage to dispense with the necessity for costly pump installations. The site should be near water, gas and electricity supplies, as laying pipes and cables will prove to be an expensive item. Prevailing winds should be taken into consideration, especially if the canteen site is close to a residential rea, where the smell of cooking and an unsightly refuse area y invite objections from the local residents. A point to ember is the provision of an adequate approach road to the ıteen building, both for the benefit of the customer and for the various traders delivering goods. Sufficient space

must be provided for turning vehicles, and to enable several traders to unload at the same time.

Which Floor?

Where the canteen forms part of the main building there are several factors which will influence its actual location within that building. If the building incorporates many storeys, then the canteen may be located in the basement, on the ground floor, top floor, or indeed any floor, and the advantages and disadvantages of each must be weighed before a final decision is reached.

The kitchen and dining-room should be adjacent if quick service is to be maintained, palatable food served, and the maximum use made of staff. From the catering staff's angle, the choice would, in all probability, lie in the top floor, where natural light and ventilation are available. An added advantage, from the management's point of view, is that there is no danger of unpleasant cooking smells drifting through factory rooms or offices. From a psychological angle as well it appears to be more natural to go up to the canteen, than to go down to it.

One disadvantage in a canteen being anywhere but on the ground floor is that special attention must be given to the reinforcing of the floor for the great weight of kitchen equipment. Thought must also be given to the provision of adequate service lifts for the transport of goods to the canteen, and for the empties and refuse bins going down. It must be remembered that a service lift is an expensive item when taking into accour the comparatively few hours it is actually in use during the day.

Basement kitchens are fast becoming a thing of the past due to the high cost of lighting and adequate ventilation services and the greater risk of rodent infestation.

Specialist Collaboration

Once the choice of site has been made, and before drawings are commenced, it will be necessary to establish complete confidence between the designer, the architect and the

catering adviser with the assurance that all factors are brought under review. To attain the maximum efficiency and maximum utilization of the building, the architect must have the following information :

(*a*) The number of dining-rooms required and their specific uses.

(*b*) The estimated number of employees of each grade to use the rooms.

(*c*) Any foreseeable increases in the number using the canteen.

From this information the allocation of space for dining-room sections, kitchen, stores and staff accommodation can be made.

Where any increase in numbers is likely consideration should be given to, and space allowed for, the future installation of additional equipment, etc. While it is not essential to install such extra equipment until the numbers justify it, it will be found to be far more economical if the service points are selected at the outset. During all planning stages it is essential that an accurate detailed and scaled catering layout is available for discussion at all times.

Chapter Six

Accommodation

If canteen planning presupposes customer contentment the problem of accommodation is more than a matter of counting heads, allowing so much space per person and building a room that size. One of the commonest complaints made about catering establishments is the inadequacy of space in which to move about. People value comfortable chairs at properly dimensioned tables, but they also like to feel able to breathe comfortably and move about without fear of a collision and a meal spilled over their clothes.

The complaint usually is about passage space. Not only should it be possible for two people to pass abreast, especially when passing to and from the service counter to the table, but it should be remembered that a person rising from his chair can materially narrow a gangway which can be blocked if another sitting back to back rises simultaneously.

Another cause of trouble is the attempt to save space by a too severe limitation of distance between the serving counter and the first line of tables.

An obvious consideration concerns the number of people at a sitting, with due allowance for increase owing to the growth of employment. If more than one sitting is required, the problem of the time spread necessary to maintain an adequate service arises, together with the question of how long the office and, or, factory can remain denuded of part of its workers.

When estimating the space required for the dining-room

thought must be given to the other purposes for which the room may be required. If the room is needed for social gatherings, meetings, etc., allowance must be made for the space that will be required for putting tables and chairs aside to ensure adequate free floor area.

From 10 to 15 sq. ft. per person is a useful guide to ascertaining floor area for meal purposes, the actual space allocated depending on whether tables are placed in rows or set singly or grouped informally. In the case of formal line setting 10 sq. ft. may be adequate, 12 sq. ft. may be required for informal placing and probably 15 sq. ft. where executives' and directors' dining-rooms are concerned.

SEPARATE ROOMS

One of the early problems which needs careful study is whether a common canteen or dining-room will meet the need, or whether it may be desirable to provide separate rooms for different classes or sections of people.

In some organisations all, from directors to machine operatives, eat in the same dining-room. In others, particularly in the heavy industries and those in which a great deal of dirty processes are carried out, office workers and factory workers have their own separate dining-rooms, usually partitioned off in one large room.

The desirability of division is not so much a matter of snobbery as it is of feeling " at home " and avoiding the embarrassment of the factory worker unable to have a thorough " clean up " sitting with the " clean collar " employee who also feels a sense of embarrassment. Instructions or even the tacit understanding that people in the factory must shed their overalls and remove the signs of toil only exacerbates the situation.

Having decided that separation is desirable, managements must ensure that there is no marked difference in the service, food, prices, comfort and amenities, between the two dining-rooms.

The alternative to separate dining-rooms for office workers and those in the factory is the separate sitting, when the factory

people eat from, say, 12.0 to 1.0 p.m., and the office staff from 1.30 to 2.30. The difficulty is that the break of half an hour is barely enough and the spread over is too long.

Whether to go further and separate office staff from executives and directors and factory workers from foremen does not present quite the same problem. Executives do tend to talk " shop " at meal time and this may justify a separate room : in the same way directors have their " shop " too, and they may have to entertain visitors, and this makes a directors' dining-room almost a necessity. But there are many places where the mingling of directors, executives and staff presents no difficulties : the same applies to provision for foremen and operatives.

Other considerations make the matter of a communal or separate dining-room a controversial one.

Some think that the trend towards the elimination of artificial barriers in an organisation is, and should be, assisted by eating together, that all are a team and there should be no discrimination.

There is also a view that the dining-room, often the main and only centre of social relationships, is the source from which can spring a better atmosphere and understanding when all from the managing director downwards eat together the same meal in the same conditions.

The advocates of the common dining-room hold that if any prestige is likely to be lost by " high ups " it is more than compensated for by the gain in better industrial relationships and closer co-operation.

On the other hand there is something to be said for the view that those of managerial and executive status should have the privilege of their own dining-room, even with better and perhaps more expensive meals and waitress service. There is the added argument that people in this position inevitably fall into the habit of talking " shop " and it is therefore desirable that they should have some privacy. It is said, too, that the relaxation of eating with those who share things in common has a value.

Some firms have tried with success to even up the difference by providing a comfortable lounge adjacent to the

main dining-room. (This arrangement helps also to clear the dining-room and enable those who are waiting to be served more quickly.)

The problem appears to be less difficult where factory peratives are concerned, and more difficult in the case of office workers where grading, cliques and prejudices, etc., have to be considered.

In a few cases this separation has gone far, even to the extent of a separate room for directors' secretaries and one for the secretaries of senior executives, in addition of course to the staff dining-room.

Chapter Seven

Interior Decorations and Materials

As important as the food consumed is the environment in which it is eaten.

A factory canteen can be a grim, gloomy place where the worker hurries over his food in utter discontent, or it can be a pleasant meeting place where he joins his friends for a good meal and social half-hour.

The well planned and harmoniously decorated dining room will do much towards giving the worker a happie outlook and he will return to his task with renewed vigou This fact is borne out by the experience of managements a large number of factories and offices throughout the countr The provision of a bright and cheerful dining-room will repa by an immediate respor.se from the users, the study and pla ning necessary to attain the desired effect. The numbe using the canteen under such conditions invariably increase, with a consequent growing benefit to the users and to the advantage of the welfare organisation of the management.

The effect of surroundings with a comfortable atmosphere has in many cases entirely eliminated unjustified complaints about food and service. The efforts of the kitchen staff in producing good wholesome food made pleasing to the eye should be supported by the best possible conditions under which the food is to be consumed. (Fig. 10)

When designing colour schemes there are many factor to be borne in mind.

Colours fall into two groups—the cool hues and the warm

hues. Red and orange are the warmest of all hues, and blue the coolest ; green grows warmer as more yellow is added and cooler when more blue is introduced.

Care should be taken to utilise the cool hues for rooms with a southern aspect or where the temperature is high, and warm hues for northern rooms or where the temperature is normally low.

Warm hues are advancing and make objects appear nearer, while cool colours recede and make objects appear at a greater distance. Canteens with walls decorated in cool colours appear more spacious than those where warm hues have been used.

There are many ways of utilising colour to improve an ill-proportioned room. Where a ceiling is too low it should be painted in a paler tint than the walls, or use could be made of a vertical stripe in the curtain material, or the dado or picture-rail removed—by these means it is possible to create an illusion of added height.

A high ceiling can be made to appear lower by carrying the ceiling colour down to the top of the windows or having the ceiling darker than the walls or by the introduction of a picture rail or dado and curtains with horizontal stripes.

Problems will arise in those dining-rooms with exposed corrugated iron roofs and ugly girders. If a harmonious effect is to be produced it is essential that any treatment should cancel the unsightly and bare expanse which would otherwise spoil the general effect. Where height and other considerations permit, a permanent feature may be made of lining the roof with plaster-board treated with paint or distemper.

Large areas of colour should be quiet in effect. Small areas may show stronger contrast—the larger the area the quieter the colour should be. In the same way, value, or dark and light, must be taken into account. A small amount of dark value will balance a large area of light value.

For instance, a canteen decorated in ivory and salmon-pink with accents of coral red will, unless the distribution of light and dark corners is well balanced, become monotonous. Add a little of complementary colour, say a green or grey-green, and the effect will be more pleasing and vivacious. If

the green were bright quite a small amount of it would be sufficient, possibly in the colour in the design of the curtains, or the ashtrays or the frames of the pictures, or the dominant colour in the pictures themselves.

In any colour scheme there should be some dominan colour—the most pleasing effects are where there is a gener impression of warmth with a suggestion of cool colour—or cool scheme with the smallest addition of a warm hue.

Care must be taken to see that this colour is even distributed throughout the canteen. If, for example, it is used only on one wall for curtains the whole effect would appe incomplete : the colour could be repeated in the framewor of the chairs, or the pictures on the opposite wall.

Special consideration should be given to the decoration of kitchens. The presence of heat and steam and the necessity for the frequent washing of walls must be taken into account.

The kitchen in most industrial canteens can be seen through the canteen hatchway or open door and for this reason should harmonise with the dining-room decoration.

Usually the interiors of cupboards, cabinets and drawers are left untreated, but if these are painted in a pleasant contrasting colour to the furniture itself, they will when open give a sense of stimulation and pleasant background to show up the contents.

Art in the Dining-Room

Some canteens are hung with photographs of past members of the firm, pictures of machinery, or goods made in the factory. Although these may be pleasing reminders of past and present, the canteen is a place for refreshment and rest and where, for the time being, the problems of the day are laid aside—a condition more easily achieved if everything appertaining to the day's work is eliminated.

People are becoming more conscious of the value of art in daily life. By the introduction of pictures and murals th dining-room can well help to ensure that the worker is bo physically and mentally refreshed.

Pictures have an appeal for various reasons—their fo

their colour, their pattern and their subject-matter. Colour is probably what attracts most—colours can be gay, restful or stimulating, but in every instance they should be chosen to harmonise with the canteen decoration. Indeed, it is not an uncommon practice to build a colour scheme around a picture, taking two or three of the more prominent colours and repeating them on walls, ceiling and woodwork.

The pattern of the pictures must necessarily be bold in character in order that they can be seen and appreciated from a distance. The choice of subject must be guided by whether the dining-room is used for men and women, or for women or men alone.

Account should also be taken of the type of work being done in the factory—if the workers are engaged on small component parts the pictures should be bold and solid in design. If work is concentrated on larger objects, such as car bodies or agricultural machinery, the pictures should be lighter in vein. And, just as in canteen decoration itself, the main colours of the pictures should be chosen, if practicable, to contrast with the colours commonly seen during working hours.

Pictures should be hung so that the centre of the picture is level with the eye and there should be plenty of space around them ; they should lie flat against the wall and not tip forward and no cord or fitting should be visible.

Alternatively, cheerful murals can be painted on the walls. Where dining-rooms are long and narrow an illusion of breadth and spaciousness can be created by the choice of a simple rural scene with a distant horizon ; the colours used should be in keeping with the general colour scheme and the design in rhythm with the architectural structure of the room.

In some districts students from the local art school are only too willing to carry out these murals and already some excellent results have been achieved.

Reproductions of the works of Old Masters, French Impressionists and modern artists can be obtained quite cheaply from the Arts Council of Great Britain or from School Prints Ltd. Some of the delightful railway posters are

available and, well chosen, they make excellent wall decora tion.

It is often possible to secure good and interesting painting by living artists for quite small sums of money.

Mirrors are useful substitutes for pictures, especiall in small canteens, where they give an illusion of space; the can often brighten up a dark wall by reflecting light and colou from the opposite side of the room.

For the sake of privacy, or to soften the glare of dayligh it is sometimes advisable to have window curtains.

Where it has been decided to introduce pictures of mural the curtains should be plain. Where there are no pictures murals the curtains should be patterned, but the design shou depend on the size of the dining-room and the colours shou harmonise with the walls and the woodwork. Sufficie material for the curtains should be purchased at the start f nothing looks worse than skimpy curtains. When draw curtains should fall in generous folds. They should ha straight down and not be looped, and where windows in o buildings are not of uniform size, rhythm can be obtain by the adjustment of the pelmet or valance. Chosen wi care, curtains can contribute pattern and colour to a roo which otherwise might appear too severe.

Notices should not hang haphazard around the room. notices must be displayed, they should be confined to a prope notice board erected outside the entrance to the room.

The provision of natural flowers should not be neglected bowls or vases placed in a position where they are not easi knocked over, are always appreciated.

Where tablecloths are to be used they should fit in with th general colour scheme: to introduce variety, sets can be different colours so that one week the cloths can be, sa a pastel tint of pink and the following week a pastel tint blue or some other hue which will harmonise with the decor tion.

If white tablecloths are preferred, then colour can introduced in the ashtrays and the salt, pepper and mustar pots.

Where it is not practicable to have cloths, table to

can be painted or can be fitted with plastic obtainable in a variety of delightful hues.

Lighting

Much of the appeal of a room depends on the lighting, and it is desirable that canteen lights should be of a more softening and friendly character than those in the factory or offices. Care should be taken to see that the light is not too glaring, and that it is evenly distributed. It is tiring and depressing to be in a room where part is brilliantly lit and part in shadow. Naked bulbs should not be seen.

When choosing lamp shades, hard, bright colours such as red and orange should be avoided. Off white, cream or shell pink will give a cheerful glow and a pleasing tint to the flesh : blues, purples and greens will have the reverse effect.

Colours are affected by different types of lighting, and before making a final choice of colours for decoration they should be viewed both in daylight and in the artificial lighting in the room for which they are to be used.

Flooring

If the room is to be used for social purposes, and this sooner or later includes dancing, the best type of floor is hardwood, maple or oak. Their beauty, resiliency and even-wearing features make them desirable floor materials.

Attention must be given to the type of user ; heavy boots can soon take toll of the best wood floors.

Many other types of flooring can be used with pleasing decorative results. Terrazzo, quarry, ceramic and rubber tiles are often used and recommended. (Figs. 11, 12)

In considering the type of floor or covering, the following points should be noted :

(*a*) Durability.
(*b*) Appearance.
(*c*) Ease of cleaning.
(*d*) Quietness.
(*e*) Non-slip qualities.
(*f*) Low maintenance cost.

(*g*) Resistance to stain.
(*h*) Resistance to moisture.
(*i*) Resilience.
(*j*) Cost.

While no hard-and-fast rules can be given which will apply to every colour, flooring and other scheme that is undertaken, pleasing results will be achieved if what has been outlined is used as a basis. The effort and money spent by progressive managements in the interior decoration of their canteens are always more than amply rewarded.

Chapter Eight

Furniture

FROM both the psychological and the financial aspect it is false economy to skimp on canteen furniture, especially when it is realised how much money is spent to build up a good catering service and how much goodwill can be built out of it. Chairs, tables, etc., in the dining-room are subject to much tougher usage than those in the home. If they are cheap it is not long before the dining-room takes on a tawdry appearance hardly calculated to encourage support from those who use it ; apart from the fact that frequent repairs and replacements add to the capital expense. Third-class furnishings can mar first-class catering.

A mistake frequently made is to discriminate too finely in the difference between the furniture in the staff dining-room and that in the factory dining-room. The only discrimination should be that in the latter the furniture is such that grease and stains from workers' overalls should be easily removable, and not that because relatively cleanly dressed people in the staff dining-room are entitled to better furniture. The impression that the " white collar " worker is thought to be superior to the one in denims remains, and any marked difference in the treatment of their dining-rooms only exacerbates the suspicion.

The aim should be to provide tables and chairs that are appropriate, comfortable, strongly constructed and easily cleaned—and there is a wide field from which to select.

The choice ranges from the trestle type table and the one with legs, suitable for folding and stacking, to the more solid table seating a number of people or the more lavish type, square or oval, used in the directors' room. Again, there is the choice between the wooden table or that built of tubular steel framework.

For the ordinary or main dining-room, tables topped with one of the gay coloured impervious plastic materials are attractive and easy to clean. The legs may be of wood or metal. One advantage of the wooden legged table is that tray racks can be incorporated in the design so enabling the number of tray racks standing about the room to be reduced.

A point to note when deciding on the type of table to be bought is its use for other than main daily meals. For staff or works dinners, club socials, buffets, etc., it may be useful to place tables end to end to form long runs, or for a square arrangement, when the advantage of being able to " marry up " edge to edge so that no gap is formed because of obstructing table legs is apparent—that is one of the difficulties found with some types of stacking tables.

A small ledge under the table top to accommodate the library book, flat handbag or gloves is useful.

Some sizes and spacings for formal arrangements are :

Sitting	*Size*	*Seating area*		
		100 *people*	200	400
8 persons	7′ 6″ x 2′ 3″	1000 sq. ft.	2000 sq. ft.	4000 sq. ft.
6 „	5′ 3″ x 2′ 3″	1000 sq. ft.	2000 sq. ft.	4000 sq. ft.

For the executives' dining-room informally set out the figures would be :

Sitting	*Size*	*Seating area*	
		50 *people*	100 *people*
6 persons	6′ 0″ x 2′ 6″	600 sq. ft.	1200 sq. ft.
4 „	3′ 0″ x 5′ 0″	600 sq. ft.	1200 sq. ft.

Chairs

While the table is important, the chair is more so in the sense that it provides the comfort. The choice will first depend

on the people using the dining-room, e.g., a chair in a factory dining-room where the customers wear greasy overalls will be different from that used by office workers where cleaning is much less a problem.

Whether of wood or tubular steel construction depends on the choice of table—it is desirable that both should match. The seats may be of canvas, plywood or of plastic material. They may be cushioned or not. Canvas seats are inclined to sag after much use, and are hardly suitable for the factory dining-room because of cleaning difficulty. Plywood seats should be looked at carefully, especially when many of the customers are women—rough edges can start a chain of claims for laddered stockings.

Size will be governed by the space available and the seating arrangements, the ones commonly used are 14″ to 16″ wide.

Executives' and Directors' Furniture

The furnishing of the executives' dining-room is often very little different from that used in the main dining-room. The design or construction may be different, it may be more expensive. In some cases wood construction, very often of a contemporary design, is used. The choice will depend on the attitude of management as to whether the separation of dining-rooms is to be accompanied by a better " set up " in one as distinct from another. It must be remembered, too, that executives may have to entertain on the business premises and that guests will look for a certain standard of furnishing, amenities and comfort.

It is usual for the directors' dining-room to be decorated and furnished impressively although not necessarily lavishly. The décor of the room may be designed to reflect the nature of the organisation and the furniture antique, period or contemporary. The factor that distinguishes this room from others is that it is not only a place where the directors eat and entertain other business-men, but is often used instead of the Board Room for discussions with visitors where a more informal atmosphere prevails. It is too occasionally more convenient

for directors to remain after their meal to discuss affairs that can be better dealt with that way than in the formality of the Board Room.

The sort of atmosphere that exists in the directors' dining-room is very much a matter of its furnishing and décor. The garishly informal is not more or less impressive than the coldly formal. A table, preferably oval, of fine wood, chairs to match, curtains, carpet, pictures, some comfortable lounge chairs with two or three small tables, all contribute to a setting equally suitable for the discussion of business affairs or for brief relaxation.

Needless to say napery, cutlery, plate, china, etc., should make their contribution. These should be contained in a suitable sideboard on which a toaster, small hot-plate warmer, electric stove for finishing certain dishes and a coffee machine may stand.

With the exception of the directors' dining-room and, in some cases that reserved for executives, napery can be ruled out. Cutlery should be carefully chosen to ensure that what is used is durable and easily cleaned without being clumsy.

Attractive litter bins at convenient places should take care of discarded cigarette packets, wrappings, etc.

Chapter Nine

Kitchen Layout

WHEN planning a kitchen it is essential that all operations within the kitchen and servery shall be carefully considered. In the lay-out of the equipment and the location of the various sections, a " one-way " traffic scheme is the ideal. It is most important to eliminate unnecessary movement on the part of the kitchen staff and " return movement " is particularly undesirable in order that the available space is used to ensure a " flow through " effect.

The kitchen entrance should be placed to permit easy delivery of stores, and wide passageways are essential to facilitate handling sacks, crates and bulky packages from the kitchen entrance to the appropriate stores. Similarly, all equipment should be sited so that individuals have ample room to pass others who may be working at a range when they themselves are carrying utensils full of food.

The sequence of operations has to be borne in mind. The food or raw material is routed from the kitchen entrance to the appropriate stores thence to the various preparation sections. Then on to the cooking and from the cooking via plating tables, if a pre-plating system is used, to the service, or direct to the counter where a cafeteria system is used.

In addition there is the return movement, after the meal from dining-room to washing-up, from washing-up back to plating tables or hot plate.

The equipment should be designed and arranged so that lifting and carrying by the staff are reduced to a minimum. A

good layout can save a lot of money by increasing labour efficiency.

It is preferable to site the kitchen on the north or east side of the building so that the outer walls remain as cool as possible. Having determined the position of the kitchen entrance arrange that the cold-room should be as near this as possible to save unnecessary carrying. In smaller kitchens a separate cold-room will not be necessary; a refrigerator situated away from heat will suffice in the kitchen or in the general store.

Vegetable Preparation

The general and vegetable stores should again be convenient to the kitchen entrance to reduce carrying to a minimum. A stable type door, provided with locks to prevent pilferage will facilitate the issue of the various commodities required in the kitchen.

The vegetable preparation room should be easily accessible from the vegetable store and should have tiled walls and a tiled floor, with a channel drain running along at the bottom of the benching to carry any spillage of water from either the sinks or preparation benches. The sinks should be of stainless steel or galvanised iron and, together with the potato peeler, should be placed on an outside wall for easy drainage. The potato peeling machine should be mounted so that the outlet door sends the peeled potatoes into one compartment of a double compartment sink in which they are eyed and placed in the second compartment for final rinsing. The waste outlet from the machine should discharge into an interceptor box to prevent the peelings from clogging the drains.

Pastry Work

In the pastry preparation section, adequate benching should be provided, part of which should be marble topped. Where large numbers are catered for a separate pastry oven should be installed and a boiling-table provided. A mixing machine and pastry rolling machine are essential where large numbers are catered for.

The meat and fish preparation section should also be fitted with adequate benching and stainless steel single compartment sinks are desirable, together with a slate slab for fish preparation and a meat-chopping block.

Where the shape of the kitchen permits an island site for the main cooking equipment is desirable, but in long narrow kitchens it may be necessary to line the equipment along the wall, in which case there should be sufficient space between the various pieces to allow for easy maintenance and cleaning. The cooking range should be in an easily accessible position to the meat and fish preparation room, and the boiling-pans should be similarly placed in relation to the vegetable preparation room.

Cold water feed from the mains should be provided for filling the boiling pans and there should be a channel drain under the taps to dispense with unnecessary work in filling and emptying pans. Provision should also be made for a bain-marie for keeping prepared foods hot and in good condition.

Washing Up

The kitchen washing-up section will deal with utensils used in the preparation and cooking of food, and should be fitted with a deep pot and pan sink of stainless steel or galvanised iron, constructed with draining-boards and racks for storing pans when not in use. The general washing-up section should be entered from the kitchen, and should have doorways from the canteen itself through which crockery-laden trolleys may be brought. In large kitchens an automatic dish-washing machine may be provided, but in a small kitchen where washing-up is done by hand a suitable sink, preferably of stainless steel, will be required and a sterilizing sink unit provided.

Service Counter

The service counter, the focal point of any type of service, can be either a long hot-cupboard with sliding doors in one side and having a plain stainless steel top for pre-plated meals, or the cafeteria style counter where food is displayed for

selection. In the latter the food when cooked is transferred to containers fitted into the top of the service counter and kept hot and in perfect condition by means of a hot water well beneath.

Usually the tea-making equipment will be situated at the end of the service counter, the customer moving along the counter collecting his meal and finally his tea when leaving.

Staff Facilities

Sufficient hand-wash basins should be positioned in the kitchens where the staff can get to them quickly and easily from their work place and from the sanitary conveniences. Constant hot water and a fitment for soap, nail brushes and towels (or paper towels, or hot air dryers) must also be provided for each hand wash-basin.

It is essential to have a room for canteen staff, containing toilet facilities and individual clothes lockers adjacent to the canteen itself. There should be adequate facilities for drying wet outdoor clothing and racks for shoes. Chairs should be provided so that if no rest room is available the canteen staff may at break periods spend a few minutes sitting to avoid undue fatigue and nerve strain and to increase resistance to illness. A separate dining-room should be set aside for canteen staff meals as it is undesirable that they should eat in the kitchen or in the canteen while a service is in progress.

The Office

The administration of a canteen necessitates a considerable amount of office work and the supervisor's office should be of adequate size, suitably furnished and so placed that the whole of the kitchen operations and the actual dining-room can be viewed.

Adequate Ventilation

Efficient ventilation is absolutely essential in any size of kitchen ; without an adequate installation not only will smells of cooking penetrate from the kitchen to the dining-

rooms, but good working conditions for the staff will deteriorate. Apart from damage to paintwork from heat and condensation there is discomfort, and some products of combustion from cooking equipment can be a source of danger to the staff. Wherever the kitchen may be, on the top floor or in the basement, ventilation, either natural, as may be possible in a small kitchen with easily opening windows, or mechanically assisted, must be sufficient to reduce the humidity and temperature and eliminate cooking smells.

Natural ventilation brings its own problems as windows have to be planned to avoid or reduce draughts (with the sequel of complaints from and sickness among staff) and to prevent dirt being blown on to the food.

A mechanically assisted ventilating system providing 20 changes of air an hour is ideal and is achieved by means of extraction canopies, either wall or island type, to convey fumes to the atmosphere through extraction fans and trunking.

It is important that the canopy should extend only to cover the actual area of the cooking apparatus otherwise staff using the apparatus will be standing or working in a draught. Canopies, no matter how well they may be designed, have disadvantages as unless they are properly cleaned and maintained they become unsightly. The best canopies, taking advantage of natural and artificial light sources, are constructed of sectional glazing bars, glazed with wired rough cast glass.

With more modern types of ventilation, steam and fumes are extracted mechanically and fresh air is forced through fans at selected points in the kitchen. This system has one big disadvantage as the successful maintenance of the balance of air extraction and air intake depends on all windows and doors remaining closed; human nature, being what it is, demands that windows be opened if the air appears to become oppressive.

In large basement kitchens a lattice gate may be used instead of a door to the kitchen entrance to ensure a flow of air, but this should not be attempted if there is a danger of dust being blown into the premises.

Good lighting is essential in the kitchen not only because it is primarily important but so that the workers can see clearly what they are doing, are able to detect foreign bodies in food and can blend colours correctly. In the majority of buildings, artificial lighting will be required to augment natural lighting at some period of the day in even the brightest kitchen. natural lighting should be utilized wherever possible for two very good reasons.

(*a*) Expense—lighting is an additional expense borne by the canteen account.

(*b*) The psychological effect on staff.

In single or top storey buildings maximum advantage should be taken of fanlights and windows set high in the ceiling. Where artificial lighting is used in conjunction with natural lighting, care should be taken to see that the lights are so placed that they do not cast deep shadows or cause glare to the workers' eyes.

When tungsten lighting is used the bulbs should be enclosed in white translucent globes. A number of small points of illumination produce a better result than central lamps.

Special attention should be paid to the provision of lights over moving parts of equipment, work tables and washing-up sinks.

It must be remembered, especially with tungsten lighting, that the size and height of the room, the amount of reflection from surrounding walls and ceiling and the distribution of light from the fitting must be taken into consideration when deciding the required density of light.

In recent years fluorescent lighting has become popular especially in kitchens where lighting is required continuously over a long period. It provides an even light and shadows are practically eliminated. It has the added advantage of low running costs once the initial heavy costs of installation have been met. Care should be taken in the choice of tubes, however, as disastrous results to sales have been known through food taking on an unnatural colouring because the wrong type of tube has been used.

Low ceilings should be avoided if possible as not only do they have a depressing and oppressive effect on the staff but

require an efficient ventilation system to keep working conditions satisfactory. On the other hand high ceilings increase the difficulty of cleaning and the cost of redecoration. A head room of 12 to 16 feet should be sufficient. Ceilings should be kept in good repair and free from cracks and flaking. They should be constructed so that they absorb moisture so preventing the unpleasant dripping resulting from condensation, and the possible contamination of food from the same cause. It is essential that all walls and ceilings should be easily cleaned and free from unnecessary ledges and cornices, the junction of the ceiling and walls being finished with a covering. It should be noted when deciding about the finished surface and colour of the ceiling that light colours will reflect light and increase the amount of illumination.

Walls

Wall finishes should be smooth, durable, impervious and washable, with the minimum number of ledges and shoulders. Important factors are the nuisance from condensation, the presence of heat and the necessity for frequent washing down. There is also the point that the kitchen is a work room and that colour sympathy is important. Should ventilation be inadequate attention must be given to the thermal properties of wall surfaces. Brickwork should be covered with plaster and then painted to give a hard wearing surface of a matt or eggshell finish. Although initially more expensive the various plastic compound paints will give a harder finish than oil paints and will prove to be more economical.

A completely tiled wall is the ideal but if the necessity for economy rules this out a wall tiled to a height of six feet with a painted surface above, provided that the tiles finish at the top with a rounded edge, will suffice.

Floors

Floors in the kitchen have to withstand heavy traffic and the weight of heavy equipment. In recent years wooden and concrete floors have given way to terrazzo, granolithic chips and quarry tiles. Ordinary concrete floors are not easy to keep

clean and the surface becomes roughened and uneven with continual scrubbing. Several oil based and sodium silicate compounds are used to render concrete floors dustproof, but they are not wholly successful in busy kitchens. Hardwood floors, provided they are efficiently laid and maintained, are quite successful but need careful maintenance to keep them in first-class condition, as scrubbing and the excessive use of water causes deterioration. Soft woods should never be used in kitchen floorings : they require constant cleaning and will not for long withstand the weight of heavy equipment. A properly laid terrazzo or granolithic chips floor will stand up to hard wear for a long time, the smooth surface being easily scrubbed and maintained. Such floors can be laid in large areas provided that strips of non-ferrous material are used preferably in some form of design at intervals to eliminate cracking through expansion. Problems arise when large areas of kitchen floors have been laid with terrazzo as they become very slippery if water is spilled. More recently quarry tiles, properly laid to give an even surface, have been used and are recommended. The tiles are hard and less absorbent and are available in an attractive range of colours, the dark red, green, brown and heather mixture being the most popular. Tiled floors stand up to hard wear and can be laid in such a manner as to incorporate at intervals tiles with a slightly abrasive surface which act as a natural brake to prevent slipperiness. It would appear that the floor of the future will be of thermoplastic tiles because of their durability, ease of cleaning and bright colours. It must be remembered that no matter what type of flooring is installed there should be an adequate fall to the gullies and drains so that floors may be easily hosed down.

1. Counter service — C. F. E. Bartlett & Son Ltd

2. Cafeteria service — James Scott & Co. (Engrs.) Ltd.

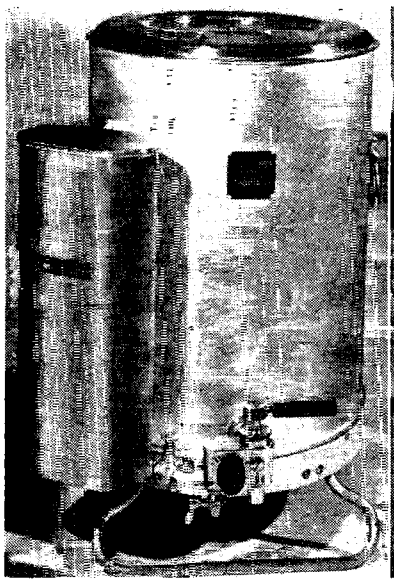
3. Waitress service at the Charles House canteen, Kensington.

4. Snack bar

James Stott & Co. (Engrs.) Ltd

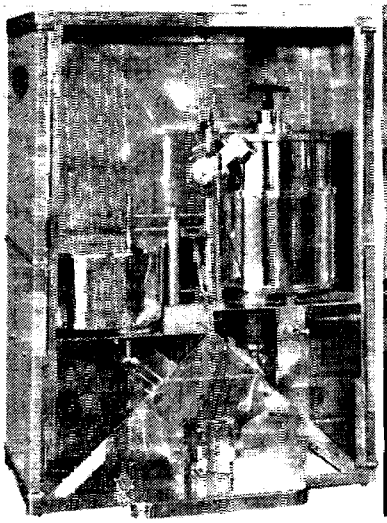
5. Senior Executives' dining room

Geo. Cohen Sons & Co. Ltd. Wood Lane

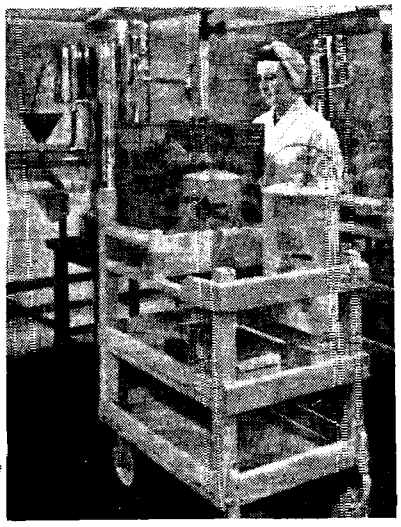


6. "Teamilka" dispenses tea and milk in correct proportion
Tea Service Equipment Ltd.

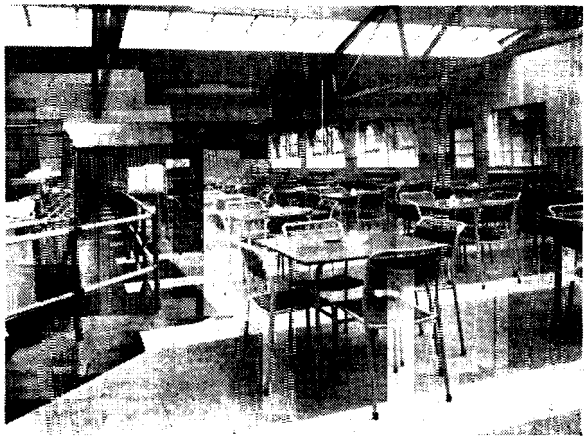
7. Customer operated "Bruin" tea maker
Peerless & Ericsson Ltd.



8. Counter "Bruin" tea maker
Peerless & Ericsson Ltd.



9. Trolley service tea station at Helsby Works of British Insulated Callender's Cables Ltd.

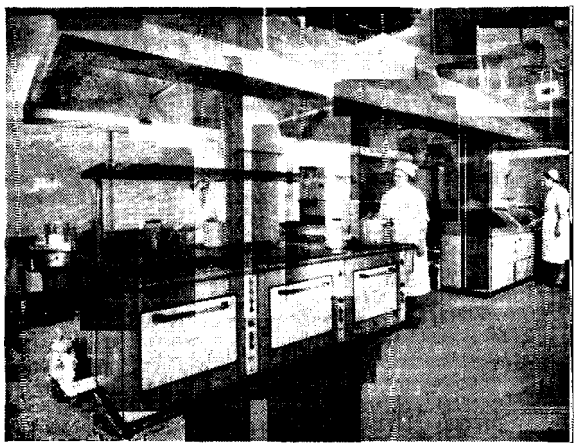


10. Canteen of Marley Tile Co. Ltd., with Marleyflex tiles laid in "traffic" lines. Marleyfilm on tables, Marlith on ceiling, Marley wall tiles.

11. Canteen with parquet flooring and folding chairs

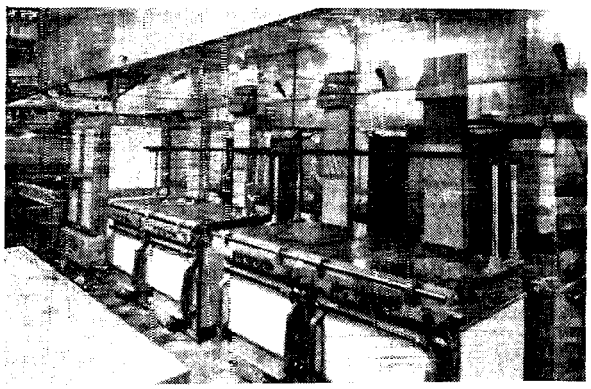
G. F. E. Bartlett & Son Ltd.

12. Terrazzo flooring in the Baker Street canteen of London Transport Executive



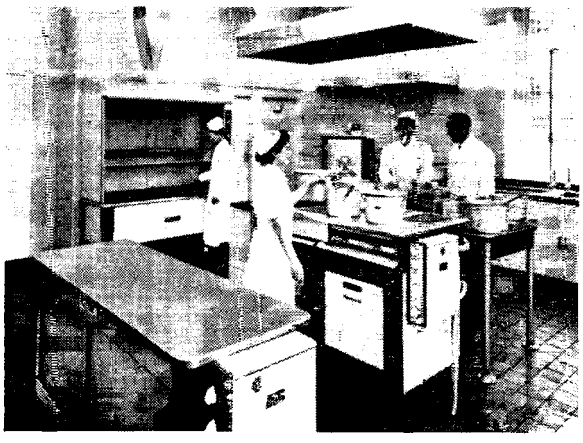
13. Solid top combination showing open flame burners and deep fat fryers at McVitie & Price Ltd., Harlesden

Benham & Sons Ltd.



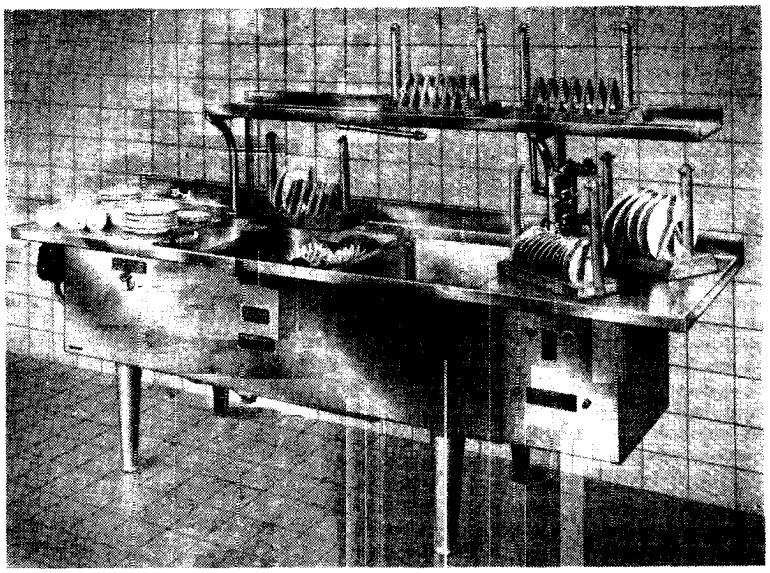
14. Gas ranges, steaming ovens, boiling table anc fish fryers at Ford Motor Co. Ltd., Dagenham

James Stott & Co. (Engrs.) Ltd

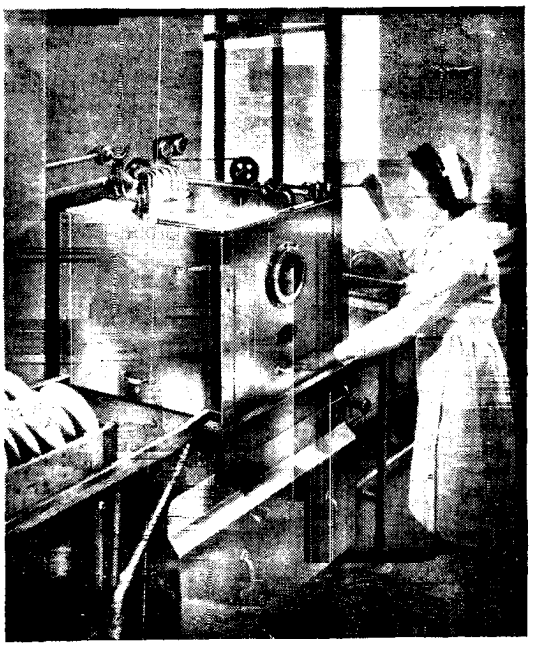


15. Electrical cooking for Executives' dining room, Central Electricity Authority Headquarters, London

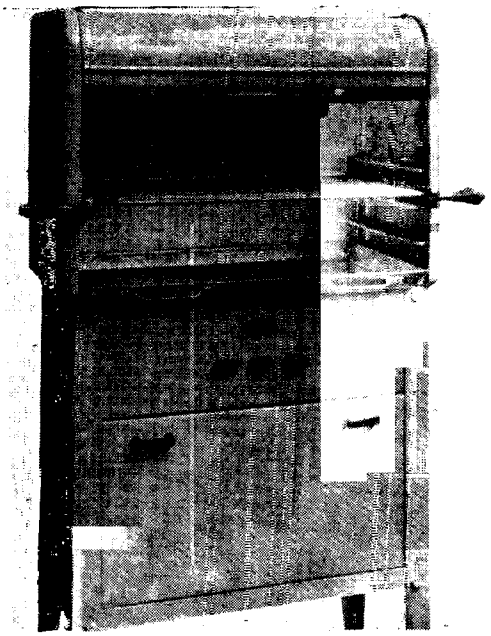
Jackson Electric Store Co. Ltd.



16. Crockery washing machine — Staines Kitchen Equipment Ltd.

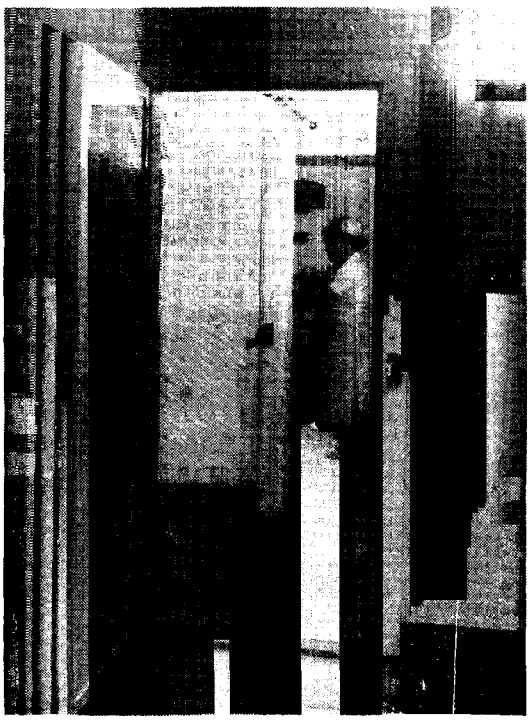


17. "Deluge" dish washing machine — Dawson Bros. Ltd.



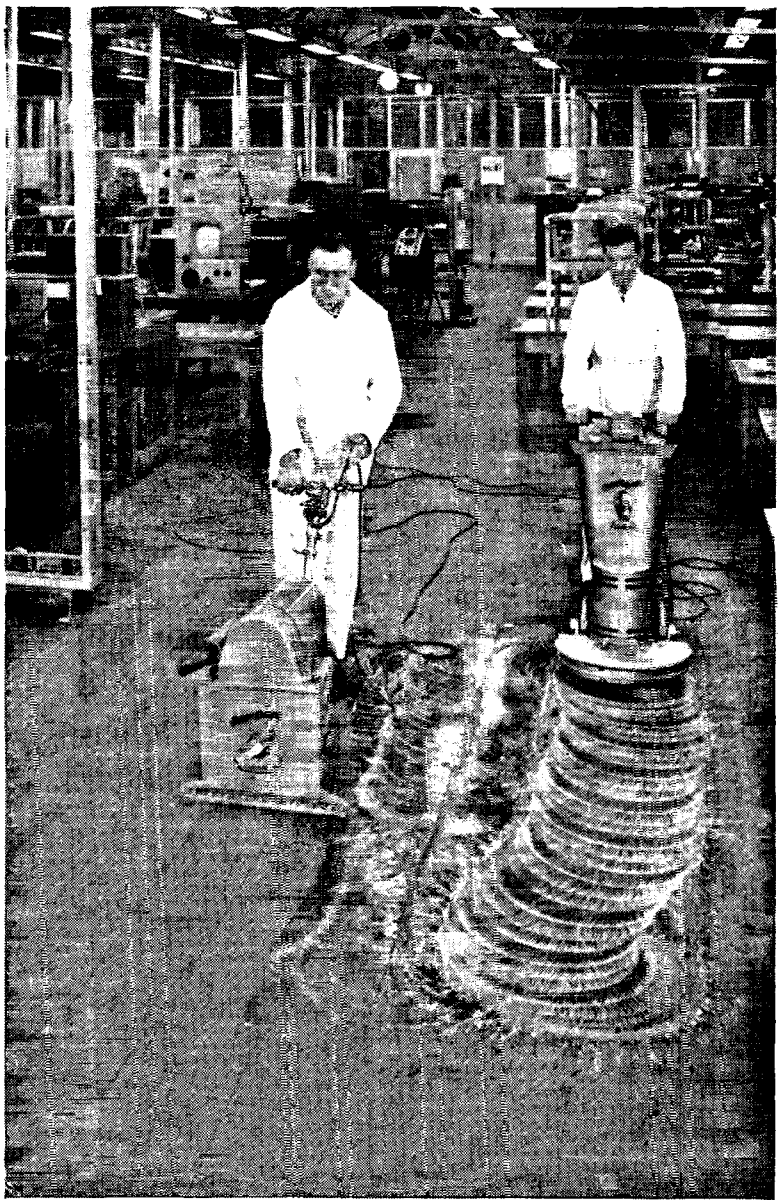
18. Radiant Heat Salamander

Radiant Heating Ltd.



19. Cold-room at Leeds University

Prestcold Refrigeration



20. Cimex-Fraser Tuson scrubber and polisher with suction dryer at The Automatic Telephone Co. Ltd., Liverpool

Chapter Ten

Kitchen Equipment

WHEN selecting equipment for the kitchen the essential factors to be taken into consideration are :

1. The estimated number of meals to be produced, taking into account any foreseeable increase in numbers.
2. The type of services required ; whether the bulk is to be in main meals or snack service.
3. Floor space of the kitchen.
4. Ease of maintenance and cleaning.
5. The amount of heat radiation from sides of ovens, steamers, etc., should be the minimum.

It is also essential that

(*a*) All kitchen equipment is positioned well away from walls to enable free passage for cleaning purposes.

(*b*) The maximum run of pipe work is enclosed and that which cannot be does not obstruct the floor. Main gas, electricity, steam and water supplies should if possible be brought under the floor right to the equipment.

Ovens

Ovens should be sited where there is good lighting to the interior of the oven and away from all draughts. Where placed along a wall there should be a minimum clearance of 18" to permit cleaning. If the ventilation in the kitchen is good and has the required balance of fresh air intake and

extract of exhaust the provision of hoods can be dispensed with. Where it is considered that hoods are desirable, their lower edge should be at least 6′ 9″ from the floor. Heat supply may be obtained by solid fuel, gas burners or electric elements and should as far as possible be fitted with automatic controls to ensure suitable temperatures for the various products to be cooked and an even distribution of heat over each shelf. (Figs. 13, 14, 15)

Pastry Ovens

Pastry ovens are designed specifically for one purpose and thought should be given to the amount of actual pastry work to be done. In many cases in the smaller establishments, the quantity of pastrywork would not justify such an installation the pastry oven, being specially designed for that purpose, has only a narrow clearance of usually 8″ between shelf runners, and is not a practical proposition for cooking other meals.

Steamers

There are two main groups into which steamers can be divided.

(*a*) Those known as wet steamers.

(*b*) Those using live steam.

The wet steamer uses steam at atmospheric pressure but unless live steam is freely available it is not economical in use. The big advantage is the speed of cooking made possible by the high pressure working at 5lb. per square inch.

Another type of wet steamer most useful for general purposes is the self generating steamer working at a pressure of ½lb. per square inch.

In both cases an automatic cold water feed is fitted to or within the chamber to maintain a constant level of water in the steam generator. If required the steamer can be fitted with a thermostatic control of the constant setting type.

Where live steam is used as the medium, the steam is supplied from a main high pressure boiler and after passing through a number of reducing valves enters the chamber to

by means of hot water jackets. The food containers are made in various sizes and should be of stainless steel. A cold or even refrigerated section with open shelving can be incorporated where desirable. Glass sneeze-plates should always be fitted, but installed in such a way that they do not obscure the customer's view of the food displayed. A tray rail is usually provided in the cafeteria system with tray stacking racks at the entrance end of the counter or a lowerator fitment incorporated in the counter. The cash desk and cutlery boxes are usually situated at the exit end of the counter.

The service counter should be fitted with thermostatic controls. Shelves should be arranged in the counter to accommodate plates and should be deep enough from front to back to take two 10″ plates one behind the other.

Hot Cupboards

To keep food hot once it has been cooked and to maintain it in good condition nutritionally over a period of time is a big problem. The provision and proper use of a hot cupboard to keep the food in it for as short a time as possible is essential where large numbers are catered for, especially for a plated-up service. The hot cupboard can be situated behind the servery walls and the meals transported via hatchways for service.

Grill

The grill heated by gas or electricity was not at one time commonly used in works canteens, but recently more canteens are introducing grilled steak, etc., to the main service and a grill is therefore essential, often serving a dual purpose by being used for snack periods as a toaster. When used as a toaster careless users are inclined to leave the gas or electricity turned on, the excuse being that it takes a long time to warm up. A time switch gear, fitted to the gas controls, cutting off the gas to the burners, but leaving the pilot light, after say two minutes, will recover its cost in a few months.

Salamander. This is fitted with surface combustion gas

burners, which operates on town's gas, or liquid petroleum gas, in conjunction with fan air.

The burner element comprises a porous refractory block with finely graded granules, so that the air/gas mixture percolates through the brick. When first lit these burn with a bluish haze and within a minute the whole surface becomes highly incandescent at about 800°C. The advantage in using this type of burner is that it ensures even heating over the whole of the grill area.

These burners, although highly incandescent do, in fact, burn without flame. Gas economy in the use of this type of grill is achieved by the fact that the appliance is ready for use within a minute of lighting.

The Radiant Heat Salamander (Fig. 18) is made in three sizes, Nos. 2, 3 and 4, and the designation numbers refer to the number of separate burners fitted in the appliance. It is not necessary for all the burners to be alight. For instance, on a small appliance, say No. 2 or No. 3, assuming two or three steaks require grilling, only one burner need be left alight.

The Toaster. This appliance was designed with a view to supplying bread toasted both sides in large quantities, as opposed to the use of Salamanders for toasting, which invariably results, due to labour difficulties today, in high wastage of bread.

One type of toaster is fitted with eight bread carriers, each capable of taking three pieces of bread at a time. The bread is conveyed upwards and then turned and passed between two radiant surfaces, causing the bread to be evenly toasted both sides. It then drops on to a vitreous enamelled chute and is, in effect, delivered to the person who is loading the toaster.

The machine is fitted with a temperature indicator, which readily shows when the appliance is ready for use. On earlier models thermostatic control was fitted, but on the more recent design this has been eliminated and an indicating clock fitted, so that the gas rate can be altered to suit the bread being used, i.e., stale bread or new bread.

The need for refrigeration is made greater because food

has to be kept in, or in close proximity to, kitchens where high ambient temperatures and high humidity exist.

With temperatures of over 80°F quite normal in kitchens where cooling is more or less continuous, raw meat, milk and fish deteriorate rapidly after a few hours. Under such conditions refrigeration is indispenable for those more perishable goods and an undoubted asset for fats and certain fruits and vegetables.

In the smaller establishment a refrigerator of between 15 to 25 cubic feet will probably be sufficient, but in a larger kitchen catering for a seating capacity of 50 to 100 the total capacity of refrigerated space required will be between 50 and 100 cubic feet. In large canteens the storage space may well run into several hundred cubic feet and will require cold-rooms. In addition to a cold-room one or two service cabinets may be required to store the chef's immediate requirements. (Fig. 19)

Chapter Eleven

Fuel

In order that adequate attention can be given to fuel consumption and cost, some knowledge of the principles involved in the provision and maintenance of an adequate supply of heat is necessary.

GAS

As gas is supplied at a fixed cost per therm, running costs can be calculated as follows :

$$\frac{\textit{Cubic feet used} \times \textit{calorific value} \times \textit{cost per therm}}{100{,}000}$$

The gas passing through a meter will register the actual quantity of gas supplied in cubic feet which is the unit of measurement. The calorific value is the amount of heat or energy provided by one cubic foot of gas and is expressed in British Thermal Units per cubic foot—usually 400-500, according to the district. A British Thermal Unit (B.T.U.), being the unit of measurement adopted to define quantity of heat, represents the amount of heat that is theoretically required to raise the temperature of one pound of water by 1° Fahrenheit. A therm is the unit by which gas is usually sold. One therm equals 100,000 B.T.U.s.

There are two main methods of heating ; the atmospheric type of burner, generally used in contact heating for stoves, fish fryers, boiling-plates, etc., and the luminous type of burner for

hot cupboards and certain types of water heater. The atmospheric burner is designed to mix the gas and part of the air needed for combustion before it reaches the flame port, where the remainder of the air should be available. The flames produced should consist of sharp blue cones immediately over the flame ports, with enveloping firm spear shapes of orange to purple colour. These outer envelopes only, should make contact with the surface to be heated. If the flame is yellow or shapeless a soot or carbon deposit will soon appear on the underside of the heated surface and obnoxious fumes are noticeable. This is due to insufficient air being present to allow satisfactory combustion, and may be remedied by brushing off any deposits on the burner with a stiff bristle brush and, if the holes are blocked, pricking them out with fine wire. Alternatively, attention to the regulator may be required as the injector may be passing more gas than the burner is designed to use. Poor ventilation of the apparatus may also have a bearing, as flues can become blocked or air inlets to the combustion chamber impeded.

The luminous type of burner is often referred to as a " neat gas " burner due to the fact that gas alone issues from the flame port and depends upon the full quantity of air required being available within the combustion area, there being no injector, air entry or mixing tube. The flame produced should be bright yellow with a bluish centre and is less rigid than that of the atmospheric burner, though it should have the appearance of being firmly positioned over the jets and be regular in shape.

Any tendency to " lift " or become limp, indicates that there is insufficient air available and the control cock should be turned down until reasonable conditions exist.

Heating is effected by radiation alone and flames should not come into contact with any surface, otherwise soot deposits will be formed and unburned gases liberated. The very fine holes in the jets occasionally become blocked with dust particles and should be probed with a fine wire, taking care not to enlarge or damage the opening in any way. Removal of the jet for cleaning purposes is not recommended as resetting is extremely difficult.

Care in ignition may remedy the difficulty of " lighting back " when each attempt to ignite results in a small explosion. Before gas is turned on the burner should be full of air and sufficient time allowed for the mixture to stabilise in proper proportions before ignition.

It must be made clear that although the atmospheric burner produces a flame temperature higher than that of the luminous burner, the same amount of heat is liberated per cubic foot consumed by each type, and the same amount of oxygen from the air is ultimately required in each case to afford complete combustion.

Damage to a component may result in a serious accident. Imperfect combustion may produce fumes which are serious enough to cause death or, in less harmful concentration, be responsible for complaints of ill-health from the staff.

The removal or adjustment of components should be referred to the engineer's staff or local gas authority.

ELECTRICITY

Electricity is supplied at a certain cost per unit, that is the registered amount as the current passes through a meter. The unit represents the amount of heat or energy consumed by a load of 1 kilowatt (1,000 watts) when used continuously for one hour. A 100 watt lamp would be used for 10 hours to consume one unit. Therefore, the cost of the operation of apparatus can be calculated :

Load (in kilowatts) × *hours (actual use)* × *cost per unit* = *running cost.*

All electrical equipment should bear some indication of the supply necessary for its safe and efficient operation. These details should be noted and understood by those responsible for the use of the equipment. Volts is a measure of the pressure at which current is supplied. Amperes indicates the capacity that a wire, cable, piece of equipment, etc., provides for the passage of electricity, and watts the maximum amount of electricity that an item will consume.

The source of supply, depending on the district, will be direct current (D.C.) where the current flows continuously

in one direction only, or alternating current (A.C.), the most common form of supply, where the flow of current is changed from one direction to the other in rapid succession.

Several types of heating elements are used in general kitchen equipment, the main ones being solid top elements used for range tops or boiling-plates where a resistance wire embedded internally in refractory material, encased with cast-iron or aluminium at the top and sides, with a removable mild steel plate at the base, provides the heat ; and the radiant type elements used for the same purpose but consisting of tubular elements of high durability fitting flush with the top of the boiling-plate. One advantage of heating by radiation is that utensils with rims at the base may be used for cooking, whereas with solid top elements it is necessary to use utensils with a flat base to ensure contact with the top plate. Open fire-bar elements consisting of a refractory base with coils of resistance wire located in grooves on the surface are usually used in equipment such as ovens and hot cupboards where space heating is required.

Immersion heaters are used to supply boiling water and consist of an element housed in a water-tight casing actually immersed in the liquid which transfers the heat from the element to the liquid. Care should be taken to ensure that the liquid does not boil away leaving the heater with little means of dissipating the heat generated internally, resulting in possible damage. As a safety precaution most immersion heaters are fitted with a thermostatic " cut-out."

There are several types of electric motors used for kitchen machinery, each motor being capable of providing a certain amount of power, and rotating at a certain speed. At any sign of obstruction or overloading, the motor should be switched off immediately, as overstrain will cause the internal wiring to become overheated and burn out.

All electrical equipment must receive regular attention by a qualified electrician and all adjustments, testing, wiring and fitting new brushes left to his care. The electricity authority recommends that correct maintenance consisting of a quarterly routine visit by the electricity authority inspector to see that everything is working satisfactorily, and a periodic

visit for a complete inspection of equipment, should be instituted rather than calling them in only when something has gone wrong. Any equipment that is not operating satisfactorily should be switched off pending an inspection by a qualified electrician.

STEAM

The cost of steam may be calculated at a cost per pound per square inch, and the amount of heat liberated by one pound, according to pressure, varies from 900-970 B.T.U.s.

Several types of steam apparatus are used in the kitchen, the most common being steam jacket boilers where the steam is injected between heavy cast sections around the boiler forming a second " skin " ; pads, used for hot cupboards where the shelves and tops are heated by hollow " pads " clamped to the underside ; coils, used for water boiling of all types of apparatus ; jets, used in " live " steam ovens, where the steam actually enters the compartment, generally at a lower pressure than that used for other types of apparatus. Jets are used in some cooking vessels where the injection of steam causes the cooking water to boil, and for raising the temperature of water used for washing-up

If proper care is taken in the use and cleaning of steam-heated equipment breakdowns are unlikely. Most of the factors contributing to the efficient use of steam will be carefully watched by the persons in charge and steam traps and heat loss during distribution are matters for his attention. Actual waste of fuel inside the kitchen is the responsibility of the catering manager, who should see that jets are turned off when not required, not only to save fuel but to prevent undue condensation in the kitchen ; also that all steam control valves are closed when their daily use is over. The formation of scale through hard water on heating surface acts as an insulator and prevents the efficient transfer of heat. In the case of some waterways the scale so formed can reduce the flow and consequently impede the output of boiling water.

The formation of scale in water-boiling equipment is usually the result of certain solids being dissolved by the

water between temperatures of 140°—180°F. Where the deposit is of a soft texture it can usually be scraped from all surfaces, but hard deposits may have to be chipped away or a mild acid scale remover used. In many places it is necessary to install a water-softening plant which will remove most of the cause of such deposits.

Not only should boilers be de-scaled, but taps should be re-ground or replaced so that they do not bind tightly. Taps should not be left to drip.

SOLID FUEL

Solid fuel is not now commonly used for the direct heating of catering equipment in large kitchens, but the heat storage type of cooker is used extensively in some parts of the country where gas or electricity supplies are not readily available.

While fuel costs and supply may determine the type of heating medium used for cooking, it is suggested that there should be a duplication of some of the services as a safeguard against interruption of supplies.

Chapter Twelve

Dining-Room Furnishings, etc.

CLEANSING agents should be chosen with care as those containing a strong alkali (found in a high proportion of cheap soap powders) can be injurious to the skin, and to furnishing, brushes and paintwork. Soapless detergents have in recent years taken the place of the many soda and soap powder compounds. They are good general cleaners which dissolve grease and, used in the right proportion, will be useful for all purposes in the kitchen and dining-room. The recommended quantities of dilution should be carefully followed as if too strong the compounds have a tendency to dissolve the natural grease and oils from the skin and operatives will complain of suspected dermatitis. Most detergents are unaffected by hard water and are particularly valuable in reducing the extra work caused by scum in districts where hard water is found. Washing powders and flakes produce a quick lather, but as soon as the water becomes dirty or the lather has disappeared the cleaning action is lost. Powders and flakes are expensive and more extravagant in use as they are partially ineffective if not completely dissolved.

Washing soda should be used with care, for while it emulsifies grease and is cheap for washing floors it is injurious to many substances when used in strong concentration.

Floor Cleaning

The cleaning of dining-room floors raises a problem as to

when is the best time to start, before the lunch service or after. If the room is completely clear of customers the tables and chairs should be stacked, if of the stacking type, or placed in one corner. It should be remembered that the work should finish at the dining-room to kitchen doorway so that the floor is not walked over unnecessarily. The floor should then be swept, special attention being paid to the corners so that dust and dirt does not become set. Plain wooden or wood block flooring should be washed with water containing a detergent and then rinsed with clean water, otherwise the dirty water will be absorbed quickly by the wood which will in due course become discoloured. Plain wood absorbs water and the grain becomes opened and wood blocks will be forced out of position if excessive water is used. Having been dried as far as possible with a mop, the floor should then be allowed to dry quickly
" natural ventilation. Many wooden floors are treated with
or patent synthetic preparations which preserve the wood
are kept in good condition by sweeping and dry polishing.
ncrete, stone, quarry tiled and terrazzo floors should be
ined in the same manner and dried quickly so that accidents
not arise through slipperiness, especially where tiles are
ed.

Linoleum and Carpets

Linoleum where used to cover poor quality floors should be laid by experts, who will pay special regard to roughness of planks or protruding nails liable to cause unnecessary wear. Hot water and strong alkalis will destroy the linseed oil in linoleum and should not be used. Scrubbing and the use of scouring powders should be avoided as the surface becomes roughened and is made more porous and susceptible to damage by cracking, loss of pliability and colour.

Carpets, usually in directors' and executives' dining-rooms, need special care. It will be found that pressure and friction against a hard floor surface will be greatly reduced by using an under-lay of felt or rubber. Fitted carpets should be fitted by experts and stretched tightly to prevent wrinkling or the possibility of being kicked up. Worn places should be re-

placed by fitting in new lengths and burn holes or frayed edges mended immediately by experts. Carpet squares are a more practical proposition as they can be turned at least every six months so that the portion which receives most wear, usually that part nearest the door, will have a period of less wear.

Carpets should be brushed daily with either a box carpet sweeper or sweeping brush to remove dust and grit if a vacuum cleaner is not available. Spots caused by spillage should be cleaned with a damp cloth as soon as possible after they have occurred. Carpets should be cleaned periodically by experts or by damping with a cloth, brushing in a proprietary brand of shampoo, using a soft brush with the way of the pile, removing the soapy lather with the back of the brush and then rinsing with a clean damp cloth. The whole should then be rubbed dry with clean dry cloths.

Mechanical Floor Cleaning

In every type of building, where floors require clean and maintaining, the introduction of mechanical equipm results in an immediate saving in man hours which is suffici in many cases to defray the total cost of the machine in t matter of a few months. Cleaning a floor on hands and knees is, to say the least, a dirty and unpleasant occupation. Scrubbing by hand energetically will release the dirt from the floor leaving it held in suspension in a detergent water. Removing this dirty water is a far more difficult problem and it is in this respect that hand cleaning fails. Unless the surface is repeatedly rinsed with clean water, it is impossible completely to remove the dirty water from the floor with a cloth or mop, and a certain amount will remain which, when dried out, leaves a film of dirt on the surface.

When a large area is hand cleaned, the effort put into the work initially tends to fall off towards the end of the operation and the efficiency drops. By using a machine the standard remains constant no matter how large the area to be cleaned. Dirt is the greatest enemy of any floor, and if allowed to remain will cause rapid wear. Particles of grit

lying on the floor form an abrasive under the tread which grinds away the surface. Floors should, therefore, be cleaned regularly and the speed and efficiency of mechanical equipment makes regular cleaning possible, cuts labour costs, increases the life of floors and greatly improves their appearance and condition. If to these advantages are added the improved working conditions of the cleaning staff the introduction of these machines is worth serious consideration.

A machine similar to the one illustrated (Fig. 20) scrubs an average of 2,000 to 3,000 square feet in an hour. To prevent discoloration of floors and reabsorption of dirt a Dipper Suction Drier is used to lift both dirt and water immediately after scrubbing. Floor polishing is then no longer one of the more expensive, irksome tasks of industrial maintenance as such a machine will polish, burnish or buff 3,000 to 3,500 square feet per hour. With the same machine, carpets can be scrubbed speedily " in situ " using the correct shampoo, and complete safety for the carpet is ensured by using the Dipper Suction Drier to remove moisture and dirt mmediately after scrubbing.

Chairs and Tables

Canteen chairs and tables should be wiped over daily using hot detergent water and a little dampened scouring powder to move any stubborn marks. Special attention should be paid to table and chair legs, and if made of wood they should be polished once a week with a furniture polish.

Walls

Walls, if painted, should be brushed from time to time o remove any surface dust. Tiled walls should be washed with detergent water, rinsed and given a final polish with a dry cloth. To overcome the " high tide " mark so often seen in canteens where the cleaners are not permitted to stand on steps, a cloth wrapped over a brush head used in conjunction with a socketed extending handle should be provided.

Chromium should be cleaned with warm detergent

water using a cloth but without the aid of an abrasive. When dry a final polish, not using metal polish, may be given by using whitening on a damp cloth and polishing or rubbing briskly with newspaper.

Care of Utensils and Materials

So often the actual cleaning utensils are left dirty and neglected lying around the kitchen. Buckets or pails should be washed out with hot water after being used and stood upside down when not in use. Mop heads should be washed thoroughly, rinsed, and squeezed as dry as possible, and hung up to dry. The handles of mops and brushes should be washed in hot water containing a detergent after each day's use, rinsed in clean water and dried by standing them in a well ventilated warm place.

Swabs, dish cloths and tea cloths should be washed out and hung to dry after each day's use.

Chapter Thirteen

Kitchen Equipment

THE quality and cost of a meal served depends on the standard of raw materials used, the ability of the staff and the efficiency of the equipment used. The ease with which a piece of equipment can be cleaned is of great importance when assessing its merits. The heavy capital cost involved in purchase and the dislocation of service resulting from frequent breakdowns demand that the greatest care should be given to the operation and maintenance of each item. Equipment badly maintained will result in unwarranted fuel cost. An organised system of care and maintenance is required to avoid corroded equipment, damaged taps, deposits of grease and grime and ill-adjusted gas burners. If a simple " task " system of care and maintenance is introduced, unnecessary expenditure will be avoided.

Staff should be encouraged to take a pride, not only in their catering ability, but in the tools and equipment they use. It is important that staff realize that care and maintenance is a job that has to be done daily, and is not merely a once in a while job that has to be done because things have got into a bad state. " Clear as you go, and clean as you go," should be a motto for every kitchen worker.

A weekly routine inspection should be made by the catering manager who should note and take immediate action upon any defective or dirty equipment. Noting those things is important so that reference can be made on the next inspection to ensure that the neglect does not continue.

As a general rule, cleaning kitchen equipment should be carried out immediately after its use or, where this is not possible, as soon after as is practicable.

Gas Ranges

On solid top ranges, the top should, when cold, be washed over with detergent water, dried, rubbed with emery cloth to provide a shiny surface, and wiped with an oily cloth to prevent the formation of rust due to condensation.

When an open fret type is used, the frets, gas burners and tray should be taken to the sink. Before immersion in hot detergent water food particles, carbon deposits and grease should be removed. Scrubbing with a stiff brush should then remove any more resistant dirt. When the cleaning is complete the articles should be immersed in a rinsing sink of boiling water for sufficient time for them to absorb enough heat to evaporate off all adherent water when removed. When dry, they should be replaced, taking care to see that gas or air intakes have not been altered. Oven shelves and plates should be treated in the same manner. Fixed items, like ovens, which cannot be transported to, or immersed in the sink, must be cleaned where they stand. After removing the shelves and guides, the sides, door and top should be washed with detergent water and all food, grease and carbon deposits, scrubbed off with a stiff brush. When cleaning is completed, the sides, door and top should be rinsed with clean water to remove any trace of detergent and wiped with a clean cloth. The guides and shelves should then be replaced. If, for any reason, food particles and grease have become baked on the metal, one of the proprietary brands of caustic jelly compounds will have to be used. This should be spread on the oven, using a cloth wrapped round a stick, or a special brush supplied for the purpose, and allowed to stay on for 3 hours or so. It should then be rinsed off thoroughly with clean water, and the oven dried. Special care should be taken to see that the jelly does not come into contact with the skin, as blistering will result. If the skin is splashed it should immediately be washed with running cold water.

Except for polishing the surface of the solid top of a range with an emery cloth, the use of abrasives should be discouraged in normal cleaning operations. Each application of abrasive renders the article more difficult to clean the next time, as the finely scratched surface forms a key for deposits of burnt food particles and carbon.

Care should be taken with equipment finished in vitreous enamel. This is a coating applied to iron and steel in order to prevent corrosion ; it gives a good appearance and an attractive finish. When applied to sheet articles, the enamel is less able to withstand shock than if solid sections are used. Overheating, or direct heat, causes the surface to chip and craze. Cleaning should be done with hot detergent water to remove the grease and dirt, and one of the caustic jelly compounds for neglected deposits.

Steamers, creating their own steam, together with some types of hot cupboard, require special care to see that during the cleaning process the movement of the ball and lever is not impeded in any way. The trays and runners should first be removed and washed well in strong detergent water to remove all grease, rinsed and dried well. The water supply to the steamer should then be cut off and the unit drained. The ball, lever and valve should be removed and well cleaned, avoiding undue pressure on the lever or ball. The unit should be cleaned, drained and dried and the ball, lever and valve replaced. Care should be taken to see that the water supply is turned on to check that the ball valve is controlling the level of the water in the unit in the correct manner, and that the unit is not lighted without water being in it. The runners and trays should then be replaced. When not in use, the steamer door should be left slightly open to allow a passage of air in order to prevent staleness and rusting through condensation.

Cleaning live steamers and hot cupboards follows the same principle, except that no ball-cock is involved, the heating medium being live steam, not self-generated steam being forced into the chamber.

The heat should be withdrawn from a fish fryer before draining the contents of the pan. After draining, the stop-

cock should be closed and the pan filled with hot water, a detergent added and brought to the boil and kept boiling for 15 minutes. The detergent water should be drained off and the pan swilled with clean water, any stubborn food particles being removed with a stiff brush. The pan should then be filled with clean water, a gill of vinegar to the gallon added, and boiled for 15 minutes. After draining and the stopcock closed, the strained fat should be replaced if still usable, or replaced with new fat or oil. Care should be taken to ensure that the pan is adequately filled and maintained to prevent overheating the unit.

Tables

Wooden tables should be scrubbed against and with the grain with plenty of hot detergent water, rinsed well, given a final rinse with clean cold water and dried thoroughly to prevent warping. Special care should be taken to remove and clean the drawers and also the under edges of the table and the legs.

On no account should soda be used for scrubbing wooden tables as yellowing of the wood will result.

Potato Peeler

The inside of the peeler should be rinsed daily and cleaned of adhering particles with a stiff brush. The bottom abrasive plate should be removed to ensure that the outlet pipe is free from obstruction and that small particles are not lodged below. The peel trap in the interceptor compartment should be emptied as often as required during operation and should be cleaned daily. Attention should be paid to the waste outlet to ensure that it is free from obstruction.

Refrigerator

Cleaning refrigerators can only be done when they are empty, and therefore suitable arrangement for food storage should be made to allow this to take place at least weekly. The accumulation of frost on the cooling system acts as an

insulator and causes the refrigerator plant to remain in action longer than is necessary, thus reducing the working life of the components. Constant opening of the door not only reduces the efficiency of the compartment but increases the possibility of frosting, due to the humidity of the warm air admitted.

When empty, the unit should be switched off and the doors left open so that the frost may be gradually melted and drained into a bucket, the interior should then be cleaned and all surfaces thoroughly dried with a cloth. In large cold-rooms, the water produced by defrosting should be removed as quickly as possible from the flooring. The shelving should be replaced and the refrigerator motor re-started.

Butchers' Blocks

The block should be scrubbed with a wire brush and salt after removing and cleaning the drawers and scrubbing the legs with hot detergent water. Water on the actual block should be used sparingly, if at all, to prevent softening of the wood. A scraper should be used to level slight identations.

Slicing Machines

Each section in contact with food should be thoroughly cleaned after use. All moving parts should be lubricated frequently and the rotary blade sharpened as necessary by using the grinding attachment when the blade is rotating. After cleaning, drying and re-assembling the machine the thickness gauge should be checked to ensure that it registers satisfactorily.

Multipots

Multipots should be washed out after each service, but periodically they should, with the infuser left in, be filled with hot water and a suitable detergent and allowed to stand overnight. This water should then be thrown away and the multipot thoroughly washed out with hot, clean water and turned upside down, with the tap open, to dry. Particular attention should be given to the tap which must be brushed through regularly with a spout brush.

Milk Apparatus. All milk apparatus should first be rinsed with cold water, then sterilized with boiling water and allowed to dry naturally.

The importance of carefully cleaning and sterilizing all apparatus and vessels in which milk is in continuous use cannot be too strongly emphasised.

Indeed that little extra care taken in the proper cleaning and maintenance of all kitchen equipment will be well repaid.

Chapter Fourteen

The Catering Manager

EFFICIENCY in industry demands that every employee should give of his best and it is the Welfare or Personnel Officer's job to promote and maintain good relationships within his company by considering the well-being of all those employed.

He can assist the Catering Manager by interpreting management policy in relation to the canteen and by helping to ensure a good relationship between the foremen in the works and supervisors in the office and the Catering Manager by cultivating their goodwill and their support of the canteen. Foremen and supervisors can influence the employees who usually follow the example set by the head of their section.

The efficient running of an industrial canteen cannot be completely achieved by any one person. Success depends on the co-operation of the employer, employees and the Catering Manager and his staff. Disagreement among the canteen staff and discontent among the customers are both signs of poor management.

While it is appreciated that the Personnel Officer can be of great assistance to the Catering Manager on problems of policy, there is the tendency for him to try to run the catering organisation as well. This is clearly something to be avoided, as a great deal of trouble can be caused by a Personnel Officer with a little knowledge of a very wide subject, gathered from here and there, trying to tell the Catering Manager how to

do his job, even though, in many cases, the manager is directly responsible to him.

If such antagonism exists, it is the fault of the management for not clearly and unmistakably defining the respective duties and limitations. Managements must realize that canteens are an integral part of their organisations, and that the Catering Manager should be free to do the job for which he is engaged, and in the way it should be done.

Managing a canteen successfully is a job that calls for exceptional qualities, and the choice of the right person is perhaps the most important single factor for success. The selection of a Catering Manager demands careful consideration as a good deal more than just a knowledge of catering is required. His ability to smoothly and quickly rectify wrongs in the canteen will soon build up a body of satisfied customers.

The essential qualifications are the ability to combine practical knowledge, an interest in humanity and the health and nutrition of the workers, an acceptance of both social and business responsibility. It is not always easy to find a person with all these attributes. Above all the Catering Manager must be a practical caterer, competent to undertake any catering duties and able to pass knowledge on to other people. Good health, a sense of humour, understanding, good judgment and the ability to handle people—whether customers or canteen staff—are priceless assets. While the word " manager " has been used it must, of course, bear the interpretation of " manageress." He must be able to deal with complaints from customers over the counter whenever necessary so that a grievance is not allowed to rest and become magnified in the complainant's eye.

The Catering Manager, as the person directly responsible for the day by day management of the canteen, should know exactly where he stands in relation to management. Whereas he has direct contact with his chef and staff on the technical side of catering he must be fully aware and kept fully informed on company policy. He must be made to feel, and it is for him to pass the feeling on to his staff, that catering in industry is providing an essential service.

He often has to act as guide and counsellor to both sides and should possess :

(1) Tact—possessing flexibility of mind, self reliance and humour.

(2) Foresight—powers of observation, imagination and the ability to assess the next move.

(3) Patience—an even temper and the ability to pass on clear instructions, often requiring repetition time and time again, without sign of irritation.

(4) Personality and a good personal appearance.

Chapter Fifteen

Staff Selection and Training

SPECIAL attention should be given to the recruitment of catering staff. Lack of thought or care in selection can lead to the engagement of persons unsuited because of inadequate training or unstable temperament who leave after a few weeks : the resulting high labour turnover is costly.

The interviewer, from an assessment of the qualifications for the post to be filled, should have in mind the following requirements :

(*a*) Has the applicant the required skill or training ?

(*b*) Can he (she) make decisions quickly and accurately ?

(*c*) Is the applicant level-headed enough to undertake responsibility ?

(*d*) Is general health and appearance satisfactory ?

It will help to have a simple form giving particulars of past experience and posts held and the names of referees to whom application may be made.

By careful questioning on the basis of a simple applicatio. form the experienced interviewer can gather a great deal of information which will indicate the suitability or otherwise of the candidate.

Recruitment may be through the medium of a Labour Exchange, advertisements in the local, national or trade press, through the Labour Exchange at 1, Denmark Street, London, W.C.2, which is devoted to the hotel and catering trade or, for higher grade posts, through specialised agencies.

Supervisors should possess tact, patience and understanding as they not only will be responsible for much of the day to day operation, but will have the task of instructing assistants and untrained members of the catering staff. They should have good practical experience of the control of receipts and stock, the ordering of supplies and the maintenance of the standard of meals and services. Tact is particularly essential as situations may arise where in the absence of the catering manager, or where the supervisor is in complete control, decisions have to be made between customers and staff. They should be encouraged to join one or other of the appropriate professional organisations and participate in its activities.

Cooks

These are the craftsmen and craftswomen of the industry. In addition to their culinary skill they require to be responsible for control of kitchen stock and be good disciplinarians and have the ability to pass on their knowledge to others. Sound practical training and experience is of course desirable and they should if possible hold one of the recognised catering certificates of efficiency.

Assistant Cooks should be able under tuition from the cook in charge to carry out instructions. They should be encouraged to further their culinary skill by studying at evening classes with the aim of qualifying in one of the professional associations.

Canteen assistants constitute the majority of catering staff in industry and approximately 30 per cent are on a part-time basis. Many are untrained and will have to receive instruction from the supervisor in their various duties of washing-up, clearing, cleaning, preparation of vegetables and hygiene.

Induction

A suitable staff having been engaged, it is essential that training should begin at once. Where Training Within Industry courses are in operation, it is desirable that the first

half-day should be spent in the Training Section, where the new employee will be introduced to the type of work done in the factory and, if possible, shown round the works. This is important as it makes the canteen staff feel that they are part of the organisation and gives them an interest in what is being done throughout the factory.

The afternoon should be spent with the Catering Manager for a general talk on hygiene, stressing personal cleanliness and the individual responsibility of all canteen staff for the health of all the factory workers. The necessity for reporting any injury or illness of an infectious nature to the medical department must be made clear. The Manager will also explain the system of time-keeping, the payment of wages, pension and savings schemes and benefits to be derived from sports and social clubs. Arrangements for the provision of overalls, head-squares and suitable footwear will be explained, and the importance of a neat and tidy appearance emphasised. General rules for behaviour, such as " No smoking in the kitchen " and the fact that searches are carried out periodically to obviate pilfering will be explained.

The next stage of training may be divided into two parts—general training, which all staff receive, and the specialised training applicable to individual jobs.

GENERAL TRAINING

General training will commence with an introduction to the layout of the kitchen and canteen showing the individual where utensils and equipment are located. Following this, the new employee should be made fully conversant with the prices charged for, and size of portion of, each dish and the most attractive method of presentation. This includes plating, setting out counters and general cleanliness of utensils. Presentation also includes the attitude of the canteen assistant to the customer. The assistant should at all times be polite and not adopt the " take it or leave it " attitude.

Staff should be instructed to take all complaints to the Manager, and avoid arguments over the counter. They must remember that the canteen provides a service for the

worker and his requirements are of primary importance. During the next few days the assistant should be allowed to help with as many different jobs as possible so that she will have a clear picture of the working of the canteen as a whole. For instance, if her future job is to be that of vegetable preparation, she will have a better appreciation of its importance after having seen the service of vegetables on the counter. Similarly, having helped with a trolley round, she will appreciate the necessity for a high standard of efficiency in the washing up. In this way no job in the kitchen is made to seem unimportant.

It is convenient at this stage also to instruct the assistant in the care and cleaning of any machine and equipment in use generally in the kitchen—such as the meat and bread slicer, fish fryer, etc.

SPECIALISED TRAINING

On completion of this initial training, the employee should now receive specialised training for the job for which she was engaged. If for washing-up, the assistant should be trained in the use of the washing-up machine or sterilizing sinks, the measured amounts of detergents and sterilizing agents to be used, and their importance must be fully explained to her. The correct order of washing-up whether by hand or machine must be clearly laid down.

Clearing and cleaning the canteen are jobs in which training is required. Providing adequate equipment for the work involved is the responsibility of the Manager, but he must also instruct the assistants in its proper usage. For example, by correctly loading the clearing trolley the job can be completed in a much shorter time.

In vegetable preparation, training must be given in the use, care and cleaning of the potato peeler, electric chipper and any other machines available and also in the correct preparation of every type of vegetable served. This is most important as incorrect preparation, for example, leaving potatoes in the machine for a few seconds too long, can result in wastage. The employee must also be trained in the careful

storage of unused vegetables so that they may be preserved for use on the following day.

The same careful training must be given to such other jobs as plating, counter service, general cleaning of kitchen equipment including the defrosting of the refrigerator.

Special training must be given to all waitresses not only in the laying of tables and method of service but in the manner of service, which can make a considerable difference to the person receiving the meal. Waitresses should be encouraged to study the likes and dislikes of their customers and to meet them as far as possible.

According to the method of cash collection used in the canteen, the cashier must be thoroughly trained in the operation of ticket machines or cash registers before being put in charge of the job. When engaging an employee for this job, previous experience in handling cash is an advantage.

As tea is often called the life-blood of industry, the importance of the tea-maker's job must not be underestimated. It is usual to transfer one of the experienced employees to this job rather than make a new appointment but, in either case, careful training should be given in the use of whatever type of tea-making apparatus is available. The cleanliness of all equipment used and the quantity of tea, sugar and milk per gallon are of the utmost importance not only for the quality of the beverage but for the gross profit in the canteen.

Another appointment which has a large bearing on the profit of the canteen is that of store-keeper, as correct storage of goods, careful issuing and using goods in rotation are of vital importance. The store-keeper must be trained to ensure that all goods are weighed on receipt and checked against invoices ; at all times to issue only on a written request, and to keep a bin card or similar system in operation. The store-keeper must be of absolute integrity and made to realise the responsibility of the job.

The cook is the most important person on the canteen staff and it is usual to engage a person with previous experience and training—the experience preferably of cooking in a hospital or hotel, etc. The training would be of a technical

nature, up to and including City and Guilds' certificate examination standard.

In either case these persons must be trained to the methods which obtain in the particular establishment and taught to use the standard recipes of the canteen and, most important, the size of portions served.

At all times the cook should be encouraged to use her own initiative after having discussed her ideas with the manager.

In certain instances it may be the policy to employ totally inexperienced persons and train them to be cooks. This may be done under an apprentice scheme, but in all cases thorough training in the basic principles of cooking must be covered and facilities afforded for the trainee to attend technical college. A good plan is for the cook to supervise the plating of all meals and, whenever possible, to be present on the counter during the meal services so that she can observe the reaction of the customers to the food she has prepared.

To sum up, there are three ways to carry out training. First of all, verbally—by telling a person how and what to do ; secondly, by demonstration—showing how a thing is to be done ; and thirdly, by written instructions—these are invaluable as they may be referred to when any doubt arises or in the absence of the manager. The combination of all three methods will give the best results, and the manager will be well advised to produce a carefully thought out organisation chart showing the duties of every employee throughout the day.

Chapter Sixteen

Menu Planning

THE human body, happily, varies in its requirements to as full an extent as does the human mind, a fact that adds considerably to the problems of feeding it. Dame Nature, in imposing these problems, has, however, eased the burden of their solution by assigning similarity of tastes between individual people. This spares the catering manager the necessity for including on his menu as many dishes as there are people to eat them. When the same customers are served in the dining-room from day to day it is possible, by careful observation, to become aware in advance of the probable demand for any particular dish.

The first duty of the catering manager is therefore to serve, within the limits of economy, the foods which he knows will be appreciated by his customers.

Before planning the menu, however, a secondary consideration should be to ensure that the meal is consumed reasonable comfort and decent surroundings. Individual reactions to environment are as varied as are individual tastes in food. In the case of industrial catering the onus providing a reasonable standard of comfort falls upon management of the undertaking to which the dining-room is attached.

The Nutritional Factor

Menu planning is not just a question of providing palatable and sustaining dishes. Meals should be planned also

provide as much nourishment as possible. It is known that in the main many people do not habitually eat a nutritious diet. In the large majority of cases the chief defect is an insufficient consumption of what is termed " protective " foods —milk, milk products, vegetables, fruit and butter or margarine. They are called " protective " because they are in one respect or another rich in the vitamins or other constituents vitally important for health.

The aim in planning meals in canteens should be to provide in one meal during the day a substantial proportion of all the essential nutrients required by the body.

To achieve this, consideration must be given to the kind of work done and the people who do it. The " heavy " worker, the shift worker, the office male who likes more solid food than the girl clerk or the juvenile worker who has to be specially catered for. Medical cases also on occasion have to be studied from the dieting standpoint.

The Well-Balanced Diet

During the past few years much thought has been given to that all important question of a well-balanced and adequate diet for children through the Schools Meals Service, but what of our adult population ? Does the same care go into the factory or office workers' menu ?

The main object of a well-balanced diet is to provide the worker with sufficient stamina to carry out his or her work ; to repair that vital energy thus consumed and, above all, to provide an interest in food. Menus must be suitable for the age, type of worker, nature of the industry, and the working conditions involved.

Variety of Choice

The greatest nutritive value must be aimed at, along with variety, pleasant appearance and seasonal availability. Food cannot be forced on people and the introduction of a new line requires patience, time and skill of presentation. Variety and choice in a canteen menu are psychologically the best means of promoting appetite and of putting over a

healthy diet. One important factor in this process of food appreciation by the customer is the quiet personal influence of the catering manager among his customers. The phenomenal growth of communal feeding during the last twenty years has led to the position that a very considerable proportion of the nation's workers take their midday meal in some canteen and the tendency is for this meal to become the main one of the day. The responsibility on the catering manager is thus a very real one and every effort has to be made to ensure that food and drink should supply an adequate intake of essential food factors.

Whilst all caterers acknowledge that their aim is to serve a good, wholesome and palatable meal, there are few accepted standards set as a guide except those of the individual's experience. The catering manager should pay particular attention to those little points in the catering service which often fail to produce the desired results.

Serve the Appetite

The cup of tea correctly made can often build a reputation for the canteen, just as the serving of watery vegetables, incorrectly flavoured foods, poorly seasoned made-up dishes and badly plated foods can mar it. Elementary faults are those which occur most frequently and attention must be given to basic things first. The first maxim must be that the food, however plain or simple, must be cooked properly and served to look appetising. Remember the old adage, " that for food to be appreciated it has to please the eye, please the tongue and please the stomach."

Standard Recipes

Gradually cooks in canteens are being trained to use standardised recipes, for the intelligent use of such recipes takes the guesswork out of quantity food production. There is the odd cook here and there who still judges by guesswork and is often successful but, generally, it must be accepted that hit-and-miss methods have no place in modern works and office catering. Recipes are essential if a standard product

is to be secured, and each has to be carefully tested as to the quantities of various ingredients, the methods of mixing and the cooking processes and times.

Every catering manager should keep his own record of tested recipes which prove satisfactory in meeting the needs of his establishment and serving its numbers. The multiplication of an ordinary household recipe cannot be relied upon to give satisfactory results. The relative proportions may be wrong, the mixing too brief and the yield disappointing. Each recipe, before being accepted as a standard should have been tried out several times by various people and found to be satisfactory in both yield and quality. Each accepted recipe should then be allocated a serial number for reference purposes and should bear a note as to the number of portions it produces, the size of portions, the total cost of production and the cost per portion. This indexing should also record the date of the costing.

Standardised Portions

In every case the size of the portion should be standard although many establishments operate where the sizes of portions vary considerably. Many work on the principle that a portion of vegetables should be larger when the raw commodity is cheaper. This would appear a mistaken policy which often leads to wastage on the customer's plate. Portions should be constant throughout the year, for standardised portions are as necessary as standardised recipes.

Sound menu planning should strike the correct balance between the cheaper and more costly dishes, and menus should be drawn up to provide not only a balanced and attractive meal but to ensure that over a given period the proper costing balance is struck. It should take into consideration also the utilisation of left-overs.

The Left-Overs

That is, the proper and economic use of left-overs. While every care should be taken not to over-produce, it is inevitable that with a varied menu there will be a certain

number of portions of something left. Left-overs should be kept to a minimum as they are expensive to re-use as double cooking and double production costs are necessary before they can be re-offered for sale. Having prepared them for re-use an economical price has to be set, taking care to trace back the original cost of the raw commodities involved and the losses of weight in preparation, cooking and re-cooking. It is a common fallacy that left-overs—made up into dishes, or put into soup, are paid for anyway ; in actual fact, they are not paid for until they are sold.

Economic Use of Equipment

A further point in menu planning is the economic utilisation of the kitchen equipment. The intelligent compilation of the menu will save the cooks a lot of headaches if roast type meats are served on days when steamed pudding is prominent and so on.

Often a call is made upon the catering manager for special menus for the directors' dining-room or for special lunches or club dinners, the chief requirements usually being for something different which the director can use to show off the skill of "his" kitchen, or a menu to be remembered at next year's annual dinner.

MENU COMPOSITION

The essentials for menu composition are briefly :

1. Each dish shall be different in composition and mode of cooking.

2. The composition of the individual dish must be excellent, must be well cooked and tastefully served, yet distinct in character.

3. The harmonising effect is obtained by so arranging the dishes that each one is distinct from the other, bearing no relation in appearance with the preceding or following dishes.

4. Careful selection of raw materials, in all cases taking the season of the year into account.

5. The various types of sauces employed in the preparation and served with meat or fish must be distinct in colour, taste and flavour. Sauces (except those served with fish) should correspond in taste and colour to the meat with which they are to be served.

6. Avoid dishes which are difficult to present and serve for a large number.

7. Avoid the use of pompous or created names for new dishes, especially when of an inexpensive character. It can lead to disappointment.

8. The menu in all cases must be strictly followed.

9. Study the likes and dislikes of the customer.

10. Vary the menu to avoid monotony.

11. In selecting the dishes, observe the seasons and be guided accordingly, as certain foods are at their best at different periods.

It has been said that the civilisation of a people or of an age may be ascertained by the style of its cookery, and gastronomic tastes have been found to change with the progress of a people. "The destiny of nations," wrote Brillat Savarin, the great artist of the kitchen, "depends on their food."

This does not mean that every catering manager has to be a dietician, but everyone who arranges menus should have some knowledge of simple dietetics or have such knowledge readily available. As a long term plan the catering manager should aim at educating his customers, gradually popularising a wider variety of dishes and breaking down prejudices. In recent years the younger worker has been taught to choose his food wisely through the medium of the Schools Meals Service, so these youngsters should be given the opportunity of retaining their good habits.

FOOD VALUES

A list of common foods with calorie values and notes of main sources of necessary food values, kept handy for ice will enable the menu planners to ensure that those necessary for good health are included in the menu.

Protein foods are body builders, build muscles and provid calcium for building bones and teeth and iron for the bloo The body requires about 2½oz. of protein each day whic can be made up partly from animal sources—meat, fish, eggs, milk, etc., and partly from vegetable sources. It is desirable that half the daily supply should be derived from meat or fish and the main meal will normally be the chief supplier of this animal protein and vegetable. Protein in the form of pulses, flour, etc., will provide the remainder.

Calcium is necessary for good teeth and building bones and is found in milk, cheese and green vegetables. Green vegetables of some kind should be served every day, in conjunction with root vegetables, to avoid monotony. Iron, which prevents anaemia, fatigue and lack of energy is found in liver, black treacle, watercress, green vegetables, eggs and whole grain cereals.

Energy foods provide fuel for the body and supply warmth. The carbohydrates which supply energy quickly are found in sugar, starch, etc. Fats on the other hand form a concentrated source of energy and are found in butter, margarine, egg yolks, etc.

VITAMINS

The protective foods are those that provide the differen vitamins, each of which plays a particular part in keepin the body fit and giving protection against illness. Whil there are many vitamins, scientific research continues t discover that what was originally thought to be one unit can be subdivided into many parts, each performing a special function.

There are four vitamins which from the caterers' point of view are of major importance.

(1) *Vitamin A.* Which is fat soluble, is found in milk, milk products, herrings, sardines, pilchards, cod-liver oil, halibut liver oil, carrots, swedes and green vegetables, and is necessary for general fitness especially for good health in eyes.

(2) *Vitamin B.* Is found in potatoes, n tables, cereals, and National flour and helps t

nervous system toned up. Lack of vitamin B can lead to digestive troubles and tiredness.

(3) *Vitamin C.* Is found in vegetables, potatoes, fresh fruit, tomatoes, watercress and raw salads and is necessary for a clear healthy skin, healthy gums, the health of the body and condition of the blood generally and as an aid to resistance to general infection. Unfortunately Vitamin C is soluble in water and is affected by heat. It is important therefore not to keep vegetables in hot cupboards for longer than is absolutely necessary and to keep cooking time down to a minimum.

(4) *Vitamin D.* Present in milk, butter, margarine, cheese, oily types of fish and is fat soluble. It is necessary in helping the calcium to lay down the formation of bones and teeth. The most important factor for the supply of Vitamin D is, however, overlooked—possibly because it is free—and that is sunshine.

Chapter Seventeen

Buying

FOOD buying should be in the hands of a capable and conscientious person of the highest integrity. Upon good buying depends, to a great extent, the economical running of the canteen, the variety in the menu, and on the ultimate standard and cost of feeding. A good buyer will take advantage of plentiful supplies thus obtaining the best value for his money, will buy the right commodity for the use for which it is intended, and combine quality with keen prices.

The aims of the food buyer should be to see that he is well informed of current prices, that goods delivered are as fresh and sound as possible, and to ensure that supplies are delivered when they are required. The late arrival of goods for immediate use in the kitchen will result in poor preparation, low standard of cooking and a discontented kitchen staff. Not only should the buyer see representatives personally, and be a good " mixer " among them, but he should visit the markets periodically. In the case of fruit and vegetables, buying in the open market should be encouraged, as the certainty of freshness and more economical prices will result. He must possess a sound appreciation of quality in goods.

METHODS OF BUYING

A decision has to be made by the catering manager as which method of buying he is to adopt :—

(*a*) Buying goods wholesale.

(*b*) Retail buying.

(*c*) Central buying—generally used by large concerns controlling a number of canteens.

(*d*) Contract buying.

Each method, however, has its problems and peculiarities.

Under (*a*) the prices may be something like 25 per cent lower than retail prices.

Retail buying is more suitable for the smaller establishment and usually, according to the volume of trade, provides a discount of up to 10 per cent.

The advantage with central buying is that more favourable terms can be obtained but it requires the provision of transport and a highly organised specialist staff to handle it.

Contract buying is not wholly successful, particularly for fruit and vegetables ; the prices rise and fall considerably and the trader may be forced to supply inferior quality goods. Contract buying is usually adopted by institutional and municipal authorities and contracts are entered into, generally, for not more than three months at a time.

In the majority of cases in medium sized establishments the responsibility of buying rests with the catering manager who works in close liaison with the chef. Daily requisitions from the chef should reach the catering manager in time for him to place the necessary orders or to arrange to attend the appropriate markets.

Vegetables and Fruit

The advantage of buying vegetables and fruit direct from the market is that both are in the freshest condition, and the keenest prices are obtained. A specialist staff and transport facilities are essential for its smooth running.

For the smaller establishment, it is perhaps better to buy from a wholesaler who will give a comparable figure to that of the market and will provide a transport service to the canteen for a small charge on each parcel. On the other hand, the smaller establishment may prefer to deal with the retailer who will probably give a discount of up to 10 according to the size of the order.

The edible yield of perishable foodstuffs determines its ultimate cost. There is little point in buying an article at a low price, if the yield is so poor that it compares unfavourably with a dearer article providing a greater edible proportion.

When buying fresh foodstuffs, this inedible amount must be taken into account. Unfortunately, it is not always possible to see the goods before buying, in which case it is evident that personal attention must frequently be given to their condition on delivery. Recorded tests of trimmed yields of vegetables and fruit will provide useful information to the buyer when dealing with suppliers and lend conviction to his purchasing power. This recorded information will also enable the buyer to decide at what time new season goods can be purchased economically. Sight should not be lost of the different grades and qualities of vegetables and fruit in relation to their use. Because of their highly perishable nature vegetables and fruit should be obtained as frequently as possible—large stocks will result in spoilage and loss of nutritive qualities.

Vegetables	*Season*	*Characteristics*
Beetroot	All the year.	Should be smooth, firm and tender.
Beans, Broad	July and Aug.	Pods should be well filled. Beans should be plump and firm but not dry.
Beans, French	July/Oct.	Are best when small. Should be tender, stringless, and snap easily when broken.
Beans, Runner	July/Oct.	Should be of medium size and tender.
Brussels Sprouts	Oct./March	Avoid those with limp or discoloured leaves, which indicate staleness. Heads should be hard and compact, of fresh green colour and free from insects and decay. Should retain a good colour after cooking.
Cabbage	All the year.	Heads should be solid, firm with crisp leaves and free from discoloration. Spring greens are more expensive, but have a greater edible yield. Savoys have a crimped leaf and pale heart, with a more delicate flavour.
Carrots	All the year.	Should be firm, fairly smooth, tender and of good colour.
Cauliflower	March/Nov.	Heads should be white and comp and care should be taken to that the leaves are crisp edible yield is comparative

Vegetables	*Season*	*Characteristics*
Celery	Aug./March	Stalks should be tender, crisp and free from cracks and decay. Colour should be white or light green.
Cucumbers	May/Oct.	Should be firm, regular in shape and slice cleanly.
Lettuce	All the year.	Should be crisp, fresh and free from blemish. Avoid those with tough, leathery leaves.
Leeks	All the year.	Should be large firm, clean and white.
Onions	All the year.	Shape and colour depends on variety —should be mature, uniform in size and free from disease or rot.
Parsnips	Oct./May	Medium size are preferable as large roots usually have woody cores. Should be firm, smooth and regular in shape.
Peas	April/Oct.	Colour should be bright green and pods firm and well filled. Peas should be medium size and tender.
Potatoes	All the year.	Should have shallow " eye " and no sprouts. Select smooth, firm potatoes free from blemishes such as green colour on skin.
Radishes	May/Oct.	Should be well formed, firm and tender.
Swedes	Sept./May	Should be smooth, firm and free from blemishes.
Spinach		All kinds should be crisp and rich green in colour.
Tomatoes	All the year.	Should be mature, not over-ripe smooth, firm and fleshy.
Turnips	All the year.	Should be firm and fairly smooth and free from cracks and decay.
Vegetable Marrow	July/Oct.	Small or medium size are best, since large marrows become dry and tough.
Watercress	April/Oct.	Should have bright green leaves and crisp stems.
Fruit		
Apples	All the year.	Should be matured, well formed with no damage from insects. Colour and shape characteristic of variety.
Apricots	May/Sept.	Highly perishable—should be firm and orange in colour.
Grapefruit	All the year.	Should be thin-skinned, firm but springy to touch. Thick-skinned, spongy fruit usually has little juice.
Grapes	All the year.	Should be plump, fresh and firmly attached to stems.
Lemons	All the year.	Should be firm (not hard) and thin-skinned.

Fruit	*Season*	*Characteristics*
Oranges	All the year.	Avoid spongy oranges. Should be firm, hard, with fairly smooth skin.
Plums	July/Oct.	Should be firm and plump—colour according to variety.
Peaches	Sept. and Oct.	Should be firm, ripe and free from blemish.
Pears	Sept./March.	Should be firm (not hard) and mature.
Rhubarb	Dec./June	Deteriorates quickly—order as needed.

Blackberries, Cherries, Currants, Damsons, Gooseberries, Raspberries and Strawberries, etc., are highly perishable, and should be ordered as required.

The following are recognized weights of standard packaging in vegetable markets :—

Commodity	*Type*	*Weight*
Beans, Runner	Box	28 lb.
Beetroot	Half bag	56 lb.
Brussels Sprouts	Net	20 lb.
Brussels tops	Half bag	30 lb.
Cabbage	Box	36 lb.
	Mat	56 lb.
Carrots	Half bag	56 lb.
Leeks	Box	20 lb.
Onions	Half bag	56 lb.
Peas	Half bag	40 lb.
Potatoes	Bag	112 lb.
Savoys	Mat	30 lb.
Spinach	Crate	14 lb.
Swedes	Half bag	56 lb.
Tomatoes	Chip	12 lb.
	Boat	24 lb.
Turnips	Half bag	56 lb.
Apples	Box	40 lb.
Damsons	Box	24 lb.
Gooseberries	Chip	12 lb.
Pears	Box	20 lb.
Plums	Box	28 lb.

Meat

When possible, meat should be bought in carcase form which will not only afford a more varied selection of cuts to the consumer, but provide a greater weight for the monetary value than if bought in joints. Often the catering manager ignores this important factor, either because he mistrusts his knowledge of carcase meat and his ability to select joints for their specified purpose, or mistakenly he decides it is simpler to just order " meat for roasting, stewing or frying."

When it is not practicable to buy in carcase, attention should be given to the joints supplied. It is not sound buying to purchase a preponderance of prime roasting joints when this will result in fewer dishes on the menu.

There are certain points to bear in mind when buying. All carcases should bear a stamp or tab indicating quality and grading.

Meat		*Characteristics*
Beef	(a)	Good quality meat should be bright red, smooth, firm ot the touch, flecked with fat. Muscular fat ("marbling") should be plentiful, and grain (texture) fine. Cut surfaces should be moist (not wet). Older and inferior meat appears darker and coarser.
	(b)	Fat should be firm and odourless, and creamy white in appearance. Deep yellow fat is characteristic of older or dairy animals.
	(c)	Bone will vary with age from pink (young beef) to grey-white in older animals. Should smell clean, not musty.
Mutton	(a)	Flesh should be firm, dark red in colour, of fine grain.
	(b)	Fat should be hard, brittle, white and odourless
	(c)	Bones generally pink in colour, but grow white and harder with age.
Lamb	(a)	Flesh should be firm, light red and fine-grained.
	(b)	Fat should be firm and white.
	(c)	Bones should be fairly soft and pink in colour.
Veal	(a)	Flesh should be light pink, firm and smooth and fine-grained. Cut surfaces should be moist (not wet).
	(b)	Fat should be clear, firm and white in colour.
	(c)	Bones should be flexible and pinkish-white in colour.
Pork	(a)	Flesh should be light pink in colour, smooth, fine-grained and springy. Cut surfaces should appear moist (not wet). Darker shades of pink indicate an older animal.
	(b)	Fat should be white, smooth and firm.
	(c)	Bones generally soft and pink in colour, but grow whiter and harder with age.

Fish

Large establishments would probably prefer to send a buyer to the fish market to buy direct from a merchant and take it back in his own transport, or others may order from a trader who will deliver it.

The catering manager of a smaller establishment will probably buy from a retailer who will allow a discount of up to $7\frac{1}{2}$ per cent according to the size of the order. Another method is to buy direct from a trader at a fishing port, and have the fish sent direct by rail to the canteen. This last

method can sometimes prove more disadvantageous than had been foreseen, as overheads may be incurred through telephone calls and telegrams in addition to the cost of transport, delivery charges and container recovery.

Fish is packed in ice in wooden or metal boxes and care should be taken to see that there has been no deterioration. The following points should be remembered :—

(a) The eyes should be bright and full with a black convex pupil.
(b) The gills should be brightly coloured, clean and free from slime.
(c) The flesh should be resilient and firm to the touch. It should be white, bluish white or translucent. It should adhere firmly to the bone.
(d) The skin should be smooth, glistening and moist.
(e) Scales should adhere to the skin and not rub off easily.
(f) It should smell fresh and have an agreeably salty smell.

Special care should be given to the buying of mackerel as it deteriorates rapidly and unless very fresh can cause illness.

Care should be taken to inspect fish for parasites, as small white worms are found imbedded in the flesh of some filleted fish such as cod. Fish lice, a fairly common parasite, is sometimes found attached to the skin of halibut. Although neither is considered to have any unwholesome effect on the fish, they are both unpleasant and would not be well received.

Quality of fish varies throughout the year and it is at its best just before spawning, and at its poorest immediately spawning has taken place.

Fish	*Spawning Season*
Cod	Jan.-March
Dab	March-May
Haddock	Jan.-June
Halibut	May-July
Hake	March-June
Herring	Spring and Autumn

Fish	*Spawning Season*
Plaice	Jan.-May
Salmon	Feb.-Aug.
Sole	April-June
Turbot	April-August

Fish may also be bought in the form of frozen fillets, usually in seven pound packs or multiples. While frozen fish retains most of the characteristics of fresh fish, freezing can produce a poor appearance and flavour. Long storage causes the fish to become spongy with a resultant loss of weight. Special attention is required in the thawing process and preparation.

Bread

Bread becomes stale quickly when exposed to the air and is therefore a great source of waste. Wrapped bread has many advantages apart from the obviously hygienic ones. It stays fresher and is consequently more palatable, provided it is not removed from the wrapper too soon. With sliced wrapped bread the number of slices to the loaf is easily determined and enables the buyer to purchase the required quantity more accurately.

Milk

It is advisable, except in very large establishments, to buy milk in bottles. Apart from its hygienic importance bottled milk provides the buyer with a more accurate method of ordering and supply. Bottles can be stored more easily and the extra cost is small in relation to the reduction of wastage in spoilage and careless handling.

Groceries

No hard and fast rules can be laid down in the purchasing of groceries and while quality comes before price, it must not be assumed that the dearest article must always be bought.

The size of packs and jars should be studied. 7-lb. units may be cheaper, but if only small quantities are required from a large tin or jar there is the danger that the half empty one, which invariably gets pushed to the back of the stores or goes "off", causes considerable waste in material and money.

Chapter Eighteen

Storage

WASTE due to unsatisfactory storage is often overlooked and sometimes tolerated because of insufficient space to improve or extend existing storerooms.

Whatever the reason it is irrefutable that inadequate and undesirable storage facilities produce an inevitable deterioration in the condition of the food. Storerooms should be situated as near to the kitchen as possible and may be classified under headings :—

(1) Dry goods and groceries.
(2) Vegetables and fruit.
(3) Meat, poultry, fish.
(4) Edible " left-overs " and prepared foods.
(5) Cleaning materials and equipment.

In all cases storerooms should be provided with adequate shelving, bins and racks. Walls and flooring should be of a suitable material to facilitate frequent and thorough cleaning.

STOREROOM CONSTRUCTION

The actual construction of the storerooms will depend entirely on the amount of money allocated for that particular project : in general the storage space required is usually severely under-estimated. It must be recognised that unless sufficient space is given, in relation to the number of meals served, the catering manager will be handicapped where a varied menu is required. While it can be said that overstock

ing points to inefficiency on his part understocking will lead to a restricted menu or last-minute purchases made at prohibitive prices. As a rough guide an average of just over one square foot of storage space for each canteen customer should be adequate, using 125 square feet for 100 persons, 500 square feet for 400 persons and so on.

When planning for storage a careful study should be made to see that steam from the kitchen does not penetrate, for one of the essentials of good storage is good ventilation and proof against dampness.

Certain elementary conditions are necessary for good storage :

Dry Goods and Groceries

The ideal temperature of a dry-goods store should be between 50° and 60°F. It must be remembered, however that in a large storeroom where a storekeeper will spend a lot of his time, the temperature will have to be maintained at nearer 60°F. The store should be dry and light with good ventilation. To assist ventilation it is recommended that shelves should be fitted to the wall in such a manner that they can be easily removed for redecorating the walls but in such a way that a small gap is left between the shelf and the wall to allow a free circulation of air.

Shelves should be arranged as far as possible on a universal style to take a single or double row of goods and should be fitted so that the distance between them can be altered when required, as it is found that tins and boxes rarely fit exactly between two shelves and valuable space is consequently lost.

For items in constant demand the shelves should be not less than 2ft. 6ins. and not more than 5ft. 6ins. from the ground. The space beneath the shelves can be used for bins fitted with castors for easy movement. Sacks of flour, sugar, etc., if sufficient bin storage is impossible, should be stacked end on and on racks at least 8 inches from the floor. Tea, cornflour, custard powder, etc., which are highly sensitive to odours and atmosphere should, if stored in packets, be kept well apart

from seasonings, flavourings and any strong smelling cheeses, etc.

The storage of fats, milk and bacon, requires refrigeration and if possible, they should be kept at the following temperatures :—

Cooking Fats, Butter and Margarine	45°—50°F
Bacon	35°—40°F
Milk	40°—45°F

Fats should be stored in closed containers that exclude air and light in order to avoid rancidity. Where stocks are small or rapid turnover does not warrant separate refrigeration the common refrigerator should be maintained at 40°F.

Vegetables and Fruit

Extremes of temperature will cause deterioration and is a highly important factor when storing vegetables and fruit. A suitable temperature is that between 40° and 50°F, as root vegetables will become frosted and spoiled if the temperature drops below freezing-point and green vegetables quickly wilt and turn yellow if the temperature rises above 65°F. In contrast to the conditions desired in the dry stores a humid atmosphere is desirable in vegetables, especially greenstuffs storage.

Sacks of potatoes and root vegetables should stand on slotted shelves or boards at least 4 inches from the ground, to prevent any wet from the floor getting in to them. The sacks should be opened and the tops rolled down to give adequate ventilation. Where bins are provided they should be designed for convenience of loading and removal of the goods. Those built on the coal bunker style where the bottom is so arranged to facilitate the removal of potatoes are admirable as long as removable sections are incorporated in one side to enable the height to be reduced for easy loading.

Racks should be provided for all green vegetables delivered in mats or nets and for use the same day they should stand clear of the floor. If they are not required for immediate use they should be turned out on to slotted shelves or racks.

Fruit usually delivered in boxes should be stood on shelves

Meat, Poultry and Fish

These items must be kept in a cold-room or refrigerator which should not exceed 40°F. Because of its strong odour fish should be kept in a separate cold-box and in the case of frozen fish, not to be used immediately, the temperature should be approximately 24°F. Refrigerators must be kept clean and regularly defrosted in order that the mechanism does not become overloaded and reduce efficiency.

Edible "Left-Overs" and Prepared Foods

The room should be fitted with slatted shelves and fly-proofed windows and doors. Good ventilation is essential, mechanically assisted if possible, to ensure that left-over foods are cooled quickly before being transferred to the refrigerator.

Shelving and Bins

The quantity to be stored will decide on what shelving will be required. Bins should be provided for scouring powders and soda as paper bags and hessian sacks are easily broken. Hooks can be used to advantage for storing many items of small equipment. Care must be taken that there is no entry of steam from the kitchen to cause misting. The question of weight bearing must be borne in mind as in some instances the load placed on some shelves will be considerable. The type of material chosen and the length of run without support must be taken into consideration when estimating the load to be carried.

PEST CONTROL

Infestation by rats and mice is dangerous as they can spread disease which causes food poisoning. They may not come by reason of the construction of the building, but may arrive in sacks, crates, etc. It is essential that all practical steps are taken to ensure the elimination of this source of infection.

(*a*) Maintain storage accommodation in thorough repair and stop all ascertainable means of rodent access. Some ventilating systems provide ideal access.

(*b*) Ensure that any food scraps dropped are promptly removed and the stores maintained at a high level of cleanliness.

(*c*) Provide impervious receptacles with tightly fitting covers for the storage of cereals, etc.

(*d*) Seek the advice of the local authority if rats or mice are found in substantial numbers or come from some known source such as a refuse dump or factory.

The number of flies on the premises can be materially reduced by the rapid and efficient disposal of all food scraps and by using flyproof covers for food to the fullest possible extent. The presence of cockroaches is often evidence of inadequate hygienic precautions and should be dealt with by using a suitable insecticide, taking care to prevent the contamination of food, equipment and utensils.

Thorough cleanliness and the provision of proper food containers in storage accommodation are the most important preventive measures.

Chapter Nineteen

Company Costs

CATERING for employees whether in the factory or in the office is now an accepted responsibility of management. The decision that has to be made at top level is whether that responsibility shall be discharged by complete operation of the canteen as a separate department of the organisation or whether it should be entrusted in whole or in part to a catering contractor. The choice depends upon several factors :

1. The degree to which management is prepared to accept catering as a first-hand responsibility.
2. Adequate knowledge of the economics of catering.
3. The availability of qualified catering staff.
4. (*a*) Management's awareness of the value of internal catering.

(*b*) The scope which should be allowed to the Catering Department and the possibilities of its expansion in the interests of better welfare.

(*c*) The need for maximum efficiency in canteen operation.

The canteen is as essential as the workshop or sales office but unfortunately it is sometimes looked upon by unenlightened management as a necessary but rather costly diversion. A well run canteen may not pay its way continually, indeed, it may have to be subsidised, but it does pay dividends if only through reduced absenteeism and better employer-employee relations.

The question of who pays for the canteen is an old one. Should it be the customer or the company ? The suggestion

that the customer should pay more for his meals presents the objection that although he knows that increases in costs of raw materials affect the house-keeping in the home, he illogically supposes that canteen prices should not be affected. Services to the customer might be reduced but that again may create a difficulty. Or it may be that the company should pay more in the form of subsidy if it is decided as a matter of policy that the workers should not be asked to pay more for their meals. The subsidy, in whatever form, should be looked upon as in the nature of a service and should be analysed in terms of itemised costs so that if necessary a decision can be taken at management level to ascertain which services give real value for money and which can be reduced or dispensed with altogether.

The fact that a catering service may have to be subsidised will have to be accepted as part of the management's catering policy. The goodwill that will accrue from such a service, which itself reflects the company's personnel policy, places it as an asset of high value. The subsidy must not, however, be allowed to become a support for careless catering operation.

The subsidy should not be a heavy burden provided the canteen is well supported and efficiently run. The main thing is for management to know precisely what it has to carry and to institute adequate checks to see that its commitments in this respect are not only limited but can be reduced.

The amount of the subsidy will depend upon circumstances but from a survey made by the Industrial Welfare Society in 1956 among 200 firms of very varying sizes it appeared that the average subsidy per head per employee was around £3 16s. 9d.

The essential requirement is that management, if it is to be relieved of subsidy or the amount is to be continually reduced, has to maintain a close watch on the service. One firm found it necessary to spend £2,000 on subsidy because 20 per cent of its employees rebelled against the poor conditions and bad service and began to fade away. Now, because of improvement and reorganisation there is a 60 per cent support of satisfied

employees and a substantial reduction in the subsidy has resulted.

Another firm turned a substantial figure in the red to a good sum on the right side in one year by changing its methods and providing more comfort and better service.

WHAT WILL IT COST ?

One of the first questions asked by management facing the problem of a catering service is " How much will it cost ? " The canteen is a department of the organisation discharging a managerial responsibility for meeting the needs of the employees and susceptible to their demands as an employee service. The canteen should not be looked upon as a commercial profit-making department. Its value lies in the great number of healthy, active and contented employees who are not only an asset in their work capacity but as consumers of the goods which industry produces. In many organisations the canteen is definitely a welfare measure, an amenity offered to employees and part of the policy of staff relationships.

If the decision is to contract out the company must make up its mind what it is going to provide for the use of the contractor and what services it is going to pay for.

Usually the organisation bears the cost of items such as :

(*a*) The building and the equipment, furniture, etc., for the kitchen and dining-room.

(*b*) Rent and rates.

(*c*) The cost of maintenance of the building, depreciation and replacement of equipment and furniture after a life of say 15 years.

(*d*) The cost of steam, water, gas, electricity and other services supplied out of the main sources.

(*e*) Administrative expenses in the form of services rendered by an accounts section, wages section, etc.

(*f*) The difference between the cost of a meal and its price at the juvenile meal rate where such requirement exists.

(*g*) The probable subsidy to ensure that the price of meals is within what employees will pay.

If the catering is to be done entirely by the organisation itself the canteen account will include the following :

(*a*) All goods used in the canteen.
(*b*) Salaries of Catering Manager and assistant.
(*c*) Wages of all catering staff.
(*d*) Overhead charges and items like National Health Insurance contributions, laundry allowances or service where the laundry is maintained by the company.
(*e*) Fuel.
(*f*) Meals for catering staff.
(*g*) Maintenance of equipment and furniture.
(*h*) Replacement of utensils, crockery, cutlery, etc.
(*i*) Stationery used by the catering service.
(*j*) Cleaning services and materials.
(*k*) Depreciation and insurance.
(*l*) An amount to cover the difference between receipts and expenditure, it being assumed that a subsidy will be necessary to maintain the catering service.

Income can be broadly classified as :

(1) Main meals, snacks, cakes, fruit, etc.
(2) Tea, coffee, milk and other beverages.
(3) Sweets, cigarettes, etc.

The proportion of expenditure on main items compared with income can be seen in the following figures (from *Business*, April, 1956) relating to three self-managed catering services (the percentages are shown as a proportion of turnover or income) :

	A	%	B	%	C	%
	£		£		£	
Income	30,000		120,000		5,000	
Expendible Commod.	25,000	83.33	100,000	83.33	5,200	104
Wages	10,000	33.33	48,000	40.00	2,500	50
Fuel	600	2.00	2,800	2.33	150	3
Replacements ..	480	1.60	1,600	1.33	200	4
Laundry	150	0.50	900	0.75	100	2

COSTING POLICY

Whichever method of catering is adopted every organisation should lay down a definite policy on costing. Where there is no such policy and the cost of the catering service results

in a deficit beyond the subsidy, it is usually the catering manager who is rightly or wrongly held responsible by both management and employees. One reason for such deficit may be that management is reluctant to increase prices to a realistic level for fear of opposition from the employees. Small economies and inadequate price increases will no longer meet the changed conditions caused by higher costs. If the catering service is in the red to the tune of more than 10 per cent of the turnover only bold action will meet the situation. Prices must not rise to the point where customers cannot face them.

If the policy of the organisation is that catering is to be run as a part of the business, the catering manager and his staff should know precisely where they stand. One step towards a proper understanding and implementation of policy is the setting up of a canteen committee. It should be properly constituted and might consist of representatives of the office staff, factory employees and management with the catering manager and the welfare or personnel officer who may be the chairman of the committee. The committee would be responsible for watching the interests of the employees as well as those of the company. Committee members should be elected only from regular canteen users. They would discuss all consumer problems but should not in any circumstances be allowed to interfere with the management of the catering staff or with the general canteen routine. That is strictly the canteen manager's province. Nor should the committee concern itself with trivial domestic matters which are best dealt with by the catering manager on the spot as they arise. The committee should act in an advisory capacity and should not usurp the responsibility or authority of the catering manager.

Any proposed alteration in prices charged or portions served would be discussed by the committee. In the light of all the information available, and looking at the problem from all angles the discussion might be taken to employee and/or management level, should a decision to involve any serious charge be thought desirable. Needless to say any recommendations made should fit in with whatever arrangement the organisation may have in regard to joint consultation and

plans for improved staff relations. One important matter which the canteen committee will discuss is the disposal of a canteen financial surplus, should such a happy result be achieved. The immediate reaction in many canteen committees is to reduce prices and/or service, but while it is appreciated that employees must be well fed at the lowest economic price, reductions should only be made after the committee is satisfied with all that is being done to improve the efficiency of the catering service and to see that the catering staff is adequately remunerated—remembering all the time the trend of rising costs and that it is easy to reduce prices but difficult to put them up again.

Chapter Twenty

Canteen Costs

IT is imperative that in every canteen full information concerning income and expenditure is available to the catering manager. In some cases it is thought necessary that he should prepare his own accounts, but in any case there should be made available to him the accounts relating to the catering department of the organisation and they should be in such a form that they are easily understood.

Where the canteen is regarded only as an ancillary service it may find no place in the company's accounts except perhaps in the form of an entry showing an amount which is a subsidy necessary to cover the catering loss. In some organisations there appears to be a theory that so long as there is an excess of income over expenditure at the end of a trading period accurate dissection of the catering accounts is unnecessary ; that it is not worth while working out percentages of expenses in relation to sales or in other ways analysing the accounts. But good business management is as essential for the successful operation of a food service as it is for any other enterprise, and apart from the need that the element of chance in the possibility of a surplus or deficit on the year's working should be eliminated, it is essential that comparative figures should be available as a check.

THE BUDGET

A carefully prepared financial programme and budget based on a reasonable anticipated income enables a catering

manager to plan expenditure before actual spending begins. Details of the budget will naturally vary according to the type of canteen or the service given, but it should include :

(1) Income anticipated from all sources.

(2) The anticipated expenditure under separate headings.

(3) The estimated surplus or deficit.

The income anticipated for the year is usually based on the previous year's returns (or in the first year on a carefully based estimate), due allowance being made for the effect on the turnover of unforeseeable changing conditions.

The budget should be as detailed as possible and capable of being broken down into monthly periods in order to permit of close check and to enable the catering manager to report as soon as marked deviations give warning of probable difficulties.

It must be recognised by management that while it is the responsibility of the catering manager to manage the catering efficiently in the interests both of the company and the employees, and in accordance with the company's policy, if that policy is to provide meals at a price so low that, with the most efficient and experienced catering management, it is impossible to meet the total cost of food, wages, cleaning materials, replacements and other charges against the canteen working account, the resulting deficit must not carry a reflection on the competence of the catering manager.

That recognition is not always apparent.

The catering manager will always feel disheartened when he sees a loss in the canteen working account even though the loss is an anticipated reflection of the company's catering policy. An anticipated loss, however, does not relieve him of his responsibility to look ahead and constantly advise the management about rising costs of all descriptions and their likely effect on the catering position and to make suggestions and recommendations. Only by so doing can he retain the confidence of management, and only in that way can management be prepared to face and deal with the consequences which rising costs involve. Whether it be to attempt to offset rising costs by increasing meal prices, or the reduction of portions, or to absorb them by increasing the subsidy is a

problem of management—and the catering manager can be of material help in finding the right solution.

The catering manager should keep a record of each item of expense throughout the operation of the catering service so that a comparison can be made and a basis of expenditure determined when budgeting. A careful review of past expenses should be made whenever a new budget is being prepared in order to prevent over-spending on some items to the detriment of others just as important.

The first step in anticipating expenses is to determine exactly what is expected of the canteen, what expense the company will bear and what items should be looked for to be covered by receipts. It is most important that any division of financial responsibility is made known at the outset.

In allocating expenditure under separate headings the catering manager must assess customer desires and essential needs. He must weed out the non-essentials and investigate what meal items may be provided at a lower price and what items may have to be increased.

The canteen working account should be prepared every three months for review and should give a break down of the percentages of charges. The average of these charges is :

Food	53%
Wages and Insurance	30%
Fuel	4%
Replacements	3%
Staff Meals	2%
Laundry	2%
Maintenance	4%
Cleaning Materials	2%

Standing charges such as rent, capital depreciation, etc., will not be included in the canteen account, unless, of course, catering is run directly by the company.

Periodic Checks

Even with a carefully prepared annual budget it is unwise to wait until the end of the year before ascertaining whether the catering service is being operated satisfactorily within the

financial limits allowed. Unless a regular periodic statement is made available as a check the value of the budget is likely to be lost. A simple weekly trading account showing food percentage costs is useful, but a monthly trading account is essential if only because it enables deviations from the budget to be examined in time for immediate checks to be made and remedies applied.

Although the catering manager usually has little time to spend in the office he should be quickly aware if a loss is being made or is anticipated and its possible cause. He should not be content with the knowledge that the organisation having budgeted for a deficit, will not be unusually disturbed if in fact such deficit results, but should be on the alert to reduce the loss so long as what he does does not impair the service or the quality or portion of the meals. Effective control of costs means that the manager himself must be efficient and effective control of a canteen starts in the storeroom.

COST CONTROL

The factors governing labour costs are not only concerned with £ s. d. but with principles of operation :

1. Effectiveness of supervision.
2. Quality of staff as individuals.
3. Integration as a team.
4. Work planning.
5. Conditions of work.
6. Layout and equipment.

Unless these principles are closely followed the best system of recording and costing will fail. That is not to discount the value of records—they are among the basic requirements of every costing system. Here are the essential records which the catering manager should insist upon :

1. Goods Received Book.
2. Stock Book.
3. Maintenance Service Book.
4. Petty Cash Book.
5. Cash Book.
6. Order Book.

7. Returns Book.
8. Stores Issue Book.
9. Menu Book.
10. Daily Sales Summary Sheet.
11. Trolley Service Stock Sheets.

Besides enabling the catering manager to exercise close control of the handling of all commodities and other items of expense, adequate records give him a complete picture of his department.

The Goods Received Book should be kept by the person responsible for the receipt of goods and should be headed as :

Date. Suppliers. Goods Received. Invoice No.

The nature of the headings naturally follows the requirements of the catering manager who will direct how much information he wants recorded. If an invoice accompanies the goods it is often found sufficient to record the supplier's name and invoice number in the Goods Received Book with the note " goods received as per invoice number ....." The invoice should be initialed by the person receiving the goods and counter-initialed by the manager and sent to the accounts department immediately. Some managers insist that a detailed list of the commodities and quantities received is entered in the book under Goods Received.

The Stock Book should be printed to show all the commodities normally used in the kitchen. The items should be split up into various categories—pulses, tinned goods, pickles, etc., listed in alphabetical order for easy reference.

A weekly stocktaking will give the up-to-date information required when ordering goods. In a large kitchen a daily stock sheet recording issues to the various sections is used, and the items on the list transferred to the Stock Book. The use of proper records will enable the manager to track down any leakages and to take the necessary action.

A Maintenance Service Book should be kept for all services carried out by gas fitters, plumbers, window cleaners, etc., so that a record is available of all such charges made against the catering trading account.

Other important points to which the catering manager must give attention are :

Cash. No cash payments should be made except through the Petty Cash Book. Cash taken for meals should be handled by as few people as possible and the entries in the Cash Book should be an analysis of the takings each day under the headings of meals, trolley sales, canteen shop, etc. Free meals for guests, etc., should be signed for by the persons responsible for the guest, and accounted for in the books.

Stock. Every telephonic or verbal order for goods should be confirmed through the Order Book so that a complete stock check is possible. A physical stocktaking should be made every quarter, or even every month, to check consumption and waste.

Watch for Waste. Apart from the careful check which should be made on all operational costs special attention must be paid to waste. Not only waste in the preparation of food but in the use of materials and labour. This wastage may raise food costs far above the percentage allowed in the budget : one item often overlooked is the failure to return chargeable empty jars, boxes, etc., to suppliers, and to keep them in returnable condition. The credit on returns can amount to a substantial sum in the course of a year. The Returns Book will prove that.

Wastage may be classified simply as :

(1) Poor quality of food.
(2) Short weight or measure on delivery.
(3) Improper handling of storage.
(4) Faulty or careless preparation.
(5) Failure to standardise recipes.
(6) Left-over foods not properly utilised.
(7) Poor portion control.
(8) Poor deployment of labour.
(9) Waste of essential services (gas, electricity, etc.).

Next to food the largest cost in operating the canteen is that for labour. The provision of adequate and suitable equipment with all staff trained in its use is necessary if labour costs are to be kept within the allowed limits.

The wise catering manager will submit to himself a —

daily questionnaire and be able to answer himself creditably. He should ask :

Buying. Are purchases made at most advantageous prices, in sensible quantities, properly ordered ?

Stores. Are physical conditions good—ventilation, temperature, clean, doors locked : are goods delivered checked, examined and recorded : are they issued properly : is there a monthly (or at least quarterly) physical stock check ?

Labour. Is there under or overstaffing ? If staff for 100 main meals is over 5, or labour percentage of turnover more than 30%, it needs looking into.

Sundry expenses. These can mount alarmingly—are they closely watched ?

Working costs. Do I know that, say, 50 pats of butter (selling at 2d.) are being obtained from a pound at 3/6 and cost no more than .84d. per pat: that, say, 5 portions of roast selling at 1/- are being obtained from 1lb. of meat delivered and costing no more than 8½d., and so on ?

Prices. What does a meal of roast and two vegetables, a sweet, a sandwich, a cup of tea, etc. etc., cost? How much does the cost vary and how far do customers' prices go to covering costs ?

Many catering managers may look upon this kind of catechism as going rather far. Others will regard it as necessary if they are to run the catering service as a business.

Chapter Twenty-One

Precautions and Practice

THE object of all hygienic precautions and of ensuring satisfactory hygienic conditions in handling and preparing food is to prevent the possibility of the spread of infection or food poisoning from one person to many. While food is of great importance to health and the enjoyment of life it can, when bad, be dangerous and, under certain conditions, cause serious illness and loss of life.

Not only is it essential that food is prepared, cooked and served under conditions which ensure that it is wholesome and clean, but that it is not allowed to be infected by a "carrier."

Food Poisoning Increasing

The risk of food poisoning is small in relation to the number of meals served in catering establishments, but in recent years the number of incidents has definitely increased : 1939—83 ; 1948—964 ; 1949—2,431 ; 1950—3,979 ; 1954—6,016 ; 1955—8,961 ; the latest figure showing an increase of 49 per cent over the preceding year.

This increase in the number of incidents has mounted with the growth of commercial feeding in factory canteens and schools and the number of people eating away from home in restaurants, cafés and hotels ; with the employment in the kitchen of untrained or semi-trained workers, and with food often cooked many hours before it is eaten.

Food hygiene, which simply means keeping, cooking and serving clean food, is therefore more important today than ever before.

While the number of notified incidents of mass food poisoning is relatively small in relation to the number of meals served each year, there are many more individual cases which go unreported and each one is preventable and just as unpleasant to the person concerned as in the cases reported. " Something must have disagreed with me," is not an uncommon comment. In the home, only three or four persons may be affected, but careless food handling in a factory or office dining-room can affect hundreds and, apart from the suffering involved, the possible hold up of production and loss of earnings is clearly something to be avoided.

Food which looks and smells good may be made dangerous if unhygienic methods have been used in preparing and serving it. Food poisoning is caused by several kinds of harmful bacteria so small that they are invisible to the naked eye, but which live and multiply rapidly on food scraps, kitchen refuse and cracks in food preparation tables, crockery, etc.

Food poisoning can be classified into two definite groups. One, where with food infected by the enteric infections such as dysentery, paratyphoid fever and typhoid fever, which are specifically human infections, the onset of the illness is not abrupt but is of a prolonged nature. The second group is probably where the correct term " food poisoning " is used and can be further classified into five main types :

First, sickness due to the infection with live organisms of the *Salmonella* group which cause gastroenteritis any time from six to twenty-four hours after ingestion and is accompanied by a fever and lasts up to a week. This type causes two-thirds of the incidents in the United Kingdom, and is more often caused by food handlers who are carriers of *Salmonellae*.

Second, poisoning occurring thirty minutes to four hours after *staphylococcal* toxin ingestion, producing sudden sickness and diarrhoea without fever and lasting from twelve to twenty-four hours.

Third, poisoning due to live *Clostridium Welchii*, which is becoming increasingly prevalent.

It is the most difficult to guard against because the organism is very resistant to heat. It is passed on by human carriers intestinally and is found in raw meat from the abattoir.

Fourth, poisoning due to the contamination of food by chemical substances such as zinc, lead and copper.

Last, there is the exception to the general rule, and which is a rare occurrence in this country, the toxin caused by *Clostridium Botulinium* which acts directly on the nervous system.

How Does Infection Arise ?

How then does food become infected, and what steps can be taken to prevent infection ? Perhaps the greatest factor in maintaining safety and cleanliness is the attitude of the kitchen staff towards food hygiene. If they have food hygiene at heart, their actions towards it become automatic. The canteen worker must understand how food becomes infected and how infection can be avoided and realise that germs are ever present in the air, on every utensil and in and on the body.

Food infection by bacteria which causes typhoid, paratyphoid and dysentery can usually be traced back to the handling of the food by persons known as " carriers." These are people who sometimes, after having apparently recovered from the disease itself, carry the germs internally without being affected themselves. These germs can get on to the hands or fingers from excreta—both solid and liquid—even through toilet paper. A strict rule should be observed that to prevent the risk of germs being transferred to other people's food all should wash their hands each time the toilet is used. Scrupulous personal cleanliness in all who prepare or serve food is of paramount importance.

The *Salmonella* group of bacteria is the most common cause of food infection. The food most likely to be infected by these bacteria are made-up meat dishes, meat cooked some time before it is required and re-heated, re-heated soups, meat products containing gelatine, duck eggs insufficiently

cooked and synthetic cream. Infection in carcases of lamb or pork through bad handling at the abattoir or in transit may also be present before it reaches the kitchen. The germs are found in domestic pets, rats, mice and cockroaches and their droppings.

Rodents

Rats and mice often suffer from infections which cause food poisoning in human beings if their droppings or urine come in contact with the food, and any surface they touch may become contaminated. They thrive where dirt is plentiful, food and drink are accessible and where they can sleep and breed without being disturbed. Every effort therefore should be made, first to prevent the entry of rodents into the building and, second, to ensure that food is protected and food scraps deposited in covered pig bins.

When premises are infected effective measures in the form of traps or poisoned bait must be used, or the service of one of the commercial rodent exterminating companies sought. Special care should be taken when rodent poisons are used as many are dangerous to human beings and should be clearly labelled if stored on the premises. They must be kept away from food.

Flies

Flies can carry germs from filth to food so that every step should be taken to discourage their breeding on the outside of the building, their entry into the building, and to protect the food in the building. Rubbish and food refuse bins should be kept tightly covered and regularly cleansed. Doors, windows and lantern lights to food storage rooms especially should be fly-proofed with fine mesh wire, fitted in such a way that it can be readily removed for window cleaning.

Flies are germ carriers and every effort should be made to keep them away from food by using perspex or other suitable covers. They spend their lives feeding alternately on food and filth and are not particular where they land or breed. They are mechanical carriers of infection, for their feeding habits are

such that while they feed, they defecate and regurgitate at the same time.

Dust

Food should never be stored less than three feet from the floor as dust kicked up by passing feet contains germs. The dust can contain not only the normal day by day dirt, but dried saliva from spittle (spitting is still, unfortunately, a prevalent habit in this country) and dried faeces from dog droppings. It is most important that the staff should realise that just sweeping a floor does not mean that it is clean ; it often means moving dust—and germs—from one place to another. Floors should always be lightly sprinkled with water first before sweeping to prevent the germ-laden dust rising and settling elsewhere.

Cockroaches

Cockroaches are also carriers of infection and are often found in kitchens, food stores and bakeries. They are exceedingly prolific and inhabit warm damp places, concealed in cracks and crevices in walls behind stoves, refrigerators and under shelves and cupboards.

Two species are usually found in this country, the German cockroach (*Blattella Germanica*), light brown in colour and roughly half an inch long, and the Oriental cockroach (*Blatta Orientalis*), very dark brown and just under one inch long. The former breed continuously at a terrific rate, some 35 young appearing from each egg sac, the adults living about three months and the females outnumbering the males by 9 to 1. They become a real menace if left undisturbed.

The Oriental cockroach, while less prolific than the German cockroach, still produces 200 young in a year and infestation can easily build up to considerable proportions, as maturity can take up to two years to reach.

Both species usually leave their haunts at night in search of food and their runs can be detected on walls and fittings by the staining spots caused by faecal pellets and scent gland exudations. The same can be found on food with which they

come into contact. Powders or sprays should be used to keep such infestations down. A more modern technique is the use of Insecta-Lac, a colourless lacquer which is considered to be the first true residual insecticide effective against cockroaches. Insecta-Lac may be applied by brush, where insects are known or expected to crawl in straight lines along walls or floors or around equipment, and can be carried out by an untrained operator. Spraying, for use in heavy infestations and in inaccessible places, should be carried out by the expert.

Germs From Humans

The most common cause of the contamination of foodstuffs is possibly by man himself, for *staphylococcal* infections in the form of boils, burns, septic cuts and in pathogenic *staphylococci* in the nose and throat, that can be transferred from one person to many. Not only is it required by law, but it is a common-sense precaution, that all food handlers should seek the advice of their doctor and not attend for work if they have a cough, cold, sore throat, or are suffering from septic cuts or burns (especially on the hands or forearms), bad teeth, discharging eyes or ears, or any skin disease, or if they are suffering from diarrhoea or vomiting. Coughs and sneezes do spread diseases, and the handkerchief should always be on hand for immediate use. But the handkerchief presents a wonderful reservoir for *staphylococcal* bacteria and handwashing after its use is almost as important as after using the toilet.

Washing Up

A further source of danger lies in the washing-up sinks, for swabs taken from them will be found to be heavily contaminated with organisms. A considerable number of infections have been directly traced to contaminated crockery, cutlery or food containers. Swabs taken from cutlery and crockery not properly washed and sterilized, will show heavy contamination, and examination of the bacterial content of some of the water in which these things have been washed would show that it has the bacterial content of sewage, including not only

respiratory organisms (organisms from the mouth), but also organisms from the bowel. Crockery and cutlery are also thought to be a common way of spreading infectious diseases such as colds and influenza, as well as of spreading food poisoning. Washing-up therefore must be done in really hot water and the articles given a final rinse for several minutes in clear water maintained at, or above, boiling point.

UTENSILS

Care should be taken in the choice of the metal of utensils in which food is cooked or stored so that food with which it comes into contact will not be liable to contamination. Cooking should only be carried out in the proper vessels. Galvanised metal is liable to corrode and may possibly contaminate food with zinc ; tinned copper pans are only satisfactory when the tinning is adequate and enamel should never be used for acid liquids. Enamelled and galvanised storage containers which have been chipped on any surface coming in contact with food should be removed from service as food may be contaminated by either rusting or chipping.

The organism of *Clostridium Botulinium* lives in the soil and is harmless unless allowed to grow and multiply in certain foods in the absence of air, it forms small spores which are very resistant to heat. Badly canned vegetables and meals have been the source of the majority of outbreaks, which are far more common in America, where a lot of home canning is practised, often without the high temperature steam pressure-cooking which is necessary to destroy the spores. Food poisoning produced by the toxin caused by *Clostridium Botulinium* can be avoided by reheating tinned food to boiling point and kept boiling for 20 minutes before opening.

Germs are everywhere, and they are incredibly minute and not distinguishable by smell, taste or colour. Before disease germs can breed and spread sufficiently to make food poisonous they need :

(*a*) *Moderate warmth for rapid growth :* keeping food cool in a refrigerator will reduce the danger as germs cannot multiply at low temperatures. By bringing the food to the boil

and boiling for 15 minutes, germs will be killed. Food when cooked and not required for immediate service should, when cold, be placed in the refrigerator—taking care that the cooling is rapid and not subject to infection by dust or flies.

(*b*) *Time for growth:* under unhygienic conditions, ideal for breeding, germs will multiply rapidly. They will split and double themselves over and over again, so that food infected will, overnight, produce millions of germs.

(*c*) *The correct type of food for cultivation:* generally germs live on the same food as human beings and milk, synthetic cream and all types of made up dishes, and pies containing gelatine, are dangerous unless properly cooked and correctly stored.

(*d*) *Moisture:* germs are dependent on water as well as food and if moisture is extracted from the food the germs are prevented from multiplying.

It is recommended that a code of "Guidance to Food Handlers" or "Hygienic Precautions in Food Handling" should be displayed on the walls of every place where food is handled.

CATERING STAFF

(*a*) Catering staff should set an example of personal cleanliness to others.

(*b*) Absolute cleanliness is the way to minimise the germ menace, so hands and nails should be well scrubbed. This is the basis of hygienic food handling. Hands must be washed after each visit to the toilet. Nail biting and wiping the nose with the fingers can lead to the transference of germs to food.

(*c*) Cuts and burns on the hands or forearms should be kept covered with a waterproof plastic dressing. Bandages should not be used as they are liable to pick up dirt and germs and lead to inadequate washing.

(*d*) Food should not be handled more than is necessary, especially after it has been cooked. Tongs or plastic servers should be used.

(*e*) The correct uniform should be worn on duty at all times and hair kept under control by a cap or turban. Hair

in the food will not be well received, so hair should never b combed in the kitchen or pushed aside with the hands a practice that can lead to food contamination.

(*f*) Sneezing or coughing over food can infect it, eve when a handkerchief, which will trap most of the germs, used. Consequently sneezing or coughing near food must b avoided as the germs from a sneeze may spread widely. Hanc must always be washed after using a handkerchief.

(*g*) Catering staff should, in accordance with the *Fo Hygiene Regulations* 1955 and 1956, see their doctor if they ar suffering from a cough, cold, sore throat, diarrhoea, vomitin septic cut or any skin disease, not only to safeguard their ow health, but to make sure that they do not make other people il

(*h*) Smoking must be prohibited for catering staff, o anyone else where food is handled, prepared, stored or served

CATERING EQUIPMENT

(*a*) A board should be used in all cases for cutting c chopping, as it prevents the table top from being cut. Th board can be easily scrubbed after each use and planed o when its surface gets into bad repair. Cuts or cracks in tabl tops are dangerous as germs breed and flourish in them.

(*b*) Pots and pans, when clean, should be stored upsid down so that dust cannot get into them, but in such a way tha air can circulate inside them to prevent them from smellin musty.

(*c*) Floors should be swept and scrubbed daily, as dirt floors are germy floors which, when walked upon, dispers dirt and germs into the air.

(*d*) All equipment should be washed daily and tho oughly dried. Mincers should be attached to the table b bolts and wing nuts, so that the whole can be detached, take to the sink, washed and sterilized.

(*e*) Only the proper utensils should be used for the pu pose of cooking, and they must be made of materials whic will not produce food poisoning.

(*f*) Swill and refuse bins should be kept clean both insid and outside, and always kept covered by a lid.

(*g*) Crockery washing up should be done in a double nk. One, using hot water and a detergent to remove the isible grease and dirt, and the other full of really hot water to ıve a final rinse, for at least 30 seconds, before the plates, ups, etc., are placed in a rack to dry. Drying cloths should ot be used.

ROTECTING FOODSTUFFS

(*a*) All food not actually being prepared, should be pro-cted from flies and dirt as both are germ carriers. Flies live ternately on food and filth, and contaminate everything they ɔuch.

(*b*) Food must be stored in a cold place, or in a refrigera-r, as milk, meat and fish are ideal breeding grounds for germs hen warm. If germs have infected food, they multiply rapidly ordinary room temperature.

(*c*) Re-heated cooked foods, especially made up meat ishes, are most commonly involved in outbreaks of food poison-g. Disease germs which cause food poisoning need warmth r rapid growth and time for spreading, but this can be oided in two ways—by keeping food cold in a refrigerator, ıd by heating it up to cooking temperature, at which germs e killed. After the first cooking, or when a partly used dish no longer being served, it should be cooled as quickly as ɔssible where it cannot be infected by flies or dust. It should ɛen be placed in a refrigerator, as germs cannot multiply in e cold. When the food is to be made hot, it should be heated ght through to kill any germs which may be in it. Stews and ups should be brought to the boil and kept boiling for 15 inutes, and joints and solid dishes cooked for a longer time allow for heat penetration ; in effect they must be re-cooked. ɔecial attention should be given to meat pies, shepherd's ıes, fish cakes, rissoles, soups, etc.

(*d*) Vegetables should never be prepared in the same ıks in which the washing-up is carried out. Where only ıe sink is available, a bath or basin should be used for vege-ble preparation.

It must be emphasised that the observance of clean

practices in food handling is of vital importance. Everyone handling food in a food business must do all they can to protect the food from contamination.

Adherence to the requirements of a hygiene code alone is not enough. It is most necessary that all members of the staff should understand and continually practise the principles of sound personal hygiene and that they should take full advantage of any suitable courses of instruction which are available.

Remember—there are two lines of defence :

(1) Avoidance of contamination of food.

(2) The correct cooking of food : the cooling once it is no longer required for service : the refrigeration and the minimum amount of handling.

SAFETY

• Accidents in the canteen account for an appreciable proportion of the total number of industrial casualties and are mostly due to the neglect of simple rules and precautions.

Equipment falling into disrepair, bad adjustment of moving parts, frayed wires and cables, inadequate machinery guards are potential causes of serious accident and loose gas taps and faulty switches add their quota.

Racks that are too high or are overloaded, carelessness in lifting heavy loads and the careless stacking of pots and pans lead to trouble. Pot handles sticking out over stoves are responsible for many serious scalds and the lack of or inadequate supply of heat-proof oven cloths is accountable for bad burns.

Carelessness in what might be called minor things can sometimes lead to nasty accidents—cupboard doors and drawers left open, boxes, etc., in gangways, sharp knives put carelessly in drawers instead of being placed in proper compartments or in racks, torn overalls, rings, bracelets and other things that catch and cause spills, even misted spectacles.

The catering manager is responsible for seeing that an adequate first-aid case is kept fully equipped and that the name, address and telephone number of doctors and local hospitals are prominently posted.

Chapter Twenty-Two

Some Legal Requirements and Regulations

THERE are a number of legal requirements governing the operation of works and office canteens. Some are statutory regulations subject to Parliamentary enactments ; others are requirements for which the local authority is made responsible. The catering manager should be familiar with all of these, and he should make a point of ascertaining from the local authority what requirements of theirs he must observe.

A brief note of some of the legislation affecting canteens follows.

CATERING WAGES ACT, 1943 (Industrial and Staff Canteen Undertakings)

An industrial or staff canteen undertaking consists of any undertaking or any part of an undertaking which is wholly or mainly engaged in supplying food or drink for immediate consumption and activities incidental or ancillary thereto, and which is carried on for the use of employed persons in connection with their employment :—

(*a*) By their employer or employers ; or

(*b*) By the employed persons themselves ; or

(*c*) By the employed persons and their employer or employees jointly ; or

(*d*) By any other person or body of persons in pursuance of an arrangement or arrangements with the employer or employers of the employed persons or with

the employed persons themselves, or with the employed persons and their employer or employers jointly ; or

(*e*) By a dock authority or by any person or body of persons under an arrangement with a dock authority ;

but excluding any such undertaking carried on :—(1) Directly by the Crown ; or (2) By an employer or by workers and their employer jointly, wholly or mainly for the use of workers employed by the employer :—

(*a*) In the business of supplying food or drink for immediate consumption by the general public ; or

(*b*) At or in connection with a shop, if the shop includes a restaurant, café or similar place where meals are served to the general public ; or

(*c*) At or in connection with an hotel, boarding house, hostel or other similar establishment ; or

(*d*) At or in connection with any hospital, nursing home, or other similar establishment ; or

(*e*) At or in connection with any university, college, school or other similar establishment.

For the purposes of this definition " dock authority " means any person or body of persons whether incorporated or not who are authorised to construct or are owners or lessees of any dock authorised by or under any Act and " dock " includes a wharf or quay.

Rates of wages and conditions of employment of persons working in canteens have been laid down by various orders under the *Catering Wages Act*, 1943. It sets out minimum rates of pay, rates for overtime, rates for night operatives and hours of work. It provides for paid holidays, provision of free meals whilst on duty, and protective clothing, laundered by the employer or an additional payment made in lieu.

It is quite definite that the rates and conditions are statutory and there is no contracting out of the minima laid down. Failure to comply with any of the statutory requirements may render an employer liable to prosecution.

Truck Acts 1931 to 1940

The Truck Act of 1896 does not directly authorise deductions from wages or commission to account for shortages or

breakages. However, a clause may be inserted into the terms of employment providing for shortages or breakages to be taken into account when calculating commission due to an employee. Generally, deductions for shortages or breakages by an employee may only be made if :

(*a*) There is an express written agreement by the employee to such deductions being made on this account, or a notice containing the terms of the contract is posted up so that all may be aware of it ;

(*b*) The deduction does not exceed the actual or estimated damage to the employer and is fair and reasonable, having regard to all the circumstances.

National Insurance (Industrial Injuries) Act, 1946

An employer is responsible for accidents in the canteen in either of the two following cases :—

(*a*) If the accident arises from the defective state of the premises and the firm has made itself responsible, either by implication or by express agreement.

(*b*) If the injured person was injured in the course of duty as an employee of the firm, i.e., if he were there on the firm's instruction.

This Act replaces the former *Workmen's Compensation Act.*

National Insurance Acts

National Insurance contributions under the industrial injuries scheme are payable by an employer in respect of persons employed by him however short the period of employment. Contributions to the general scheme are also payable where the employment is for more than four hours in any week.

Young Persons (Employment) Act, 1938

The Act makes special provisions about the hours of employment of persons under the age of 18. It is the duty of each employer to ensure that young persons do not work more than the maximum permitted hours.

Shops Acts

If a canteen is run on such lines as to bring it within the

meaning of the *Shops Acts*, the latter provide, as regards the general closing hours on weekdays, a special exemption in the case of works canteens, so that they may be kept open throughout the night for selling meals and refreshments for consumption anywhere within the works premises.

Factories Act, 1937 *and* 1948

Various sections of the *Factories Act* may or may not affect catering employees.

The staff of the canteen are not " employed " within the meaning of the Act so as to be within the same rules as to hours as factory workers. This, however, does not mean that the canteen premises themselves are not part of the factory. A canteen serving manual workers as distinct from the staff is part of the factory and is subject to a factory inspector's control and inspection.

Under *Section* 43 every firm has the statutory duty to provide suitable accommodation for clothing.

Sections 70 *to* 72, 76 *and* 82 provide that women and young persons are not allowed to stay in a room where work is carried on during all or part of the interval allowed for rest or meals.

Under *Section* 6 (1948) seats must be provided and maintained for employees who have reasonable opportunity of sitting down during working hours without detriment to the work upon which they are engaged.

Food and Drugs Acts

These laws are designed to secure that food sold shall be pure, shall not be mixed with other substances so as to reduce its quality below that which it is sold as, and shall as regards butter, milk, cheese, and other substances, be of a prescribed standard of quality. It is a criminal offence to supply food which is injuricus.

Food Hygiene Regulations 1955 *and* 1956

Set out provisions for requirements of food premises, occupiers of food premises and persons engaged in handling

food. They lay down that no food business shall be carried on in or at any unsanitary premises, stall or place, or in or at any premises, stall or place the use of which because of the situation, construction or condition thereof exposes food to risk of contamination.

Regulations are also made relating to persons engaged in handling food and in the transport and carrying of meat.

Any person, and this is important as the responsibility now is placed on the individual as well as the employer, guilty of an offence against the regulations shall be liable to a fine not exceeding £100, or to imprisonment for a term not exceeding three months, or both.

In addition, the catering manager should be fully conversant with the following regulations :

Ice Cream Regulations 1948 *Number* 1948.
Sale of Foods (*Weights and Measures*) *Act*, 1926.
Public Health (*Infectious Diseases*) *Regulations*, 1927.
Prevention of Damage by Pests Act, 1926.

Customs and Excise Act, 1952

Various Excise licences are described in the Act of 1952, but the Excise are not necessarily bound to issue their licence to the holder of a justices' licence, and they can, if they think fit, refuse to do so. If it is desired that intoxicants are sold regularly in a canteen steps can be taken to apply for a licence or if the employees using the canteen are constituted as a club, the club may apply for registration with the local justices. In all cases the supply of drink is restricted to the hours permitted by law.

Licensing Act, 1953

If it is not the normal course of events for drinks to be supplied regularly in the canteen an occasional licence may be issued to supply drinks for special functions. Arrangements can be made with a local public house keeper who would supply intoxicants for such an occasional licence to be obtained after the justices' consent has been obtained. Such a licence would authorise the sale of liquor at premises other than the

applicant's licensed premises at the times specified, for a period not exceeding three days.

A Customs and Excise Licence has to be obtained to sell cigarettes and tobacco, and the sale of cigarettes to children under the age of 16 is prohibited and made a penal offence under the *Children and Young Persons Act*, 1933.

Cinematograph Act

If more than six film shows using inflammable film are shown during any one year, notice must be given to the local authority and police, seven days before each performance. All performances are subject to local by-laws.

Copyright Act

The public performance of any piece of copyright music entails the payment of a copyright fee. *The Performing Right Society*, an association of composers, authors and publishers of music controls the licensing for public performance of practically all copyright music, whether a performance is given by living performers or by gramophone, sound film, broadcast by wireless or television.

Also copyright subsists in gramophone records, apart from musical works produced thereon and licences must be obtained from the *Phonographic Performance Ltd.*, before any such use is made.

Performing rights constitute part of copyright and are payable on most plays or musical shows. An annual relay fee for the right to rediffuse music is based on a sum per employee for each half an hour of music per day.

A licence for music and dancing is required when regular dances are held in the canteen, but not if music and dancing are restricted to employees and friends. If stage plays are produced, a licence is required for their public performance and any new plays or revues must be submitted to the Lord Chamberlain prior to their presentation.

Appendix One

Catering Organisations

PROFESSIONAL BODIES

HOTEL AND CATERING INSTITUTE,
24, *Portman Square, London, W.*1. *Secretary : B. C. Edwards, B.A., A.K.C., Hon. F.H.C.I.*

This, the professional body of the hotel and catering industry, is responsible for the co-ordination of catering training throughout the country. Largely as a result of the Institute's close co-operation with the Ministry of Education and the Local Education Authorities, there are now 133 colleges and polytechnics offering full-time and part-time courses of instruction. Fellowship, Membership, and Associate Membership of the Hotel and Catering Institute are distinctions reserved for those engaged in hotel keeping and catering who are qualified by examination, training and practical experience. The Institute's distinguishing letters, F.H.C.I., M.H.C.I. and A.M.H.C.I. are professional qualifications gaining increasing standing, both in the industry and with the general public. Student Membership has been established to assist and encourage younger persons during the initial stages of their careers.

NATIONAL JOINT APPRENTICESHIP COUNCIL OF THE HOTEL AND CATERING INDUSTRY,
24, *Portman Square, London, W.*1. *Secretary : K. R. Blatchford, M.H.C.I.*

The Council is a comprehensive body consisting of representatives of associations of employers and the trade unions, together with representatives of technical institutions and assessors from the Ministry of Education and the Ministry of Labour and National Service. It is responsible for standards of employment and training of apprentices, and maintains a register both of Indentured Apprentices and of all firms able and willing to provide training under the conditions laid down by the Council. The purpose of the scheme is to provide for the recruitment and systematic training of young workers, boys and girls, as cooks in the hotel and catering industry. Apprentices normally commence at school-leaving age and serve for a period of five years, during which time they are released without loss of pay for one day or its equivalent each week for day-time training at the local technical college. Rates of pay and conditions of employment are not less favourable than those fixed by the Wages Board appropriate to the establishment in which the apprentice is serving, and application may be made for deferment of National Service. Administration is carried out through area committees who are responsible for the administration of apprenticeships in their areas and the collaboration with Local Education Authorities in regard to the establishment of suitable classes and with the Youth Employment Service in regard to recruitment.

INDUSTRIAL CATERING ASSOCIATION,
140, *Park Lane, London, W.1. Secretary : L. W. Every.*

Founded in 1937 and with branches in the main industrial areas of England, Scotland and South Wales, the Association is controlled by a National Council consisting of representatives from each branch and presided over by the National Chairman.

Each branch has its own chairman, honorary secretary and executive committee and regular monthly branch meetings are held at which members can interchange ideas and experiences ; are invited to give papers ; attend lectures, demonstrations and discussions on all catering topics of common interest ; raise queries and discuss the domestic side of their catering problems.

The Association has a library section which enables members of all branches to secure on loan books dealing with the theory and practice of catering which are not always on hand at subscription or municipal libraries or even available to direct purchasers. A comprehensive publication *Catering Quarterly* is the official journal published by the Association and sent to each member.

Full membership is open to those holding active managerial positions in industrial catering or communal catering of a non-commercial nature. Associate membership is available to caterers of approved supervisory status who do not qualify for full membership. Student membership is available to students taking approved courses in catering or catering management. The Association has long been recognised as the only professional association devoted solely to the interests of caterers engaged in non-commercial catering, and as such is consulted by trade associations and the appropriate Ministers of Her Majesty's Government.

INSTITUTIONAL MANAGEMENT ASSOCIATION,
Swinton House, 324, Gray's Inn Road, London, W.C.1. Secretary : Miss A. Lumby, F.H.C.I.

The Association was formed in 1938 and has now twenty-two branches throughout the British Isles, including two in Scotland and one in Northern Ireland. It is composed of members trained and experienced in large-scale catering or large-scale household management and its members are employed in schools, colleges, hospitals, hotels, industrial canteens and the schools meals service.

It is the National Examining Body in Institutional Management and awards the National Institutional and Catering Management Certificate after a training consisting of two years in a college and one year in a junior capacity in suitably selected employment. Between 300-400 candidates enter for the Examination annually.

THE UNIVERSAL COOKERY AND FOOD ASSOCIATION,
185, *Picadilly, London, W.1. Secretary : Mrs. L M. Fisher, Hon. M.C.F.A.*

The Universal Cookery and Food Association was established towards the end of the nineteenth century to promote and encourage the art of cookery among all classes of the community. The Association since its inception has been honoured by Royal patronage and has the special patronage of the Worshipful Company of Cooks.

Arising from the first Catering Exhibition the Culinary Society, whose object was the promotion of such international exhibitions, grew rapidly and was, in 1887, formed into the Universal Cookery and Food Association, whose interest in the organisation of subsequent exhibitions is well known.

To encourage young people in the profession, examinations are conducted regularly at technical colleges, domestic science colleges, and other catering training establishments. Syllabuses for teaching elementary, intermediate and advanced cookery are available for catering training establishments.

The Association conducts an information bureau which provides advice on technical matters and an Employment Bureau is maintained for the free use of all members requiring employment or wishing to engage staff.

An extensive library, built up over many years and covering all branches of the culinary profession is available to all members for reference purposes.

A monthly magazine, *The Food and Cookery Review*, containing topical information about the catering industry, and which is the official organ of the Association Culinaire Française and the Conseil Culinaire Français de Grande Bretagne is supplied free to all members.

The following grades are given to those who are directly engaged or concerned in the hotel and catering industry and approved by the Committee of Management :

Governor—G.C.F.A. A Governorship of the Universal Cookery and Food Association is awarded to selected members who have served the Association with distinction over a period of years. This distinction is sparingly bestowed.

Fellow—F.C.F.A. A member may elect to apply for transfer to fellowship after five years' membership and on the production of evidence that, for at least three years he (she)

has held a post of responsibility approved by the Committee of Management.

Member—M.C.F.A. Membership is open to persons, who must be sponsored and seconded by a member of the Association and approved by the Committee of Management, directly engaged or concerned in the catering industry, technical and domestic science colleges, hospital catering, and in the catering branches of the Services for a minimum of five years and who have passed the necessary examinations approved by the Association.

Associate—A.M.C.F.A. Persons directly connected with an associated trade shall be eligible for election to the grade of Associate as approved by the Committee of Management.

Licentiate—L.C.F.A. Licentiate membership is available to apprentices, students of technical and domestic science colleges and institutes and to those employed in the catering industry who do not qualify for full membership.

CATERING ASSOCIATIONS

CATERERS' ASSOCIATION OF GREAT BRITAIN,
185, *Oxford Street, London, W.*1. *Secretary : J. D. G. Hooper.*

Founded in 1917, the Association has within its membership proprietors of more than 23,000 establishments including restaurants, hotels, cafés, tea rooms, clubs, holiday camps and industrial and outside catering contractors. The Association's Industrial and Staff Canteen Division formed in 1948 by the merger of the Caterers' Association and the National Society of Caterers to Industry, is the only organisation in this country specifically representing the interests of industrial catering contractors. The Division is strongly represented on the Association's Council and its various committees. The Caterers' Association is a nominating body for the employers' sides of the various Catering Wages Boards, and is represented on the board of the British Travel and Holidays Association and on the Council of the Hotel and Catering Institute. It is consulted by the Government and other public bodies on all matters connected with catering and in the international field it represents Great Britain on International Ho. Re. Ca.,

the International Union of National Hotel and Catering Trade Organisations.

Seventeen branches of the Association throughout England and Wales, and a Scottish Advisory Committee to co-ordinate the activities of the four branches in Scotland, play a leading part in the work of the Association.

CATERING EQUIPMENT MANUFACTURERS' ASSOCIATION,
6, *Holborn Viaduct, London, E.C.*1. *Secretary : Lt.-Col. V. I. Robins, O.B.E., A.C.A.*

The Association was founded in 1938 by seventeen firms and has increased in strength during the years until it now has practically 100 per cent representation of the manufacturers of every conceivable type of equipment for the preparation, cooking and service of food and beverages.

The objects for which the Association was established are :

(*a*) To promote co-operation and co-ordination between those engaged in the catering industry.

(*b*) To co-operate with other trade associations having similar or corresponding interests and objects.

(*c*) To further the interests of the industry and promote the welfare of its members generally.

THE CATERING MANAGERS' ASSOCIATION OF GREAT BRITAIN AND NORTHERN IRELAND,
Richill Hospital, Glasgow, N.W. Hon. National Secretary : Miss A. McMichen, A.M.H.C.I.

ADVISORY SERVICES

THE INDUSTRIAL WELFARE SOCIETY,
48, *Bryanston Square, London, W.*1. *Secretary : J. Stamps.*

The Society is a voluntary association of firms, organisations and individuals in the United Kingdom and overseas concerned with working conditions and human relationships as they affect the security, health and well-being of workers at all levels. Founded in 1918 it believes that good relation-

ships are of paramount importance for their own sake as well as for that part they play in improved efficiency and productivity.

The Society's staff is well qualified to give practical advice on questions relating to the general well-being of employees, including health and safety, selection and training, the canteens they use, their pensions and benevolent funds, social activities, suggestion and joint consultation schemes and related management policies.

A part of the Society's large field of subjects is the Catering Advisory Service whose staff includes specialists who advise member firms on all aspects of employee food services. A large part of the work lies in the planning and equipping of new canteens and the re-design of older units. Periodic surveys are made and published on prices charged, services offered, numbers of staff employed and food costs experienced in works cafeterias and staff dining-rooms. Many visits are made each month to advise on individual problems and help is given with firms' own training schemes for canteen personnel. Catering conferences held at intervals throughout the year in different parts of the country to discuss current developments, feature lectures and practical demonstrations by leading specialists in the industry.

INSTITUTE OF PERSONNEL MANAGEMENT,
Management House, 80 Fetter Lane, London, E.C.4. Secretary : W. A. Kilgour.

The Association for those engaged in the personnel function of management and allied specialists concerned with the principles of personnel management. The Institute was founded in 1913 and is a voluntary association financed by the subscriptions of its members and governed by an annually elected council.

Since 1950 the Institute, while fully retaining its independence, works in co-operation with the British Institute of Management. The library at Management House is a joint service to both bodies. Joint conferences are held from time to time.

Its aim is to encourage and assist the development of personnel management in Great Britain by

(1) Spreading knowledge and information about those principles and techniques which it believes will develop better relationships within industry, and by undertaking research to this end.

(2) Seeking to establish and maintain through training and other services a high standard of qualification among personnel officers.

Membership is on an individual basis and the different classes of membership are intended to signify different degrees of qualification, with the object of maintaining and developing standards of personnel management practice.

Candidates for any of the three main classes of membership —Graduate, Associate Member and Member—must take the Institute's qualifying examination unless they have satisfactorily completed one of the Institute's recognised courses of training in personnel management, or, in the case of applicants over 35 years of age, have had not less than five years' relevant experience.

Fellowship may be conferred by Council on a member.

Affiliate class as well as Individual and Overseas Subscription schemes do not represent qualification, but exist to provide a wide distribution of the Institute's services to individuals and organisations wishing to keep in touch with personnel management thought and practice.

Members receive the journal, *Personnel Management*, Institute Broadsheets and occasional papers, as published. The Institute also offers a comprehensive library service and conducts an information service to help members in their jobs by answering enquiries and by undertaking surveys of current personnel management practice.

Meetings and conferences are arranged by headquarters and by the Institute's branches. The Institute co-operates with universities and other educational authorities to ensure a high standard of qualification and training among personnel officers.

Appendix Two

Staff Training Schemes

SOUND training is as essential for catering staff as it is for people engaged in any other work which calls for some kind of qualification.

This fact has not always been realised and consequently the catering industry has suffered from amateurs with no training or experience who thought that any Tom, Dick or Harry—or Mary, Joan and Jean—could successfully run a catering establishment.

Today there is in Great Britain a system of training for the catering industry—ranging from craft to managerial personnel—that is unsurpassed anywhere in the World.

The development of catering education has taken place since the 1939/45 war and has been the result of close co-operation between the industry, the Ministry of Education, the Scottish Education Department and the Local Education Authorities.

Whereas prior to the war there was only one technical institution providing training, on trade lines, for the catering industry—the Westminster Technical College, London—there are now 133 colleges and polytechnics offering full-time and part-time courses of instruction, with 9,000 students and employees in attendance.

To an ever-increasing degree managements are looking for staff who have taken these recognised courses of training or who are willing to supplement their experience within industry by attendance at part-time training courses.

The body which is responsible on behalf of the industry for the development and co-ordination of training in catering subjects—and which also has the power to confer professional status on suitably trained and experienced personnel—is The Hotel and Catering Institute, 24 Portman Square, London, W.1.

The Institute is supported by all the trade associations, whether employers' or employees' organisations, including those associations which are particularly interested in industrial and office catering.

TRAINING POLICY

Full-time Courses for New Entrants

It is recommended that young people desirous of making their careers in the catering industry should, whenever possible, take full-time courses of training at a technical institution prior to entry to the industry and should gain certain nationally recognised qualifications.

The full-time courses prepare young people for entry to industrial and office catering as well as to other branches of catering. Indeed, many boys and girls prefer to enter that field rather than hotels and restaurants because of the more normal hours of employment and the infrequency of week-end duties. It is advantageous, therefore, to managements concerned with industrial or office catering to keep in touch with the technical institutions as sources of potential juvenile labour.

Part-time Courses

In the case of young people who, for domestic or financial reasons, are unable to continue full-time education after reaching the statutory school-leaving age, it is recommended that they supplement the instruction they receive within industry by attendance at part-time courses, preferably as indentured apprentices. They are thus enabled to obtain the same qualifications as are gained by young people taking full-time courses in catering subjects, although it will take them somewhat longer.

It is also the policy of the catering industry to urge older employees to attend part-time courses of instruction in cookery, waiting and other catering subjects.

Having gained a sound knowledge of the basic principles of good cookery and service they will need less supervision ; they will have learnt the proper use and care of equipment which will mean less risk of accident and lower maintenance costs ; they will have improved their manipulative skills and increased their general efficiency so that their speed of production will be greater ; above all, they will have gained greater interest and pride in their jobs.

In addition to the part-time courses for craft workers, whether examination or *ad hoc* courses, a number of technical institutions offer refresher courses for managerial staff, and it is recommended that full advantage should be taken of these.

SYLLABUSES AND EXAMINATIONS

Except in the case of *ad hoc* or refresher courses the following syllabuses, leading to examinations of the City and Guilds of London Institute or of the Hotel and Catering Institute, are followed during full-time and/or part-time courses at technical institutions :—

Catering Trades Basic Training Course (City and Guilds of London Institute Course No. 150)

For new entrants and for other personnel in need of training in the fundamentals of catering. Although particular emphasis is laid on cookery, this course provides a broad basis of general catering knowledge as a preparation for specialization. In addition to Cookery, the subjects dealt with include, Kitchen Practice and Hygiene, Calculations for Caterers, Waiting, Counter Service, Catering Commodities, Equipment, Services.

Cookery for Hotels and Catering Establishments (City and Guilds of London Institute Course No. 151)

A specialist course in cookery for persons with a minimum of one year's experience of trade cookery. Suitable for cooks

and chefs concerned with industrial and office catering, or engaged in hotels, restaurants, hospitals, school meal kitchens.

Cookery for Catering Establishments (City and Guilds of London Institute Course No. 153).

A specialist course for cooks and chefs who have passed the examination in " Cookery for Hotels and Catering Establishments " and who have reached an intermediate standard in cookery.

Advanced Cookery for Hotels and Restaurants (City and Guilds of London Institute Course No. 152)

An advanced cookery course restricted to candidates who have had at least three years' experience of trade cookery or who have passed the examination in Course No. 151.

Waiting and Restaurant Service (Hotel and Catering Institute Course)

For those wishing to take up Waiting as a career and for the further training of waiters and waitresses in employment.

Covers all aspects of Waiting and Service. Divided into two parts—Intermediate and Final—taken in successive years.

Other Syllabuses and Examinations to Meet Specialist Needs :

Book-keeping and Reception (Hotel and Catering Institute Course).

Bar and Cellar Work (National Trade Development Association Course).

Administration, Control, Organisation (Hotel and Catering Institute Associate Membership Course).

CRAFT TRAINING

Cooks and Chefs

Full-time courses of one or two years' duration are available for boys and girls of a minimum age of 15 years who wish to become cooks and chefs. Normally students reach the standard of the City and Guilds of London Institute examination No. 151

Part-time courses, of one or two years' duration, following

the City and Guilds of London Institute syllabuses in Basic Catering and Cookery are available for

(i) Young persons employed in kitchens of catering establishments—including apprentice cooks.

(ii) Older persons employed as cooks or chefs who are desirous of increasing their knowledge and skills.

It is realised that courses leading to an examination are not always appropriate for or desired by older persons. In such cases the taking of the examination is waived or special *ad hoc* courses are arranged.

NATIONAL APPRENTICESHIP SCHEME FOR COOKS

This scheme, which is open to both boys and girls, provides for entry from normal school-leaving age, indentured apprenticeship for five years which may be reduced to three years in certain cases, and registration with the National Joint Apprenticeship Council of the Hotel and Catering Industry, 4, Portman Square, London, W.1.

Employers are required to give Apprentice Cooks systematic and progressive training within their establishments and to release them for one day a week, or the equivalent thereof, to attend catering and cookery courses at technical institutions. In the case of a boy deferment of National Service is normally granted until the completion of apprenticeship. Subject to the requirements of the Apprenticeship Council participation in the National Apprenticeship Scheme for Cooks is open to those engaged in industrial and office catering.

Waiters and Waitresses

Full-time courses, of one or two years' duration, for young persons desirous of becoming waiters and waitresses are offered at a limited number of technical institutions.

Part-time courses, for the further training of waiters and waitresses already in employment, are also available.

In the case of both full-time and part-time courses candidates are usually prepared for the examinations of the Hotel and Catering Institute in Waiting and Restaurant Service.

Sometimes special *ad hoc* courses—with no examination requirement—are arranged in accordance with local conditions or to cover particular aspects of Waiting and Restaurant Service.

Other Crafts

There are also full-time and part-time courses for the training of Book-keeper Receptionists and part-time courses for Bar Attendants and others concerned with the service of beers, wines, spirits, etc.

TRAINING OF POTENTIAL SENIOR GRADES

Full-time courses, normally of three years' duration are available for boys and girls of good general education who are considered suitable for the eventual attainment of managerial positions in the catering industry.

As it is essential for the aspirant to managerial status to have a sound basic knowledge of all fundamental aspects of catering, the courses include theoretical and practical training in craft subjects.

In addition a study is made of Food Technology, Housekeeping, Languages, Kitchen and Restaurant Management, Law and Administration.

Students are prepared for appropriate examinations of the Hotel and Catering Institute and of the City and Guilds of London Institute.

COURSES FOR MANAGERIAL STAFF

Part-time courses leading to the Associate Membership Examination of the Hotel and Catering Institute are available at a limited number of technical institutions.

The subjects include Management, Economic Aspects of the Catering Industry, Food and Drink (Organisation and Control), Maintenance, Hygiene, Book-keeping and Accountancy, Law for the Catering Industry.

Correspondence Course leading to the Associate Membership examination of the Hotel and Catering Institute is also avai-

able. Information as to this may be obtained from the Metropolitan College, St. Albans, Herts.

Part-time Refresher Courses

At various technical institutions refresher courses, lectures or lecture-demonstrations are offered for catering managers and manageresses. Provided that support is guaranteed special courses for managerial staff are arranged on request.

I.M.A. Certificate in Institional and Catering Management

The Institutional Management Association, which is the examining body for this certificate, awards a certificate of national standing following the successful completion of a specified course of training. The training consists of a two years' basic course in a recognised training college, at the end of which there is an examination on the two years' work. This is followed by a third year of experience, gained as a junior member of staff in employment approved by the college. At the end of the third year there is an examination of a written paper and a viva voce examination on the year's work.

The emphasis of the training is on management and will qualify students to work up to managerial positions in large-scale catering and household administration in educational establishments, hospitals, hotels and restaurants, industrial canteens, the schools meals service, or in other undertakings of a similar nature.

Students must be eighteen years of age before beginning the course. They should have a good secondary education and should have obtained the General Certificate of Education with passes in at least three subjects, Ordinary level. While in general the age of entry to training is 18, principals of colleges where the training is taken may at their discretion admit students who are not less than 17 years 6 months at the beginning of the course, provided that these students have five passes in the General Certificate of Education (Ordinary or Advanced level) compulsory subject : English language or Literature (whichever has not been included as the com-

pulsory subject), History, Geography, a science subject (which should be included if possible), French or other language, Mathematics, Art, Domestic Science.

Certificates will only be awarded on successful completion of the final examination.

The Ministries of Education for England and Northern Ireland and the Scottish Education Department give their active support and co-operation to the Association in this work.

TRAINING WITHIN INDUSTRY

Many large concerns have incorporated their own training schemes within their own organisations to train catering workers for their own particular requirements. Some undertakings, like London Transport, have specially designed training centres where all grades, from catering assistants to managerial grades, are trained and promotion and appointment is encouraged from the ranks.

Other concerns such as the Central Electricity Authority carry out their scheme by training workers "on the job" in their larger establishments under the guidance of their own qualified chefs and managers.

Whichever scheme is in operation, training is given not only in catering, but in canteen organisation, staff control and welfare, hygiene, maintenance and care of equipment, background training and internal control systems, thus ensuring a continuous flow of promotion. Contrary to the thoughts of the critics of Training Within Industry, the majority of personnel thus trained tend to stay with their company. There is bound to be some wastage, in common with all other forms of training, but all these schemes should prove to be an investment to the catering industry as a whole.

LIAISON BETWEEN COLLEGE AND COMPANY

While great stress is laid today on training in technical colleges and polytechnics it is agreed by all catering managements that this can only produce the best results if supplemented and followed up by training and experience "on the job."

There should, therefore, be close liaison between catering establishments and the technical institutions attended by employees so that the training given may be co-related and complementary.

In the interests of his organisation as well as of his staff the Catering Manager should be on good terms with the principal of the local technical institution and with the head of the catering department.

To say the foregoing is no doubt stressing the obvious. The contribution that the technical colleges can make in the training of technicians and technologists is highly appreciated by all industries.

Today, the tempo of production is such that within industry there is not time to give the lesser skilled worker the painstaking and systematic instruction that is necessary for improvement, nor in many cases are there enough skilled supervisory staff to give the instruction had they the time. Again, it is not given to every senior member of staff, however skilled and proficient, to be able to impart knowledge to others.

Realising this, the Catering Industry of Great Britain, through the medium of its educational and professional body—the Hotel and Catering Institute—has co-operated with the education authorities in the development of training courses within technical institutions for all grades of catering staff.

These courses are for the benefit of all branches of the industry. The Institute will welcome, therefore, the participation in these courses of personnel engaged in industrial and office catering and will be grateful to receive the co-operation of employers and managements.

A recent development first started at Acton Technical College is the Four-Year Sandwich Course of Hotel and Catering Management : so called because trade experience is sandwiched between training at the college. The final year leads to practical experience as a general assistant and the taking of the A.M.H.C.I. (Associate Membership of the Hotel and Catering Institute) examination.

Further information concerning catering courses and the technical institutions at which they are available may be obtained from The Secretary, The Hotel and Catering Institute, 24, Portman Square, London, W.1.

Directory

Equipment and Suppliers

AIR-CONDITIONING PLANT

Benham & Sons Ltd., 66 Wigmore Street, London, W.1.
Crittall-Froy Ltd., Brunswick Works, King Street, Hammersmith, London, W.6.
Falkirk Iron Co. Ltd., Falkirk, Scotland.
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Aquafont Industries Ltd., Trojan Works, Kentish Town Road, London, N.W.1.
G. F. E. Bartlett & Son Ltd., Marylands Avenue, Hemel Hempstead, Herts.
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Hodgkison & Co., 157 Old Street London, E.C.1.
Radiation Group Sales Ltd., Radiation House, Stratford Place, London, W.1.
Staines Kitchen Equipment Co. Ltd., 94 Victoria Street, London, W.1.
W. M. Still & Son Ltd., 29/31 Greville Street, London, E.C.1.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.

BOILING PANS

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G. F. E. Bartlett & Sons Ltd., Marylands Avenue, Hemel Hempstead, Herts.
Benham & Sons Ltd., 66 Wigmore Street, London, W.1.
Carron Company, Carron, Falkirk, Scotland.
Euk Catering Machinery Ltd., Wellington Works, Wellington Street, Oldham, Lancs.
Falkirk Iron Co. Ltd., Falkirk, Scotland.
General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.
Jackson Electric Co. Ltd., 143 Sloane Street, London, S.W.1.
R. & A. Main Ltd., 48 Grosvenor Gardens, London, S.W.1.
Modern Kitchen Equipment Co., 16/20 Wood Street, Liverpool 1.

Radiation Group Sales Ltd., Radiation House, Stratford Place, London, W.1.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool, 3.
Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.
W. & M. Still & Sons Ltd., 29/31 Greville Street, London, E.C.1.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.

BREAD BUTTERING AND SLICING MACHINES

Catering Machinery Ltd., 104 High Holborn, London, W.C.1.
Crypto Ltd., North Circular Road, London, N.W.10.
Euk Catering Machinery Ltd., Wellington Works, Wellington Street, Oldham, Lancs.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.

CAFETERIA INSTALLATIONS

Aquafont Industries Ltd., Trojan Works, Kentish Town Road, N.W.1.
G. F. E. Bartlett & Son Ltd., Marylands Avenue, Hemel Hempstead, Herts.
Benham & Sons Ltd., 66 Wigmore Street, London, W.1.
Carron Company, Carron, Falkirk, Scotland.
Crittall-Froy Ltd., Brunswick Works, King Street, Hammersmith, London, W.6.
Euk Catering Machinery Ltd., Wellington Works, Wellington Street, Oldham, Lancs.
Falkirk Iron Co. Ltd., Falkirk, Scotland.
General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.
Hodgkison & Co., 157 Old Street, London, E.C.1.
Jackson Boilers Ltd., Vulcan Works, Shafton Lane, Leeds 11.
Jackson Electric Co. Ltd., 143 Sloane Street, London, S.W.1.
R. & A. Main Ltd., 48 Grosvenor Gardens, London, S.W.1.
Minimax Ltd., Feltham, Middlesex.
John Mollett Ltd., 35/37 Westgate, Bradford, Lancs.
Moorwoods Ltd., Harleston Ironworks, Sheffield 4.
Oliver Tom's Catering Equipment, 167 Fulham Palace Road, London, W.6
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
W. M. Still & Sons Ltd., 29/31 Greville Street, London, E.C.1.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.

CHAIRS

Bentwood Chair Supply Co. Ltd., 108 Euston Road, London, N.W.1.
Cox & Co. (Watford) Ltd., Watford by-Pass, Watford, Herts.
Hostess Tubular Equipment Ltd., Moxley Road, Bilston, Staffs.
John Perring Ltd., Richmond Road, Kingston, Surrey.
Lockhart Equipment Ltd., 72 Berkeley Avenue, Reading.
Parker, Winder & Achurch Ltd., 895 Berkeley Street Corner, Broad Street, Birmingham, 1.
Sebel Products Ltd., 177 West Street, Erith, Kent.
Venesta Ltd., Park Road, Banstead, Surrey.

CHINA, GLASS AND EARTHENWARE

W. T. Copeland & Sons Ltd., Spode Works, Stoke-on-Trent.
Crown Staffordshire Porcelain Co. Ltd., Minerva Works, Fenton, Stoke-on-Trent.
Doulton & Co. Ltd., Doulton House, Albert Embankment, London, S.E.1.
Grindley Hotel Ware Co. Ltd., Tunstall, Stoke-on-Trent.
J. E. Heath Ltd., Albert Potteries, Hobson Street, Burslem, Stoke-on-Trent.
Lawleys Ltd., 30 Portland Place, London, W.1.
Paragon China Ltd., Longton, Stoke-on-Trent.
Ridgeway Potteries Ltd., Ash Hall, Stoke-on-Trent.
Wedgwood & Co. Ltd., High Street, Tunstall, Stoke-on-Trent.

CHIP AND VEGETABLE CUTTERS

Crypto Ltd., North Circular Road, London, N.W.10.
Euk Catering Machinery Ltd., Wellington Works, Wellington Street, Street, Oldham.
Peerless & Ericsson, 1 Carlisle Road, The Hyde, Hendon, London, N.W.9.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.

COFFEE PREPARATION EQUIPMENT

Aquafont Industries Ltd., Trojan Works, Kentish Town Road, London, N.W.1.
G. F. E. Bartlett & Son Ltd., Marylands Avenue, Hemel Hempstead, Herts.
Benham & Sons Ltd., 66 Wigmore Street, London, W.1.
Cona Coffee Machine Co., Feldon Works, Railway Place, London, S.W.19.
Crypto Ltd., North Circular Road, London, N.W.10.
General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.
Hodgkison & Co., 157 Old Street, London, E.C.1.
Jackson Boilers Ltd., 25 Victoria Street, London, S.W.1.
Frank V. Magrini Ltd., 24 Royal College Street, London, N.W.1.
Maxol Heaters Ltd., 15 Ballantine Street, London, S.W 18.
Minimax Ltd., Feltham, Middlesex
Modern Metal Products Ltd., 86/88 Banner Street, London, E.C.1.
Moorwoods Ltd., Harleston Iron Works, Sheffield 4.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.
Staines Kitchen Equipment Co. Ltd., 94 Victoria Street, London, S.W.1.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
W. M. Still & Sons Ltd., 29/31 Greville Street, London, E.C.1.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.

CLEANING MATERIALS AND DETERGENTS

County Chemical Co. Ltd., The Chemico Works, Stratford Place, Shirley, Birmingham.
Deosan Ltd., 42/46 Weymouth Street, London, W.1.
Domestos Ltd., College Works, Albion Row, Newcastle-on-Tyne 6.
Thomas Hedley & Co. Ltd., Gosforth, Newcastle-on-Tyne 3.
Imperial Chemical Industries Ltd., Imperial Chemical House, Millbank, London, S.W.1.
Industrial Soaps Ltd., City Soap Works, Green Bank, London, E.1.
Martin Rubeck Ltd., Redhill, Surrey.
Sanitas Co. Ltd., 51 Clapham Road, London, S.W.9.
Shell Chemicals Ltd., Norman House, 105/109 Strand, London, W.C.2.
W. & F. Walker Ltd., Kirkby Trading Estate, Kirkby, Liverpool.

COOKING APPARATUS

"Adastra" Catering Equipment, 95/97 North Street, Clapham, London, S.W.4.
Aga Heat Ltd., Orchard House, 30 Orchard Street, London, W.1.
Allied Ironfounders Ltd., 28 Brook Street, London, W.1.
G. F. E. Bartlett & Son Ltd., Marylands Avenue, Hemel Hempstead, Herts.
Belling & Co. Ltd., Bridge Works, Enfield, Middlesex.
Benham & Sons Ltd., 66 Wigmore Street, London, W.1.
Bonffault Range Co. Ltd., 96 Roman Way, London, N.7.
Calor Gas (Distributing) Co. Ltd., Poland House, 161 Oxford Street, London, W.1.
Carron Company, Carron, Falkirk, Scotland.
Crypto Ltd., North Circular Road, London, N.W.10.
Esse Cooker Co., Bonnybridge, Scotland.
Falkirk Iron Co. Ltd., Falkirk, Scotland.
S. Flavell & Co. Ltd., Eagle Foundry, Leamington Spa.

W. N. Froy & Sons Ltd., Brunswick Works, King Street, Hammersmith, London, W.6.
General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.
Jackson Electric Stove Co. Ltd., 143 Sloane Street, London, S.W.1.
R. & A. Main Ltd., 48 Grosvenor Gardens, London, S.W.1.
John Mollett Ltd., 35/37 Westgate, Bradford, Yorkshire.
Radiation Group Sales Ltd., Solid Fuel Division, Leeds 12.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
Staines Kitchen Equipment Co. Ltd., 94 Victoria Street, London, S.W.1.
W. M. Still & Sons Ltd., 29/31 Greville Street, London, E.C.1.
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Gaskell & Chambers Ltd., Dalex Works, Coleshill Street, Birmingham.
General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.
Hodgkison & Co., 157 Old Street, London, E.C.1.
Oliver Tom's Catering Equipment, 165/7 Fulham Palace Road, London, W.6.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
W. & G. Sissons Ltd., 75/77 St. Mary's Road, Sheffield 2.
Staines Kitchen Equipment Ltd., 94 Victoria Street, London, W.1.
W. M. Still & Sons Ltd., 29/31 Greville Street, London, E.C.1.
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Mabbott & Co. Ltd., Phoenix Works, Poland Street, Manchester.
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John Mollett Ltd., 35/37 Westgate, Bradford, Yorks.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
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Carron Company, Carron, Falkirk, Scotland.
Essard Ltd., 216 Westbourne Grove, London, W.11.
Euk Catering Machinery Ltd. Wellington Works, Wellington Street, Oldham, Lancs.
Falkirk Iron Co. Ltd., Falkirk, Scotland.

Hodgkison & Co., 157 Old Street, London, E.C.1.
Jackson Electric Stove Co. Ltd., 143 Sloane Street, London, S.W.1.
Abbott & Co. Ltd., Phoenix Works, land Street, Manchester.
Frank V. Magrini Ltd., 24 Royal College Street, London, N.W.1.
R. & A. Main Ltd., 48 Grosvenor Gardens, London, S.W.1.
Modern Metal Products Ltd., 86/88 Banner Street, London, E.C.1.
John Mollett Ltd., 35/37 Westgate, Bradford, Yorks.
Radiation Group Sales Ltd., Radiation House, Stratford Place, London, W.1.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.
Staines Kitchen Equipment Co. Ltd., 94 Victoria Street, London, S.W.1.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.

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Euk Catering Machinery Ltd., Wellington Works, Wellington Street, Oldham, Lancs.
Falkirk Iron Co. Ltd., Falkirk, Scotland.
General Electric Co. Ltd., Magnet House, Kingsway, London.
Jackson Electric Stove Co. Ltd., 143 Sloane Street, London, S.W.1.
R. & A. Main Ltd., 48 Grosvenor Gardens, London, S.W.1.
Moorwoods Ltd., Harleston Iron Works, Sheffield 4.
Radiant Heating Ltd., 9 Barnsbury Park, London, N.1.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.
Staines Kitchen Equipment Co. Ltd., 94 Victoria Street, London, S.W.1.
W. M. Still & Sons Ltd., 29/31 Greville Street, London, E.C.1.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.

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Adams & Son (Engrs.) Ltd., 95/97 North Street, Clapham, London, S.W.4
Aquafont Industries Ltd., Trojan Works, Kentish Town Road, London, N.W.1.
Ashwell & Nesbit Ltd., Barkby Road, Leicester.
G. F. E. Bartlett & Son Ltd., Marylands Avenue, Hemel Hempstead, Herts.
Benham & Son Ltd., 66 Wigmore Street, London, W.1.
A. Browne & Son, 28/30 Hythe Road, London, N.W.10.
Carron Company, Carron, Falkirk, Scotland.
Crittall-Froy Ltd., Brunswick Works, King Street, Hammersmith, London W.6.
Crypto Ltd., North Circular Road, London, N.W.10.
Essard Ltd., 216 Westbourne Grove, London, W.11.
Euk Catering Machinery Ltd., Wellington Works, Wellington Street, Oldham, Lancs.

Falkirk Iron Co. Ltd., Falkirk, Scotland.
Gardiner & Gulland Ltd., Garland Works, Hither Green Station, Lewisham, London, S.E.13.
Gaskell & Chambers Ltd., Dalex Works, Coleshill Street, Birmingham.
General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.
William Green & Co. Ltd., Norfolk Foundry, Ecclesfield, Nr. Sheffield.
Mabbott & Co. Ltd., Phoenix Works, Poland Street, Manchester.
Radiation Group Sales Ltd., Radiation House, Stratford Place, London, W.1.
Smith & Wellstood Ltd., Bonnybridge, Stirlingshire, Scotland.
Staines Kitchen Equipment Ltd., 94 Victoria Street, London, W.1.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.

KITCHEN UTENSILS

Benham & Sons Ltd., 66 Wigmore Street, London, W.1.
General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.
Hodgkison & Co., 157 Old Street, London, E.C.1.
Leon Jaeggi & Sons Ltd., Dean Street, London, W.C.2.
Kitchen Supplies Ltd., 15/19 Brewer Street, London, W.1.
Lockhart Equipment Ltd., 72 Berkeley Avenue, Reading, Berks.
Frank V. Magrini, 24 Royal College Street, London, N.W.1.
John Mollett, 35/37 Westgate, Bradford, Yorks.
Oliver Tom's Catering Equipment, 167 Fulham Palace Road, London, W.6.
William Page & Co. Ltd., 87 Shaftesbury Avenue, London, W.1.
Radiation Group Sales Ltd., Radiation House, Stratford Place, London, W.1.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.
Staines Kitchen Equipment Co. Ltd., 94 Victoria Street, London, W.1.
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Allied Art Industries Ltd., 71/73 Barrack Road, Leeds 7.
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Gaskell & Chambers Ltd., Dalex Works, Coleshill Street, Birmingham.
Goodall, Backhouse & Co. Ltd., Sovereign Street, Leeds 1.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
Staines Kitchen Equipment Co. Ltd., 94 Victoria Street, London, S.W.1.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.

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Falkirk Iron Co. Ltd., Falkirk, Scotland.
Gardiner & Gulland Ltd., Garland Works, Hither Green Station, Lewisham, London, S.E.13.
Gaskell & Chambers Ltd., Dalex Works, Coleshill Street, Birmingham.
Hodgkison & Co., 157 Old Street, London, E.C.1.
W. J. Hubbard & Sons Ltd., Occupation Road, Walworth, London, S.E.17.
Jackson Boilers Ltd., Vulcan Works, Shafton Lane, Leeds 11.
Mabbott & Co. Ltd., Phoenix Works, Poland Street, Manchester.
Frank V. Magrini, 24 Royal College Street, London, N.W.1.
R. & A. Main Ltd., 48 Grosvenor Gardens, London, S.W.1.

Modern Metal Products Ltd., 86/88 Banner Street, London, E.C.1.
John Mollett Ltd., 35/37 Westgate, Bradford, Yorks.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.
Staines Kitchen Equipment Co. Ltd., 94 Victoria Street, London, S.W.1.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.
Tea Service Equipment Ltd., 80 Camberwell Road, London, S.E.5.

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Thomas Collins & Co. Ltd., St. Werburgh's, Bristol.
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Essard Ltd., 216 Westbourne Grove, London, W.11.
Euk Catering Machinery Ltd., Wellington Works, Wellington Street, Oldham, Lancs.
Falkirk Iron Co. Ltd., Falkirk, Scotland.
General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.
William Green & Co. Ltd., Norfolk Foundry, Ecclesfield, Nr. Sheffield.
Hodgkison & Co., 157 Old Street, London, E.C.1.
Jackson Electric Stove Co. Ltd., 143 Sloane Street, London, S.W.1.
Mabbott & Co. Ltd., Phoenix Works, Poland Street, Manchester.
Frank V. Magrini Ltd., 24 Royal College Street, London, W.1.
R. & A. Main Ltd., 48 Grosvenor Gardens, London, S.W.1.
Moorwoods Ltd., Harleston Ironworks, Sheffield 4.
Newton Chambers & Co. Ltd., Thorncliffe, Nr. Sheffield, Yorks.
Radiation Group Sales Ltd., Radiation House, Stratford Place, London, W.1.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.

REFRIGERATION

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Astral Equipment Ltd., 96 Buchanan Street, Glasgow, C.1.
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English Electric Co. Ltd., 28 Kingsway, London, W.C.2.
Frigidaire Division of General Motors Ltd., Stag Lane, Kingsbury, London, N.W.9.
General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.
J. & E. Hall Ltd., Dartford, Kent.
Hodgkison & Co., 157 Old Street, London, E.C.1.
Hussman British Refrigeration Ltd., 242 Tottenham Court Road, London, W.1.
Lightfoot Refrigeration Co. Ltd., Abbeydale Road, Wembley, Middlesex.
R. & A. Main Ltd., 48 Grosvenor Gardens, London, S.W.1.
Nash-Kelvinator Ltd., Hudson Motor Buildings, Great West Road, London, W.4.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.

SERVICE TROLLEYS

Adams & Sons (Engrs.) Ltd., 95/97 North Street, Clapham, London, S.W.4
Angel Truck Co. Ltd., Meteor Works, 215/219 Albion Road, London, N.16.
G. F. E. Bartlett & Son Ltd., Marylands Avenue, Hemel Hempstead, Herts.
Benham & Sons Ltd., 66 Wigmore Street, London, W.1.

A. Browne & Son, 28/30 Hythe Road, London, N.W.10.
Euk Catering Machinery Ltd., Wellington Works, Wellington Street Oldham, Lancs.
Gardiner & Gulland, Garland Works, Hither Green Station, Lewisham, London, S.E.13.
Gaskell & Chambers Ltd., Dalex Works, Coleshill Street, Birmingham.
William Green & Co. Ltd., Norfolk Foundry, Ecclesfield, Nr. Sheffield.
W. J. Hubbard & Sons Ltd., Occupation Road, Walworth, London, S.E.17.
Lockhart Equipment Ltd., 72 Berkeley Avenue, Reading, Berks.
Modern Metal Products Ltd., 86/88 Banner Street, London, E.C.1.
John Mollett Ltd., 35/37 Westgate, Bradford, Yorks.
Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.
Staines Kitchen Equipment Co. Ltd., 94 Victoria Street, London, S.W.1.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Sumerling & Co. Ltd., 40/42 Newman Street, London, W.1.
Tea Service Equipment Ltd., 80 Camberwell Road, London, S.E.5.

SINKS

Adams & Son (Engrs.) Ltd., 95/97 North Street, Clapham, London, S.W.4.
Ashwell & Nesbit Ltd., Barkby Road, Leicester.
G. F. E. Bartlett & Son Ltd., Marylands Avenue, Hemel Hempstead, Herts.
Benham & Sons Ltd., 66 Wigmore Street, London, W.1.
Carron Company, Carron, Falkirk, Scotland.
Crittall-Froy Ltd., Brunswick Works, King Street, Hammersmith, London, W.6.
Essard Ltd., 216 Westbourne Grove, London, W.11.
Euk Catering Machinery Ltd., Wellington Works, Wellington Street, Oldham, Lancs.
Falkirk Iron Co. Ltd., Falkirk, Scotland.
Hodgkison Ltd., 157 Old Street, London, E.C.1.
Frank V. Magrini Ltd., 24 Royal College Street, London, N.W.1.
R. & A. Main Ltd., 48 Grosvenor Gardens, London, S.W.1.
Rowe Bros. & Co. Ltd., Pall Mall, Liverpool 3.
Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Staines Kitchen Equipment Ltd., 94 Victoria Street, London, S.W.1.
W. & G. Sissons Ltd., St. Mary's Road, Sheffield 2.

TABLES

Ashwell & Nesbit Ltd., Barkby Road, Leicester.
Benham & Sons Ltd., 66 Wigmore Street, London, W.1.
Cox & Co. (Watford) Ltd., Watford-by-Pass, Watford, Herts.
Crittall-Froy Ltd., Brunswick Works, King Street, Hammersmith, London, W.6.
Essard Ltd., 216 Westbourne Grove, London, W.11.
Hostess Tubular Equipment Ltd., Moxley Road, Bilston, Staffs.
Modern Metal Products Ltd., 86/88 Banner Street, London, E.C.1.
John Mollett Ltd., 35/37 Westgate, Bradford, Yorks.
John Perring Ltd., 7 Richmond Road, Kingston-on-Thames, Surrey.
W. & G. Sissons Ltd., St. Mary's Road, Sheffield 2.
Staines Kitchen Equipment Ltd., 94 Victoria Street, London, S.W.1.
James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.
Tea Service Equipment Ltd., 80 Camberwell Road, London, S.E.5.
V. C. Panels Ltd., Leybourne Wharf, Horton Bridge Road, West Drayton, Middlesex.

VENTILATION AND AIR-CONDITIONING

Air Control Installations Ltd., Ruislip, Middlesex.
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Benham & Sons Ltd., 66 Wigmore Street, London, W.1.

Colt Ventilation Ltd., 15 Langley Road, Surbiton, Surrey.

Crittall-Froy Ltd., Brunswick Works, King Street, Hammersmith, London, W.6.

Falkirk Iron Co. Ltd., Falkirk, Scotland.

General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2.

J. & E. Hall Ltd., Dartford, Kent.

Ozonair Engineering Co. Ltd., Ozonair Works, The Esplanade, Rochester, Kent.

Pressed Steel Co. Ltd., Cowley, Oxford.

Sanitas Co. Ltd., 51 Clapham Road, London, S.W.9.

Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.

James Stott & Co. (Engrs.) Ltd., Vernon Works, Oldham, Lancs.

Vent-Axia Ltd., 9 Victoria Street, London, S.W.1.

WATER BOILERS

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G. F. E. Bartlett & Son Ltd., Marylands Avenue, Hemel Hempstead, Herts.

Benham & Sons Ltd., 66 Wigmore Street, London, W.1.

Carron Company, Carron, Falkirk, Scotland.

Crittall-Froy Ltd., Brunswick Works King Street, Hammersmith, London, W.6.

Crypto Ltd., North Circular Road, London, N.W.10.

Euk Catering Machinery Ltd., Wellington Works, Wellington Street, Oldham, Lancs.

Gardiner & Gulland Ltd., Garland Works, Hither Green Station, Lewisham, London, S.E.13.

Hodgkison & Co., 157 Old Street, E.C.1.

Jackson Boilers Ltd., Vulcan Works, Shafton Lane, Leeds, E.11.

Jackson Electric Stove Co. Ltd., 143 Sloane Street, London, S.W.1.

R. & A. Main Ltd., 48 Grosvenor Gardens, London, S.W.1.

Maxol Heaters Ltd., 15 Ballantine Street, London, S.W.18.

Minimax Ltd., Feltham, Middlesex.

Modern Metal Products Ltd., 86/88 Banner Street, London, E.C.1.

Simplex Electric Co. Ltd., Broadwell, Oldbury, Nr. Birmingham.

Smith & Wellstood Ltd., Bonnybridge, Scotland.

Staines Kitchen Equipment Co. Ltd., 94 Victoria Street, London, S.W.1.

W. M. Still & Sons Ltd., 29/31 Greville Street, London, E.C.1.

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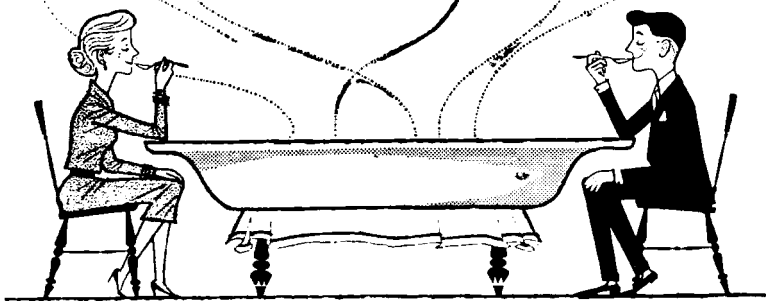

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