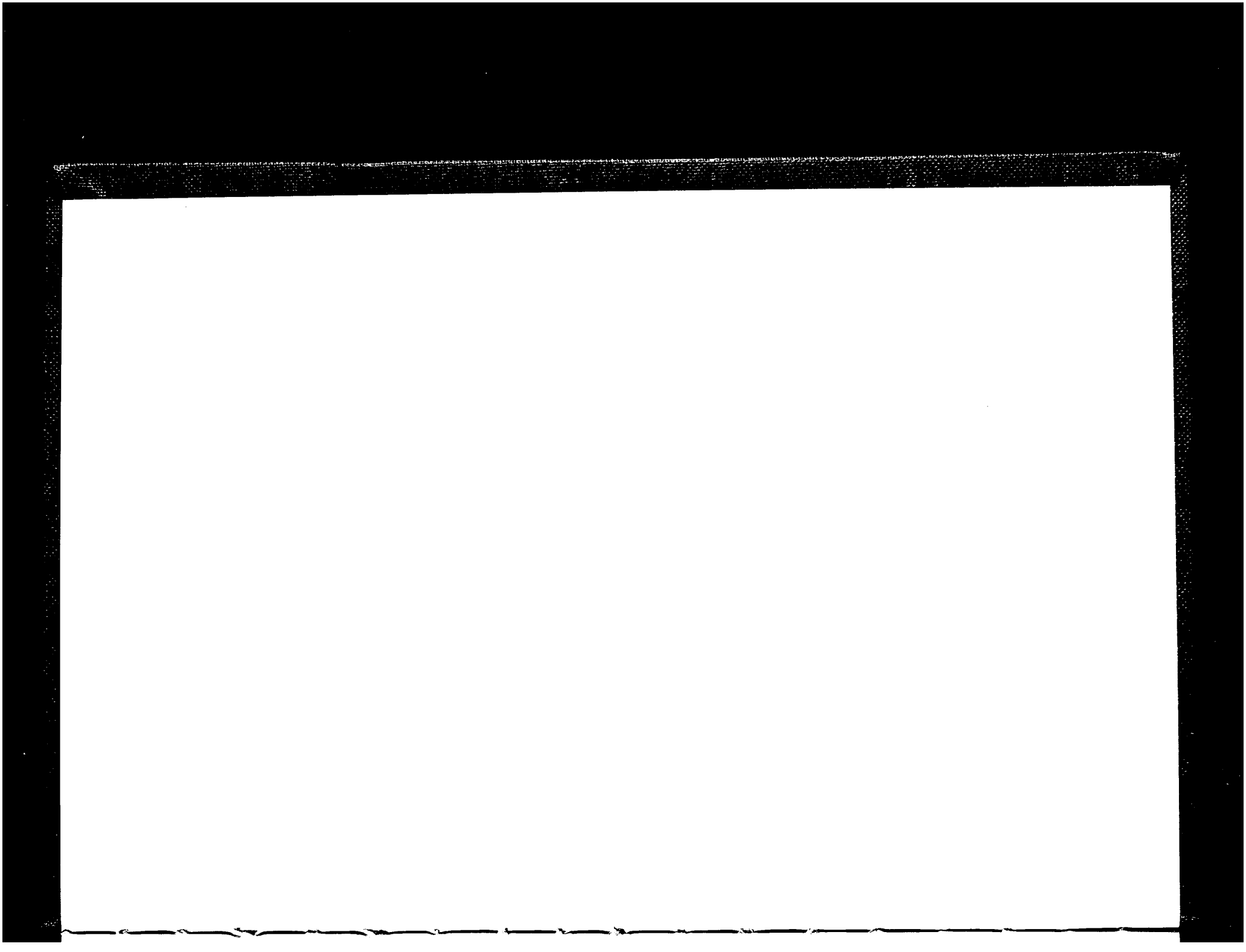

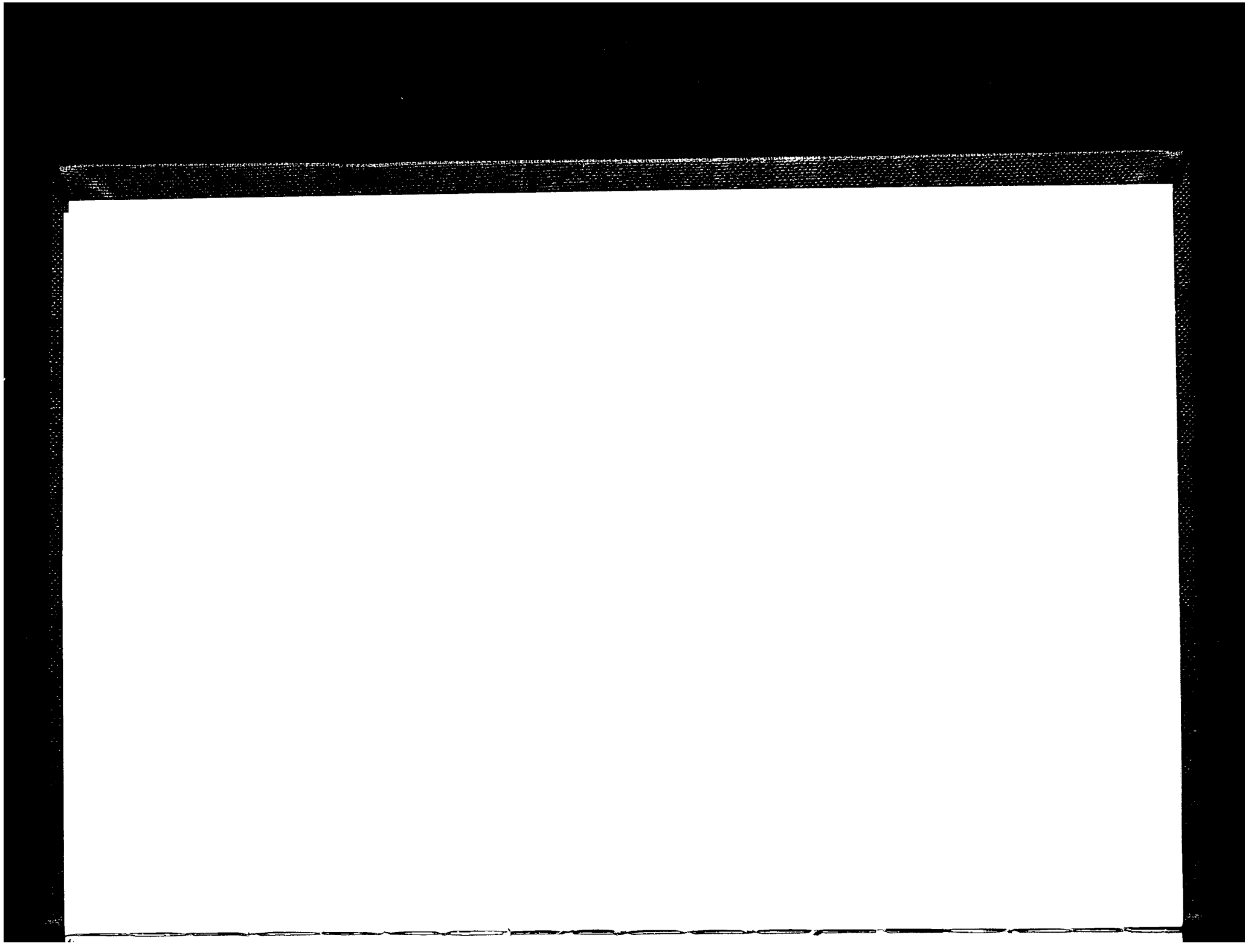

King Edward's Hospital Fund for London

SECOND MEMORANDUM

ON

HOSPITAL DIET

For consideration by hospitals

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King Edward's Hospital Fund for London

COMMITTEE ON HOSPITAL DIET
1943-1945.

The Committee have been greatly assisted in their work by Dr. H. E. Magee of the Ministry of Health, who has represented Sir William Jameson at many of their meetings, and by Mr. P. H. Constable, who as a representative of the British Hospitals Association has been deputising for Mr. Ceadel during his illness.

10, OLD JEWRY, E.C.2.
June, 1945.

SECOND MEMORANDUM ON HOSPITAL DIET.

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* These sections have been prepared as a separate booklet—for particulars see back cover.

SECOND MEMORANDUM

ON

HOSPITAL DIET.

INTRODUCTION.

> " In the mean Time, if Foods contribute as necessarily to the Preservation of Life and Health; they also produce the greatest Part of those Distempers, to which we are subject, and many Times, by the ill Use of them, cause even Death itself."
>
> L. Lemery,
>
> A Treatise of all Sorts of Foods, 1745.

Nearly two years ago the Fund published a Memorandum on Hospital Diet. It aroused wide interest, not only in hospital circles but elsewhere. The demand for copies and the large volume of correspondence that the Memorandum produced gave clear indications that the subject was causing many people considerable anxiety.

The need for further study of the many problems presented by hospital catering was clearly apparent. Accordingly, the Distribution Committee of the Fund recommended the formation of a Committee on Hospital Diet to carry on the work of the Sub-committee, on whose investigations the original Memorandum of July, 1943, had been based. The Committee was appointed by His Royal Highness the President in October, 1943, and during the past sixteen months has met regularly, under the Chairmanship of Sir Jack Drummond. Its deliberations have been greatly assisted by the practical studies made by Miss Broatch, who, in January, 1944, was appointed to the staff of the Fund and who has had many opportunities in that capacity to visit hospitals.

It is clear from the information gained by the Committee that, in many hospitals, those responsible for feeding the patients and staff are alive to the great importance of good catering in its widest sense. It is also apparent that, in a number of cases, a real effort is being made in spite of considerable difficulties to improve conditions that have not been good in the past. In other directions there are less encouraging signs and it is primarily with a view to stimulating action in these quarters that the Committee decided to issue a Second Memorandum on Hospital Diet. At the same time it was felt that the publication of a second report, based on recent experiences and observations, would be likely to help those hospital authorities who were making an effort to bring their catering arrangements into line with modern standards.

It is appreciated that each hospital has its own problems and that peculiar difficulties often raise obstacles of a formidable character, but these must be viewed in a new light. Good feeding of hospital patients must be regarded as a primary and essential part of all treatment. A sentence from the original Memorandum merits quotation :—

> " Our hospitals have led the way in medical research, and it would appear now that they have an important part to play in educating the public towards a better standard of feeding."

Patients should leave hospital wards, impressed not only by the quality of the food they have received during their stay, but by what they have learnt there of its importance for health. Before that happy state is reached in our hospitals, it will be necessary to convince many authorities, both lay and medical, who are concerned with hospital administration, that parsimony in respect of the provision of food and staff for hospital kitchens should no more be tolerated than would a failure to provide proper equipment and competent staff for the operating theatre or the radiological department.

This Second Memorandum on Hospital Diet is presented in the earnest hope that it will help those who are doing the best they can under difficult circumstances to improve catering in hospitals and that it will also lead those who, for one reason or another, are reluctant to change the old order of things, to appreciate the urgent need for a new outlook on what is, without any doubt, one of the most important aspects of medical science at the present time.

I. ORGANISATION OF THE CATERING DEPARTMENT

The organisation of the Catering Department in hospitals was discussed in the original Memorandum on Hospital Diet.

The following points were emphasised :—

(i) The Department should be regarded as one of the main departments of the hospital.

(ii) Catering should include all the processes involved in planning, buying, preparing and serving the meals for patients and staff.

(iii) The planning of the dietary to meet the nutritional standards prescribed or approved by the medical staff should be the work of a qualified dietitian. The officer-in-charge of the Catering Department, therefore, should either be a dietitian with adequate experience in large-scale catering or should be guided in all nutritional matters by a dietitian.

(iv) A permanent Committee for the Catering and Dietetic Department (or Food Service Committee), representative of the various administrative and professional interests, should be set up in every hospital.

The experience gained during the past eighteen months from a close study of conditions in hospitals has brought the picture into sharper relief.

This experience has shown that there is an overwhelming case for making the Catering Department a separate unit of hospital constitution, controlled by a senior officer responsible to the Board of Management through the chief executive officer. Control must be unified if efficiency is to be achieved.

Unified Responsibility. It is all too common to find at the present time that responsibility for catering is divided, as, for example, between the Steward and the Matron, assisted by a Housekeeping Sister or a trained Housekeeper. The division of work falls between the buying and storage of bulk foods which are the responsibility of the Steward, and the provision of cooked meals which is the responsibility of the Matron or her staff. Systems of divided control are rarely efficient, particularly, if, as is often the case in hospitals, the officers concerned have little expert knowledge of food, cooking and the science of nutrition. The purchase of food and the handling of supplies on a large scale is a matter calling for a special training and experience that few hospital Secretaries and Stewards have had opportunity to acquire.

A hospital administrator who has many other duties can give little time to visiting markets or interviewing travellers. He must perforce depend to a large extent on the written order and on the telephone. Direct contact with markets and with the trade is, however, essential to the job being well done.

The training of Housekeeping Sisters varies considerably in different hospitals, but it rarely occupies more than six months. It does not include cooking and seldom does it include a course on nutrition and the relation of food to health. It is not surprising, therefore, that the Housekeeping Sister is rarely competent to advise her cooks and may have to be guided by them on the preparation of dishes. This is more often than not the chief cause of the monotony of meals found in many hospitals and of the poor standard of cooking, the overcooked potatoes and vegetables, the tasteless gravies, the unappetising boiled fish, and the unimaginative choice of puddings.

The Catering Officer

The Committee on Hospital Diet wishes strongly to endorse the opinion expressed in the first Memorandum that catering should be regarded as a single important function or department of the hospital requiring an experienced Catering Officer in charge, together with a competent staff.

The Committee has given much thought to the type of individual best suited to hold such an appointment. It is of opinion that a dietitian, whose knowledge of nutrition and dietetics is supplemented by adequate experience in large-scale catering, would be the most suitable person for the post. It has to be borne in mind, however, that there are relatively few people, with the necessary qualifications, who are likely to be available at the present time; a few more may become so when the demands of the war are less pressing than now, but for some years there is likely to be a shortage. It will be necessary to train them. There are already many encouraging signs that important developments are likely to take place in the direction of training dietitians adequately for work of this kind.

If the services of a person of this type are not procurable an alternative is the appointment of a catering expert* whose knowledge and experience have been gained in the hotel or catering trade. Such individuals, fully competent as managers of a catering department, may lack knowledge of, or even appreciation of, the basic nutritional considerations which should always provide the background to the planning of hospital meals. It is, therefore, of the greatest importance when such a person is appointed to supervise the catering that a skilled dietitian should also be appointed to advise on the nutritional planning of meals and to be responsible for all special diets. This applies particularly to the large hospitals. Suggestions for meeting the needs of smaller hospitals are made on page 9.

Function of the Catering Officer

The Catering Officer should be responsible for :—

Buying of Food

Control of Stores

Menu planning in co-operation with dietitian, if the Catering Officer is not qualified in this respect.

Cooking and service.

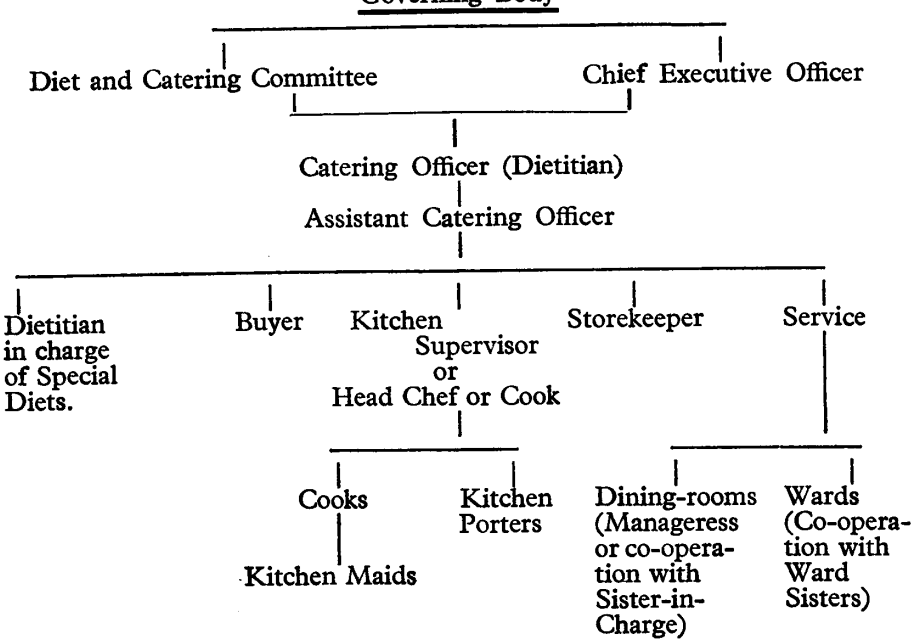
In the larger hospitals it will not be possible for the Catering Officer to give personal attention to all these duties, and she will need an appropriate number of assistants. For example, buying for a large hospital requires the services of a whole-time buyer, but the responsibility for providing the right foods is carried by the Catering Officer. In respect to service it is not suggested that the Catering Officer should take over from the Ward Sister the service of meals to the patient, for the Sister knows better than anyone the type of meals most suitable and the likes and dislikes of the individual patients. The Catering Officer should co-operate

* This expert may be a man or a woman: for the purpose of this Memorandum the latter term has been used.

with the medical staff, whose responsibility it is to prescribe the diets, and with Sisters in seeing that suitable meals are provided and that the equipment for satisfactory service is available.

The Committee has given much thought to the organisation that might be controlled by the Catering Officer of a hospital, and also to that required to co-ordinate her work with the medical and administrative direction of the hospital. The scheme set out below indicates how the organisation may be planned.

SUGGESTED SCHEME TO COVER ORGANISATION OF HOSPITAL CATERING



It will be noted that it is proposed that the senior Catering Officer should report to the Chief Executive Officer of the hospital, and, through him, to the Governing Body or directly through a Diet and Catering Committee for which provision is made in the above scheme.

Diet and Catering Committee

A recommendation that hospitals should appoint a permanent committee of this character was put forward in the original Memorandum on Hospital Diet. At that time the views of the Fund's Committee on this question were tentative, but they are now clarified considerably in the light of the information gained during the enquiries of the past eighteen months. These later views are given below.

It is regarded as of great importance that this Committee should be so constituted and directed that its activities shall assist rather than restrict the work of the Catering Officer. She should

be given wide responsibility, and she must carry it. Interference on the part of a Committee with her day-to-day work might soon render her position intolerable. On the other hand, her work would undoubtedly be greatly assisted if, at regular intervals, she had opportunity to discuss general questions with representatives of the Medical Committee, of the House Committee, and with the Matron. Since the primary responsibility of prescribing diets for all patients is borne by the medical staff, it is clear that there should be close co-operation between the Medical Committee and the Diet and Catering Committee.

The function of the Catering Committee cannot as yet be laid down with precision, and there is room for experiment in individual hospitals, but some guidance may be obtained by comparison with the functions of the Medical Committee of the hospital. The level of expenditure upon items such as equipment falling within the scope of the Medical Committee is determined by a balance struck on the one hand between the requirements laid down by the Medical Staff, and on the other hand the extent to which the Board finds itself able to meet these requirements in the light of the financial position of the hospital. In this sense the Medical Committee acts as a buffer protecting the interest of the medical requirements of the hospital. In the event of a difference of opinion between the Medical Committee and the Board of the hospital the machinery at least ensures that the Board is fully cognizant of the needs of the hospital. In a somewhat similar way, it is suggested, the Catering Committee should be regarded as carrying a responsibility for making definite recommendations to the Board as to the standard of expenditure upon the catering services; and here, too, in the event of the Board finding itself unable to accept the recommendations of the Committee without modification, the machinery should be such as to ensure at least that the Board is fully cognizant of the extent to which financial limitations are hampering the proper discharge of its responsibilities. In other words, the true function of the Catering Committee is to advise the Board as to the expenditure required for the future if the proper standard is to be maintained, and the Board must itself carry the responsibility for deciding the extent to which it is feasible that these requirements should be met.

If this view is accepted, it follows that the Catering Committee should be regarded as a technical or professional committee, exercising in its own sphere a function similar to and closely allied with that of the Medical Committee; its composition should, therefore, be predominantly technical and professional, and not confined to Members of the Board. The Committee should act in an advisory capacity to the Board and it is clear in particular that any decisions involving the reduction of expenditure

on kitchen staff or provisions should not be taken until the proposal has been before the Catering Committee and due consideration has been given to their views.

The important part that diet plays in the treatment of patients has not been realised, with the result that in some cases well-meant efforts to improve food in hospitals has succumbed to financial pressure, while in others cuts in expenditure on food have been encouraged in order to meet a period of financial stress.

It will be seen that the foregoing approach involves a new departure in the structure of the hospital organisation, and that it carries implications as regards procedure for the forwarding of recommendations to, and their subsequent discussion with, the Board of the hospital. These suggestions go materially beyond the tentative approach to this problem contained in the first Memorandum on Hospital Diet, and experience alone will show whether or not they still require modification.

Financial Control.

Lack of proper financial control is all too frequently found to be a consequence of divided responsibility. It also seems to be related, in not a few instances, to a poor standard of catering.

With divided responsibility it is no one's business to present to the Governing Body the strong case that exists for financing the catering on a liberal basis, yet the provision of adequate funds from the hospital exchequer must be ensured for this purpose.

In catering establishments, other than hospitals and similar institutions, the quality of the meals served is commonly maintained by the reaction of the consumer who pays for them. Falling off in the quality of the food is quickly reflected in receipts. The fact that hospitals are not affected in this manner adds force to the needs for financial machinery that shall ensure economy without impairing quality.

It is apparent that to raise the standard of catering in hospitals will need more money, in some cases a great deal more, than is now being spent on food, kitchen equipment and staff. If more is to be spent in this manner, the need for skilful economy at all stages of the catering chain becomes greater, although, in any case, it is a primary requirement of hospital administration. It has already been demonstrated in more than one hospital in recent years that reorganisation of the catering arrangements involving payment of higher salaries to more experienced staff has actually led to a reduction in over-all cost.

Obviously it must be the governing authority of the hospital that decides finally what expenditure on food and kitchen staff and equipment is justified, but the preparation of financial budgets to cover catering and the efficient use of the money that is granted are matters that should primarily be the responsibility of a Catering Officer. The division of control so often seen today in hospital catering is unlikely to lead to adequate and efficient financing of the kitchens.

It is a surprising fact that the records in some hospitals are so inadequate that it would not be an easy matter to derive from them a budget estimate for catering for six or twelve months to come.

A basic need is for segregation of all accounts concerning the catering. Complete records are required showing expenditure on food, salaries and wages, and overheads including depreciation, the number of meals of each type served to patients, nurses, medical and other staff. Meticulous record keeping is the foundation of sound planning and preparing budgets. This would be one of the most important duties of the Catering Officer. The absence of proper records leads to waste and extravagance.

Special Case of the Smaller Hospital

It is appreciated that the organisation set out in the previous pages would be appropriate only in the larger hospitals. Catering in the smaller hospitals is, however, of equal importance and there is no less a case for its being wholly the responsibility of a fully-qualified person. This officer should be capable of undertaking all or most of the duties and should therefore have little cause to delegate any responsibilities. As head of an important department, the officer should be responsible to the Board of Management through the chief executive officer.

Although the appointment of a whole time Dietitian in the small hospitals will rarely be practicable, it is recommended that the services of a part-time Dietitian in an advisory capacity should be secured. Such a person could cover the needs of two or more small hospitals conveniently situated as a group. Suggestions for the duties of such a Dietitian are indicated in Appendix C (page 50).

Need for Radical Changes in Existing Conditions

Reorganisation of the catering system in hospitals along the lines recommended by the Fund may in many instances sharply conflict with traditional practice. This fact has to be faced. Perhaps the strongest tradition that will be invoked against radical changes is that which closely associates the feeding of patients with their nursing. It is a link with the days when the sick poor were as much in need of food as of treatment, and when charity

gave them both. Thus was established the close association of the nursing staff with the preparation of the patients' meals, which, in one form or another, continues.

The association as we see it today has its good and its bad features. Few would favour disturbing the personal relation between patient and nurse by taking away the nurse's duty of serving meals at the bedside. But it must be recognised that every aspect of professional life is much more complicated today than it was a hundred, or even fifty years ago.

Training for the nursing profession is an arduous business, and though teaching of the principles of nutrition, invalid cookery and service of meals are important subjects in the curriculum, they cannot embrace all that is required for the training of a Catering Officer.

Reference was made earlier in this section to the training of Housekeeping Sisters. While it is appreciated that this may have met the need in the past, it must now be obvious that if hospital catering is to be unified under one control, the short courses in housekeeping offered by some hospitals to Nursing Sisters can in no way fit them to hold the post of Catering Officer.

Catering for large numbers to ensure good nutrition, has become a highly-specialised profession, and the fact cannot be evaded that the provision of meals in hospitals is a task requiring the services of an expert with specialised training in dietetics and institutional catering.

II. STAFFING OF KITCHENS

The dreary monotony and unpalatability of so many hospital menus today reflect, not the restricted war-time rations, as is so commonly alleged, but third-rate cooks, unimaginative menu-planning, and sometimes financial restrictions.

It is quite recognised that the provision of fully competent and adequate staff for hospital kitchens is very difficult, if not impossible, under prevailing conditions. Nevertheless, it is thought that the observations which follow may be of assistance to those who may be taking a long-range view of their problem.

It should be more widely recognised than it appears to be today that a good kitchen staff of adequate size is essential if well cooked meals are to be prepared and if the kitchens are to be efficiently and economically run.

Suggestions have been made from time to time that the number of kitchen staff can be related to the number of meals served. That is not so. A hard and fast standard cannot be laid down. Hospital kitchens differ so greatly in their lay-out,

their equipment, particularly the extent to which labour-saving devices have been installed, and their cooking arrangements, that each individual kitchen needs special consideration when the question of staffing is raised.

The importance of having in the key position of Chef or Head Cook a person of skill and initiative needs no emphasis. It should be unnecessary to stress the importance of giving that person adequate remuneration and satisfactory living conditions. Indeed, the post should be one not only carrying responsibility but conferring dignity.

The Head Cook should be permitted to have a say in the selection of her kitchen staff. He or she should also be encouraged to take an interest in the training of the junior members of the staff. This should not be left to chance. It should be carefully planned with a view to bringing out the best in them. There is an object lesson for the hospitals in the organisation of the kitchens of our large hotels and in the manner in which they train their junior staff.

No department of the kitchen should be left to the care of an unskilled staff. Vegetables will never be prepared as they should if they are cooked in a happy-go-lucky manner by the most junior kitchen-maid or a temporary daily woman. Cooking of vegetables calls for skill, if it is desired to get anything better than a sodden mess from which the greater part of the nourishment has been extracted. Sweets also require careful preparation, if variety and attractiveness are desired. The line of least resistance is to get the kitchen-maid to make a milk pudding as best she can, and it is far too frequently followed.

Fortunately, we are seeing the passing of the day when hospitals provide only one cooked meal a day—another survival from the days of the charitable institution for the very poor. It should be no longer necessary or desirable for patients to need supplementary food brought in by relatives and friends, except perhaps such luxuries as eggs and fruit. More and more is it coming to be recognised that the cooked breakfast and the cooked supper are part of the normal hospital day. But, again, the appropriate dishes require proper preparation. It should be an accepted principle that a trained cook should be in charge of the kitchen whenever a cooked meal is being prepared. The provision of three cooked meals a day will, of itself, call for larger staffs in many hospital kitchens. That fact must be faced by hospital administrators. Moreover, it must be borne in mind that mere increase in numbers will not meet the needs. People competent for the job must be provided if there is to be improvement in the quality and the variety of the dishes going to the wards or to the dining-rooms.

III. BUYING

General considerations

The principles underlying good buying are the same whether small or large hospitals or groups of hospitals are concerned. The diet will be satisfactory and the catering efficient only when the purchase of food is given full and very careful consideration.

Buying of food for hospitals or other institutions is work for an expert who has experience and knowledge not only of market and price lists, but of the quality of food and the use to which it is to be put after it is bought, both in its cooking and in its service. Where the Catering Officer is not the buyer, the buyer should be under his direction. The buyer not only buys what is required by the caterer, but he sees that it is of the right quality and kind. Buying the most suitable quality of food at the cheapest price obtainable can only be done by studying price lists, markets and trade papers, interviewing travellers, experimenting and always trying to improve. Every advantage must be taken of seasonal and other changes that so profoundly affect the markets. A competent caterer has to live on the crest of the wave.

Contracts and other Methods

A great many institutions buy everything on contract, which means obtaining prices for the articles required, giving a contract to one supplier for a certain period and then ordering requirements daily or weekly. When contracts are used the tender form must be kept up to date and must lay down clearly the quality and grades of the articles required. Although it is necessary to buy some foods such as milk and bread in this way as a daily supply is required, it is an uneconomic method of obtaining most of the others. With fluctuations in prices, it is quite impossible to foresee six months ahead. Contractors fix the price for the whole period, so they generally cover themselves against a rise. There is, however, a temptation to cut the price in order to get the contract, and then if prices go up the quality is liable to go down. Another point against buying by contract is that goods supplied under contract usually exclude the " tit-bits " which are kept by the trader to attract the passing customer. Unfortunately, buying under contract is an easy alternative to other methods; after the initial work is done, all that remains is to order the day's needs.

When buying in the open market, it is necessary to watch and study the market the whole time, getting quotations and samples to ensure the quality and suitability of the goods. This method of buying means more accounts and much more work for the buyer, but there is no question that it is well worth the extra trouble. It will be found that the increased cost will be at least balanced by economies effected.

Many hospitals buy articles from the same firm year in, year out. This also is not economical. To buy successfully there must be competition. One firm is often cheaper for one commodity and dearer for another. It is not uncommon to find that much advertised products are no more suitable, and may be considerably more expensive, than those from less-known firms. Cheap goods are not necessarily the most economical. The aim of the buyer should be to buy as close to the source of origin as possible. Usually the larger the quantities that are bought the cheaper the price, but a balance should be set between the size of the order and the rate of consumption on the one hand and the risk of deterioration in store on the other. Clearly the latter will depend on the sizes of the hospital, the stores and the refrigerators. Generally speaking, it is an advantage to buy full packages, i.e., sacks, chests, etc., whenever practicable. Some firms will not supply broken packages or, if they do, make an extra charge for doing so.

To buy successfully, the Catering Officer or his buyer should see all travellers. This helps them to keep up-to-date with the various types, grades, packages and prices. Samples of food submitted by different firms should be tested and a record kept of those found most suitable and economical. The tester should do so without knowing the firm concerned or the quality or price of the goods until after the examination has been completed. Judgment will not then be prejudiced.

Much that has been said above applies to normal conditions and is related in the present connection to a return of those conditions after the war. Wartime restrictions have limited the scope of the buyer by enforcing registration with one firm, by fixed Government prices and by the lack of many desirable supplies.

Notes about Commodities.

1. Bread. Bread must be bought by weight, if it is not baked in the hospital. The most suitably sized loaf should be bought, but variety is desirable. When available brown, wholemeal, currant, malt, French bread and rolls of different types should all be included. While it is not economical to use hot new bread, it is undesirable to buy stale bread. When rolls are used they should be delivered immediately before they are required. In a well run institution there should be very little waste bread which is not used for cooking, breadcrumbs, etc. All waste bread should be inspected before being sold, so as to control waste.

2. **Milk.** Milk should be bought on a six months' or yearly contract. It is advisable to buy from a large wholesaler in order to ensure regular delivery and efficient pasteurisation. It is seldom practical to purchase direct from a farm because the milk

is rarely pasteurised. There is also the difficulty of replacement should the delivery fail or be unsatisfactory in quality. Samples of milk should be analysed regularly and be submitted to bacteriological examination. Pasteurised milk should not contain more than 100,000 bacteria per ml. Samples for examination should be taken in sterilised bottles in the presence of the person delivering and one sample should be given to him.

It should be laid down in the contract that :—

(*a*) the milk should be new milk free from preservatives, colouring or other foreign matter ;

(*b*) milk should be effectively pasteurised. It should give a satisfactory response to the phosphatase test ;

(*c*) the milk should not be so heated more than once, and should not be otherwise treated by heat ;

(*d*) all milk should be delivered in clean sealed churns which should be in good condition.

Great care should be taken in checking the delivery of milk. If milk is delivered in bottles it is essential to see that they are clean.

3. Fish. Many hospitals like to buy their fish direct from the coastal sources. The disadvantage of this procedure is that if the fish is not acceptable on arrival, it is difficult to return or replace. Another drawback is that, if the type of fish which is in short supply is ordered, another type of an inferior quality may be sent instead. The best way to buy fish supplies, if it is not possible to buy direct in the market, is to buy on daily quotations from wholesale firms or, in the case of small hospitals, from reliable retail firms. The great advantage of buying on daily quotations is that advantage can be taken of what is available and what is cheap on the day. If possible, fish should be bought unfilleted, as the quality is then easier to judge. Moreover, fish when filleted is more liable to become stale and dry. Experience is needed to show which are the more suitable and economical sizes of fish for the type of catering concerned.

4. Meat. This is probably the most difficult commodity to buy, because it needs years of experience to become expert. At the present time rationing enforces registration with one supplier, but if he is not satisfactory, a change should be made. Great care should be taken to see that joints are fairly cut and that there is no excess of fat and bone. The supplier should provide a fair share of his allowance of offal. It is often not recognised that it is an economy to buy the most suitable joint for the dish required, e.g., prime joints for roast, less expensive parts for made-up dishes, stewing, etc. The practice of buying excessive quantities

of prime joints for roasts so that the remainder may be used for made-up dishes is uneconomical. It is preferable to buy special cuts for the latter purposes, so that they can be freshly cooked.

Sausages should be periodically analysed for meat content and examined for bacterial contamination.

5. Vegetables. It is impossible, owing to fluctuation in prices, to buy vegetables satisfactorily on contract. If it is not possible to buy them direct in the market, they should be bought like fish, on daily quotations. Buying direct from a market gardener is not usually satisfactory or economical, because he is often limited as to variety; moreover, agreeing prices is difficult.

There is a very great difference, owing to waste, between wholesale and retail prices of fruit and vegetables. When possible, they should be bought in complete sacks, cases, etc. The most suitable type of potatoes requires special attention: it is not generally recognised that varieties differ in their cooking qualities. Some turn black more readily than others; some types are more suitable for mashing than for boiling. In preparation of potatoes, a record should be kept of waste incurred in peeling.

6. Groceries. The most economical way of buying groceries is to obtain competitive prices with samples from a manufacturer or importer or, in the case of the smaller hospitals, from wholesale grocers.

(*a*) **Coffee.** Coffee beans should be obtained from a coffee merchant and ground for use daily. The ideal would be for a hospital to roast its own coffee, but this is a highly-skilled job and is not practicable.

(*b*) **Tea.** Tea should be bought direct from a tea merchant by the chest.

It pays to ask for expert advice before large quantities of tea or coffee are purchased.

(*c*) **Dried Fruits.** At present it is necessary to purchase dried fruits from one firm in accordance with the Government allocation, but in normal times it should be bought on sample, the most suitable size for the type of catering being decided on by test. When buying currants, sultanas and raisins for catering purposes it is not necessary to buy the choicest quality of bold, good colour and even size. Often the cheaper qualities are equally satisfactory.

(*d*) **Cereals and tinned fruits** should be bought from the importer, packer or large wholesaler by the package on sample. Stoned fruit should not be kept for more than one year.

(*e*) **Biscuits, jam and marmalade** should be bought if possible, from the manufacturer—if this is not possible, from the wholesaler. Jam and marmalade should be bought in 7-lb jars or tins, as these are cheaper than small containers.

(*f*) **Cheese, margarine, lard and cooking fats.** The larger hospitals should buy from the wholesale provision merchant in complete cases, and the small hospital from the retailer.

(*g*) **Bacon.** The part required should be bought weekly from the provision merchant ; it should not be bought ready sliced because it tends then to become dry on keeping.

(*h*) **Eggs** should be bought from a national distributing station at the current Government price.

Purchase of Crockery, Cutlery and Cooking Utensils

These articles should be bought direct from the manufacturer, or if this is not possible, from the wholesaler.

(**1**) **Crockery and glass.** China is often regarded as too expensive to purchase for general use in a hospital, but china cups and saucers are preferable to earthenware. For most purposes best quality earthenware is satisfactory. Thick, clumsy earthenware is a frequent cause for complaint.

It is uneconomical to have many different patterns in use in one hospital, as less can be ordered and larger stocks must be held.

In order to reduce breakages plates should have a double edge, tea cups should have a strong handle and egg cups a block base. Vegetable dishes should have flat bottoms so as to keep hot in the hot-plates.

Stocks of crockery should be checked at regular intervals and a record of breakages kept.

Glass tumblers should be provided for all patients and staff.

(**2**) **Cutlery.** It is economical to buy good quality cutlery, as it lasts much longer, and it also improves the appearance of the tray or table. Knives should be of good quality stainless steel and have metal handles. In choosing the pattern, fancy work on the handles should be avoided, as it only makes difficulties in cleaning. It is unnecessary to have more than one size of knife, fork and spoon, but fish-knives should be provided.

Condiment sets should be of the unbreakable type and easy to clean. Salt-cellars are preferable to pots that pour.

(3) Utensils. It is economical to purchase good quality cooking pots and pans, as they last much longer. Tinned copper saucepans and stewpans, when again obtainable, and iron frying-pans are advised. Where copper is used the pans must be regularly inspected and retinned when required.

Aluminium vessels should be of a heavy gauge so as to stand up to hard wear.

Enamel utensils should not be used in hospital kitchens. They chip readily.

IV. RECORD KEEPING AND STORING

The importance of keeping full records of all food purchased and issued cannot be stressed too strongly. It is surprising to find that many hospitals do not keep check of the food they buy. This is another consequence, in some instances, of divided control. Complete and integrated records are essential if waste is to be avoided. Every precaution must be taken to prevent theft and pilfering. The following suggestions are offered for guidance in hospitals where it is desired to improve the system of recording. A few hints on storage are also given.

Ordering. A written order in duplicate, stating the quantity required and the price, should be made out for all goods ordered, whether the order is given by telephone, by word of mouth or by post. One copy goes to the supplier, the other is kept as a record. All suppliers should be instructed to send with the supplies delivery notes in duplicate giving the amount sent. One of these should be returned to the supplier as a receipt, with rectification if the details are incorrect, whilst the other is kept as a record.

It is strongly advised that a card index be maintained to record all purchases ; each card showing the date of the order, the name of the seller, the quantity and quality and price of the product.

Checking. There should be a central receiving entrance where all goods are checked on arrival, preferably in the presence of the person delivering them. Deliveries should be weighed, counted or measured according to the article in question, and their quality examined, preferably by a member of the catering staff other than the storekeeper or the person who passes the invoice. After checking, the goods should be passed to the storekeeper or cook, together with the duplicate of the delivery note or a voucher from the checker stating the amount. This provides a double check.

Control of Stores. Stores should be either kept under lock and key or in the charge of a storekeeper or other responsible person. Preferably there should be only one entrance to the storeroom. Unauthorised persons should not be allowed into the

stores. If possible there should be a barrier over or through which goods are passed. A signed voucher should be presented for every issue, however small.

Store books or cards for all food stocks should be kept, and goods received should be entered up on these from the delivery notes. All issues and the department to which goods are issued should be recorded. If this method is followed the bills can be checked with the order card, the delivery note and the store book before they are passed to the accountant for payment.

All returnable containers on which there is a charge (jars, boxes, sacks, etc.) should be marked on the delivery notes and entered in an " Empties " stock book or on a special card. When they are returned to the supplier a receipt should be obtained and the credit should be recorded in the stock book.

Ullage (blown tins, broken bottles, bad fruit) should not be disposed of without the approval of the Catering Officer. Records should be kept of all such material.

Stock-taking should be carried out regularly and stocks should be checked against the records.

A system of records, each in its appropriate book, should show :—

(*a*) a complete record of all goods bought stating quantity, quality and price, together with the name of the supplier from whom the goods were purchased.

(*b*) a record of all receipts, issues and the balance of stock in hand.

(*c*) issues to the various hospital departments ;

(*d*) the number of meals served to patients, medical staff, nurses, etc.

From these data can be derived the quantities of foods bought and their cost. An analysis under various headings, " Groceries," " Provisions "—can be made if desired. The cost per meal per person per day can then be calculated with precision.

In the very small hospitals it may not be necessary to keep such detailed records—for example, there may be no need to keep a record of the different departments to which foods are issued. There should nevertheless be a complete record of every order, receipt and issue, and of every meal served. Only with this information will it be possible to estimate what it costs to feed the patients and staff.

Presents. The Hospital should take the strongest action to prevent the giving of presents by suppliers or their agents to the catering staff, even on occasions such as Christmas.

Members of the staff should be warned that if they accept them they will be liable to instant dismissal, and a clause to this effect should be included in the written contract of employment.

Storing. The provision of good storage is wise economy; it reduces waste and saves labour. Store-rooms should be cool, airy and of even temperature. It is advisable that, wherever possible, fittings, shelves and bins should be of metal and that they should be movable so that cleansing will reduce the risk of vermin. Bins should have well-fitting covers. Care should be taken to see that new supplies of commodities stored in bins are not tipped in on the top of unused residues of a previous consignment. To do so is to invite troubles arising from the development of rancidity, mould and infestation in the old material.

All old stock should be used up and the container throughly cleaned out before a new consignment is placed in it. Neglect of this precaution is often responsible for rapid deterioration of relatively new stocks.

Refrigeration is essential for keeping perishable foods, milk, butter, meat, etc., in good condition, but care must be taken to prevent one article in the refrigerator contaminating another, e.g., uncovered butter becomes readily tainted by fish or meat.

It should be borne in mind that such materials as reconstituted dried egg, dried milk and ice cream mixtures are perishable foods in the sense that they are favourable media for bacterial multiplication if allowed to stand in a warm place.

They should either be used soon after making or should be stored in a refrigerator until required for use.

Fish should preferably be kept in an ice-box. If it is kept in a refrigerator ice should be placed on the fish to avoid its becoming dry. Frozen fish should be slowly and thoroughly thawed out before cooking.

Milk should be delivered in sealed churns, which must be in good condition and not rusty. Containers used for issuing milk within the hospital should also be in perfect condition. They should be rinsed with cold water to remove traces of casein before being washed and it is desirable that they should be sterilised by steam before they are used. Churns should also be washed out with cold water before returning to the supplier. These precautions ensure safe milk.

Bacon should not be kept in refrigerators for any length of time because it tends to become flabby.

Sausages should, when possible, be used on the day of delivery. They should not be kept in stock for more than 24 hours.

Cheese is very liable to become dry on storing. This can be prevented by wrapping it in a cloth damped with vinegar or by covering with buttered grease-proof paper. It should not be stored in a refrigerator but in a cool, airy larder.

Meat, especially frozen and chilled, should not be issued for use direct from the refrigerator. It needs to be slowly and thoroughly thawed out before cooking.

Vegetables should not be unpacked in a store-room, as they often harbour vermin. After inspection they should be stored in wire bins or they should be stacked on strutted boards raised from the floor.

Coffee, Tea and Dried Milk should be kept in airtight containers.

Cereals and Dried Fruits should be inspected frequently for the presence of maggots or weevils, etc.

Canned goods should be inspected regularly for " blown " tins. These should be discarded and the fact recorded. Canned foods containing liquid, such as sardines, should be turned over periodically to prevent the upper portion becoming dry.

Bottles with corks should be kept on their side to avoid the shrinkage of corks and loss of material or flavour.

V. MENU PLANNING

Before the war, it was the practice in many hospitals to provide only one cooked meal a day for ward patients. All too frequently, a set menu was used and was adhered to week in, week out, throughout the year. A large proportion of the complaints about hospital feeding that have come to the attention of the Fund's Committee during the past year concern the failure to provide sufficient cooked meals and the dreary monotony of the menus.

Fortunately for patients and staff there is an increasing appreciation of the responsibility in regard to feeding in hospitals. There are now many that provide three cooked and appetising meals a day ; there are still, however, hospitals in which only one cooked meal a day is provided and for this a general weekly menu often serves, varied only when restriction of supplies makes a change necessary. This practice cannot fail to result in a very low standard of feeding. If, as is often true in such cases, the standard of cooking is also poor, it is not surprising that the public speak with bitterness of the food in these hospitals.

Menus should be planned weekly and with the following objects in view :—

1. Meals should tempt the appetite and please the palate.
2. Meals should satisfy hunger.
3. The day's meals should be nutritionally adequate.
4. Meals should be compatible with good digestion.

If meals are to provide what the body needs to maintain health and strength, consideration must be given to the classification of the various foods.

Foods can be classified according to their more important functions. Such a classification is usually determined by the quality and value of the chief constituents of a food.

1. **The Body-building foods.** These are relatively rich in proteins.

Meat
Fish
Pulses: Peas, Beans, Lentils
Dairy foods: Milk, dried, fresh or canned; Cheese; Eggs, dried or fresh
Oatmeal
Wheatmeal flour

2. The Energy and Warmth-producing foods are rich in one or other of starch, sugar or fats.

Starchy foods: Bread, Flour, Oatmeal, Potatoes, Cereals, Rice
Pulses: Peas, Beans, Lentils
Sugars: Sugar, Jam, Syrup, Honey, Treacle, Dried fruits
Fats: Butter, Margarine, Dripping, Suet, Lard, Bacon, Cheese

3. The Protective Foods supply the vitamins and mineral salts.

Dairy foods: Milk, dried, fresh or canned; Butter; Margarine; Cheese; Eggs
Fat fish: Herrings, Kippers, Salmon, Sardines
Liver
Vegetable foods: Potatoes, Green vegetables, Root vegetables, Fruit
Oatmeal
Wheatmeal and wholemeal bread and flour.

To ensure that a meal is well balanced, it should contain an appropriate choice of foods from all these groups. The present shortage of citrus fruits, viz., oranges and lemons, calls for special attention being given to the provision of green vegetables and salads in the diet for patients and staff, in order that their requirement of Vitamin C may be maintained (see Section VI). Nutritional sufficiency should be the primary aim in hospital menu-planning.

Dietary Standards

For guidance in planning meals of appropriate nutritive value two Appendices are given in this report.

Appendix D (page 52) sets out the " Recommended Dietary Allowances " published by the National Research Council of the U.S.A. in 1941. These figures represent the most recent authoritative survey of the scientific data regarding human needs for nutrients and they have been widely accepted in expert circles. In many respects the figures agree with those put forward in 1935 and 1938 by the Technical Commission on Nutrition of the League of Nations, but the National Research Council assessed the needs for Vitamins A, B and C as considerably greater than did the League of Nations Commission. The latter body did not publish figures for riboflavin or nicotinic acid requirements.

Some experts are inclined to think that the N.R.C. full daily allowances for Vitamins A, B and C are unnecessarily large and there is not yet satisfactory agreement. Until this is reached it is useful to point out that a compromise in respect to some of the estimates has been found of practical value in making assessments of the food situation in this country during the war. The Ministry of Food has used in its calculations both the full recommended dietary allowance set out in the Tables in Appendix D and what have come to be known as " restricted " allowances. These are more acceptable by the experts who regard some of the N.R.C. full allowances as being on the high side. The derivation of the " restricted " allowances is given in the note preceding the Table in Appendix D.

Appendix E (page 54) provides what it is hoped will be a useful Table of nutrient contents of foods. The values have been checked against those submitted to the Accessory Food Factors Committee of the Medical Research Council. These can be used to calculate the nutritive value of meals and diets.

In planning menus consideration must be given to the types of meals required for the different groups to be catered for, namely, patients, medical staff, nursing staff, lay staff, both resident and non-resident.

The Patients. The patients form the biggest group in the hospital. Their requirements vary considerably, depending on whether they are on full diet, on light diet, or on special diet.

The planning of menus for the patients is, therefore, difficult and needs care, as sick patients require relatively light meals of the highest possible nutritive value. Convalescent patients require a full diet especially rich in constructive and protective foods. Under prevailing conditions this calls for wise and skilful use of rations and allowances of foods of good nutritional worth.

Resident Staff. When preparing menus for the staff, it must be borne in mind that, unlike the patients, they are living in the hospital for a period of years, not weeks. It is important to provide them with appetising meals of good nutritional value and in reasonable variety. Moreover, the staff lead active lives, putting in long hours of duty, and generally need more substantial meals than the patients. It is particularly important to remember that the long hours of duty nurses perform often justify the provision of supplementary meals. Day nurses eat a very early breakfast, after which comes the most strenuous part of their day's work. A supplementary meal in the mid-morning is a real necessity, justified by physiological considerations. The medical staff are busy throughout the day and usually prefer their most substantial meal in the evening. It should, however, be remembered that the times of meals for the resident medical staff cannot be regulated as for the nursing staff, and arrangements should be made to serve their meal in a proper fashion at whatever hour they require it within reason. It is not sufficient merely to cook their meal and put it in their room on a hot plate. Provision should also be made for supplementary meals for medical staff who may be working late or who may be called up for emergency work during the night. The nurses, on the other hand, often prefer their most substantial meal at mid-day ; they are more often on duty at that time of day and off duty in the evenings, when they wish to be out. This varies between hospitals, and those in charge must decide for themselves which arrangement is better suited to the needs of the staff of their own hospital.

Night Staff. For night nurses there is a clear case for a well-cooked, hot meal during the night. In the past it was seldom provided, but it has been introduced in several hospitals where it is proving most successful and is, of course, appreciated. When possible, this should be served in the dining-room.

Menus for night nurses should be carefully planned as a distinct and special feature of the catering programme. Under no circumstances should they be expected to eat reheated remains of the meals cooked for the day staff. Refreshment similar in character to the day nurses' mid-morning snack should be available for night nurses at appropriate times, such as mid-day, before they retire to bed.

Equipment. Many hospitals are restricted in their work for lack of adequate equipment. Until the deficiencies can be remedied, it will be necessary to use great care in planning menus, so that the cooking of the dishes is divided between the available steamers, ovens, boilers and grillers.

Seasons. Foods which are available only during certain seasons in the year, particularly certain fruits and vegetables, should be given special attention, so that no chance is lost to make the best use of them while they are available. Every effort should be made to bottle fruit while it is in season and so build up a reserve for the winter. Eggs, too, should be preserved when they are plentiful.

Variety. There are five ways in which variety may be considered :—

1. Weekly. Meals on one day in the week should not be the same on the same day in the following week.

2. Daily. The meals should never be the same on two consecutive days.

3. Meals. There should not be similarity between two meals on the same day. For example—bacon for breakfast should not be followed by ham for lunch, nor should kippers which are salt be followed by salt beef for lunch.

4. Consistency. It should be remembered that mastication is important, and, except in special cases, a meal should not consist of two soft dishes, e.g., mince should not be followed by rice pudding.

5. Colour. There is a great psychological effect in planning meals which are colourful. Much can be done to introduce colour by the use of garnishes. Thus a meal of steamed fish, white sauce, mashed potato, followed by rice pudding, could be made more appetising if colour is introduced into the sauce or the pudding.

Menu Book.

New dishes are frequently appearing in the press and in cookery books. Hospitals should experiment with these.

It will be found useful to keep a book in which new dishes are entered, the cost recorded and a note made of the success or otherwise of its reception.

Expense.

Food varies considerably in cost and expensive meals must be offset by less expensive meals. Similarly, certain seasons in the year are more expensive than others and the cost of meals should be considered as an average over a period of time and not restricted to a certain sum each day.

Rations and Allowances.

It should not be forgotten by those in charge of hospital catering at the present time that the rations and allowances that can be drawn for each person resident in the institution are intended for that person's use. There is, therefore, an obligation on the part of the hospital authorities to draw the full entitlement in respect of those rations and allowances and there is also implicit in the arrangements an obligation to distribute the food as equitably as circumstances permit. It was not unusual before the war to find that senior members of the medical and nursing staff enjoyed more liberal and more varied meals than came to the table of the junior staff. Whatever justification there may have been for such a practice in the days of plenty has been dispelled by the conditions under which we are now obliged to live. If preferential treatment is given to some members of the hospital community today, it can only be done at the expense of rations or points allowances of others. It is essential that those in charge of hospital catering should distribute their limited supplies of the more desirable foods—meat, fish, "points foods," fruits—equitably among all groups of the hospital community. The division of the rations of fat, sugar and preserves between the individual and what is needed in the cooking varies in the different hospitals, and is a matter that should be left to the Catering Officer. It is, however, very important to ensure that the division is made fairly and that the amounts retained in the kitchen are used for the groups entitled to receive them. The Catering Officer should so plan the menus that the rations are well spread out over the whole week.

For Suggested Menus, see Appendix A (page 37).

VI. THE VALUE OF SALADS WITH SPECIAL REFERENCE TO THE LOSS OF VITAMIN C IN COOKING MEALS

Many of the operations employed in large-scale catering may lead to loss of nutrients. Care is needed to ensure that these losses are reduced to a minimum or that measures are taken to compensate for them. Broadly speaking, there are two ways in which the nutritional value of food is reduced by its treatment in the kitchen. In the first place, there is wastage. Although the soaking for a reasonable period of raw vegetables, the cells of which still remain living, is unlikely to cause harm, vegetables soaked for long periods lose a considerable proportion of their vitamin content, particularly the vitamin C, and their soluble mineral salts by solution in the water. Similarly, these nutrients are dissolved if the food is cooked in large volumes of water. In the first case, what is dissolved in the water is a total loss ; in the second, the loss is prevented only if the cooking water is used for

preparation of soups and stews. Another example of kitchen wastage of valuable nutrients is the throwing away of the outer leaves of green vegetables, such as cabbages, savoys and kale. These are rich in vitamins A and C, as well as in iron and calcium. If they are used in the preparation of soups, much of their nutritional value is retained.

The second cause of losses is the destruction that occurs during cooking and the subsequent handling of food. These losses primarily concern vitamin C, but, to a less important extent, losses of some minerals and vitamins of the B group come into the picture. It is the losses affecting vitamin C that are of outstanding importance. The national wheatmeal flour and bread eaten today provide such good sources of the B group of vitamins that it is not a serious matter that cooking vegetables may reduce their vitamin B1 content by 20 or 30 per cent.

The case of vitamin C is, however, entirely different. Raw vegetables are, for the most part, a good source of this nutrient; in fact, better as a class of foods than the ordinary fruits that come to the market today. (See list at end of section.) The scarcity of fruit, particularly the citrus fruits of high C content, brings into greater prominence our dependence on vegetables as the chief source of this vitamin during wartime. But, to obtain the best value from these vegetables, they must either be eaten raw in substantial amounts, or they must be cooked and handled so that as much vitamin as possible survives the treatment. Under conditions imposed by large-scale catering the latter is by no means easy.

In the first Memorandum on Hospital Diet, attention was drawn to the very small amount of vitamin C in some hospital meals. Poor menu planning and serious losses of vitamins in cooking were responsible. Although further reference is made below to the causes of loss during cooking, the first essential for the provision of adequate vitamin C is to ensure that enough vegetables of the right kind and of good quality are included in the diet.

The reports gathered together during the past eighteen months provide a great deal more evidence that too few and badly handled vegetables are factors which often contribute to make the nutritional value of hospital meals unreasonably low, particularly in respect to vitamin C.

The following data illustrate some of the important points concerning vitamin C in cooking.

Potatoes.

The vitamin C content of raw potatoes changes with season. New potatoes have the highest value. The following are average figures :—

	m.g. Vitamin C per 100 g. potatoes.
Early and main crop before October ...	30
October and November	20
December	15
January and February	10
March to new crop	7

The influence of the relatively high vitamin C content of early summer and autumn main-crop potatoes is the most important seasonal factor affecting the war-time diet. It is often clearly reflected in analyses for plasma ascorbic acid.

Cooking of potatoes on a large scale reduces the vitamin C by from 30 to 50 per cent., even when carefully carried out. For example, in one test the reduction was from 9 mg. to 4.8 mg. per hundred grams during boiling. When the cooking is good, it is wise to allow for a loss of 50 per cent. When it is bad, the loss may be as high as 80 per cent. When cooked (boiled) potatoes are kept hot, there is further loss. In the experiment given as an example, the vitamin C fell from 4.8 mg. per hundred grams of freshly cooked material to 2.3 mg. after keeping hot in an insulated container for 2½ hours. When it is impossible to avoid keeping potatoes hot, less vitamin C is lost if they are kept whole and covered than if they are mashed or exposed to air.

Cabbage.

Raw cabbage is an excellent source of vitamin C, hence the recommendation under " Salads " that it should be widely used in the preparation of salads. An average value is 70 mg. per hundred grams, a figure higher than that for any fruit, except black currants (200 mg.). Even orange and lemon juices have lower vitamin C values (about 50 mg. per 100 g.).

Good cooking of cabbage results in a loss of 50 to 60 per cent. of the vitamin C. Actual analyses of well-cooked cabbage, freshly prepared, gave values ranging from 28 to 19 mg. per 100 g. Cabbage overcooked in a large bulk of water gave values as low as 7 to 2 mg. per 100 g.

Keeping the well-cooked cabbage hot in insulated containers for 2½ hours led to further loss and gave figures ranging from 10 to 5 mg. per 100 g. It has been found that, when cabbage is kept hot for an hour under ordinary kitchen conditions, it loses 60 per cent. of the vitamin C it contained when freshly cooked and this amount, it must be remembered, is only 40 to 50 per cent. of that present in the raw state.

Vitamin C in Cooked Meals.

It will be appreciated, from what has been said above, that the amount of vitamin C in the meal actually eaten may be very much less than that originally present in the raw materials. The following figures illustrate how the character of the cooking may impair the nutritive value of the meal as a whole. :—

Helping	mgs. Vitamin C in raw foods.	mgs. Vitamin C in well-cooked, served at once.	mgs. Vitamin C in badly-cooked kept hot 1 hour.
Potatoes 170 g.	17	8	2
Cabbage 80 g.	49	26	6
Total ...	66	34	8

The important point to bear in mind is that, however good the cooking may be, it is impossible, in large-scale catering, to avoid losses of vitamin C of the order of 50 per cent. Since the extent to which these losses can be made good by providing fruit is greatly restricted in war-time it is necessary to seek an alternative. Vegetable salads can be made very attractive if trouble is taken in preparing them carefully and popularising them among patients and staff. The following figures illustrate how large is the contribution to the daily need for vitamin C that can be made by salads.

	List of Salads. (Single servings.)	Vitamin C content. mgs.
Recipe 1.	1 oz. carrot ; ¼ oz. celery ; ¾ oz. turnip ; ½ oz. watercress ; 1½ ozs. shredded cabbage ...	47
Recipe 2.	1 oz. shredded cabbage ; 1½ ozs. carrot ; ¾ oz. swede	33
Recipe 3.	½ oz. shredded cabbage ; 1½ ozs. cooked potato ; 1 oz. celery ; ¼ oz. watercress	19

The losses of vitamin C which occur in large-scale catering, and which have been mentioned so far, are the loss due to the washing away of the vitamin in the cooking water or in the water in which vegetables are put to soak and left over-long, and the destruction due to the heat of cooking and, more important still, due to the conditions existing when cooked vegetables are kept hot. There is, in addition, perhaps, an amplification of the cause of cooking loss which it is also important to mention. Raw vegetables, let us say, for example, cabbage, is composed of still living cells. Vitamin C plays a part in the life of the cells. If these cells are broken, whether by the bruising and wilting of vegetables

in transit or by hot—but not very hot—water, an enzyme also present in the living plant rapidly destroys vitamin C. Thus, if cabbage, or potato, is placed in cold or tepid water to cook and heat is gradually applied, a point is reached when the temperature of the water breaks open the cells and the enzyme destroys vitamin C. When, however, the water becomes hotter still, the enzyme itself is destroyed and can then cause no further loss. The practical application of this information is to ensure that vegetables are put to cook in water which is already boiling. Experiments have been carried out which showed that, if the whole quantity of cabbage to be cooked in a boiler were thrown into it in one lot, thus cooling the water for a considerable time to well below boiling point, the resulting cooked material contained only one-seventh the amount of vitamin C of a second batch added to the water in small quantities so that its temperature was maintained throughout the cooking process.

SALADS

Preparation. Cleanliness is necessary in handling all food; it is particularly important in preparing and serving raw vegetables since they are not subjected to the heat of cooking, which destroys most bacteria.

Vegetables should be as fresh and as unbruised as possible. Wash, but do not soak, the vegetables in cold water, changing it several times to make sure all grit is removed. Scrub root vegetables. Peel only those with tough skins, e.g., swedes and turnips. Dry in a colander or chip basket.

Vegetables should be sliced or shredded. Where slicing machines are not available vegetables can be sliced by hand with a sharp "cook's knife." Vegetables should not be grated or put through a mincer.

After slicing or shredding, vegetables should be covered or kept cool until served. Bruising or exposure to air causes loss of food value. Method of preparing:

Cabbage, Sprouts, Endive, Kale, Spinach, Turnip-tops, Dandelion	Shred the leaves with a sharp knife or put through a slicing machine.
Lettuce	Keep the tender leaves whole.
Spring onions	Tear up the outer leaves. Cut or chop into small pieces.
Leeks	
Parsley, Mint	Chop coarsely.
Mustard and cress, Watercress ...	Wash only.
Tomatoes	Slice.
Carrots, Parsnips, Beetroot, Swedes, Turnips, Radishes	Slice with a sharp knife or household shredder (as used for suet) or put through a slicing machine. Do not use a cheese grater or mincing machine.

Raw Vegetable Salad.

1½ lb. cabbage; ½ lb. watercress; ¼ lb. parsley or mint; ½ lb. carrots; ½ lb. parsnips; ½ lb. turnips; ½ lb. radishes; ½ lb. spring onions or leeks.

Prepare vegetables. After slicing, toss well together in a bowl with vinegar dressing. Serve a ladleful with the meat dish instead of a second cooked vegetable.

SALADS (for serving as a main dish):—

Egg. (To be made with scrambled dried egg served cold.)

¾ lb. dried egg; 1¼ pints water; 3 oz. margarine; 2½ lb. lettuce; 1 lb. tomatoes; ¾ lb. watercress; ½ lb. raw beetroot; ½ pint dressing; pepper and salt to taste.

Place the dried egg in a mixing bowl, add the water and push the egg under water. Allow to stand for about 5 minutes, then beat until smooth and free from lumps. This mixture should be used at once. Melt the margarine in a saucepan on the stove, add the seasoned egg mixture and cook, stirring slowly. Do not over-cook the egg; it should be creamy. Leave to cool before serving.

Fish.

3¼ lb. cooked or canned flaked fish (salmon, pilchard, herring, haddock, cod); 1½ lb. raw cabbage; 1 lb. raw carrot; 1 lb. raw swedes; 1 lb. watercress; ¼ lb. parsley; ½ pint dressing.

Cheese.

Cheese (grated or shredded); 1 lb. raw cabbage or young kale; ½ lb. turnip tops; 1½ lb. tomatoes; ¾ lb. raw beetroot; ½ lb. spring onions; ½ lb. radishes; ½ pint dressing.

Meat.

3 lb. cold sliced cooked meat; 2½ lb. lettuce; ½ lb. watercress; ¾ lb. endive; ½ lb. parsnips; ½ lb. carrots; ½ pint salad dressing.

Potato. (With egg, fish, cheese or meat as above.)

6¼ lb. cold cooked potato (sliced or diced); ½ lb. parsley (coarsely chopped); 1½ lb. cooked beetroot (sliced or diced); ½ lb. spring onions; ½ pint thick dressing; or

6¼ lb. cold cooked potato (sliced or diced); ½ lb. parsley (coarsely chopped); 1 lb. raw carrot (shredded); 1 lb. raw swedes (shredded); ½ pint thick dressing.

Quantities given in the above recipes are sufficient for 50 portions.

N.B.—In some hospitals difficulty has been found in popularising raw vegetables. This can be overcome:—

1. By ensuring that salads are carefully washed and prepared, and are attractively served;
2. By serving small portions only;
3. By serving chopped raw vegetables in small portions with hot meals.

VII. SERVICE AND WASTE

SERVICE

The responsibility of the Catering Officer should include the service of food, whether to the wards or in the staff dining-rooms (see Section I, page 5).

Experience shows that however well meals may be planned and however carefully they are cooked, their palatability and their nutritive value may be impaired by inefficient service between the kitchen and the consumer.

Service may be considered under two headings :—

1. Transport from the kitchen to the dining-rooms and wards.
2. Service in the dining-rooms and wards.

From the Kitchen. As pointed out in the preceding section, the nutritive value of cooked food is reduced if it is kept hot for any length of time in containers or in hot closets. The losses particularly concern Vitamin C and to some extent the B Vitamins, although the latter loss is not of great importance when bread contributes so large a proportion of the B Vitamins of every-day normal diets. There is clearly an advantage, therefore, if cooking can be so arranged that the food is ready with just sufficient time before the meal to allow of its being put on dishes.

Before the war, when meat was unrationed, joints were not infrequently sent to the dining-rooms and wards to be carved by the Sister or other officer serving the meal. In general this practice is uneconomical. A saving is effected when carving is done in the kitchen, providing it is carried out, as it should be, by an experienced person. Carving by an unskilled individual inevitably means great waste. The meat as carved should be laid in suitable portions on the dishes or in containers.

If a dish such as shepherd's pie has to be divided, care should be taken not to break it up, but to place it in suitable containers resembling its original form as nearly as possible.

Food from the kitchen should always be conveyed in heated trolleys, unless the dining-room or ward is near at hand, so that it is hot and ready for use. Reheating of food in ovens is undesirable and should be unnecessary. Electrically-heated trolleys are the most efficient. Alternative means, such as the use of charcoal bricks, are more troublesome and less effective. When filling the trolleys all dishes should be covered and it is very important to separate cold and hot dishes during transport. Food should never be transported uncovered.

Service to the Consumer. The attractiveness of a meal depends to a very large extent on the way in which it is placed before the consumer. The service of food on to the consumer's plate should be done with care. A plate with gravy or sauce slopped over the edge will go far to kill appetite. Where possible, dishes such as moulds, jellies and tartlets should be made in individual portions : they are more attractive in this form.

The Service Room. The Service-room should be adjacent to, or near to the dining-room and should be equipped with efficient hot-plates or cupboards fitted with *bains-marie* for the service of hot food, and with tables for the service of cold food. Where a cafeteria service is used, these should be incorporated in the service counter.

Trolleys for the conveyance of dishes and plates should be used whenever possible : they save labour and are cleaner in appearance than piles of plates or dishes carried by hand.

Menus. Menus should be displayed in all dining-rooms. This enables people to decide on their choice of dish and thus facilitates service.

Dining-rooms. All dining-rooms should be light and airy and attractive in appearance. Small tables are preferable to long ones. Tablecloths should be clean, or if tablecloths are not used the tables themselves must be clean. All crockery, cruet and cutlery should be spotlessly clean. A dirty cruet can spoil a meal. Spoons and forks should be polished and knives of stainless steel. Knives should be kept sharp. Complaints of tough meat are often due to the bluntness of the knives.

Shortage of staff has made it necessary in many hospitals to introduce the cafeteria system, which has many advantages, but the way in which it operates varies considerably. In some hospitals the staff collect only their meat ; the vegetables are served on the tables in dishes ; and the sweet is served by waitresses. In others, meat and vegetables are collected together and the sweet collected later, while in others meat, vegetables and sweet are all collected at the beginning of the meal. This latter method may save time, but it means that a hot sweet becomes cold before it is eaten.

The chief advantages of the cafeteria system are that it reduces demands on staff ; customers can indicate the size of helpings they desire ; and the system is rapid.

Meal-times should, however, serve a wider purpose than the mere taking of a meal. They should provide a pleasant break in a busy day. The advantage of service at table over the cafeteria system is that the former makes the meal a more restful and congenial occasion.

In the Wards. During meal-times the service of the meal should be given precedence over other activities. Sufficient staff should be available to serve the meal expeditiously but without undue haste, and to ensure that those engaged on this work are not called away to other duties.

The circulation of menus to the wards is helpful to the Ward Sisters—not only does it assist them in planning the service of the meals, but it also ensures the correct combination of dishes. Patients should be provided with bed tables and trays, or trays with folding legs, so that they may enjoy their meals in comfort. Trays should be washable and scrubbed daily. The tray should carry a separate cruet. Patients should not be expected to eat from a plate balanced precariously on their knees. Individual likes and dislikes should also be considered. Hot food should be served on heated plates and cold food should be served on cold plates.

It is realised that the method of service of food to patients must necessarily vary. It is dependent upon the staff available, the type and adequacy of the equipment, and the lay-out of the hospital.

A method found satisfactory in some hospitals is to serve from a heated trolley wheeled round the ward. This enables food to be served directly to the patients, who can be consulted as to their likes and dislikes. It also provides an opportunity for the sister or nurse to tempt the patients with new dishes of high nutritional value, such as salads, which otherwise they might be disinclined to try.

WASTE

Waste may be considered under five headings :—

1. Waste in the kitchen. Constant supervision is necessary to minimise waste in the preparation of food in the kitchen. Fat and trimmings of meat should not be thrown away, but be rendered down for dripping ; wastage of potatoes by careless peeling or by leaving the peeling machine running too long can be serious. The eyes of potatoes should always be gouged out by hand after careful peeling ; outer leaves of vegetables, whenever possible, should be used in the preparation of soups, and vegetable water should be retained for use in gravies and soups. All stale bread should be returned to the kitchen from the dining-rooms and wards so that it may be used in the preparation of puddings and bread crumbs ; fish trimmings and bones should be carefully gone through and any scraps of fish used in the preparation of fish cakes, kedgeree, etc.

2. Waste in Cooking. Careless cooking, burning, and over- or under-seasoning tends to render food unpalatable, thereby increasing waste, both in the kitchen and on the plate.

3. Waste in Service. Bad carving is a common cause of waste of good food. Meat served in unappetising portions is often wasted. The same remarks apply to poultry. Badly served fish often fails to appeal to the appetite.

Pies and puddings served from pie-dishes should be carefully cut and not have servings taken from the middle. This not only spoils the appearance of the dish, but it makes it appear less appetising. Waste is thereby encouraged.

Care should always be taken to give suitable portions to each individual. Too much piled on a plate may dispel appetite and will often lead to preventable waste.

4. Waste in the Ward Kitchen. Certain foods are issued daily to the wards, such as bread, milk, and butter. Proper provision should be made for the storage of these foods in the ward kitchens.

Waste of food not infrequently occurs in the service of meals, for example, in the cutting of bread and butter, and making of toast. Nurses who are responsible for the service of meals to patients should be taught to recognise the seriousness of this waste.

5. Waste in Food Left Over. All food left over in the dishes after service in ward or dining-room should be returned to the kitchen so that it can be used for preparing made-up dishes. The practice (by no means uncommon) of reheating remains of meals in the ward kitchens to provide meals some hours later is to be condemned.

It is the custom in many hospitals to permit members of the staff to take home " left-overs " and so-called waste. This should not be allowed as it encourages pilfering and even theft. Waste from the kitchen which cannot be used in cooking and waste from the plates should be collected in pails for pig food. (This should not include tea leaves or orange peel.)

A responsible member of the catering staff should inspect the waste buckets daily both in the wards and in the kitchens, but not always at the same time. Much can be learned from this inspection. It will often reveal the popularity or otherwise of a particular dish. It will detect whether food has been wisely portioned. If large quantities of any one dish are left enquiries should immediately be made as to the reason.

All waste should be sold. "Pigwash," waste bread (if any) bones, waste fat, should be sold by contract when the quantities are sufficient. In the case of " pigwash " the contractor should pay a deposit to ensure regular and punctual payment ; in default of either, the contract may be cancelled and the deposit forfeited.

In addition, old tins, non-returnable sacks, bottles and cases should be sold.

Drains from the kitchen should be fitted with grease traps, and the grease from these should be sold to a contractor.

VIII. CLEANLINESS IN THE KITCHEN

Cleanliness of all kitchen premises is essential.

The following rules have been formulated for observance in hospital kitchens and for inclusion in the training of cooks. They may be compared with the comprehensive treatment of the subject in the Army Manual of Hygiene and Sanitation.

1. All kitchen personnel should undergo a medical examination before appointment.

2. No person should be employed in the kitchens who is not healthy. Cooks and others must on no account continue their duties without medical examination if suffering from diarrhoea, however slight, severe cold, sore throat, septic fingers or other illness. Bad teeth must receive attention.

Cooks suffering from dysentery and typhoid (as carriers) have been responsible for causing epidemics of these diseases.

3. Strict cleanliness should be observed by all persons handling food in all places where it is stored, prepared, or served, such as larders, kitchens, preparation rooms, dining rooms and sculleries. Particular attention to cleanliness, especially of the hands and clothing, must be observed by cooks and others employed in the preparation and handling of food, and by porters who are engaged in the distribution of food throughout the hospital.

4. The Hospital should provide an adequate supply of suitable overalls for the use of the kitchen staff, and should be responsible for keeping them clean. No personal clothing should be kept in the kitchen. If at all possible, a changing room with lockers should be provided for kitchen staff.

5. Hands should always be washed before coming into contact with food. A basin, with hot and cold water, soap and nail brush and a clean towel should be provided for the use of staff. It is realised that in many hospitals wash basins are not installed in the kitchens, but adequate provision for washing of hands should be made; sinks used for washing vegetables should not be used for this purpose. Nails should be kept trimmed.

6. There should always be a sufficient supply of clean cloths for drying dishes and utensils in the kitchen, serving rooms and ward kitchens. If there is an insufficient stock for a clean supply daily, cloths in use should be washed thoroughly each day and if necessary boiled in water containing washing soda.

7. All pots and pans should be freed from grease, cleaned and dried immediately after use. Vegetables should not be prepared in the same sink or receptacle in which pots and pans are cleaned.

8. Kitchens and annexes should be kept clean and free from flies. All sinks, tables, cutting-up boards, chopping-blocks and cooking utensils must be cleaned thoroughly after use. The waste pipes of sinks should be examined frequently to see that they are not choked with grease. The floors of the kitchen should be properly scrubbed daily and be dried after scrubbing. Glazed tiled floors are easily cleaned with soap and water and cresol solution. It is important that the soap should be free from abrasive. Unglazed tiled floors should be cleaned with scouring cleansers, never with soap solution. Arrangements should be made for the systematic disposal of dirty water, swill, and kitchen refuse. Swill and kitchen refuse should be deposited in covered refuse bins provided for the purpose outside the kitchen. These bins must be regularly cleaned with steam or hot water. No disinfectant should be used.

9. Beetles are frequently a source of trouble. Beetles, flies and mice are attracted by stale food : they may be destroyed by insect powder and other preparations. There are firms which specialise in this work.

10. If coal is used it should be stored outside and not be left uncovered in the kitchen.

APPENDIX A

The menus set out in the following pages are suggested as suitable outlines on which to plan meals for patients on full and light diets. They can be attained with the present day foods; when conditions improve, more variety may be introduced. There should always be an alternative dish for those who do not like the main dish of the day.

SUGGESTED MENU FOR FULL DIET

WHICH CAN BE PROVIDED UNDER PRESENT CONDITIONS

6 *a.m. or when called.*	Cup of tea.
8 *a.m. Breakfast.*	Porridge or cereal. Breakfast dish. (See List A.) Bread and butter/margarine. Tea, coffee. Marmalade once or twice a week. Occasionally fresh fruit, hot rolls.
Midmorning.	Milk; meat or yeast extract; fruit drink cocoa.
12-12.30 *Dinner.*	Meat (occasionally fish). (See List B.) Potatoes. Cooked vegetables or salad. Sweets: pudding and milk pudding as alternative. (See List C.)
4 *p.m. Tea.*	Bread and butter/margarine. Jam, honey, syrup or paste or salad, cake, scones or buns. Tea.
7 *p.m. Supper.*	Cooked dish. (See List D.) Sweet. (See List C.) Bread and butter/margarine. Milk, cocoa, etc.

LIST A

BREAKFAST DISHES

Bacon and fried bread or potatoes or tomato.
Sausage.
Eggs—scrambled, boiled, fried or poached.
Fish cake.
Ham and potato cake.
Smoked haddock.
Kipper.
Grilled herrings.
Cold ham.
Kedgeree.
Breakfast sausage.

LIST B

DINNER DISHES

Beef Roast, braised, sauté, hash, boiled, silverside, steak and kidney pie or pudding, minced, curried, grilled, stewed or braised steak, rissoles, shepherd's pie, cottage pie, Vienna steak, timbale of beef, individual meat pies.

Mutton Roast, boiled, grilled, chops, cutlets, haricot mutton, hot pot.

Lamb Roast, Irish stew, stuffed shoulder, curry, mutton pies.

Pork Roast, boiled, grilled chops.

Veal Roast, sauté, stewed, braised, stuffed shoulder, timbale, pie, blanquette.

Ham Boiled and grilled gammon, boiled hock of bacon.

Offal Mixed grill, liver grilled and braised, stuffed hearts, tripe, kidney, oxtail, sweetbreads, brains.

Fish Fried, grilled, boiled, baked, au gratin, fish salad, fish pie, fish cake, fish cream, fish soufflé, curried.

Poultry Roast, boiled, minced, croquette, fricassée, sauté.

Rabbit Baked, boiled, minced, croquette, fricassée, sauté.

COLD DISHES

Steak, veal, pork-pies, galantine, ham, pressed ham, bacon, brisket, silverside, corned beef.

POTATOES

Boiled, mashed, snow, duchess, rissoles, sauté, chipped, baked in jacket, roast.

SALADS

Green, winter, Russian, brawn, fish, egg, ham, meat, Spam.

LIST C

SWEETS

Apple baked
Apple Charlotte
Apple dumpling
Apple fritters
Apple Suzette
Bakewell tarts
Banbury cakes
Baked jam roll
Baked bread and butter pudding
Baked raisin pudding
Baked custard
Guards pudding
Gateaux various
Ice Cream
Jellies various, plain, fruit
Jelly cream
Jam or treacle tart
Junket
Lardy cake
Meringues
Manchester tart
Moulds various

Batter pudding
Bread and butter pudding
Castle pudding (jam or nutmeg sauce)
Cabinet pudding
Canary pudding
Custard lemon curd
Congress tart
Charlotte Russe
Cream puffs
Chocolate meringue pie
Cream of rice
Chocolate profit rolls
Creams (coffee, raspberry, lemon, etc.)
Caramel cream
Custard
College pudding
Doughnuts and jam sauce
Eve's pudding
Fruit Condé
Fruit flan
Fruit fools
Fruit tart and tartlets
Fruit salad
Fruit, stewed, dried, fresh, bottled or tinned
Fruit, rice or semolina mould
Fresh fruit
Mincemeat tart or pies
Milk puddings, rice, sago, semolina, tapioca, ground rice
Plum pudding
Pancakes
Pineapple fritters
Rice custard
Rum Baba
Suet puddings with sultanas, jam, syrup or jam or honey sauce
Sponge cake jelly
Surprise eggs
Summer pudding
Steamed puddings, chocolate, coffee, ginger, fruit, raspberry
Trifles
Turnovers, jam or fruit
Wholemeal pudding

LIST D

SUPPER DISHES

Beef	Minced, rissoles, shepherd's pie, cottage pie, timbale of beef, individual meat pies.
Mutton	Mutton pies.
Veal	Timbale, pie.
Offal	Tripe, sweetbreads, brains.
Fish	Fried, grilled, boiled, baked, au gratin, fish salad, fish pie, fish cake, fish cream, fish soufflé, herrings, pilchards (fresh or tinned).
Poultry	Minced, croquette.
Rabbit	Minced, croquette.

COLD DISHES

Pork-pies, ham, bacon, brisket, silverside, corned beef, Spam, tongue, brawn, sausage, luncheon sausage, breakfast sausage, sausage rolls.

CHEESE DISHES

Welsh rarebit, cauliflower au gratin, macaroni cheese, cheese pie, cheese croquettes, cheese soufflé, potato hash and cheese pie, cheese fritters, cheese balls in batter.

EGGS

Fried egg and chipped potatoes, poached or scrambled egg on spinach or sweet corn, baked egg, stuffed egg, Scotch egg, egg mornay, egg patty.

MISCELLANEOUS DISHES

Vol au vent or duchess potatoes with various fillings :—

Cheese Mixture	Fish
Ham	Mince
Rabbit	Salmon
Sausage meat	Veal

SOUPS

Beef tea	Mulligatawny
Celery	Mutton broth
Chicken broth	Oxtail
Cream of celery	Pea
Cream of spinach	Potato
Kidney	Scotch broth
Leek	Tomato
Minestrone	

LIGHT DIETS

6 *a.m. or when called*	Cup of tea.
8 *a.m. Breakfast*	Porridge or cereal and/or cooked dish.* Bread and butter/margarine. Tea. Marmalade once or twice a week. Occasionally fresh fruit.
Midmorning	Milk; meat or yeast extract; fruit drink; cocoa, if required.
12-12.30 *Dinner*	Meat, poultry or fish.† Potatoes, boiled, mashed, snow, duchess, baked in jacket. Vegetables (whole or purée), salad. Sweets‡ : pudding and milk pudding.
4 *p.m. Tea*	Tea. Bread and butter/margarine. Jam, honey, syrup, cake, scones or buns.

*, †, ‡, See following lists.

Supper — Soup,¶ and/or
Cooked dish (see dishes printed below in italics) and/or
Sweet
Bread and butter/margarine.
Cocoa.

**BREAKFAST DISHES*

Egg	Boiled, poached, scrambled, baked.
Fish	Fresh fish, grilled.
	Finnan haddock poached or creamed on toast.
	Herring soft roe on toast.
	Kedgeree.
	Fish cake.

†*DINNER DISHES*

Mutton	Cutlets.
Beef	Minced.
Ham	Boiled, hot or *cold.*
Offal	*Tripe, sweetbreads,* liver, *brain.*
Fish	Steamed, grilled, fish pie, *fish cream, fish soufflé.*
Poultry	Roast, *boiled, minced, creamed.*
Rabbit	Roast, boiled, *minced, creamed.*
Eggs	Boiled, *poached on toast or spinach, omelette, baked, scrambled.*
Cheese	Soufflé.
Salads	

Dishes suitable for supper printed in italics.

‡*SWEETS*

Apple baked or stewed
Apple snow
Baked custard
Castle pudding
Charlotte Russe
Caramel cream
Creams (coffee, chocolate, raspberry)
Cream of rice
Chocolate profit rolls
Custard
Fruit fools
Fruit salad
Fruit stewed, dried, fresh or tinned
Gâteaux various
Ice cream
Jellies, plain or fruit
Jelly cream
Junket
Moulds various
Milk puddings, rice, sago, tapioca, semolina, ground rice
Rice custard
Surprise eggs
Sponge cake jelly
Trifle

¶ See following list.

¶*SOUPS*

Beef tea
Celery
Chicken broth
Cream of celery
Cream of spinach
Kidney
Leek
Minestrone
Mulligatawny
Mutton broth
Oxtail
Pea
Potato
Scotch broth
Tomato

SPECIAL DIETS

In addition to the ordinary menu, the following dishes should be available for patients on special diet :—

Soup : Mutton broth ; chicken broth ; beef tea.
Chicken or rabbit boiled, creamed, minced.
Beef or mutton minced. Mutton cutlets.
Fish fried, steamed with sauce, creamed.
Green vegetables whole and purée.
Salad.
Jellies ; junket ; blancmange ; baked custard ; ice cream.

APPENDIX B

EXAMPLES OF RECIPES

FOR FIFTY PEOPLE UNLESS OTHERWISE STATED

SAVOURY DISHES

1. *MINCED MEAT, TOMATO, MACARONI ON TOAST*

Ingredients :

3 lb. minced meat (cooked) ; 2 lb. macaroni ; 1 tin tomato purée ; seasoning ; toast.

Method : Cook macaroni and chop into small pieces. Mix with minced meat, add tomato purée and season well. Heat well in a pan and spread on toast.

2. *FISH CAKES*

Ingredients :

4 lbs. tinned fish or 8 lbs. fresh fish ; 10 lbs. potatoes ; 1½ pints milk or vegetable stock ; seasoning ; 8 ozs. margarine ; breadcrumbs.

Method : Cook fish and potatoes separately. Remove fish from bones and flake. (Fish scraps left over from service can be used—see Section VIII, page 33). Mash potatoes with milk or stock and margarine ; add the fish and seasoning ; mix well ; form into cakes, roll in breadcrumbs and fry. Serve with sauce.

3. *KEDGEREE*

Ingredients :

15-20 lb. fish (fresh, dried or tinned) ; 2 lb. rice ; ½ lb. dried egg ; 5 pints white sauce ; seasoning.

Method : Wash and boil the rice in salted water. Prepare the white sauce. Mix into this the boned, flaked fish. Add the reconstituted egg and seasoning. Put into greased dishes and bake in moderate oven.

4. *SALMON ROLLS*

Ingredients :

6 lb. biscuit pastry (see Recipe 22) ; 10 lb. potatoes (cooked) ; 6 oz. dried egg ; 7 lb. Grade III salmon ; ¼ lb. parsley, chopped ; 4 pints mayonnaise (see Recipe 28) ; cochineal—a little ; salt and pepper to taste.

Method : Mash the potatoes with the mayonnaise. Add the dried eggs (reconstituted), the fish and the parsley and beat well. Season to taste and colour a good pink with the cochineal. Roll out the pastry into oblong pieces. Put some of the fish mixture on each and fold the pastry over like an envelope. Glaze with beaten egg and bake in a hot oven for 30 minutes. Serve with potatoes and a fresh vegetable or salad.

5. *SALMON MOULD*

Ingredients :

8 lb. tins Grade III salmon ; 4 lb. mixed root vegetables, grated raw ; 4 lb. cooked mashed potato ; 2 lb. rolled oats or oatmeal ; salt and pepper ; chopped parsley.

Method : Flake up the fish and mix well with all ingredients, moistening with the juice from the tin, and a little egg or water if necessary. Press it into a greased tin or basin and steam 1½ hours to 2 hours. Turn out and serve hot or cold.

6. *SALMON PUDDING*

Ingredients :

8 tins Grade III salmon (No. 1 talls) ; 4 oz. egg (reconstituted) ; 1 lb. soaked stale bread, or mashed potato ; ½ lb. margarine ; 1 lb. grated cheese ; seasoning and vinegar.

Method : Flake up fish, beat up soaked bread (or potato) and mix together. Add half the cheese (grated) the egg (reconstituted) and the margarine (melted). Season well. Moisten with the juice from the fish, some vinegar and water to make quite a moist mixture. Put into a greased dish, sprinkle with the rest of the grated cheese and bake in a moderate oven till firm and brown on top.

7. *SAVOURY RICE*

Ingredients :

3 lb. rice ; ½ lb. onion ; 1½ lb. tinned tomatoes ; ¾ lb. cheese ; ½ lb. fat ; 1 quart stock seasoning.

Method : Peel the onions and chop into small pieces. Wash the rice. Brown the onions and rice in the fat. Stir in all the other ingredients except the cheese, and cook gently for about 20 minutes. Add the cheese just before serving. Season well.

8. *SAVOURY RICE AND EGG DISH*

Ingredients :

2 lb. rice ; ½ lb. cheese ; ¼ lb. margarine ; 2 tablespoons tomato sauce ; 2 level tablespoons curry powder ; 1 lb. dried egg (reconstituted) ; 1 pint milk and water ; ¼ lb. margarine ; ¼ lb. flour or soya flour ; seasoning.

Method : Wash and cook the rice, strain and add the curry powder, tomato sauce and grated cheese. Beat in the margarine, season well and spread thickly over the dish. Heat together milk and margarine, add the reconstituted egg, the flour or soya mixed with a little water and season well. Scramble carefully and pile on the savoury rice. Serve at once.

9. *SAVOURY EGG PATTY*

Ingredients :

5 lb. biscuit pastry ; 1 lb. dried egg ; 2½ lb. potato (cooked) ; 6 lb. sausage meat ; about 2½ pints milk or vegetable water ; 1½ lb. onions ; ¼ lb. fat ; 2 oz. parsley, chopped ; seasoning to taste.

Method : Mince the onions and fry them in the fat. When cooked, add the sausage meat and let it cook for about 15 minutes. Work in the potato, add parsley and seasoning and enough liquid to make a fairly soft consistency.

Roll the pastry thin and line deep patty tins or baking trays. Half fill the pastry cases with sausage mixture. Reconstitute the eggs, season well, and pour over the sausage meat. Bake in a moderate oven until set and brown.

10. *RUSSIAN PIE*

Ingredients :

1 lb. dried egg ; 1 lb. onions or leeks ; 2 lb. cooked vegetables ; 1 lb. cooked potatoes ; ¾ lb. cheese ; 2 oz. parsley ; 12 pints milk ; salt and pepper.

Method : Reconstitute the dried egg, whisk thoroughly with the milk and seasoning. Chop the onion finely, dice the vegetables. Add these and the grated cheese to the custard and bake in a hot oven until set. Serve with potatoes and fresh vegetables or a salad.

11. *POTATO CHEESE SOUFFLÉ*

Ingredients :

¾ lb. dried egg ; 10 lb. potatoes (cooked) ; 1 lb. cheese ; 1½ lb. flour ; 2 tablespoons baking powder ; milk to mix ; salt and pepper.

Method : Mash the potatoes, sieving them if possible. Reconstitute the dried egg and add to the potatoes with the other ingredients, with enough milk to make a soft consistency. Bake in greased dishes and serve hot with potatoes and a fresh vegetable or salad.

12. *WELSH RAREBIT*

Ingredients :

12 oz. flour ; 4 oz. margarine ; 6 pints milk ; 3 lb. cheese ; 1 oz. made mustard ; seasoning.

Method : Grate the cheese. Prepare white sauce with flour, margarine and milk. When cooked add the mustard and seasoning. Stir in the grated cheese. When melted pour on slices of toast and brown under the grill. It is advisable to have this mixture prepared beforehand. It will keep for two or three days.

13. *VEGETABLE HOT POT*

Ingredients :

4 lb. haricot beans or dried peas ; 9 lb. mixed carrots, onions, turnips, celery or cauliflower ; 8 lb. potato ; 1½ quarts brown gravy or sauce ; fat ; seasoning.

Method : Wash the beans or dried peas, soak them overnight, cook until tender. Prepare, cut up and cook all the other vegetables except the potatoes. The remains of any cooked vegetables may be used. Peel and partly cook the potatoes. Mix the vegetables and seasoning together in the sauce and cover with sliced potatoes. Put a few pieces of fat on the top and bake in a moderate oven until brown.

SWEETS

14. *APPLE SUZETTE*

Core and bake the number of apples required, fill with hot jam sauce and serve hot.

15. *CONGRESS TART*

Ingredients :

½ lb. margarine ; 2 oz. dried egg ; 1 lb. finely sieved plain cake crumbs ; 6 oz. sugar ; 1 teaspoonful baking powder ; 4 oz. flour ; 1 gill milk ; jam.

Method : Line baking tray with sweet paste as recipe No. 24. Cream the fat and sugar, add the reconstituted dried egg, sifted flour and baking powder and finally cake crumbs. Add milk until mixture is of a soft consistency. Spread jam on pastry, pour on mixture and bake for 25 minutes in a medium oven—temperature 280 degrees. (36 *portions*)

16. *GATEAUX*

Ingredients :

¾ lb. flour ; 1 teaspoonful baking powder ; ½ lb. margarine ; 1 gill milk ; 2½ oz. dried egg ; 2 oz. dried milk powder ; 6-8 oz. sugar ; cream substitute as recipe 25.

Method : Cream margarine and sugar, and dried milk powder and dried egg. Sift flour and baking powder and add to mixture. Gradually add milk until the mixture is of a dropping consistency. Pour into a greased tin and bake in a moderate oven (280 degrees) for 20-30 minutes. When cold—split, fill with jam and cream. Decorate with cream and cake crumbs, etc. (20 *portions*)

17. *GUARDS PUDDING*

Ingredients :

2 lb. flour ; 2 oz. baking powder ; ¼ lb. lard ; 1 lb. jam ; ¾ lb. suet ; 1 lb. white breadcrumbs, sifted ; 4 oz. dried egg ; ½ lb. milk powder—reconstituted.

Method : Mix flour and dried egg, rub in lard, add suet, baking powder, breadcrumbs and jam. Mix thoroughly with reconstituted milk. Pour into well-greased basins, cover and steam for 1¾ hours. Serve with jam sauce, made with 1 lb. jam, 1 quart water. (40 *portions*)

18. *ICE CREAM*

Ingredients :

6½ oz. margarine ; 10 oz. sugar ; vanilla essence ; 5 oz. soya flour ; 3¼ pints water ; ½ oz. gelatine ; 8 oz. dried skimmed milk powder.

Method : Mix 4 ozs. skimmed milk powder and the soya flour to a paste with a little water, add to the boiling water. Remove from heat immediately. Add sugar and dissolved gelatine. Melt fat and whisk into the mixture. When cool add the remainder of the dried milk powder. Whisk well for 10 minutes. Freeze.

(36 *portions*)

19. *LARDY CAKE*

Ingredients :

2 lb. flour ; 1 oz. margarine ; ½ lb. golden syrup ; 2 oz. sugar ; 2 oz. yeast ; pinch of salt ; 3 oz. lard ; 6 oz. dried fruit.

Method : Mix dry ingredients—rub in 2 oz. lard and 1 oz. margarine. Cream the yeast, add 12 oz. water at 98 degrees. Add to dry ingredients and mix to a stiff dough. Add fruit. Prove for 50 minutes. Spread 1 oz. lard thickly over a baking tray. Spread half the syrup over the lard. Roll out the dough—1 in. thick. Place on a tray. Prove for 20 minutes. Bake in a fairly hot oven (350 degrees) for 10 minutes. Brush over with remaining syrup and finish baking. (30 *portions*)

20. *RUM BABA*

Ingredients :

2 lb. flour ; 1½ oz. yeast ; rum essence ; 2 oz. sugar ; 4 oz. dried egg ; pinch of salt ; 6 oz. fat ; 1 pint of milk.

Method : Make a sponge with 1 lb. flour and 1½ ozs. yeast dissolved in 1 gill of water at 120 degrees. Stand to prove in a warm place for 10 minutes. Mix remaining dry ingredients. Melt fat and add to dry ingredients, then add the reconstituted egg and sponge dough. Knead thoroughly into a soft dough. Half fill well greased dariole moulds. Prove for 15 minutes. Bake thoroughly until dry in the centre. Allow to cool. Soak in hot syrup made from :—

2 oz. golden syrup ; 1 pint water ; rum essence.

Allow to drain and brush with apricot jam sauce and decorate.

21. *SURPRISE EGGS*

Ingredients :

1 Swiss roll ; tinned apricots ; 4 oz. jelly crystals.

Cornflour sauce made of :—
4 oz. milk powder, reconstituted ; 2 oz. cornflour ; 1½ oz. sugar.

Method : Cut swiss roll into ten portions, place half an apricot on each, outer side uppermost. Cover with a thin coating of cornflour sauce. Allow to cool, then pour prepared jelly over the whole and allow to set. (10 *portions*)

PASTRY, SAUCES, ETC.

22. *BISCUIT PASTRY*

Ingredients :

¼ lb. dried egg ; 4½ lb. flour (self-raising) ; 1¼ lb. cooking fat ; salt to taste ; water to mix.

Method : Mix the flour, salt and dried egg ; rub in the fat. Mix to a stiff dough. *Use for flans, tarts, etc.*

23. *PROFIT ROLLS*

Ingredients :

12 oz. margarine ; 1½ pints water ; 12 oz. flour ; 12 oz. dried egg reconstituted.

Method : Heat margarine and water, add flour and boil. Whisk in the egg while still hot.

Use for eclairs, or shortcake foundation for cream buns.

24. *SWEET PASTRY*

Ingredients :

2 lb. flour ; 6 oz. sugar ; 10 oz. fat (5 margarine, 5 lard) ; ½ gill water.

Method : Rub fat into flour, mix in sugar and make stiff dough with water. *Use for flans, tarts, etc.*

25. *CREAM*

Ingredients :

4 pints custard (made as in Recipe 27, or with custard powder) ;

2 lb. dried milk.

Method : Beat the dried milk into the custard and continue to beat until white.

26. *CHOCOLATE SAUCE*

Ingredients :

1 lb. golden syrup ; 8 pints water ; 1 lb. cocoa ; 12 oz. custard powder or cornflour.

Method : Heat golden syrup and water. Mix the custard powder to paste with cold water, add the syrup and cook until it thickens—beat in the cocoa.

27. *CUSTARD*

Ingredients :

12 pints milk (dried milk) ; 8 oz. dried egg ; 8 oz. flour.

Method : Mix the dried egg and flour to a paste with milk, put the remainder on to heat. Stir in the mixture and heat until it thickens.

28. *MAYONNAISE SAUCE*

Ingredients :

2 oz. dried egg ; 4 oz. margarine ; ½ tablespoon sugar ; ½ tablespoon salt ; ½ tablespoon mustard ; pepper to taste ; 4 oz. flour ; 1½ pints milk and water ; vinegar to taste.

Method : Mix all the dry ingredients except the dried egg to a paste with some of the milk. Beat the rest of the milk on to the blended ingredients and bring to the boil. Boil for a few minutes. Whisk in the reconstituted dried eggs and the margarine and cook for five minutes more. Cool and add vinegar.

N.B.—Reconstituted dried milk can be used in all recipes containing milk.

APPENDIX C

OUTLINE OF SUGGESTED DUTIES FOR A VISITING DIETITIAN

Experience alone will show how the services of a visiting Dietitian can best be employed. The suggestions made below were prepared for a Dietitian for one group of hospitals :—

1. To see that the meals served to patients, residents and non-resident staff who may require them are appetising and well-balanced.

2. To that see menus are carefully planned, combining suitable dishes at the meal and at the same time avoiding monotony ; and to make sure that the full rations and allocation of points are being drawn and that they are being fairly apportioned.

3. To advise on quality of food bought.

4. To see that the best value is obtained from the food by proper cooking and service.

In order to carry out these duties, the Dietitian should :—

5. Create an atmosphere of good-will in the hospital and a feeling that she is there to study the requirements of all the different groups in the community. Personal contact with representatives of all the different groups in the hospital is essential for this, e.g., the Matron, the Home Sister, the Medical Officers, the Ward Sisters and Student representatives.

6. Be familiar with the food in store and discuss the buying of fresh stock with the officer responsible.

7. Consult with the officer responsible for planning the menus. She should discuss the menus planned with the officer responsible for buying and with the Cook, who will be responsible for providing the meals.

The satisfactory preparation of the meals will depend on :—

(*a*) The ability of the buyer to obtain the food required.

(*b*) The Cook's ability to produce the dishes. The Dietitian should be prepared to advise on the cooking of all food and to provide recipes for new dishes.

(*c*) The availability of staff to help in the preparation of the food. This may call for reorganisation of the work of the kitchen staff. The Dietitian must therefore be familiar with all branches of kitchen work.

(*d*) The necessary equipment for the preparation and cooking of the meals.

The Dietitian should be in a position to advise on the organisation of kitchen work.

The Service of Meals : the Dietitian should visit all points of service, both in wards and dining-rooms. In the wards much can be gained by working in close co-operation with the Ward Sisters and in the dining-rooms by seeing that the food is properly apportioned.

Included in service should be the inspection of waste after a meal. The waste from plates indicates :—

(i) That too generous portions are being served.

(ii) That a dish is unpalatable and badly cooked.

(iii) That the dish is unpopular.

Food left over from points of service should be returned to the kitchen. The amount left over again indicates whether the food was too generously provided, badly cooked or unpopular.

In addition to provision of general meals, the Dietitian should visit the wards ; personal contact with the patients, especially at meal-times, is most important. Patients should be visited, not just because of difficulty or because they are on a special diet, but as a regular part of the routine work.

APPENDIX D

HUMAN NUTRIENT REQUIREMENTS

Reference is made on page 22 to the " dietary allowances " on which can be based estimates of the needs of a particular class of individual for a range of nutrients. The Table below gives both the " full dietary allowances " and the " restricted intake requirements."

The following note taken from " Food Consumption Levels in the United States, Canada and the United Kingdom " (H.M. Stationery Office, 1944) will explain the relation between these two sets of figures :—

" Average (restricted) Intake Requirements

The National Research Council ' recommended Dietary allowances ' are stated to be a ' tentative goal toward which to aim in planning practical dietaries.' They are recognised as liberal and difficult of fulfilment under prevailing conditions. Experience in the United Kingdom has shown that somewhat lower levels of intake of minerals and vitamins are compatible with a good general state of nutrition, although doubtless health could be improved if the full allowances were obtainable. We have therefore adopted as ' average ' (restricted) intake requirements, the National Research Council figures for calories and protein in all cases and for minerals and vitamins in respect of the groups up to the age of 20 and expectant and nursing mothers, and 70 per cent. of the National Research Council allowances for minerals and vitamins for adult men and for adult women (other than expectant mothers)."

The figures in brackets in the following table give the lower levels of intake of minerals and vitamins which are compatible with a good general state of health :—

RECOMMENDED DIETARY ALLOWANCES

Food and Nutrition Board, National Research Council

	Calories	*Protein* gms.	*Calcium* gms.	*Iron* mgs.	*Vitamin A* I.U.	*Thiamin (B1)* mgs.*	*Riboflavin (B2)* mgs.	*Nicotinic Acid* mgs.	*Ascorbic Acid (C)* mgs.	*Vitamin D* I.U.
Man (70 *kg.*)										
Moderately active	3000	70	0.8 (0.56)	12 (8.5)	5000 (3500)	1.8 (1.3)	2.7 (1.9)	18 (13)	75 (52)	†
Very active ...	4500					2.3 (1.6)	3.3 (2.3)	23 (16)		
Sedentary	2500					1.5 (1.1)	2.2 (1.5)	15 (10.5)		
Woman (56 kg.)										
Moderately active	2500	60	0.8 (0.56)	12 (8.5)	5000 (3500)	1.5 (1.1)	2.2 (1.5)	15 (10)	70 (49)	†
Very active ...	3000					1.8 (1.3)	2.7 (1.9)	18 (13)		
Sedentary	2100					1.2 (0.8)	1.8 (1.3)	12 (8)		
Pregnancy (latter half)	2500	85	1.5	15	6000	1.8	2.5	18	100	400-800
Lactation	3000	100	2.0		8000	2.3	3.0	23	150	400-800
Children up to 12 *years*										
Under 1 year ...	100 per kg.	3-4	1.0	6	1500	0.4	0.6	4	30	400-800
1-3 years	1200	40	1.0	7	2000	0.6	0.9	6	35	†
4-6 years	1600	50	1.0	8	2500	0.8	1.2	8	50	
7-9 years	2000	60	1.0	10	3500	1.0	1.5	10	60	
10-12 years ...	2500	70	1.2	12	4500	1.2	1.8	12	75	
Children over 12 *years*										
Girls : 13-15 years	2800	80	1.3	15	5000	1.4	2.0	14	80	†
16-20 years	2400	75	1.0	15	5000	1.2	1.8	12	80	
Boys : 13-15 years	3200	85	1.4	15	5000	1.6	2.4	16	90	
16-20 years	3800	100	1.4	15	6000	2.0	3.0	20	100	

A gram in the international metric system of weights and measures is about 1/28th oz. A kilogram, which is 1,000 grams, is equal to 2.2 lb. A milligram is 1/1,000th of a gram. A calorie is a unit of measurement used to express the heat-producing or energy-producing value of food.

* 1 mg. thiamin equals 333 international units ; 1 mg. ascorbic acid equals 20 I.Us. (1 international unit equals 1 U.S.P. unit).

† Vitamin D is undoubtedly necessary for older children and adults. When not available from sunshine it should be provided probably up to the minimum amounts recommended for infants.

APPENDIX E.

TABLE OF NUTRITIVE VALUE OF FOODSTUFFS

All values are given per ounce of edible portion (uncooked)

The values in this table have been compiled, after consultation with the Ministry of Food, from data which is used by them for calculating the Nutritive value of meals.

FOODSTUFF	Description	Per-centage Waste	Protein gms.	Fat gms.	Carbo-hydrate gms.	Calories	Calcium mgs.	Iron mgs.	Vitamins					
									A I.U.	B1 I.U.	B2 Riboflavin mgs.	Nicotinic Acid mgs.	C Ascorbic Acid. mgs	D I.U.
1. *Cereals*														
Bread, National ...	80% extraction		2.4	0.3	14.7	71	16.8	0.34	0	14	0.017	0.33	0	0
Flour, National ...	80% extraction		3.4	0.4	20.3	98	23.4	0.45	0	23	0.24	0.45	0	0
Biscuits	1. Plain (water)		3.4	0.9	21.3	107	23.0	0.6	0	12	(0.03)	(0.3)	0	0
	2. Sweet		2.0	6.8	16.8	136	14.0	0.3	0	6	(0.03)	(0.3)	0	0
Barley			2.2	0.5	20.8	97	3.0	0.2	0	11	(0.01)	(0.7)	0	0
Cornflour			0.2	0.1	24.4	99	11.0	0.1	0	0	(0.02)	(0.3)	0	0
Custard powder (as cornflour) ...			0.2	0.1	24.4	99	11.0	0.1	0	0	(0.02)	(0.3)	0	0
Sago			0.1	0.1	24.0	97	3.0	0.3	0	0	—	—	0	0
Semolina			3.0	0.5	19.8	96	5.0	0.30	0	9	(0.01)	(0.3)	0	0
Soya flour ...			11.5	6.7	3.8	122	62.0	2.0	0	62	0.09	1.1	0	0
Tapioca			0.1		24.3	98	2.0	0.1	0	0	—	—	0	0
Cornflakes			3.9	0.7	18.7	97	10.0	1.4	0	4	0.02	0.3	0	0
Shredded Wheat ...			3.5	0.7	19.1	97	7.0	1.2	0	19	(0.02)	(0.3)	0	0
Oatmeal			3.4	2.5	18.6	111	16.0	1.2	0	43	0.04	0.3	0	0
Rice, highly milled ...			1.8	0.3	22.2	99	1.0	0.1	0	8	0.02	0.3	0	0
2. *Dairy Products*														
Butter			0.1	23.4	0	211	4	—	1136	0	0	0	0	17
Cheese	Cheddar	5	7.1	9.8	0	117	230	0.2	369	3	0.14	(0.1)	0	10
Egg	Raw or boiled	12 (shell)	3.5	3.3	0.2	45	17	0.8	284	14	0.11	tr.	0	17
Dried egg			13.0	11.9	0.9	163	62	3.1	852	38	0.37	0.1	0	68
Milk, whole	Fresh		0.9	1.0	1.2	17	34	Trace	[*/†]	4	0.04	tr.	[0.4/0.3]	0.3
Milk, whole	Condensed unsw. U.K.		2.4	2.6	3.3	46	83	0.1	105	6	0.10	0.1	0	1
Milk, whole	Dried		7.3	7.6	10.1	138	254	0.2	304	28	0.33	0.2	0	3
Milk, skimmed ...	Dried		10.2	0.2	13.6	97	348	0.3	9	37	0.45	0.3	0	0
3. *Fats and oils*														
Margarine	Vitaminised			24.2	0	218	1	0.1	568	0	0	0	0	56
Cooking fat	Animal origin		0	28.1	0	253	0	0	0	0	0	0	0	0

* May - Nov. 40. † Dec. - April 29

NUTRITIVE VALUE OF FOODSTUFFS—*cont.*

FOODSTUFF	Description	Percentage Waste	Protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgs.	Iron mgs.	Vitamins					
									A I.U.	B1 I.U.	B2 Riboflavin mgs.	Nicotinic Acid mgs.	C Ascorbic Acid mgs	D I.U.
4 *Meat*														
Bacon		12	3.2	12.7	0	127	3	0.3	0	57	0.06	1.2	0	0
Beef	Fresh. Average of good quality carcase. (Bone in)	17 (Bone)	4.3	8.0	0	89	2	1.1	14	8	0.07	1.3	0	0
Beef	Frozen		5.8	2.1	0	43	2.3	1.05	14	7	0.07	1.3	0	0
Beef, corned ...			7.1	4.5	0	69	3	3.1	0	0	(0.04)	(0.5)	0	0
Liver, ox			4.8	1.7	1.4	40	3	3.9	4260	38	0.85	3.8	0	0
Kidney			4.5	2.0	0	36	3	3.8	284	23	0.37	3.8	0	0
Pork		15	3.4	11.4	0	116	4	0.4	0	68	(0.06)	1.7	0	0
Sausage	Beef		3.3	3.7	3.7	61	9	0.6	3	14	(0.02)	(0.5)	0	0
Sausage	Pork		2.6	12.2	0.3	121	3	0.6	0	43	(0.02)	(0.5)	0	0
Mutton		17	3.7	8.8	0	94	2	0.6	14	15	0.05	1.2	0	0
Variety meats (Average) Spam, etc.	Luncheon meat		4.3	6.0	0	71	3	0.6	0	43	—	—	—	—
5. *Fish*														
White fish	Cod, haddock, ling, etc.	45	4.5	0.1	0	20	7	0.3	0	6	0.04	0.6	0	0
Salmon	Tinned		5.7	2.8	0	48	85	0.4	71	11	0.06	1.8	0	170
Sardines	Tinned		5.7	6.8	0	84	114	1.1	77	0	(0.08)	1.3	0	280
Herring (Jan.-Aug.)	Fresh	35	4.5	4.3	0	57	28	0.4	43	1	—	—	0	240
Herring (Sep.-Dec.)	Fresh	40	4.5	2.3	0	39	28	0.4	43	1	—	—	0	—
Herring	Canned in tomato sauce		4.5	2.8	0	43	28	0.4	9	0	(0.08)	(1.0)	0	50
6. *Fruit*														
Apple...	English eating	20	0.1	0	3.0	12	1	0.1	4	4	tr.	0.1	1	0
Apple...	Dried		0.6	0	12.5	52	9	0.6	9	0	(0.01)	(0.4)	0	0
Apricot	Fresh	8	0.2	0	1.7	8	5	0.1	71	3	0.02	(0.1)	3	0
Apricot	Tinned		0.1	0	3.5	14	4	0.1	47	2	(0.02)	(0.1)	1	0
Apricot	Dried		1.4	0	11.1	50	26	1.2	473	0	(0.12)	(0.6)	0	0
Banana		40	0.3	0	5.0	21	2	0.2	8	5	0.01	(0.2)	3	0
Currants, black ...	Raw		0.3	0	1.7	8	17	0.4	9	4	(0.01)	(0.1)	57	0
Dates	Dried	14	0.6	0	16.4	68	19	0.5	9	0	0.01	(0.1)	0	0

NUTRITIVE VALUE OF FOODSTUFFS—*cont.*

FOODSTUFF	Description	Per-centage Waste	Protein gms.	Fat gms.	Carbo-hydrate gms.	Calories	Calcium mgs.	Iron mgs.	Vitamins A I.U.	Vitamins B1 I.U.	Vitamins B2 Riboflavin mgs.	Vitamins Nicotinic Acid mgs.	Vitamins C Ascorbic Acid mgs	Vitamins D. I.U
Figs	Dried		1.0	0	13.5	58	81	1.2	9	0	0.08	0.5	0	0
Lemon		64	0.1	0	0.4	2	2		0	3	0	0	14	0
Orange	Sweet	25	0.3	0	2.1	10	12	0.1	28	7	0.01	0.1	16	0
Peach...	Fresh	13	0.1	0	2.3	10	1	0.1	71	2	0	0.2	3	0
Peach...	Tinned		0.1	0	3.9	16	2	0.2	47	1	0	0	1	0
Pear	Eating	25	0.1	0	2.7	11	1	0.1	1	2	0.01	0.1	1	0
Pear	Tinned		0.1	0	3.6	15	3	0.2	0	1	(0.01)	0	0	0
Pineapple	Tinned		0.1	0	4.9	20	3	0.2	6	5	(0.02)	0	3	0
Plum	Fresh { Rd,Yllw / Victoria }	6	0.1	0	{ 1.6 / 2.4 }	7 / 10	4 / 3	0.1	38	4	0.01	0.2	1	0
Prune...	Dried	17	0.7	0	10.2	44	11	0.8	237	0	0.04	0.6	0	0
Raisins	Dried	8	0.3	0	16,5	67	17	0.5	5	0	0.01	0.1	0	0
7. *Nuts*														
Almonds		65	5.7	15.1	1.1	163	69	1.1	0	23	—	0.4	0	0
Groundnut		30	8.0	13.9	2.2	166	17	0.7	0	84	0.08	2.6	0	0
Peanut														
Walnuts	Dried	40	3.6	14.6	1.3	151	17	0.7	0	28	—	(0.4)	0	0
8. *Vegetables*														
Beans, baked... ...	Tinned		1.7	0	4.5	25	16	0.7	47	6	0.01	0.2	0	0
Beans, haricot ...	Dried		6.1	0	11.6	71	51	1.9	0	43	0.08	0.6	0	0
Cabbage	Fresh	30	0.4	0	1.4	7	18	0.3	85	7	0.02	0.1	20	0
Cabbage	Dehydrated		5.3	0.4	15.2	88	188	0.3	1130	0	(0.15)	(0.7)	90	0
Carrot	Fresh	5 to 20	0.2	0	1.4	6	14	0.2	{ * / † }	6	0.01	0.2	3	0
Carrot	Dehydrated		1.7	0.4	20.5	94	120	1.4	11600	0	(0.05)	(1.0)	6	0
Cauliflower	Fresh	30	0.7	0	0.9	6	14	0.3	0	9	0.02	0.2	20	0
Celery		25	0.3	0	0.3	2	15	0.2	0	3	—	—	1	0
Artichokes, Jerusalem (boiled) (3)			0.5	tr.	0.8	5	8.6	0.12	—	—	—	—	—	—
Lentils			6.8	0	13.6	82	11	2.2	5	43	0.02	0.9	0	0
Lettuce	Raw	20	0.3	0	0.5	3	7	0.2	379	7	0.02	0.1	4	0
Onion	Bulb	5	0.3	0	1.3	6	9	0.1	0	3	0.01	tr.	3	0
Peas	Fresh raw	60	1.6	0	2.7	17	4	0.5	47	40	0.03	0.2	9	0
Peas	Dried		7.0	0	14.2	85	17	1.3	19	43	0.08	0.6	0	0
Potato		early 7 old 25	0.6	0	4.6	21	2	0.2	0	11	0.02	0.3	early 9 old 2	0

* July-Aug. 947. † Sept. 1893.

NUTRITIVE VALUE OF FOODSTUFFS—*cont.*

FOODSTUFF	Description	Percentage Waste	Protein gms.	Fat gms.	Carbohydrate gms.	Calories	Calcium mgs.	Iron mgs.	Vitamins					
									A I.U.	B1 I.U.	B2 Riboflavin mgs.	Nicotinic Acid mgs.	C Ascorbic Acid mgs	D I.U.
Potato	Dehydrated		2.5	0	23.0	101	24	0.9	0	27	(0.10)	(1.5)	12	0
Pumpkin		19	0.2	tr.	0.9	4	11	0.1	15	3	0.01	0.2	3	0
Spinach	Fresh	25	0.8	0	0.7	6	20	0.9	1231	9	0.06	0.1	18	0
Swedes	Raw	35	0.3	0	1.1	6	16	0.10	—	3	(0.01)	(0.3)	11	0
Tomato	Fresh	15	0.3	0	0.7	4	4	0.1	284	6	0.01	0.1	7	0
Turnip ...	Fresh	35	0.2	0	1.0	5	17	0.1	0	3	0.01	0.3	7	0
9. *Sugar, preserves and sweets*														
Jam (4)			0.1	0	17.6	71	3	0.3	2	tr.	0	0	1	0
Marmalade ...			0.1	0	17.6	71	3		0	0	—	—	2	0
Sugar...	White		0	0	27.0	108	0	0	0	0	0	0	0	0
Syrup, golden ...			0.1	0	20.2	81	7	0.4	0	0	0	0	0	0
10. *Beverages*														
Cocoa	Powder		5.8	7.3	8.9	125	14	4.1	14	11	0.08	(0.3)	0	0
Horlick's Malted Milk			4.1	2.4	18.1	110	77.2	0.37	—	—	—	—	0	0
Marmite			2.8	0	0	11	22	1.5	0	140	1.70	19	0	0
Meat Extract ...			8.6	0.6	0	41	22	3.7	0	25	0.48	17	0	0
Ovaltine	Powder		3.8	2.2	15.8	98	96	1.0	114	37	0.17	—	0	0

(1) ( ) means that the figure is calculated from a similar food or that a factor has been applied.

(2) This includes roes and milts.

(3) This vegetable contains inulin—50% total CHO taken to be available.

(4) Black currant jam 6 mgs. Ascorbic Acid. Blackberry, Raspberry and Red currant jelly, 1 mgm. Ascorbic Acid. Gooseberry and Strawberry jam, 1 mgm. Ascorbic Acid. All other jams do not contain Ascorbic Acid.

(5) — means that the figure is unknown.

APPENDIX F.

SPECIMEN STOCK SHEETS

SPECIMEN 1.—

STORES LEDGER.

PERIODICAL STOCKTAKING

		Mar. Qr.	June Qr.	Sept. Qr.	Dec. Qr.
Date Stock taken	(1)				
	(2)				
	(3)				
	(4)				
Actual Stock or — Book Stock	(1)				
	(2)				
	(3)				
	(4)				

Name of Commodity .....

Size, Type, Special Marks, etc. .....

Min. Stock ..... Max. Stock ..... Ordering Unit .....

Unit of Issue.

RECEIVED								ISSUED				BALANCE			REMARKS
Date	No. of Del. Note	Name of Supplier	Quantity Received (4)	Order or Invoice No.	Price	Value (7) £ s. d.	Date	No. of Reqn.	Ward or Dept.	Quantity Issued (11)	Price (12)	Value (13) £ s. d.	Quantity (14)	Price (15)	Value (16)	(17)
(1)	(2)	(3)		(5)	(6)		(8)	(9)	(10)							

SPECIMEN 2

STOCK CARD

No. .....

Min. Stock ..... Unit of Issue ..... Name of Article .....

Max. Stock ..... Ordering Unit ..... Size or Description .....

IN		OUT		BALANCE		EXAMINED		NEW SUPPLY REQUISITIONED	
Date	Quan.	Date	Quan.	Date	Quan.	Initials of Examiner	Date	Date	Quan.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)

SPECIMEN 3

STOCKTAKING

Store .....

ITEMS	ACTUAL STOCK				STORES LEDGER				ACTUAL STOCK (QUANTITIES)		EXPLANATIONS
	Quan.	Price	Value		Quan.	Price	Value		Over	Under	
			£ s. d.				£ s. d.		Stores	Ledger	
(1)	(2)	(3)	(4)		(5)	(6)	(7)		(8)	(9)	(10)

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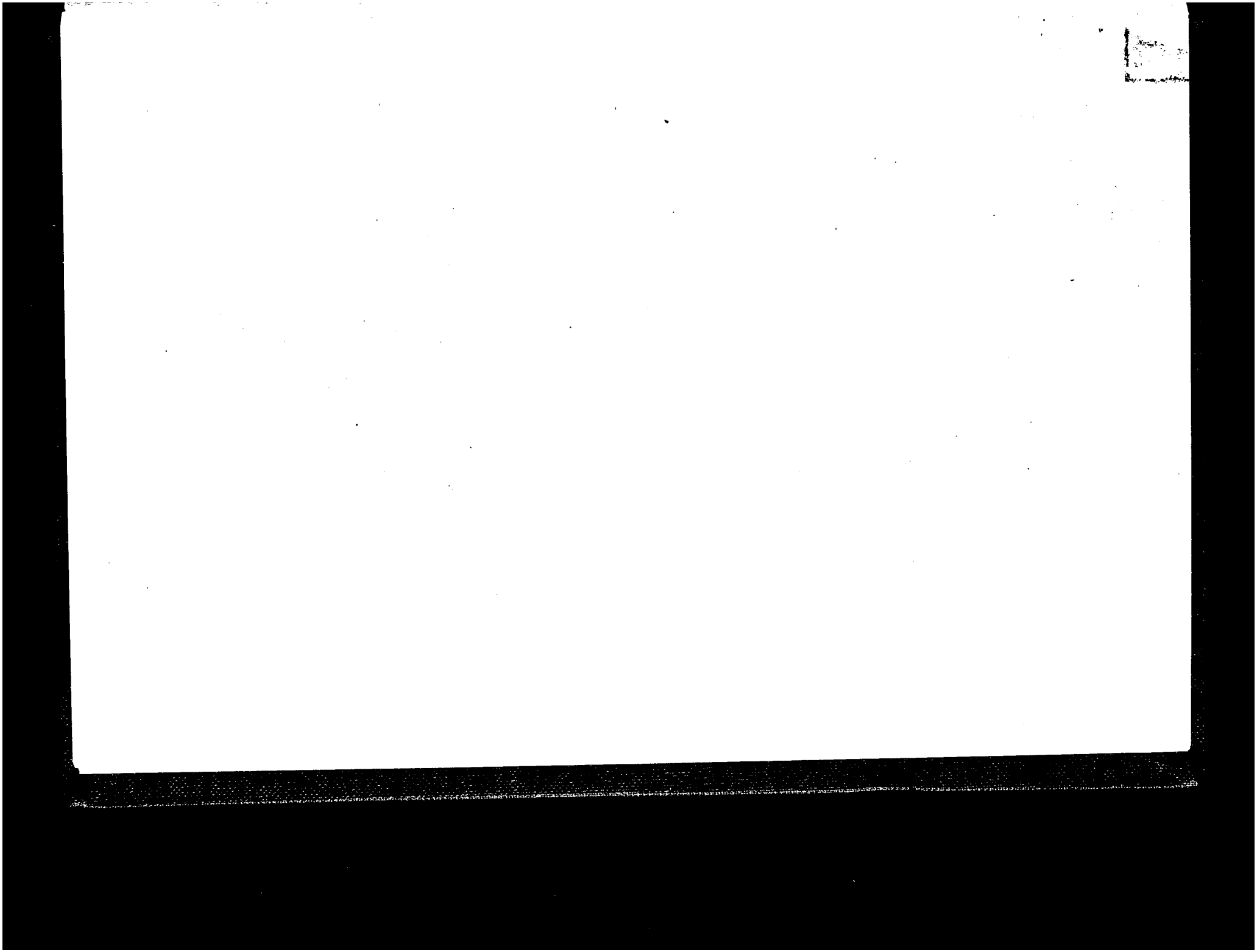

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