

neonatal deaths must occur each winter. Fifty-six of the 70 cases of cold injury in this series occurred in babies who became ill in January, February, or March, and a minimum air temperature of less than 35° F. (1.7° C.) was recorded on the day prior to the onset of symptoms in 53 cases. A similar relationship was noted by T. P. Mann and R. I. K. Elliott,³ their cases having tended to occur each winter shortly after a sudden fall in air temperatures to below freezing point.⁵

But cold weather alone is not the whole story, and Bower and his colleagues go on to point out that the average bedroom in this country is either heated inadequately or not at all, so that "its temperature to a large extent reflects the external temperature." Yet another source of trouble is the use of an open coal-fire for heating the room where the child is born and nursed; the room temperature may fall precipitately in the early hours of the morning when the fire dies down. The same may happen with gas or electric heating switched off at night for reasons of economy. Other potential causes of chilling in the newborn nursed in a poorly heated room are delay in wrapping the baby at birth (it is at this stage as well as later that the ritual cleansing bath may be dangerous), inadequate clothing and cot coverings, and swaddling or "cocooning," which may restrict muscular movement and the maintenance of body warmth. It must be remembered, too, that once the body has become chilled increased wrappings will insulate the baby from surrounding warmth belatedly provided.

More male than female infants are affected by neonatal cold injury. The typical case makes satisfactory initial progress after a normal spontaneous delivery in the home. At some stage in the first week, possibly a little later, increasing apathy appears and causes concern when the infant becomes difficult and, later, impossible to feed. Shortly afterwards swelling of the hands and feet due to oedema, redness of at least the face, and coldness of the body to touch become apparent. On arrival at hospital the baby's temperature is usually well below 90° F. (32.2° C.) and, indeed, on occasions may be in the seventies Fahrenheit. It is uncommon for the hypothermia, let alone its degree, to be appreciated by the doctor or nurse at home. Facial erythema contributes largely to the misleading appearance of well-being, which in turn is responsible for much of the delay in recognizing that the baby is ill. Bower and his colleagues rightly suggest that the possibility of cold injury should be considered in any infant born at home in the first quarter of the year who becomes difficult to feed in the early days of life.

The Birmingham workers noted hardening of the panniculus in a number of cases, of both mild and severe hypothermia. Similar induration was a common feature in the Brighton cold babies and was usually found overlying oedematous parts. R. I. K. Elliott⁶ believes there is now little justification for using the word sclerema to describe the hard pitting oedema of cold injury, although his researches suggest that it was actually for this disease that F. Chaussier⁷ coined the term in 1815.

Although Bower and his co-workers found on physical and developmental testing that the prognosis appeared very good for babies surviving the initial chilling, the immediate results of resuscitation in Birmingham and in Brighton were disappointing. Thus a quarter of the Birmingham babies and just over half the Brighton babies died. The lower mortality in the latest study, and perhaps the lower proportion of infants with erythema of the skin as a presenting sign, may be accounted for in part by the inclusion of a number of mild cases of hypothermia in the series. Because of this high mortality the prevention of cold injury is all-important. The main task is to ensure that all concerned in domiciliary midwifery are alert to the danger of exposing the newborn infant to cold. These young babies need constant warmth day and night. Mann⁵ believes that cold injury could be eradicated by the general adoption of two simple expedients: in the first place the temperature of the room where the baby is born and nursed should not be allowed to fall below 65° F. (18.3° C.) in the early post-natal period, and, secondly, in domiciliary confinements the baby's temperature should be read and recorded at least once daily for the first 14 days. A low-reading thermometer, which costs little more than the ordinary variety, should be used for this purpose. If the temperature falls below 96° F. (35.6° C.) in the rectum or a degree lower in the groin, immediate medical aid should be sought.

TREATMENT OF CARDIAC ARREST

Cardiac massage, with an open chest and oxygen given through an endotracheal tube, and, when necessary, the use of a defibrillator applied directly to the heart, are the fundamentals of treatment of cardiac arrest. An electrocardiogram is important to determine the nature of the arrest, whether due to cardiac standstill or to ventricular fibrillation. When cardiac arrest occurs in the operating-theatre or during some special investigation known to bear this hazard, facilities are always at hand for carrying out resuscitation on these lines. Recently in this journal W. B. Fleming and colleagues¹ reported successful

treatment of two episodes of cardiac arrest in the same patient during induction of anaesthesia, and stress the danger of vagal stimulation during intubation as a precipitating cause. In certain cardiac operations it is advisable to leave electrodes in contact with the heart, bringing leads connected to them out through the skin, so that effective electrical stimulation can be carried out if a serious arrhythmia or cardiac arrest develops in the post-operative period.²

But when cardiac arrest occurs unexpectedly, either in the ward or in the out-patient department of a hospital, there does not seem at present to be any agreement on the best treatment. Cardiac massage and direct defibrillation of the heart are usually impracticable, though in exceptional circumstances unexpected cardiac arrest has been treated successfully on these lines.³ In this journal R. S. Walton⁴ has recently reported a case of cardiac arrest in a young man suffering from cardiac infarction, successfully treated by cardiac massage in the ward. The chance of success, however, is generally poor owing to unavoidable delay in starting treatment, since facilities for giving oxygen through an endotracheal tube, opening the chest to perform cardiac massage, and defibrillating when necessary are seldom available at a moment's notice. It is worth remembering that two simple measures may be effective in restarting the heart when arrest is due to cardiac standstill. The first is to strike the left chest firmly with the clenched fist, and several cases of recovery after this manoeuvre are on record.⁵ If this fails, needle puncture of the heart should be carried out in order to stimulate it directly. Intracardiac administration of drugs is unlikely to succeed when these physical measures have failed. These simple manoeuvres should always be tried in cases of sudden, unexpected cardiac arrest, before the final decision is taken whether the chest should be opened and cardiac massage begun.

There is a third approach to the treatment of cardiac arrest, but it is possible only when a special resuscitation room is available, fully equipped with an external cardiac pace-maker and an external defibrillator.⁶⁻⁸ If this room is sufficiently close to the ward or out-patient department, it may be possible sometimes to use these external methods of electrical stimulation of the heart within a few minutes of arrest and without undue disturbance to other patients. This method is particularly suitable in Stokes-Adams disease, for it has been found that, if patients can be tided over a period of recurrent serious arrhythmia with the help of the external pace-maker, they may enter a phase of the disease later when the attacks become less severe and less frequent.

¹ Fleming, W. B., Hueston, J. T., Stubbe, J. L., and Villiers, J. D., *Brit. med. J.*, 1960, **1**, 157.

² Weirich, W. L., Paneth, M., Gott, V. L., and Lillehei, C. W., *Circulat. Res.*, 1958, **6**, 410.

³ Beck, C. S., Weckesser, E. C., and Barry, F. M., *J. Amer. med. Ass.*, 1956, **161**, 434.

⁴ Walton, R. S., *Brit. med. J.*, 1960, **1**, 155.

⁵ Brandenburg, J. T., *J. Amer. med. Ass.*, 1959, **170**, 1307.

⁶ *Brit. med. J.*, 1955, **1**, 1203.

⁷ *Ibid.*, 1956, **2**, 468.

⁸ Zoll, P. M., Linenthal, A. J., Gibson, W., Paul, M. H., and Norman, L. R., *New Engl. J. Med.*, 1956, **254**, 727.

FOOD PRESERVATION

Increasing urban concentration of the population calls for the keeping of large stocks of food. Changes in living habits resulting from a loss of domestic service and the greater employment of housewives outside the home have led to the distribution of food in a form in which it may be eaten with the least possible amount of preparation. When the question of chemical food preservatives was last considered by an expert committee reporting in 1924, their recommendations were clearly influenced by their belief in the dangers of using preservatives as a means for avoiding the need for good hygiene in the storage, preparation, and handling of food. In Great Britain the standards of hygiene and food technology have advanced so much that in their recent comprehensive report on food preservatives the Food Standards Committee¹ have not felt this to be a matter of importance. The report of 1924 accepted sulphur dioxide and benzoic acid only, rejecting all other preservatives, including boric acid, used up to that time. This new report not only discusses the use of food preservatives as a whole but in a fully documented section reviews the properties of a number of preservatives proposed for use in food.

The report lays some emphasis on the means available for detecting the presence of preservatives in food and on their toxic properties, if any, when given to experimental animals. It rejects some potentially useful preservatives because the evidence for their complete harmlessness is not adequate. But it accepts five new chemical preservatives as safe to use in addition to sulphur dioxide and benzoic acid. Of these, sorbic acid and propionic acid can present no hazard, since they are metabolized in the body like any other fatty acid. Methyl- and propyl-*p*-hydroxybenzoic acid behave much like benzoic acid in being rapidly conjugated and excreted. The remaining new preservative, *o*-phenyl phenol, is used in fruit wrappings and some enters the fruit; it, too, is readily excreted. Detailed recommendations for maximum permitted levels and the types of food that may be so treated with any particular preservative are listed. Among the appendices is a report of a special panel on antibiotics which considered the use of the tetracyclines in meat preservation, and of nisin, which is not used in clinical medicine, for cheese and other products. There is also an estimate of the total sulphite likely to be ingested daily from the many items now allowed to contain this. In the quantity taken the sulphite ion is harmless. But the committee has given much more serious consideration to its known power to destroy vitamin B₁, so that its use in foods which are an important source of this vitamin must be avoided.

The idea of putting chemicals in food is disturbing to some people, and it is therefore reassuring to learn

¹ *Food Standards Committee Report on Preservatives in Food*, 1959, H.M.S.O., 4s. 6d.

² Adam, W. B., *J. roy. Soc. Arts*, 1959, **108**, 167.

from the director of the Fruit and Vegetable Canning and Quick Freezing Association² how much work is in progress on methods for the preservation and presentation of food that rely on physical rather than chemical means for their achievement. The frozen food packet is now as familiar as the can, but it is interesting to read of the repercussions from such changes. The grower of vegetables may be forced to cultivate special strains of plants not only to meet demands for quality such as texture but to make it possible to harvest the crop cheaply and efficiently so that the cost of the final product remains competitive. Technical advances also embrace dehydration, which is being applied to an ever-wider range of articles. The possibilities of sterilizing food by irradiation have been explored, but it has not so far proved possible to achieve complete sterilization without at the same time producing undesirable changes in flavour. Irradiation undoubtedly brings about chemical changes in food, and these may differ from those induced, for example, by heat. As a result, extensive tests designed to demonstrate the harmlessness or otherwise of irradiated food have been undertaken. With so much activity in this field of physical methods of preservation of food it seems possible that the next report on chemical preservatives may find the problem has decreased, but in any event it is unlikely that another 35 years will elapse before the present recommendations are revised.

Meanwhile, events in the U.S.A. in having cranberries containing traces of aminotriazole and poultry with traces of stilboestrol banned from the shops have focused attention on agricultural chemicals that may leave traces in food. The drastic action taken on these two chemicals may be traced to a recent U.S. enactment that no carcinogen may be permitted in food. Two relative newcomers to this category are hustled off the field while an old stager like arsenic is still apparently permitted on fruit at levels considerably greater than those allowed in Great Britain. There is a need for keeping the situation under review, and this is being done in the whole field of agriculture and food-handling in Britain at the present time.

A GENERAL-PRACTITIONER TRAINING SCHEME

The British Postgraduate Medical Federation's experimental scheme for the training of general practitioners recently received the unanimous approval of the General Medical Services Committee.¹ The Nuffield Provincial Hospitals Trust is giving financial aid, and the first trainee has already completed six months of his hospital appointment at Winchester. Hospitals in Portsmouth and Southampton are also joining in the scheme, which has the support of the Hampshire executive council, and an advertisement

appearing this week (p. 50) invites applications from those who would like to take advantage of this admirable course of training. Describing the experiment to the G.M.S. Committee, Mr. D. C. Bowie, university regional adviser on postgraduate medical education, said that its aims were, first, to provide for a small number of graduates a scheme of training adapted to their individual needs, to which general practitioners, medical officers of health, and hospital consultants would contribute and in which the unity of medicine would be emphasized, and, secondly, to supply information about the methods of training for general practice.

Trainees accepted under this scheme will be like the more fortunate guinea-pigs in a nutritional experiment, receiving a well-balanced diet for control purposes. They will spend their first year in a supernumerary hospital appointment, paid at registrar rates, and will be given experience in special departments according to their needs, including six months in the department of obstetrics and gynaecology (unless such an appointment has already been held). They will then go on to a general-practitioner trainer for their second year, during which they will see more of the work of local health authorities and perhaps of the industrial medical services and voluntary organizations. This scheme, based as it is on the "unity of medicine," will be watched with great interest by all those concerned with the future of general practice.

CENTRAL AFRICAN MEDICAL SCHOOL

Early last year a planning committee appointed by the University College of Rhodesia and Nyasaland issued a detailed and valuable report¹ on the design of a medical course suitable for the proposed Rhodesian medical school. This committee was under the chairmanship of Mr. L. Farrer Brown, director of the Nuffield Foundation, which has now announced the offer of £250,000 to the University College towards the cost of establishing a medical school at Salisbury, Southern Rhodesia, on the understanding that the teaching hospital for the medical school takes the form of a new multiracial hospital on the University College campus. By providing what is recognized to be the ideal arrangement—the proximity of the departments of science and medicine—the University College will, it is hoped, have the opportunity of creating a medical school which might well become a model for the future, not only in Africa, but wherever a new medical school is to be established.

Coinciding with the offer from the Nuffield Foundation comes a joint statement from the University College of Rhodesia and Nyasaland and the University of Birmingham. The latter has agreed that when the medical school is established at Salisbury it will be an

¹ *Brit. med. J., Suppl.*, 1959, 2, 178.

¹ See leading article, *Brit. med. J.*, 1959, 1, 1024.

affiliated institution of the University of Birmingham. This means that medical students at the Rhodesian medical school will be prepared for degrees in medicine of the University of Birmingham.

The proposed scheme of co-operation between the University College in Salisbury and the University of Birmingham has many interesting features. For instance, appointments to the staff of the medical school will be made only in agreement with the university. The relationship will continue, by mutual agreement, until the reputation of the new medical school is securely established and local degrees can be awarded. Professor W. Melville Arnott, William Withering professor of medicine at Birmingham, was a member of the planning committee, and it is expected that close personal relations will develop between the medical school at Salisbury and the teaching hospital at Birmingham. Staff will be exchanged and joint research projects undertaken. Owing to the generous offer of the Nuffield Foundation it is hoped that an early start will be possible with this notable experiment in inter-university collaboration.

MENTAL HEALTH BILL FOR SCOTLAND

The recently published Mental Health (Scotland) Bill¹ follows very closely the pattern set by the Mental Health Act, 1959.² Allowing for the differences between Scottish and English law, there is little fundamental variation. The Bill's purpose is to enact for Scotland up-to-date legislation for the care and treatment of mentally disordered persons, for their protection, and for safeguarding their property and affairs. The Bill's provisions are explained in a useful White Paper³ issued by the Department of Health for Scotland. Here we note some of the main differences between the Scottish Bill and the English Act.

The Mental Health Act abolished the Board of Control and put the administration of mental health in England and Wales into the hands of the Ministry of Health. The Scottish Bill proposes to dissolve the Scottish Board of Control and replace it by an independent central body called the Mental Welfare Board. The new Board will consist of not fewer than five and not more than seven commissioners, of whom at least two must be medical. It will have a corporate entity and possess a seal. The Board will exercise generally protective functions over those who are mentally disabled. Its powers will be wide and include complete supervision of the conditions under which mental treatment is carried out in Scotland, inquiry into cases of "improper detention," and the right to discharge a patient at any time—and in certain circumstances a duty to do so. It will be able to delegate its powers by appointing committees to carry out specific tasks. The Mental Health Review Tribunals of the English Act are not reproduced in the Bill. There is less machinery for

investigating alleged wrongful detention. The patient or his nearest relative has the right of appeal to a sheriff against refusal to discharge, and it appears as though the Mental Health Review Tribunal's functions will be carried out by the Mental Welfare Board, who may accord a private interview to patients on request. Examination by a medical man nominated by patient or relative is not mentioned in the Bill. The Board's powers to inquire into conditions of treatment are also, of course, a safeguard. It should not be supposed that the less elaborate Scottish procedure for dealing with complaints is likely to be less efficient—it may gain by being less cumbersome.

Compulsory admission is dealt with by application by a relative or mental health officer supported by the opinion of two medical practitioners, one having special psychiatric knowledge. This is similar to the English requirements, but where, in England and Wales, the Act has taken the magistrate out of the picture, in Scotland a lay person persists, in the form of the sheriff, who must approve all applications before they become effective.

Compulsory admission to hospital of convicted persons suffering from mental illness by means of a Court Hospital Order is almost identical with the English provisions. Part V of both Act and Bill deal with criminal procedure and are so alike as to require no comment. The Scottish Bill describes all forms of abnormality as simply "mental disorder," but requires more exact definition in certain of the clauses. This contrasts with the English subdivisions of mental disorder—severe subnormality, subnormality, and psychopathic disorder. The differences between Act and Bill will probably prove of little importance in practice—the intentions of both Act and Bill are basically the same.

ANOTHER WOLFSON BENEFACTION

Biochemical research is to be greatly expanded at the Imperial College, London University, under Professor E. B. Chain, F.R.S., who has been appointed to the chair of biochemistry there. A new and elaborately equipped building will be erected with the help of a £350,000 benefaction from the Isaac Wolfson Foundation. This magnificent gift follows not long after the Foundation's donation of £450,000 to the Royal College of Physicians. To be known as the Wolfson Laboratory, the new department at Imperial College will include large fermentation units and workshops for making electronic equipment. The intention is to provide training and research in the borderland between biochemistry and chemical engineering, and facilities for the biochemical production of substances of interest. Imperial College, with its strong schools of organic chemistry, chemical engineering, and plant physiology, should be a particularly good centre for research of this kind, and with Professor Chain as head of the new laboratory it is certain that research workers from many countries will be attracted to it.

¹ *Mental Health (Scotland) Bill*. H.M.S.O., London. Price 5s. 6d. net.

² *Mental Health Act, 1959*. See journal, December 26, p. 1478.

³ *Memorandum on the Mental Health (Scotland) Bill, 1960*, Cmnd. 931. H.M.S.O., London. Price 1s. net.