

at once, and early signs of infection, such as grey pallor and diminished activity, can be recognized early. Death from both these causes is preventable but occurs all too often when nursing supervision is inadequate.

The respiratory distress syndrome of infants born before term has a high mortality rate, largely owing to the frequently associated intraventricular haemorrhage or to biochemical disturbance and physical exhaustion resulting from the respiratory difficulty. The treatment introduced by R. Usher,<sup>2</sup> in which the metabolic abnormality is corrected by intravenous infusion of alkali and glucose, requires the resources of a laboratory for proper biochemical control. Its main value is in moderately severe distress, when it may tip the balance towards recovery. Intermittent positive-pressure ventilation, which may also be life-saving in selected cases, is applicable only in large, well-equipped units, preferably with facilities for measuring gas tensions in small samples of blood.

The dangers of being born many weeks before term have long been obvious, but it has only recently been realized that the infant who is born at or near term but is of disproportionately low weight for his gestational age—the so-called light-for-dates infant—is prone to different kinds of disorder and requires correspondingly different treatment. A high proportion of these infants are congenitally malformed, so that abnormalities not readily identifiable at birth must be looked for. Light-for-dates infants are particularly liable to hypoglycaemia in the first days of life, which can cause permanent injury to the brain. There is little doubt that the delayed feeding practised in former years was responsible for much cerebral damage by accentuating and prolonging hypoglycaemia. Early feeding helps to prevent hypoglycaemia and also diminishes hyperbilirubinaemia. Expert nursing is again important to ensure that the benefit conferred is not offset by increased mortality from inhalation of milk. When there are contraindications to early feeding by bottle or tube, glucose should be given intravenously from 12 hours onwards, and the level of blood glucose should be recorded repeatedly if facilities are available.

The need to recognize the different kinds of infant of low birth weight has led to the present interest in methods of estimating maturity,<sup>3 4</sup> and a generally agreed nomenclature is urgently needed. The recent suggestions made by an international working party at the Second European Congress of Perinatal Medicine in London<sup>5</sup> form a useful basis for further discussion, and it is to be hoped that their sensible proposals will be widely accepted. If we are to learn more about these small infants and the value of intensive care, there must be prospective studies with full documentation of infants treated by modern methods and longterm follow-up. One such study reported recently from Helsinki<sup>6</sup> showed an overall survival rate of 45% in a series of 49 infants weighing between 850 and 1,250 g. at birth and treated with all the resources of an intensive neonatal care unit. Preliminary follow-up data indicated that "only a few cases showed signs of permanent brain injury at the age of 2 years."

<sup>1</sup> Drillien, C. M., *The Growth and Development of the Prematurely Born Infant*. Edinburgh, Livingstone, 1964.

<sup>2</sup> Usher, R., *Pediatric Clinics of North America*, 1961, 8, 525.

<sup>3</sup> Mitchell, R. G., and Farr, V., in *Gestational Age, Size and Maturity*, ed. M. Dawkins and W. G. MacGregor, p. 83. London, Spastics Society and Heinemann Medical, 1965.

<sup>4</sup> Usher, R., McLean, F., and Scott, K. E., *Pediatric Clinics of North America*, 1966, 13, 835.

<sup>5</sup> Working Party of the 2nd European Congress of Perinatal Medicine, *Developmental Medicine and Child Neurology*, 1970, 12, 384.

<sup>6</sup> Vapaavuori, E. K., and Riih , N. C. R., *Acta Paediatrica Scandinavica*, 1970, 59, 353.

The difficulty in comparing the results of such studies is to be sure that the infants are comparable, because there are so many variables which could be taken into consideration—birth weight, gestational age, physical characteristics, maternal stature and smoking habits, social class, and so on—in addition to indices of clinical severity. To take account of all these would mean splitting the total group into subgroups so small as to defy statistical analysis, and yet by ignoring them inappropriate comparisons may be made and wrong conclusions drawn. Even in the biggest hospital it is virtually impossible to accumulate large enough series of infants studied at the required level of sophistication. These are very real difficulties, which make proof of the value of modern intensive care hard to obtain. Nevertheless, the survival rate among very small infants such as those in the Helsinki series has in the past been little more than 25%, so that a rate of 45% is at least strongly suggestive that a real advance in treatment has been achieved.

The implications are that we should be thinking in terms of regional centres where all the facilities for the intensive care of these small infants are available, and that small obstetric units should be considering how to ensure that as many small babies as possible are born in the regional centre and how best those who are born in the peripheral hospitals can be transferred. However, even the small obstetric unit can do much to improve neonatal care by ensuring a high quality of nursing for all newborn infants, with continuous close observation, early feeding, the controlled use of oxygen when necessary, and the prompt administration of glucose to light-for-dates infants who show signs suggestive of hypoglycaemia, such as tremors, twitching, or periods of apnoea.

## Radioactive Patients

A patient discharged from hospital after receiving a therapeutic dose of radioactive material will be a source of radiation for a few weeks and perhaps of contamination to other people also. Implants of radium are given only to inpatients, and the radiation hazards to nurses, visitors, and other patients can be controlled without much difficulty. But a patient who returns home bearing an implant of radioactive gold grains emits gamma-radiation at a diminishing rate, falling to insignificant levels after a couple of weeks. Avoidance of bodily contact (particularly with children) is the only necessary precaution in the home.

A different problem arises after administration of a therapeutic dose of radioactive iodine-131, a procedure often conducted on outpatients. For a few weeks after treatment the patient will be emitting radiation and will also be discharging small amounts of radioactive iodine in urine, sweat, saliva, and even in his breath. The possibility of radioactive contamination of members of the patient's household has been recognized in official advice<sup>1</sup> that the patient should not return home by public transport if the amount of iodine-131 in his body exceeds 15 millicuries and should not return to work until this level has fallen (by excretion and natural radioactive decay) to 7.5 millicuries. Various other precautions relating to his conduct in the home are also specified.

The validity of these precautions is reviewed in a report by R.C.T. Buchan and J. M. Brindle<sup>2</sup> on work done in the Plymouth area. Radioactive iodine acquired by personal contam-

<sup>1</sup> Ministry of Health, *Code of Practice for the Protection of Persons Against Ionizing Radiations Arising from Medical and Dental Use*. London, H.M.S.O., 1964.

<sup>2</sup> Buchan, R. C. T., and Brindle, J. M., *British Journal of Radiology*, 1970, 43, 479.

ination is usually distributed in the body's extracellular fluid, and a large proportion appears in the thyroid gland. This selective deposition provides a convenient means of assessing the extent of individual contamination. Buchan and Brindle estimated by scintillation counting the amount of iodine-131 in the thyroid glands of each of 39 persons whose households contained a patient recently treated for hyperthyroidism with this isotope. In most of the families the recommended precautions were observed, but in a few, selected for intelligent understanding of the purpose of the survey, the precautions were ignored. In almost all of the 39 persons iodine-131 was readily detected in the thyroid. The doses of radiation they received from it were small, though they were larger than the dose incurred by the thyroid or other organs from a year's radioactive fall-out at present levels. In some instances they were comparable to a year's natural background radiation. Further experiments are in progress to estimate the additional dose due to external gamma-radiations from the patients.

Buchan and Brindle suggest that, except where very young children are concerned, precautions to minimize contamination from iodine-131 in the home should be abandoned and that no restriction is needed on the amount of this isotope that may be given to outpatients—even at the level of 200 millicuries or more used in the treatment of thyroid carcinoma. These proposals may not be readily accepted, but the Plymouth study does show that the contamination hazard is adequately contained by the present regulations.

## Colombo Medical School Centenary

The centenary of the medical school at Colombo, in Ceylon, is an event well worthy of note. The school has sustained and is sustaining a role of outstanding importance in medical research and education in South-East Asia. This has been recognized by the World Health Organization, which last month supported a seminar in Colombo to do honour to the staff and accomplishments of the school; among the secondary objectives of this were to bring together recent work of importance to Ceylon (and particularly that done in Ceylon) and to review the ways in which medicine might be expected to progress in the next few years of the school.

The history of the school from 1870 is one of continual enlargement and achievement. It was recognized by the General Medical Council of Great Britain as long ago as 1887—as the result of a Privy Council held on 29 December at Osborne House in the Isle of Wight. Women students were admitted five years later, in 1892. It was in Colombo, between 1912 and 1914, that Sir Aldo Castellani—now aged 93—discovered *Toxoplasma*, and where in the early 1930s E. Brumft discovered *Plasmodium gallinaceum*, the malaria parasite of fowls. The finding of the pre-erythrocytic form of this organism in the liver paved the way to the recent work by Short and Garnham on the human pre-erythrocytic form of malaria. It was therefore particularly appropriate that Professor P. C. C. Garnham should attend the centenary celebrations.

Among notable work latterly done by Ceylonese has been the uncovering of monkey malaria by Professor A. S. Dissanaiké. Five species have been found and considerable importance is attached to the transmission to man of these forms of malaria. Another notable achievement has been the virtual eradication of the malayi form of filariasis (*Brugia malayi*) from the island and the control of the common filarial infection, *Wuchereria bancrofti*. Malaria eradication appeared

to be coming to a highly successful conclusion in Ceylon until 1967, when a major outbreak occurred, affecting at least two million of its 14 million inhabitants. Nevertheless, the factors underlying this outbreak are themselves the subject of important investigations that are applicable to other endemic areas. Perhaps the most important conclusion to date is that eradication is virtually impossible, and continuous vigilance involving much expense and staff is needed in areas like Ceylon once the transmission of malaria has been reduced to a low level.

Medical educators in Ceylon have been experimenting with changes in the curriculum, and reducing substantially the load of formal work. The need to encourage training in decision taking at the expense of factual instruction was particularly emphasized in the seminar.

The Ceylonese medical profession are to be congratulated on their important achievements in the past 100 years, and we wish them well in the second century of the Colombo Medical School.

## Role of the Nurse

Earlier this year, while Secretary of State in the Department of Health and Social Security, Mr. Crossman circulated a letter to boards of governors, hospital management committees, and others on actions to be taken to improve the nursing situation. He also set up a committee, which has now started work, with Professor Asa Briggs in the chair and these terms of reference:

“To review the role of the nurse and the midwife in the hospital and the community and the education and training required for that role, so that the best use is made of available manpower to meet present needs and the needs of an integrated health service.”

Both actions were prompted by disturbing facts. The number of student nurses is falling. In September 1967 there were 56,141 in training; in March 1969 there were 49,822. Many of the teaching hospitals are for the first time in their history embarrassed by lack of recruits. The growth in the number of trained staff has almost ceased at a time when the demand for their services in specialized units is rising.

A hundred years ago women were pressing for education and employment, and the great nursing pioneers opened up the field of hospital work at a time when medicine and surgery were making gigantic strides. It was convenient to have an assistant to undertake routine observations, so thankfully laying down the scrubbing brush the nurse took up the thermometer and began her progress towards professionalism as the servant of the doctor. The profession as constituted was predestined to exploitation—female, dedicated, living in “homes” that resembled convents. Doctors viewed their progress dubiously. Up to twenty years ago it was common to hear fears that nurses were becoming “little doctors,” but today the need for an educated colleague is apparent.

Nurses are a heterogeneous group. There are students engaged on university courses leading to degrees as well as registration; students and registered nurses who may have G.C.E. A-level subjects, or no educational qualification at all; enrolled nurses dissatisfied with their status; auxiliaries who (if fortunate) have an in-service training. A large number are foreign-born and some have difficulty in speaking English. Is the nation aware of the burden it is imposing on these women? We should be alert to what we are doing to shore up the hospital system.