anastomosed to the colon, and the proximal end is closed and anchored securely, because of the danger of intussusception. The operation itself is a formidable one. Use of a transverse "melon-slice" incision permits excision of great masses of "fatty apron" and of the umbilicus, together with the hernia that is so often present. The appendix is removed as a routine, and cholecystectomy is often required because as many as 40% of these patients have, or have had, gall stones. The wound must be closed with scrupulous care, and respiratory support may be needed in the early postoperative period. These patients run higher than average risk of developing wound infection, wound dehiscence, and pulmonary embolism. A careful watch must be kept on fluid and electrolyte balance, supplements of potassium and calcium often being needed.

Loss of weight results from malabsorption of fat and protein. The fat-soluble vitamins are poorly absorbed after operation, and deficiency of vitamin B_{12} is likely to develop after bypass of most of the ileum. Diarrhoea may be very troublesome and may cause intense discomfort at the anus. Osteomalacia, osteoporosis, and cirrhosis of the liver have not yet been found after these bypass procedures, but may well appear on longer follow-up.

If bypass of the small intestine has a place in the treatment of obesity, it would seem logical to restrict its use initially to those vastly obese patients who are 50 kg overweight or twice their ideal weight, and who have failed to lose weight despite at least five years of medical management. Though the operation is in general too hazardous for elderly or unfit people, the presence of diabetes, mild hypertension, or hyperlipidaemia would constitute a relative indication for it, since improvement in these conditions is likely afterwards. It is important that the patient herself should be of stable personality and judged likely to cooperate in the extensive investigations which are still essential, both before and for several years after these radical procedures. Recently polyarthritis has been reported as a complication of the operation in seven patients who underwent jejunocolostomy out of a series of 22 who had this operation and nine who had jejunoileostomy.[8] In two the polyarthritis was persistent and one of these underwent a revision of her intestinal shunt, with the result that her arthritis disappeared.

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[3] Payne, J. H., and DeWind, L. T., *American Journal of Surgery*, 1969, **118**, 141.
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Prenatal Diagnosis

Techniques have recently been developed for examining the chromosomes of the unborn fetus. They constitute an important advance in medical practice, for this type of prenatal diagnosis enables doctors to give helpful advice to the mother. The first considerable experience of a British unit was reported recently by M. E. Ferguson-Smith and his colleagues[1] and last week a note appeared on ethical considerations.[2]

The technique consists in obtaining a specimen of amniotic fluid by suprapubic puncture of the abdomen and uterine walls at the 14th to 16th week of pregnancy, culturing fetal amnotic cells and examining them for chromosome abnormalities, and examining amniotic cells (with or without culture) or amniotic fluid for biochemical abnormalities. The operation carries a negligible risk to the mother's health. The risk to the fetus is not yet established, but series of over 200 operations have been reported from America without fetal damage.[3]

The technique of growing amniotic cells—a procedure needed for the proper study of the chromosomes—presents difficulties, but some laboratories are now achieving over 80% success in getting satisfactory chromosome preparations, and the rate may be raised to nearly 100% successful preparations by obtaining a second specimen. Once adequate cell growth is achieved, the reliability of diagnosis of a chromosome abnormality is high and does not differ from that in preparations obtained by lymphocyte or fibroblast culture.

The biochemical techniques for detecting inborn errors of metabolism before birth are at present less reliable. There are encouraging indications that where an enzyme defect is demonstrable in fibroblast culture it will usually also be demonstrable in amniotic cells obtained at the 14th to 16th week of pregnancy. But much study is needed to establish the normal range of values in amniotic cells, uncultured and cultured. These values may differ according to the predominant type of cell in a culture. At present prenatal biochemical diagnosis of a particular enzyme deficiency is best undertaken by the few laboratories with considerable research experience of that particular metabolic error. The most impressive results obtained so far are for Tay-Sachs disease (amaurotic familial idiocy).[4 5]

The strongest indication for amniocentesis at present is when there is a known high risk to the fetus of a disorder susceptible of prenatal diagnosis and the mother is asking for a termination of the pregnancy unless the fetus can be shown to be unaffected. An example of high risk to the fetus is when the mother carries a D/G chromosome translocation giving an approximately 1-in-6 risk of Down's syndrome (mongolism). Another is the 1-in-4 risk of Tay-Sachs disease, which is transmitted as an autosomal recessive, when the parents have already had one child with it. A third is the 1-in-2 risk of Lesch-Nyhan disease (mental retardation, self-mutilation, and faulty purine metabolism) in the son of a woman who is a known carrier of the gene for this X-linked condition. Amniocentesis is also being undertaken when there is a risk of an X-linked condition such as Duchenne muscular dystrophy and the mother is asking for termination of pregnancy unless the fetus can be shown to be female. A less strong indication for amniocentesis is when the risk of abnormality in the fetus is only moderate but the mother is very anxious for termination unless the fetus can be shown to be normal. In this category are some pregnancies to mothers who have already had one child with Down's syndrome and pregnancies to mothers over the age of 40. These circumstances have provided the commonest indications for amniocentesis so far. The stage may come when it would be appropriate for pilot studies to be undertaken in fully equipped centres in which the procedure would be offered to all mothers pregnant over the age of 40. In women of that age the incidence of serious chromosomal abnormalities in the fetus at the age of 14 weeks is about 1 in 50.

Unfortunately there are severe congenital disorders which show no abnormality in chromosomes and as yet no bio-

chemical abnormality. Examples are anencephaly, encephalocele, and meningomyelocele. Further development is needed here of techniques such as fetoscopy and ultrasonography to detect at least the more serious external congenital malformations.

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[2] *British Medical Journal*, 1971, **4**, 245.
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Health Departments Galore

The annual reports of the Chief Medical Officer of what is now the Department of Health and Social Security have shown for some years that the public health of Britain is not so good as it should be. This must to some extent be a subjective judgement, for countries vary so much in their history, economy, and climate—to mention only three influences on the health of their peoples—that comparisons can be made only with many reservations. But in a list of countries comprising those of West and East Europe, Australia, Canada, New Zealand, the U.S.A., Israel, and Japan the index for stillbirths and infant mortality places England and Wales only slightly above the middle. When the expectation of life at 1 year of age is chosen for comparison, the men of England and Wales come off worse still, though the women are much better, with those of only five other countries having a greater expectation of life.

These comparisons appear in the Chief Medical Officer's report for 1970,[1] [2] and he rightly emphasizes a probable connexion between the dramatic reduction we have seen in maternal mortality, now as low as anywhere in the world, and the "confidential inquiries into maternal deaths" that have proceeded for 20 years. If similarly well-organized inquiries under the seal of confidence could be more generally carried out than they have been, remediable defects in the management of patients might well be discovered. To this end more epidemiologists expert in the study of non-communicable diseases are required, together with the backing of suitably staffed units. The inquiries that would attract their attention are numerous, for lack of resources at present means that even the killing diseases such as the cancers are wide open for investigation. According to the C.M.O. one authoritative opinion is that 80% of cancers may have environmental causes.

Now that the statistical treatment of data has won success in a hundred different ways some thought should be given to the manner in which national data are published in the United Kingdom of Great Britain and Northern Ireland, to give the full title of a nation that includes three separate registrars general and five health departments. Apparently one consequence of the recent establishment of a separate health department in the Welsh Office is that the statistics for Wales are no longer to be included in those for England that come from the Chief Medical Officer in London. Presumably they will appear in a separate publication, probably on a different date and, if Scotland and Northern Ireland are any guide, differently tabulated. Without in any way sinking the identity of the constituent parts of the United Kingdom, whose unity has traditionally given much scope for individuality, it ought to be possible to produce health statistics of exactly the same kind at the same time so that they may be analysed together where appropriate. If Cornwall consents to appear in the same volume with Lancashire, surely Merioneth might continue to appear with Norfolk.

[1] Chief Medical Officer of the Department of Health and Social Security, *On the State of the Public Health* (Annual Report for the Year 1970). London, H.M.S.O., 1971 (95p net).
[2] See *British Medical Journal*, 1971, **4**, 244.

Mental Hospital Revolution

The Mental Health Inquiry is concerned with the collection and collation of inpatient statistics in psychiatric hospitals and units in England and Wales. Since 1949 four reports have been published, of which the latest[1] relates to the state of affairs in 1969. Each report has followed more or less the same lines, but this one boasts one most important addition, a paper entitled, "Changes in the Number of Patients in and Admission to Mental Illness Hospitals in England and Wales over the Period 1954 to 1969." This summarizes the way in which the psychiatric services changed during the period.

The most dramatic change is the fall on a national level by 31% in the number of inpatients per 1,000 population. On a regional level, however, the fall was anything but uniform. In the Oxford region, for example, there was a fall of 45%, whereas in Liverpool it was only 18%. This was in spite of the fact that Oxford had the least number of inpatients in 1954 and Liverpool had nearly the most. Oxford's success in the continuing reduction in the number of inpatients—if indeed this in broad sociological terms is necessarily a success—might have been attributable to a corresponding increase in extramural facilities for treatment. It is somewhat mystifying then to learn that this is not so and that Oxford had the fifth lowest number of outpatient attendances and Liverpool the highest.

The are also irregularities in the age groups involved in the fall in the number of inpatients. In the 25-44 group the reduction nationally was about one-half, but above and below these ages the numbers of patients in mental hospitals increased. The number of children under 15 rose from 554 in 1964 to 776 in 1969, reflecting the increase in the number of beds allocated to child and adolescent psychiatry. Far more important is the sharp increase in people aged 75 and over representing, 22% for men and 12% for women inpatients. It is in the context of the aged that the report allows itself a glimpse into the near future and issues a solemn warning which must not be ignored. It states categorically "In the next decade the population of persons aged 65 and over will increase by almost one million and of these about half a million will be aged 75 and over; if the current pattern of hospitalization and trends continue, these would require an extra 8,000-9,000 beds mostly for persons aged 75 and over. Again on the basis of existing trends by the end of the next decade almost two-thirds of the patients in mental illness hospitals might be aged 65 and over." What, in the light of this prediction alone, would the social repercussions be if the Hospital Plan of 1962 were put into effect and half the British mental hospitals were eliminated by 1975?

In numbers of admissions a most remarkable change is seen. They rose by 150%, of which 50% were readmissions, reflecting a "switch from long-term inpatient care to shorter but more frequent spells in hospital and the development of extramural hospital and local authority services," the report concludes.