[9] Stern, S., and Tzivoni, D., *American Journal of Cardiology*, 1973, **32**, 17.
[10] Gottschalk, L. A., Stone, W. N., Gleser, G. C., and Iacono, J. M., *Science*, 1966, **153**, 654.
[11] Fisher, C., Kahn, E., Edwards, A., and Davis, D. M., *Archives of General Psychiatry*, 1973, **28**, 252.
[12] Lonsdorfer, J., *et al.*, *Bulletin de Physio-pathologie Respiratoire*, 1972, **8**, 1181.
[13] Coccagna, G., Mantovani, M., Brignani, F., Parchi, C., and Lugaresi, E., *Bulletin de Physio-pathologie Respiratoire*, 1972, **8**, 1159.
[14] Coccagna, G., Mantovani, M., Brignani, F., Parchi, C., and Lugaresi, E., *Bulletin de Physio-pathologie Respiratoire*, 1972, **8**, 1217.
[15] Kuhlo, W., and Doll, E., *Bulletin de Physio-pathologie Respiratoire*, 1972, **8**, 1205
[16] Tammeling, G. J., Blokzijl, E. J., Boonstra, S., and Sluiter, H. J., *Bulletin de Physio-pathologie Respiratoire*, 1972, **8**, 1229.
[17] Lugaresi, E., Coccagna, G., Mantovani, M., and Brignani, F., *Journal of Neurology, Neurosurgery, and Psychiatry*, 1973, **36**, 150.

Morphine without Prescription

It may come as a surprise to many doctors that morphine can still be bought over the chemist's counter without prescription, a large clinical dose—24 mg of morphine hydrochloride—costing less than £1. It is available in a proprietary mixture, Dr. J. Collis Browne's Compound or "chlorodyne," a substance known for many years to be subject to small scale abuse.[1 2] The morphine is in dilute form constituting under 0·2% of the liquid and is not readily extractable. The United Kingdom has hitherto conformed to international practice in allowing such mixtures to be sold without prescription.

Last month (9 March, p. 427) Dr. R. R. Parker and colleagues[3] drew attention again to chlorodyne addiction and described eight more cases including some of a relatively young age group. Their experience will engender no surprise among psychiatrists, to whom such cases are familiar. Even less surprised will be the Pharmaceutical Society, whose inspectors have urged members to exercise especial care in retailing Collis Browne's Compound. One chain pharmacy has given up displaying the mixture, but large advertisements can still be seen on the walls of the London Underground.

Under the Pharmacy and Poisons Act, 1933, a statutory committee regulates professional conduct and at its most recent hearings had before it two cases alleging over-selling of Collis Browne's Compound, including one of a pharmacist allegedly receiving 864 large bottles in seven weeks and selling 10 bottles at a time to a known addict, despite a warning from an inspector.[4]

The proper method of regulating such a morphine product would be to place it on prescription. It is thus a matter of concern that a committee of the Medicines Commission should recently have recommended that the traditional free sale of preparations containing under 0·2% morphine should continue.[5] To have proposed otherwise might have set Britain out of line, yet the internationally agreed limits were surely intended to safeguard the public. Surely the Medicines Commission should follow instead the conclusions of Dr. Parker and his colleagues, that the supply of chlorodyne should be placed under control? This could be achieved by lowering the concentration limit of morphine that would be allowed in substances to be sold without prescription.

[1] Seager, C. P., and Foster, A. R., *British Medical Journal*, 1958, **2**, 950.
[2] Conlon, M. F., *British Medical Journal*, 1963, **2**, 1177.
[3] Parker, R. R., Cobb, J. P., and Connell, P. H., *British Medical Journal*, 1974, **1**, 427.
[4] *Chemist and Druggist*, 1974, **201**, 267.
[5] Department of Health and Social Security Medicines Commission, *Report on Prescription Only Medicines and Related Matters*. London, H.M.S.O., 1973.

Five-Day Wards in 1974

One of the many aspects of hospital planning being reconsidered during the reorganization of the National Health Service has been five-day or short-stay wards, which literally close every weekend. These units must be distinguished from wards (for example in radiotherapy units) where the majority of patients go home each weekend, but where there is always a nucleus of nursing staff to care for a few sick patients.

A survey of all existing five-day wards has just been completed by means of a questionnaire[1] to the hospital authorities concerned. Out of a total of some 38 hospitals, 15 reported that their five-day ward was not in operation. Some of these had closed because of staffing difficulties; others had fulfilled their role in a temporary capacity and had then closed. Leicester Royal Infirmary's five-day ward was very successful in reducing the surgical waiting list from seven years to a negligible time before closing. The 23 wards at present operational have found nurse recruitment easy, no undue difficulties at weekends, and adequate ambulance service. Local authority services have co-operated freely with the weekend care of patients. Most of the present wards are used for minor surgery, and in some the patient stays for only one night. Specialties other than surgery have rarely experimented with five-day wards: exceptions are the programmed investigation unit at Manchester,[2] a five-day rheumatic ward at Truro, a ward at the Hospital for Sick Children, London, used by the psychiatric team, and a ward for thalidomide children in Edinburgh.

A five-day ward used for rehabilitation of geriatric patients at the Lennard Hospital, Bromley, has been described in detail in a recent report.[3] It shows that a method can be devised of sharing the care of elderly persons between the hospital service and the families concerned, backed by the local authority domicilliary services. Use of the ward avoids the often controversial issue of whether the responsibility for an old person should be undertaken entirely by the hospital service or whether that old person should be cared for in the community until final breakdown occurs. Going home each weekend demonstrates the possibilities of rehabilitation and leaves the hospital uncommitted to final total care. The Bromley ward also deals with a small number of purely orthopaedic patients and another small group of medical patients with no special rehabilitation problem.

Often a patient's stay in hospital is prolonged because of the long-accepted practice that major decisions are taken only on the consultant's main ward round. Junior staff sometimes find that frequent communication with their consultant is difficult, and indeed it may be irksome to the consultant himself. Five-day wards demand close attention from their medical staff, and the Manchester and Bromley wards have found that the intensity of the ward work requires that senior nursing staff should be freely available to match the medical activity.

There is now good evidence that minor surgery can be carried out successfully on a five-day ward; usually the impetus for starting such wards has been the length of the waiting list. The high turnover on this type of ward justifies employment of a ward clerk or similar help to keep up with the documentation.

The use of the five-day ward for patients completing their treatment or investigations within five days has been an obvious step in the development in the hospital service, but its role for patients requiring more than one week's treatment is not so clear. Consultants are not used to the idea that a patient might go home for the weekend before his investigation and

treatment had been completed. Many relatives can undertake simple observations, and in most areas the home nursing service can come into a house at the weekend to enable the patient to be looked after without undue risk. It seems that elderly patients are not adversely affected by a change of surroundings at the weekend and general practitioners do not find unreasonable demands made on them.

The reality of the situation is that when one walks round the wards in any general hospital at the weekend it is obvious that acceptance by society of a five-day week has affected the tempo of hospital work. There is very little in the way of routine investigations or use of the paramedical departments, and the nursing staff are often down to a minimum. Could not many general hospital patients be looked after at home at the weekend, and with regrouping certain wards be closed at the weekend? The nursing profession now relies on the married nurse to back up the hospital service, and the five-day ward is an attractive department for a nurse taking up work again when she has a family.

[1] Naylor, R., The Lennard Hospital. Unpublished.
[2] Longson, D., and Young, B., *British Medical Journal*, 1973, 4, 528.
[3] *Home for the Weekend—Back on Monday*. A report sponsored by the King Edward's Hospital Fund. London, Queen's Institute of District Nursing, 1973.

Effects of Cholecystectomy

Surprisingly little is known about the effect of cholecystectomy on alimentary function—perhaps because until recently there has been only limited understanding of the role of the gallbladder in gastrointestinal physiology other than its function in storing and concentrating hepatic bile. The gallbladder is absent in cetacea and certain ungulates and rodents; nevertheless these mammals do not appear to be at any digestive disadvantage. It is tempting to speculate that the presence of a gallbladder confers some advantage by delivering a small volume of a concentrated bile-salt solution at the time of ingestion of large quantities of animal fat. If this is so, how does the person without a gallbladder deal with the fat in the diet? As far as can be ascertained, very well indeed. Simmons and Bouchier[1] studied the intraluminal bile-salt concentrations after a test meal in 10 subjects who had undergone cholecystectomy some 3 months to 12 years previously. Fat digestion seemed unimpaired. Whereas persons with a normally functioning gallbladder show a rise and then a fall in intraluminal bile-salt concentrations in the two hours after a meal, no such phenomenon is found in the absence of a gallbladder, when the concentration of bile salts in the gut remains constant throughout the two hour period. The bile-salt concentration is usually greater than the 4 mmol which Badley *et al.*[2] have suggested is the critical physiological concentration necessary for the emulsification and absorption of a normal fat load. Even if bile-salt concentrations do on occasions fall below this concentration in patients who have had a cholecystectomy it is improbable that fat digestion and absorption will be affected adversely. Porter *et al.*[3] showed that even patients with external biliary fistulae absorb most of the dietary fatty acids; apparently luminal hydrolysis of triglycerides can proceed effectively in the absence of bile salts, and there is a large reserve of functioning intestinal mucosa for the absorption of the fatty acids. Cholecystectomy is not followed by steatorrhoea, and none of the symptoms that may occur after gallbladder surgery have ever been shown to be due to the absence of the gallbladder.

Recently it has become apparent that cholecystectomy is accompanied by changes in bile-salt metabolism, which indicates that there may be a subtle and complex relation between normal gallbladder function and the secretion of bile salts. The first indication that this might be so was the observation that cholecystectomy is accompanied by a change in biliary lipid chemistry.[5 6] Hepatic bile, previously saturated or supersaturated with cholesterol, becomes unsaturated. This suggests that the gallbladder might influence bile salt kinetics, and support for this concept comes from the observation of Low-Beer and Pomare[7] that patients with untreated coeliac disease have a two-to-threefold increase in the size of the taurocholate pool with a doubling of the half life of this bile salt. They suggested that this is due to the poor emptying of the gallbladder and retarded enterohepatic circulation of bile salts known to occur in adult coeliac disease.[8]

Two studies have evaluated the effect of cholecystectomy on bile-salt metabolism in greater detail. Almond *et al.*[9] studied biliary lipid composition and the size of the bile-salt pool before and after cholecystectomy in 10 patients. In contrast to previous studies[5 6] they found no change in lipid composition, and the bile remained saturated with cholesterol after removal of the gallbladder. After cholecystectomy five of the patients showed a small expansion of the primary bile-salt pool, while in the remaining five there was a further reduction of the size of the bile-salt pool, already noted to be smaller than usual before operation. The fractional turnover rates of cholate and chenodeoxycholate were increased, suggesting that in the absence of the gallbladder there is an increased frequency of enterohepatic cycles. There was no change in the amount of secondary bile salts. In the second study Pomare and Heaton[10] evaluated 13 patients after cholecystectomy and compared the results with 10 matched controls. They found reduced pools of the primary bile salts with deoxycholate, a secondary bile salt, becoming the predominant component; and they argue that the removal of the gallbladder is accompanied by a reduction in pool size, which they attribute to an increased number of enterohepatic circulations causing a continuous feedback inhibition of hepatic bile-salt synthesis. Pomare and Heaton believe that these results support their hypothesis that the storage function of the gallbladder is an important determinant of the size of the bile-salt pool and that the pool size is determined by the frequency of the enterohepatic circulation of the bile salts. This is in contrast to the conclusion of Almond *et al.* that the gallbladder does not have an important role in influencing bile chemistry or the size of the bile-salt pool. Northfield and Hofmann[11] have suggested that an increased contractility of the gallbladder might cause increased recycling of the bile salts thereby inducing more marked feedback inhibition of bile-salt synthesis and consequently a reduced bile-salt pool size.

So arguments have been put forward that a smaller bile-salt pool might result from a primary defect in liver metabolism, or might be a reflection of a failure of gallbladder filling or an absence of the gallbladder, or might be due to enhanced gallbladder contraction. Almost certainly multiple factors can affect pool size: and their varying effects in different circumstances no doubt explain the apparently conflicting results obtained by different investigators.

[1] Simmons, F., and Bouchier, I. A. D., *South African Medical Journal*, 1972, 46, 2089.
[2] Badley, B. W. D., Murphy, G. M., and Bouchier, I. A. D., *Lancet*, 1969, 2, 400.
[3] Porter, H. P., Saunders, D. R., Tytgat, G., Brunser, O., and Rubin, C. E., *Gastroenterology*, 1971, 60, 1008.