contents of the gall bladder without complete contraction. Despite this, Chapple *et al.*³ using a similar method on models and patients with gall stones, found a good correlation between gall-bladder volume on the oral cholestogram and isotope counts but suggested that isotopic methods underestimated emptying owing to the background count.

Radioisotopic techniques have the advantage over oral cystograms that frequent counts can be made, giving a better idea of the kinetics of emptying; but radioactive substances still have to be injected. Dynamic imaging of the isotope-filled gall bladder is possible but is extremely slow compared with ultrasound. Using real-time ultrasound it is possible to scan virtually continuously, if this is wanted, so that a smoother emptying curve can be constructed. In our studies measurements were made every two minutes. Not only can the reduction in volume be measured but the pattern of movement and contraction of the gall bladder during emptying can be seen and recorded.

Since the presentation of our preliminary data we have carried out further studies (which are to be published), using a static B-mode grey-scale ultrasound scanner, which—though it does not show movement—has better definition, so that in skilled hands measurement can be more precise. These studies, also using two-minute intervals, show excellent agreement with the real-time data.

Though the various stimuli to contraction of the gall bladder are well documented⁴⁻⁶ and pressures at the sphincter of Oddi and within the duct system have been measured,⁷ there is virtually no method of obtaining information on the dynamics of emptying which is not restricted by either being invasive or using ionising radiation. The situation has been well summarised in the statement that "methods of studying gall bladder motility are on the whole unsatisfactory."⁸

Despite the recent claim⁹ that cholelscintigraphy "represents a considerable improvement over the techniques previously used," we would suggest that modern grey-scale ultrasound, using either static or real-time imaging, is a major advance in observing and measuring the gall bladder accurately, safely, and acceptably. Hazard-free continuous imaging is possible and it is hoped that with ultrasound the precise dynamics of gall-bladder emptying will now be clarified.

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Gall stones and ischaemic heart disease

SIR,—Mr A Faichney and Mr L A Donaldson (9 February, p 402) suggest that data from Glasgow do not conform with our finding of a negative correlation between the necropsy prevalence of gall stones and ischaemic heart

disease mortality in nine British towns (1 December, p 1389). From our paper they estimate that the necropsy prevalences of gall stones among men and women under 60 years of age are similar to those that they have recorded in Glasgow (3.4% among men and 10% among women). On the other hand they point out that ischaemic heart disease mortality in Scotland is known to be higher than in England.

In fact, the prevalences under age 60 for all of our nine towns combined are 6.8% among men and 11.6% among women. Among men the highest prevalence is 11.9% in Chester and seven of the towns have prevalences higher than Glasgow. Among women the highest prevalence is 20.7% in Ipswich and five of the towns have prevalences higher than Glasgow. Although this comparison between Glasgow and the nine towns is not age standardised it does not argue against a negative correlation between gall stones and ischaemic heart disease.

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Ethical conflicts in long-term care of the aged

SIR,—The psychological analysis made by Dr Astrid Norberg and her colleagues (9 February, p 377) while assessing the patient-care worker relationships in long-stay wards is absolutely fascinating (9 February, p 377). We feel, however, that this article contains several disturbing statements.

Firstly, the authors repeatedly mention that death from water deficiency is a painless and peaceful process. Although the accuracy of this statement cannot be verified, it seems to be contrary to orthodox teaching and experience: dehydration is an unpleasant condition and there is no reason to believe that elderly patients do not feel thirst. Moreover, dehydration itself is associated with apathy, depression, dysphagia, and oesophageal obstruction¹; a vicious circle is therefore easily triggered off. It is also well established that dehydration is associated with nausea, lightheadedness, a drop in blood pressure, and an increase in heart rate; the renal perfusion may also drop, leading to oliguria and uraemia,² and cerebral hypoperfusion may lead to impaired mental functions and confusion. Surely death from dehydration cannot be as painless and peaceful a process as Dr Norberg and her colleagues claim.

Secondly, whereas we would agree with the authors that intravenous infusions may not be recommended in dying patients who can no longer be spoon-fed, we fail to understand why a nasogastric tube cannot be inserted and adequate nutrition (at least so far as hydration is concerned) maintained. It must be emphasised that at no time are we told that these are dying patients; in fact the group of patients studied are those who "could no longer be spoon-fed." It is not uncommon for elderly patients to go through phases where spoon-feeding becomes difficult and even not possible; but if adequate hydration is maintained and adequate treatment instituted many patients improve. To deprive these patients of fluids and allow them to die of dehydration is not too remote, we feel, from euthanasia.

Finally, we are bewildered by the selection criteria our Swedish colleagues use to admit patients for terminal geriatric care: confusion and urinary incontinence. We, in fact, consider these two conditions as indications for admission to an acute geriatric ward, and it is surprising in how many instances a treatable condition can be detected and controlled and patients discharged

back to the community mentally alert and continent. Is it possible that the authors mean dementia—which is an irreversible deterioration of mental functions—rather than confusion, which is an acute usually reversible mental impairment? But then their statement that "patients may lie for several years with a gastric tube" would be difficult to understand as the average life expectancy of patients with dementia is less than two years³; in fact, it is reported that 60% of those patients hospitalised for dementia die within six months.³ In our area the major reason for admission to a long-stay or continuing care ward is when elderly patients are so disabled, either physically or mentally or both, that they need constant nursing care, and even then only after they have undertaken a full rehabilitation programme lasting usually not less than three months. The average length of stay in our continuing care wards is almost one year and it is very rare for survival for 10 years to be recorded, owing to the severity of the disease process by the time they reach our continuing care wards.

We are glad that this paper has been included under the heading "For Debate" as otherwise we fear it might have encouraged marked nihilistic attitudes towards the elderly population, and a tendency to leave older confused and incontinent patients to die of dehydration without properly investigating and treating reversible causes for this state such as metabolic abnormalities, chest infection, and even drug abuse.

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Not a career for academic high fliers?

SIR,—Your correspondent Professor Sam Shuster (2 February, p 335) is surely wrong about our demands for quality in students. Every trade or profession, be it of dustman, politician, skilled craftsman, or scientist, must always aim at improvement and perfection within its own vision. Otherwise our society becomes sterile. If medicine is attracting students of such calibre that we have a disproportionate share of the high fliers we should feel proud, not embarrassed. The fault surely lies in those vocations which fail to meet the aspirations of youth.

We shall not choose good doctors either by selecting only those of lower academic calibre—although the suggestion does, in fact, indicate the source of many of our present educational problems and of many social and personal misfits in society today. We have allowed school teachers to choose the subjects and standards by which the whole career of the individual is controlled. Teaching is a specialised art, but ability in it does not make a teacher an ideal arbiter of what is needed for a different career, any more than a brilliant scientific research worker is the best person to teach science.

The fault here does not lie wholly with the school teachers. It lies with ourselves. We have not yet decided what we need in a doctor or how to develop that potential when the student enters a medical school. Hence also our present stultifying need to add more and more post-graduate requirements before a doctor can