ment and experience of living in other countries for both parents and their children. Good administration, however, should minimize the frequency of such moves.

It should be possible to amalgamate the three armed Forces medical services. Most regimental medical officers, naval surgeons in ships, and R.A.F. station medical officers come from the ranks of the medical cadet schemes. There is little shortage of them and they have no established service loyalty. What is needed is careful planning of career structures for permanent medical officers after this stage. In the clinical specialties there should be no problem about complete integration between the three services with the establishment of a central medical officers' appointments bureau, which would appoint specialists to service hospitals in accordance with their training programme and place on the clinical promotion ladder irrespective of their service branch. In the scientific fields there is little need for purely Navy, Army, or Air Force specialists. All three services fly aeroplanes and their problems in social or environmental medicine are not dissimilar—indeed, the problems of all three services surely would make for a more interesting career than one which was tied to one service. A combined services medical institute could deal with special problems of pure science. Though individual differences in administration exist between the services it would be preposterous to claim that a Navy administrative officer could not also do such work in the Army or Air Force.

It seems to me that it would be but a small step to make each service hospital in Britain a part of the general or district hospital facilities of the N.H.S. They could take their turn for emergency intake and become a district general hospital administered by the Ministry of Defence but totally and officially integrated with the National Health Service.—I am, etc.,

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Hazard to Fetus from Safety Harness

SIR,—Recently a primigravida aged 24 was admitted under my care at 34 weeks of pregnancy after a road traffic accident. The car which she was driving at a speed of approximately 40 m.p.h. (64 km p.h.) was in direct collision with another car crossing in front of her.

Probably because of the safety harness she was wearing her injuries appeared only slight. There were abrasions of both knees and the left arm. She had no abdominal pain nor was there vaginal bleeding. The fetal heart, however, could not be heard, though movements had been felt earlier in the day. Routine testing revealed a small amount of blood in the urine. Four days later she had a loss of 2oz (57 ml) of blood after which premature labour began. She delivered uneventfully a macerated 3-lb (1.4 kg) baby. Delivery of the placenta was accompanied by a loss of 4 oz (114 ml) of old blood clot.

The safety harness she was wearing was of the standard type consisting of lap and diagonal straps, and it would seem probable that the pressure on her uterus from the latter, as a result of the accident, was responsible for the abruptio placentae.

My object in reporting this case is to suggest that when women in advanced pregnancy are travelling by car the straps should be so arranged that direct pressure on the pregnant uterus is avoided.—I am, etc.,

D. B. WHITEHOUSE

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Recovery of Catheters Lost in Vascular System

SIR,—In a comprehensive review of non-operative techniques for removing catheters lost in the vascular system Rossi¹ lists the use of endoscopy forceps, a ureteric stone catcher, a metal sucker, and a snare loop of guide-wire. To these he added the use of a hooked polyethylene catheter. McSweeney and Schwartz² described a further technique using a deflecting guide-wire system, and Ranniger³ a system using a spring guide-wire with three formable loops on it. We wish to report a further modification of the technique which was successfully used to remove the lost distal silastic catheter from a ventriculo-atrial shunt system.

A 9-year-old hydrocephalic child was admitted in coma thought to be due to failure of drainage of C.S.F. through a Spitz-Holter valve. X-ray examination showed that the distal section of the catheter had detached itself from the lower end of the valve and migrated to a complex position in the right ventricle and pulmonary arteries (Fig. 1). After the patient's condition had been improved by connecting a new distal catheter it was decided to attempt to remove the lost one without major surgery.

A 65-cm French size 7 Selector Catheter (Medi-Tech Ltd.) was introduced into the femoral vein by the Seldinger technique. It was rapidly manoeuvred into the right ventricle and a tight loop was formed around the existing loop of the silastic catheter (Fig. 2). Some difficulty was experienced in manipulating the looped catheter back through the tricuspid valve, but ultimately the whole system was withdrawn down the inferior vena cava (Fig. 3) and extracted from the femoral vein with a cut down. There were no complications.

There will probably be more such cases in the future. We would recommend that all catheters should be adequately radio-opaque. It should then often be possible to remove

them by one or other of the non-operative techniques. Possibly the best combination would be a variety of snare loops and a guideable catheter system. Thus it should be possible to entrap a catheter which is lying either straight or in a coiled position.

We are grateful to Mr. D. Forrest for his referral of this case.

—We are, etc.,

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F. STARER

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¹ Rossi, P., *American Journal of Roentgenology*, 1970, **109**, 101.

² McSweeney, W. J., and Schwartz, D. C., *Radiology*, 1971, **100**, 61.

³ Ranniger, K., *Radiology*, 1968, **91**, 1043.

Selective Proximal Vagotomy

SIR,—Most gastric surgeons today would agree that if recurrent duodenal ulceration occurs after a truncal or bilateral selective vagotomy and drainage then vagal section on the oesophagus is incomplete. The recurrence rate, even in centres greatly experienced in vagotomy, may be as high as 10%. The series of Professor J. C. Goligher and his colleagues (1 January, p. 7) giving the late results of truncal vagotomy and pyloroplasty was done without a test for completeness of nerve section at operation. In all 12.2% of their cases came to further operation. These are the figures which we may expect when vagotomy is performed by experienced surgeons without a test at operation. He is not the first surgeon to suggest

that vagotomy and pyloroplasty is a failure and that we should consider reverting to gastric resection.

The early result of the smaller series of selective proximal vagotomy (highly selective vagotomy) with and without drainage reported by Mr. C. Wastell and his colleagues (1 January, p. 28) records almost exactly the same recurrence rate, and it would seem that this series too was done without a test for completeness of nerve section. I would suggest that all the recurrent cases in both series are due to incomplete vagal section on the oesophagus.

From this hospital I can report a series of 130 patients with highly selective vagotomy and no drainage carried out since April 1970 without recurrence. Johnston in Leeds has not seen a recurrent ulcer in a similar number of patients operated on during the past three years,¹ and neither has Amdrup in Denmark.² We can record at the West London Hospital some 1,200 patients with duodenal ulceration treated by bilateral selective vagotomy and pyloroplasty since 1957. In every case the electrical stimulation test has been used. I can now say with confidence that recurrent ulceration does not occur after this operation if this test is correctly used and complete vagal section achieved. The stimulation test has shown that even surgeons greatly experienced in vagotomy leave perhaps 80% of their patients with some degree of incomplete nerve section on the oesophagus if a satisfactory test is not used.

The experience of Amdrup² in Denmark, Grassi in Rome (personal communication), Hedenstedt in Sweden (personal communication), as well as Johnston and myself in Britain leaves little doubt now that highly selective vagotomy without drainage is the first operation in the history of gastric surgery to leave the patient quite free from the sequelae we all know so well. The remarkable absence of recurrent ulceration after this operation (Holle,³ using highly selective vagotomy and pyloroplasty, reports a recurrence rate of less than 1% in a large series of cases over eight years) suggests that the preservation of the prepyloric innervation, for some reason as yet unknown, protects against recurrent duodenal disease. Indeed, I began to wonder whether there was now any need for a preoperative test on the oesophagus. However, the series of Mr. Wastell and his colleagues makes me think that even in highly selective vagotomy there is still a need for such a test.

I think that in highly selective vagotomy we should preserve the prepyloric innervation above the exact demarcation of body and antrum—that is to say, to about 7-8 cm from the pylorus. At this level biopsy of the mucosa often shows oxyntic cells. Nevertheless, this point would seem to be completely safe from the point of view of recurrent disease. It is easily chosen at operation and lies immediately above the main branch of the anterior nerve of Latarjet as it crosses the lesser gastric curve.

I believe that the evidence for highly selective vagotomy is so strong already that we should all turn now to this new operation. Should duodenal ulceration recur in the presence of complete nerve section on the oesophagus (and I do not believe it will) then the highly selective can easily be converted to the bilateral selective operation, preferably without drainage. Highly selective vagotomy without drainage would seem to

be as curative for gastric ulcer as it is for duodenal.—I am, etc.,

HAROLD BURGE

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London W.6

- 1 Johnston, D., and Wilkinson, A. R., *British Journal of Surgery*, 1970, **57**, 289.
- 2 Amdrup, E., and Jensen, H. E., *Gastroenterology*, 1970, **59**, 522.
- 3 Holle, F., First World Congress of Collegium Internationale Chirurgiae Digestivae, San Remo, Italy, 20-23 May, 1971, unpublished.

Inaccurate Tourniquet Gauges

SIR,—Recently an operation for excision of Dupuytren's contracture was performed under general anaesthesia using a Zimmer tourniquet applied for one hour at a gauge pressure reading of 250 mm Hg. The next day the patient complained of weakness in the operated limb and paraesthesia in the ulnar and median nerve distribution. This has since slowly recovered.

Subsequently the Bourdon type pressure gauge of the tourniquet was checked against a mercury manometer and found to be grossly inaccurate; at a gauge pressure of 250 mm Hg the mercury column rose to 560 mm Hg. Other tourniquets in the hospital were investigated and found to be inaccurate, though to a lesser extent. As this type of tourniquet is widely used, it was thought worthwhile checking them in the larger hospitals of the Wessex region.

Thirty-one tourniquets were investigated at the standard gauge pressure of 250 mm Hg; 11 gave a true pressure in the range 150-250 mm Hg; 8 were in the range 250-350; 7 between 350-500; and 5 between 500-700 mm Hg.

Nerve injury following tourniquet application with excessive pressure is well documented,^{1,2} yet in only one hospital visited were the gauges checked. In that hospital the theatre technicians regularly checked the accuracy of the gauges against the mercury column of a sphygmomanometer. Once a gauge becomes inaccurate it cannot be re-adjusted and has to be replaced. The Bourdon gauge is unsuited for this work, as with rough handling and repeated use the flexibility of the metal coil is altered. There is a clear need for a more reliable manometer with a safety device to prevent excessive pressures.—I am, etc.,

DAVID FRY

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- 1 Hamilton, W. K., and Sokoll, M. D., *Journal of the American Medical Association*, 1967, **199**, 37.
- 2 Prevotnik, S. J., *Anesthesiology*, 1970, **32**, 177.

Hospital Staffing

SIR,—We, the undersigned consultant obstetricians, believe that, as a direct result of the policy of the Department of Health to restrict totally new registrar appointments, a crisis has been reached in many departments throughout the country. We call on the Department to act with extreme urgency and in line with Resolution 13 of the National Conference of Hospital Staffs (*Supplement*, 11 December, p. 75) that "where existing hospital staff establishments, including registrars, are such that the patients are at risk, immediate steps should be taken to increase the establishment irrespective of any previous

arrangements made between the C.C.H.M.S., the J.C.C. and the D.H.S.S.", if the welfare of mothers and babies is not to be jeopardized further. We do this in the knowledge that most, if not all, of these posts can be recruited from overseas trainees who have no intention of entering consultant practice in the United Kingdom, or by rotation from the teaching centres in such a way that the ratio between registrar posts to consultant vacancies would be unaffected.

The matter is urgent and patient safety should no longer be subordinated to a theoretical concept.—We are, etc.,

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T. D. ANDERSON

Canadian Red Cross Memorial Hospital

G. H. BANCROFT-LIVINGSTON

Lister Hospital, Hitchin and Luton and
Dunstable Hospital

D. B. BROWN

St. John's Hospital,
Chelmsford

A. S. F. BUTCHER

Wycombe General Hospital

J. A. CHALMERS

Worcester Royal Infirmary

H. V. CORBETT

Liverpool

A. M. DAWSON

North Devon Infirmary

J. F. FOULKES

Hastings

A. G. GORDON

Hull and East Riding

J. S. HESKETH

Newmarket General Hospital

J. H. HUGHES

Canadian Red Cross Memorial Hospital

H. J. G. KERSEY

South Essex Hospital Group

G. DE B. MITFORD-BARBERTON

Kettering and District General Hospital

A. S. MOOLGAOKER

Basingstoke District Hospital

P. R. PAYNE

Basingstoke District Hospital

P. R. B. PEDLOW

Lister Hospital, Hitchin

J. A. RIEDEL

Leicester Royal Infirmary

H. A. RIPMAN

Ipswich Hospital

G. M. SMITH

Leicester General Hospital

R. H. STEARN

Poole General Hospital

A. J. WHITE

Barking Hospital

J. K. WILSON

St. Catherine's Hospital, Birkenhead

R. T. BOOTH

South Essex Hospital Group

Place of Vasectomy

SIR,—May I comment upon the letter by Dr. M. Altman (29 January, p. 311), the letter "Doctors and Overpopulation" (8 January, p. 108), and Mr. Philip Whitehead M.P.'s proposed legislation concerning facilities for vasectomy. Every one of them is saying that there should be a massive increase in the provision for vasectomy. What evidence is there that there are thousands of men on waiting lists, unable to be vasectomized for an indefinite number of months, because of the lack of facilities?

I know of a situation where a considerable