be more frequent than in normal individuals matched for age and sex. However, a marked degree of fingertip ridge flattening accompanied by white lines, which were usually plentiful, was seen on all fingers in only five patients (3 women and two men). Moreover, in the two males, fingertip changes, including patchy ridge damage, were clearly occupational in origin, and in the females, in whom all prints were readable, appearances were consistent with age and housewifery in two (aged 69 and 71) and long-standing dryness of the hands in the other (aged 51).

These findings seem to be in general agreement with those of Dr. David[4] who did not find ridge atrophy in dermatitis herpetiformis patients. In addition, in eight patients with dermatitis herpetiformis examined by one of us (R.M.) in whom the rate of uptake of tritiated precursor compounds in the epidermis has been examined no difference has been detected when compared with normal controls. This would indicate a normal rate of synthesis of macromolecules within the epidermis and suggests a normal rate of epidermal replication.

We think it unlikely that fingerprint observation in dermatitis herpetiformis will prove useful as a measure of jejunal pathology in this disease.—We are, etc.,

JULIAN VERBOV
PARVEEN J. KUMAR

St. Bartholomew's Hospital,
London E.C.1

RONALD MARKS

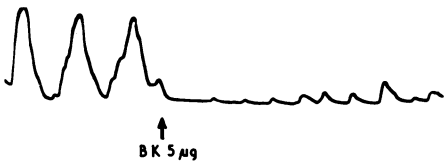
St. John's Hospital for
Diseases of the Skin,
London W.C.2

1 Marks, J., Shuster, S., and Watson, A. J., *Lancet*, 1966, **2**, 1280.
2 Shuster, S., and Marks, J., *Systemic Effects of Skin Disease*, London, Heinemann, 1970.
3 Brow, J. R., Parker, F., Weinstein, W. M., and Rubin, C. E., *Gastroenterology*, 1971, **60**, 355.
4 David, T. J., in Proceedings 4th International Congress of Human Genetics, Paris, 1971, Amsterdam, *Excerpta Medica*, in press.

Uterine Hypotonia

SIR,—Further to the correspondence concerning uterine hypotonia (24 July, p. 251 and 11 September, p. 637) Landesman[1] reported relaxation and cessation of activity of the human uterus in the presence of bradykinin, and Serneri[2] showed a relationship between bradykinin and fibrinolysis.

In 1969 while working at the University of Bradford I repeated the work of Landesman (Fig.) and presented my findings to the Blair Bell Research Society.[3] I also suggested[4] that the presence of bradykinin released as a by-product of the activation of the coagulation system was the cause of uterine atony which occurs with severe antepartum haemorrhage and amniotic fluid embolism. This atony had been described previously by Scott and Reader[5] as being of greater import than the coagulation defect itself.



Any substance that interrupts the activation of the coagulation system, such as aprotinin (Trasylol) or aminocaproic acid (Epsikapron), will prevent the release of fibrinogen degeneration products[6] and more importantly the release of kinins and thus will improve the condition.—I am, etc.,

R. N. SPENCER-GREGSON

St. Luke's Hospital,
Bradford, Yorks

1 Landesman, R., Campbell, W. L., and Wilson, K., *Nature*, 1963, **197**, 1208.
2 Serneri, G. G. N., Ferrini, P. L. R., Paoletti, P., Panti, A., and Valva, G. d'A., *Thrombosis et Diathesis Haemorrhagica*, 1965, **14**, 508.
3 Senior, J. B., and Spencer-Gregson, R. N., *Journal of Reproduction and Fertility*, 1969, **18**, 551.
4 Spencer-Gregson, R. N., Thesis. University of Bradford, 1969.
5 Scott, J. S., and Reader, J. G., *British Medical Journal*, 1962, **1**, 153.
6 Basu, H. K., *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1969, **76**, 481.

Mental Deficiency Nursing

SIR,—Mrs. Jean Patey (2 October, p. 50) presents a point of view which is held by many parents and relatives of patients in hospitals for the mentally handicapped.

It is the experience of hospitals that patients who are settled, clean, and happy in hospital (the critics say "institutionalized") often fail to be accepted, become dirty, and present a nuisance outside hospital. With routine supervision patients function in ways which suggest to the visitor that they do not need to be in a hospital.

It is usual and natural for young people to leave home after adolescence, and if the mentally handicapped are to follow a normal pattern of living they too should go away from their parental homes. At present a reduction in hospital places with little immediate expansion in community provision compels many mentally handicapped people to remain at home.

Providing hospitals for the mentally handicapped with better facilities and more staff is expensive, and the argument that these hospitals are not necessary will appeal on economic grounds. Scandinavian services for the mentally handicapped, which claim to be a model, have residential institutions which are hospitals given other names. In planning for the mentally handicapped the doctors, nurses, and parents associated with hospitals will be the least consulted, because they could be imputed to hold biased views.

The organizations which adopt an anti-hospital attitude are composed of only a minority of the parents of the mentally handicapped. A survey of the wishes of the parents and relatives of patients in hospitals for the mentally handicapped would probably show a majority in favour of hospital care.—I am, etc.,

D. A. SPENCER

Oulton Hall Hospital,
Oulton, Leeds, Yorks

Agranulocytosis Associated with Trimethoprim-sulphamethoxazole

SIR,—Drs. B. Hulme and D. S. Reeves (11 September, p. 610) report leucopenia associated with a combination of trimethoprim and sulphamethoxazole during immunosuppressive therapy with prednisolone and azathioprine after renal transplantation. They warned against the use of trimethoprim-sulphamethoxazole soon after cadaveric renal transplantation, but they left the pathogenetic mechanism of leucopenia open. In two patients we recently observed agranulocytosis in association with the use of trimethoprim and sulphamethoxazole, suggesting an immunological reaction caused by the sulphonamide component.

A 64-year-old woman received sulphamethoxazole for a urinary tract infection during a period from 10 to 24 January 1971, and thereafter ampicillin. This was changed to Eusaprim, a combination of trimethoprim and sulphamethoxazole, on 2 February. On the next day she was febrile, and a rash and a disappearance of neutrophils was noted on 8 February. The treatment with Eusaprim was discontinued, and a spontaneous remission took place seven days later.

The urinary tract infection of a 67-year-old woman was treated with Eusaprim during the period from 13 to 17 November 1970, and the white blood count remained normal. A new course of treatment was started on 25 November with sulphamethoxazole, but stopped on the following day as she became febrile and neutropenic. A remission took place over three days during treatment with hydrocortisone.

The course of the disease in both of our patients was similar; they had received sulphamethoxazole alone or in combination with trimethoprim two weeks earlier, and the new treatment was followed by a rapid neutropenic and febrile reaction. The clinical picture was typical of an immunological reaction. In earlier reports on agranulocytosis due to trimethoprim and sulphamethoxazole[1 2] the recovery was more delayed than in our cases, and there was morphological support for marrow toxicity.[1]

It is evident that in the combination of trimethoprim and sulphamethoxazole it is the sulphonamide component which causes agranulocytosis, probably both immunological and toxic. No evidence is available to support the view that the combination with trimethoprim would cause agranulocytosis more often than the sulphonamide component used alone.—We are, etc.,

I. P. PALVA
O. KOIVISTO

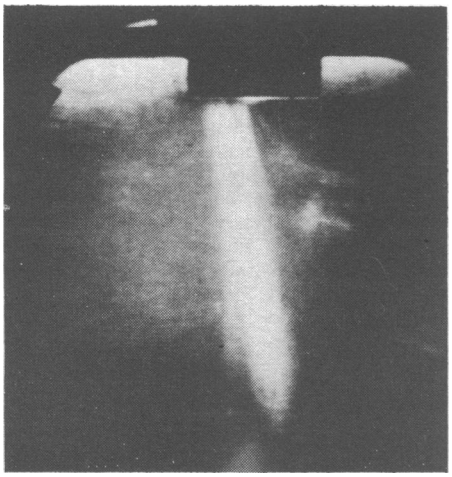
Department of Medicine,
University of Oulu, Oulu, and
Päivärinne Hospital, Muhos, Finland

1 Evans, D. I. K., and Tell, R., *British Medical Journal*, 1969, **1**, 578.
2 Paulley, J. W., *British Medical Journal*, 1970, **2**, 364.

Chromosome Breakage and Ultrasound

SIR,—Mr. I. J. C. Macintosh's letter concerning chromosome breakage and ultrasound (18 September, p. 703) has prompted my response.

The use of Schlieren photography to examine the shape of Doppler ultrasonic patterns is fraught with the possibility of misinterpretation. I fear that the blame for this rests upon us, the manufacturers, who have promulgated this technique. The Schlieren depicted by Mr. Macintosh in his letter is obtained by alternately vibrating both the transmitting and the receiving crystals. Obviously, when any Doppler ultrasonic unit is used in vivo, this is not the fact. Only one crystal is used for transmission and the other for receiving. Thus, if one takes a Schlieren photograph of a Doppler ultrasonic unit as it is used in actual practice, the picture is as seen in the Figure. Examination of this readily points out that there is no focal point at all in the Doptone fetal pulse detector. The beam is



rather columnated, but it diverges rather rapidly once leaving the crystal.

Thus, when we manufacturers discuss focal point, we unknowingly lead people to the wrong interpretation because the way the instrument is constructed there is no such thing. I believe that the differences between Mr. Macintosh's study and the investigations of others are best explained by the in vitro environment—that is, the size of the container. The smaller the container the greater the sheer forces that are going to be created from the walls of that container, so that it makes it very difficult to separate ultrasonic effect from sheer force effect. In contrast, I refer you to Bernstine's work, in which he insonated human tissue cultures in a tank constructed to compare favourably to the products of conception.[1] Eighteen hours of exposure to ultrasonic energy at diagnostic levels turned up no observable effects.—I am, etc.,

THOMAS G. DAVIS
Vice-president, Research,
Smith Kline Instruments, Inc
Palo Alto,
California, U.S.A.

[1] Bernstine, R. L., *Obstetrics and Gynecology*, 1969, **34**, 707.

Persistent Phenothiazine Dyskinesia and Tetrabenazine

SIR,—I read with interest Drs. R. B. Godwin-Austen and T. Clark's report (2 October, p. 25). I have used tetrabenazine in the treatment of a number of involuntary movement disorders, including Huntington's chorea and unilateral choreo-athetoid movements secondary to cerebrovascular disease. There is little doubt that the involuntary movements are reduced by tetrabenazine, but this reduction is to a degree a function of the duration of administration and dosage. In many patients demonstrable reduction in movements may not occur before a week or 10 days of treatment has elapsed. With regard to dosage, although improvement in movements may be seen with doses as low as 50 to 70 mg per day it is often necessary to use 150 mg per day or more of tetrabenazine.

Can I suggest, therefore, that the apparent lack of superiority of tetrabenazine in the above double blind trial is a function of the duration and magnitude of tetrabenazine dosage. It should be noted that depression and/or severe agitation as well as Parkinsonism may limit the therapeutic usefulness of tetrabenazine.

The use of tetrabenazine in combination with levodopa, as might be expected, produces converse effects in Parkinsonism and Huntington's chorea in that in the former the beneficial effects of levodopa and akinesia and rigidity are completely cancelled out, whereas in the latter condition the levodopa overrides the effect of tetrabenazine and produces a gross increase in choreo-athetoid movements.—I am, etc.,

R. C. HUGHES
Department of Neurology,
New Cross Hospital,
Wolverhampton

Air Embolism during Haemodialysis

SIR,—We read with interest the paper on "Air Embolism during Haemodialysis" by Dr. M. K. Ward and others (10 July, p. 74). In order to diminish the risk of air embolism we never give infusions or injections into the arterial line between the patient and the blood pump. During unattended night dialysis using arteriovenous fistula, however, there is always a risk of the patient accidentally disconnecting his arterial line while sleeping—for example, if the fistula needle slips out of the arm. We have tried photoelectric devices applied on the bubble trap and agree with the criticism made of these by Dr. Ward and collaborators.

For the past six months we have been testing an air detector which measures the capacitance of the bubble trap. The bubble trap is placed in a holder which contains two capacitor plates (Fig. 1). A signal which reads the blood level in the bubble trap is transmitted between the plates through the trap. Any abnormal quantities of air collecting in the bubble trap are detected by the capacitor, resulting in the automatic clamping of the blood circulation by the blood clamp, switching off the blood pump, and triggering an alarm (Fig. 2).

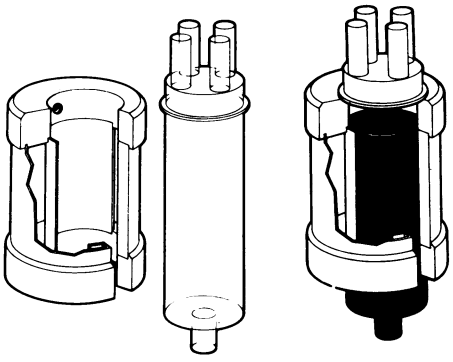


FIG. 1—Air detector for haemodialysis bubble trap.

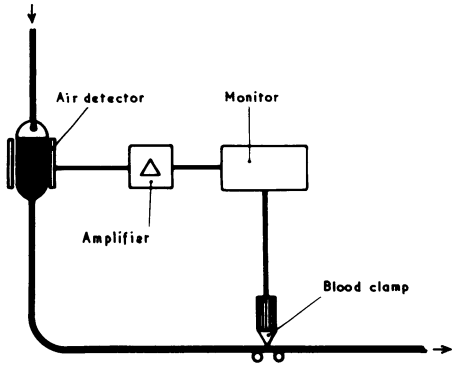


FIG. 2—Diagram of the air detector circuit.

The sensitivity of the device can be changed in the amplifier. We have used an alarm limit of 22 ml air in the bubble trap with a total volume of 44 ml. Illumination in the holder's upper edge also facilitates visual monitoring of the blood level in the bubble trap. We have found the equipment quite safe in use; it also allows the possibility of flushing the blood in the dialyser back to the patient with saline or air. This equipment is now commercially available.—We are, etc.,

TORE LINDHOLM
Medical Department B (Renal Clinic),
University of Lund, Lund, Sweden

LARS-AKE LARSSON
AB Gambro, Lund, Sweden

Misadventure

SIR,—Your comment (18 September, p. 658) on the decrease in deaths from lightning, from 12·4 per annum in the decade 1901-10 to 3·6 per annum in 1961-7 is interesting, as is your suggestion that this cannot be wholly due to the fact that people congregate out of doors less frequently than formerly.

Surely the real cause of this decline lies in the now widespread use of rubber-soled footwear, which effectively prevents fatal electric discharge through the body to earth.—I am, etc.,

JOHN PEEL
Department of Sociology,
University of York

Screening of Elderly Patients

SIR,—Screening of the over 65s for undiagnosed disabilities has been described on several occasions.[1] We felt justified on the evidence to offer it as a routine practice service. Screening must be done within existing resources if our present patients are to benefit. We wanted continuous screening rather than a short intensive campaign, and a system that was simple to operate.

The notes of the over 65s are filed separately by the Buckinghamshire Executive Council who kindly supplied the names and addresses of 176 patients. This represents 6·3% of my list, the county average being 10·9%. The district nurse and health visitor were briefed to visit one person each per week. Almost all patients were appreciative and gave a social history and brief financial details. Specific symptoms are sought and sight and hearing checked. Diet, dentition, and feet are looked at, and simple urine and where appropriate simple blood tests are performed. Nurse and health visitor refer suitable cases to each other, and the doctor is shown the record so any necessary action can be taken.

The inadvertent omission of significant information is being reduced by the introduction of the Stokoe card[2] in place of the less formal note-taking which we had evolved by trial and error. The card takes 10-15 minutes to complete, and covers medical, social, and psychiatric problems.

Of our first 63 patients, only 58% had consulted a doctor during the previous year. Four patients had major medical problems: disabling Parkinson's disease, congestive cardiac failure responding well to diuretics, and severe high blood pressure. Two further hypertensives were found who had defaulted on their treatment, and problems of sight,