quinoxaline dioxide test. All the copper sulphate tests were negative.

In retrospect, we think that a concentration of 0·5% quinoxaline dioxide in white soft paraffin is unnecessarily high for patch testing in view of the very strong positive results we obtained. We think a concentration of 0·01% would be sufficient for use in future suspected cases.

We conclude that quinoxaline dioxide is a potential sensitizer and that sensitivity to it was associated with the development of contact eczema in the five patients mentioned above.

We are indebted to Dr. C. W. Marsden, Imperial Chemical Industries Ltd., Pharmaceuticals Division, for providing us with helpful information about quinoxaline dioxide and for sending us a sample of it which was used to prepare the patch tests.

—We are, etc.,

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Atheroma of the Aortic Bifurcation

SIR,—We read with interest Mr. R. C. Lallemand and others' (29 April, p. 255) report of localized atheroma and thrombosis at the aortic bifurcation in six relatively young women. We wish to point out that in 1958 and 1960 this type of lesion was commented upon by Starer and Sutton,[1 2] who attributed the early onset of occlusion to embolization from the heart. Again in 1961 one of us, J. H. Louw,[3] reported on localized aortic or aorto-iliac disease in young females. The material removed was atheromatous and in none of them was there evidence of proximal cardiac or aortic disease. It was then suggested that the pathogenesis in young females differs from that in other patients, and our subsequent studies have shown that aortic hypoplasia plays an important role. It is, therefore, of interest that two of the cases reported by Mr. Lallemand and colleagues had hypoplastic aortas.

These authors also refer to some interesting work by Womersley[4] and Gosling,[5] and here we have to disagree with them. Womersley showed on theoretical grounds that the proportion of a pulse wave that is reflected by a bifurcation depends on the "area ratio"—that is, the ratio of the sum of the cross sectional areas of the branches to the cross sectional area of the parent vessel. Therefore, at the aortic bifurcation:

$$\text{Area ratio} = \frac{\text{sum of cross sectional areas of iliac arteries}}{\text{cross sectional area of the aorta}}$$

Gosling *et al.* calculated that reflection will be minimal when the ratio is 1·15 and that the proportion reflected (and the size of the standing pressure wave) will increase progressively with any divergence from that "ideal" value. A study of 45 randomly selected anatomical and postmortem adult cadavers in our laboratories gave a completely different value for this area ratio. Using a caliper we measured the circumference of the opened aorta at its bifurcation and the iliac vessels at their origin. Using these direct measurements we found a mean value for the area ratio of 0·734; S.D. 0·214: S.E.M. 0·032. With a randomly selected group of this size, these figures would appear highly significant and we feel that the figure 1·15 derived from theoretical considerations and from aortography may well be ideal from a hypothetical point of view, but should not be taken as the normal in man. Furthermore, our findings suggest that the area ratio used in the design of prostheses for replacement in this region should approximate to the figure of 0·7 rather than to the higher figure given by Womersley, Gosling, and Lallemand.—We are, etc.,

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1 Starer, F., and Sutton, D., *British Medical Journal*, 1958, **1**, 1255.
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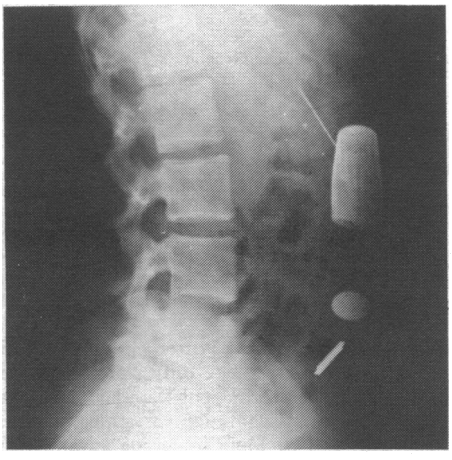
Removal of Darning Needle with a Fibreoptic Gastroscope

SIR,—A sharp foreign body was successfully removed from the stomach with a fibreoptic gastroscope. Twelve similar cases were described at a recent meeting of endoscopists in Bristol in March of this year.

A 29-year-old woman was admitted to the London Hospital following a grand mal seizure. She was known to have been mentally subnormal and epileptic since infancy, with an I.Q. of between 55 and 60. Four days after admission she complained of diffuse abdominal pain and, although physical examination revealed no abnormality, a straight abdominal *x*-ray showed numerous foreign bodies, including a large darning needle, in the stomach (Fig.).

Conservative management was undertaken with regular *x*-ray surveillance, and large doses of Isogel to aid passage of the sharply pointed needle. All the objects other than the needle passed without incident into the large intestine. The needle, however, remained in the stomach, and after ten days observation it was decided to attempt its removal with the ACMI forward-viewing fibreoptic gastroduodenoscope. After an overnight fast and a 10 mg intravenous injection of diazepam the needle was located with ease lying along the greater curvature. It was grasped without much difficulty with the biopsy forceps. Careful attention was paid to orienting the needle in the axis of the gastroscope. The end of the forceps was withdrawn just within the biopsy channel; the instrument, forceps, and needle were withdrawn together, as is the usual practice at oesophagoscopy. A constant flow of air maintained the patency of the oesophagus and the needle was viewed throughout the manoeuvre. Particular care was taken as the needle was withdrawn through the pharynx.



The majority of ingested foreign bodies pass through the gastrointestinal tract without difficulty. In a recent series of 660 patients under the age of 16, only 43 of the 412 patients not subjected to oesophagoscopy required operative intervention (20 November 1971, p. 469). In a series of 35 patients who had ingested pins and needles only three required operative removal and the rest were managed with radiological observation in hospital.[1]

The indications for active intervention and removal are the danger of perforation and failure to progress. Various methods of removal of foreign bodies from the stomach are described including the use of the rigid gastroscope, special forceps or magnets, and gastrotomy. The use of the fibreoptic gastroscope for this purpose has not previously been described in the literature.

Gastroscopy with this instrument, in trained hands, is a simple and safe procedure with rare complications. We anticipated impaction in or perforation of the oesphagus by maintaining its patency with a continuous flow of air, by ensuring the orientation of the needle, and by constant visualization throughout withdrawal.

We wish to thank Dr. J. R. Ellis for permission to report the details of this case.

—We are, etc.,

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1 Siddons, A. H. M., *Proceedings of the Royal Society of Medicine*, 1939, **32**, 885.

β-Thalassaemia, G-6-PD Deficiency, and Atypical Cholinesterase in Cyprus

SIR,—In 1966, a W.H.O. scientific group working on haemoglobinopathies and allied disorders pointed out certain areas where more detailed studies on the incidence of thalassaemias and G-6-PD deficiency were considered necessary in anticipation of the importance of these disorders as a public health problem.[1] Among these areas was Cyprus where clinical reports suggested a high incidence of both these hereditary red cell abnormalities, but detailed studies on their incidence were scanty. Banton,[2] using red cell osmotic fragility as a screening test, reported a 20% incidence of the thalassaemia trait, whereas Plato *et al.*[3] found an incidence of only 6-8%.

We studied a representative sample of male Greeks, consisting of 158 army recruits of the National Guard of Cyprus aged 18-20 years originating from all over the island. In addition to the β-thalassaemia trait and G-6-PD deficiency it was thought worth investigating the prevalence of atypical cholinesterase (ACAH) as there was evidence from the literature suggesting that it is high.

For the detection of the β-thalassaemia trait, Hb, Ht, red cell counts and morphology, osmotic fragility, starch gel electrophoresis, and Hb F and Hb A_2 were determined. The methods and criteria used were identical to those described elsewhere.[4] G-6-PD activity was estimated by the B.C.B. decolourization test, and atypical cholinesterase by a screening test using RO2-0683 as in-

hibitor and Fast Red TR salt solution in 3% aqueous dupanol as colour index. The results are summarized in the Table.

Genetic Disorder	Number Examined	Abnormal Cases	%
β-thalassaemia trait ..	156	27	17·3
Hb A_2 increased (>3·5%)	156	25	16·0
βδ thal. (Hb F > 5%)	156	2	1·3
G-6-PD deficiency ..	155	8	5·2
Atypical ACAH	187*	13	6·9

* Including 32 Cypriot students of Athen's University.

The prevalence of the β-thalassaemia trait was high in the sample examined. With a prevalence of 17·3% the birth rate of homozygous β-thalassaemia can be estimated to be 0·8%. A relative birth rate of 0·6% was also found among Cypriots in London.[5]

Considering the severity of thalassaemia major these figures demonstrate its seriousness as a public health problem in Cyprus. Since at present there is no other way of reducing the birth rate of patients with thalassaemia major except by genetic counselling, it is suggested that the whole population at risk should be screened for the thalassaemia trait and careful genetic counselling provided to all prospective couples whenever both the prospective father and mother are heterozygous.

On the other hand, the prevalance of clinical manifestations associated with G-6-PD deficiency, namely, favism and severe neonatal jaundice, seems to be higher than that expected on the basis of the rather low prevalence of G-6-PD deficiency (5·2%).[6] It should be noted in this respect that in addition to G-6-PD deficiency other unknown factors, probably genetic, may be responsible for precipitating clinical manifestations in sensitive individuals.

Interestingly we found a relatively high prevalence of atypical ACAH; this is generally believed to be geographically distributed rather homogeneously with a prevalence of about 4%.[7] The higher prevalence observed in this study (6·9%) may partly explain why a number of the first cases of suxamethonium apnoeas and some of the rare abnormal ACAH genotypes were described in Cypriots residing in England.—We are, etc.,

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1 World Health Organization. *Haemoglobinopathies and Allied Disorders, Tech. Rep. Ser.*, No. 338, Geneva, 1966.
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Herpes Simplex and Temporal Lobe Epilepsy

SIR,—We were interested in Dr. Constance A. C. Ross's letter (8 July, p. 112) concerning herpes simplex virus and temporal lobe epilepsy. Following a report[1] that patients with an aggressive psychosis had a very high titre of antibody to herpes simplex virus compared with controls we conducted a small survey of sera from nine cases of temporal lobe epilepsy, 14 cases of idiopathic epilepsy, and 23 normal controls, matched for age and sex. When we used the fluorescent antibody method to detect herpes virus-specific IgM and to measure the titre of IgG against herpes simplex virus there was no significant difference in antibody titre between the three groups, and herpes virus-specific IgM was not found in any serum.

The results do not exclude past damage by herpes simplex virus but make continuous active infection unlikely. We agree with Dr. Ross that antibody titres should be checked on paired sera.—We are, etc.,

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1 Cleobury, J. F., Skinner, G. R. B., Thouless, M. E., and Wildy, P., *British Medical Journal*, 1971, 1, 438.

Virus-specific Antibodies in Multiple Sclerosis

SIR,—Some patients with multiple sclerosis were found by the fluorescent antibody method to possess measles virus-specific immunoglobulin M (IgM).[1] A second survey made on 57 sera from multiple sclerosis and 57 from individuals in normal health, matched for age and sex, has confirmed these findings and has added some information on virus-specific immunoglobulin G (IgG), detected by the same method.

IgM specific for measles virus-infected cells.—The incidence of IgM staining by sera from multiple sclerosis on measles virus-infected cells appears in Table 1. The staining is weak and the pattern diffuse, slightly brighter at the cell margin, and leaves unstained known intracellular aggregates of virus antigen. It was not seen in cells infected with the viruses of mumps, herpes simplex, varicella, vaccinia, or rubella. It is not removed from serum by normal brain tissue. It is removed by absorption with crudely pelleted measles virus and from about half the sera by absorption with aggregated human gamma globulin. This may indicate secondary staining by rheumatoid factor, but nevertheless is immunological.[2]

Table 1—Number of Sera Showing IgM Staining of Measles Virus-infected HEp_2 cells

Multiple Sclerosis (56 sera) Absorption with aggregated gamma globulin		Controls (56 sera) Absorption with aggregated gamma globulin	
Before	After	Before	After
22	9	1	0

Titres of virus-specific IgG.—As may be expected,[3] we found a significant increase of measles virus-specific IgG in multiple sclerosis patients as compared with control subjects (Table 2). We were surprised to find an equally clear increase of herpes simplex virus-specific IgG, but none against rubella virus. Titres against mumps or herpes zoster viruses were low and not different in the two groups.

Table 2—Geometric Mean Titres (reciprocal) of Virus-specific IgG in 57 Pairs of Sera

	Multiple sclerosis	Normal controls	Significance χ^2 (df = 1)
Measles virus ..	31·4	18·3	9·03 : P <0·01
Herpes-simplex virus	40·8	17·5	7·19 : P <0·01
Rubella virus ..	25·9	25·7	0·55 : P >0·40

Virus-specific IgG in cerebrospinal fluid.—Serum and cerebrospinal fluid taken together from 25 patients and 17 normal subjects of about the same age as the patients, were tested for the presence of antibody to the viruses of measles, mumps, and herpes simplex and some, 16 multiple sclerosis and 11 control, for IgG to rubella virus. Sixteen of 25 patients had measles virus-specific IgG in cerebrospinal fluid and 8 of these 16 also had IgG specific for herpes simplex virus. No rubella IgG was found in the C.S.F. No virus-specific IgM was detected in any C.S.F. and no virus-specific IgG in controls.

The presence in serum of IgM specific for a minor component only of measles-infected cells may be related to a report (personal communication, Dr. E. Norrby) that some multiple sclerosis sera have more antibody against measles virus haemolysin than against virus haemagglutinin. It could also represent a cross-reaction with some other infectious agent or tissue or haemolysin.

Similar examination of cerebrospinal fluids from other chronic or subacute diseases of the central nervous system will show whether the particular IgM reacting with measles virus is characteristic of multiple sclerosis and also how often such fluids contain immunoglobulins specific for more than one virus.—We are, etc.,

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1 Millar, J. H. D., *et al.*, *British Medical Journal*, 1971, 2, 378.
2 Shirodaria, P. V., Stanford, C. F., and Fraser, K. B., *Annals of the Rheumatic Diseases*, (in press).
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E.N.T. Advances

SIR,—In a review (22 July, p. 243) Mr. John Ballantyne raised the question whether there was a place for books which discuss trends of modern development in a specialty. I do not intend to dispute whether this is so or not, but I would like to take issue with the examples given in favour of his argument. He pointed out that omissions of most recent advances are inevitable in books of this type and gives as an example the lack of reference to electrocochleography, which, in his opinion is "almost certainly destined to become the best objective test of cochlear function for many years to come."

Electrocochleography was in a very experimental stage when I wrote the chapter on the deaf child in this book, but were I to write it today I still might have omitted cochleography. Many "objective" tests have