even more liberal in that its stipulation is three A levels, one of which is to be in chemistry.

Nearly a quarter of a century ago when I entered the medical school at Birmingham I was able to do so with a background of Higher School Certificate in English, French, and History. This was made possible by the existence of a First M.B. course, now a rapidly disappearing institution in English medical schools. Surely there would be advantages in the inclusion of such a course or of an appropriate content of physics, chemistry, and biology in the first years of the medical course.—I am, etc.,

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SIR,—The dean of the new medical school in the University of Southampton (27 September, p. 780) outlines the step the university proposes to take towards broadening the educational background from which medical students will be selected. It is indeed a small step, but the dean claims that "until major changes take place in sixth form education this seems to be as far as it is possible for an individual medical school to go." It seems to me, however, that the schools changed their sixth form subjects and teaching to suit the demands of the medical schools for "specialists" at entry, and it is the medical schools that have called the tune and should, if it is desirable, change it.

The expressed desire of the General Medical Council is that medical students should have a sound general education. This is not new, for in 1861¹ the council adopted the principle that no university ought to confer any degree in medicine or surgery on candidates who had not graduated in arts or passed the examination for the degree. This principle never became mandatory.

The Queen's University in Ireland was throughout its life much exercised over illiteracy among medical students. In 1859¹ it was resolved that medical examiners should have the duty of reporting such deficiencies in English grammar as in their judgement ought to disqualify the candidate concerned. In 1863 they were instructed to assess the literacy, as distinct from the professional knowledge, of the candidates. If such rules were in force today there are many who would be asking: "*Quis custodiet custodes?*" The Royal University of Ireland (1882–1909), which succeeded the Queen's University and preceded the National University of Ireland and the Queen's University of Belfast, did not go so far as to insist on a full arts course for medical students, but throughout its life it insisted that all should pass the first university examination before presenting themselves for the first medical examination. This examination was the same for arts, engineering, and medical students and comprised Latin; any one of Greek, French, German, Italian, Spanish, Irish, Sanskrit, Hebrew, or Arabic; English language and literature; mathematics; experimental physics.

Such was the standard of general education demanded of medical students by an Irish university over 80 years ago. It may be that the A level standard of the best

G.C.E. boards today is as high as, or even higher than, the old first university examination described, but the scope of the latter was beyond doubt much wider than the entrance requirements of contemporary medical schools even after the small Southampton step will have been taken.—I am, etc.,

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REFERENCE

- ¹ Moody, T. W., and Beckett, J. C., *Queen's, Belfast, 1845–1949*, 1959, p. 266. London, Faber and Faber.

Complications of Vacuum Extraction

SIR,—I feel that Dr. G. L. Ahuja and his colleagues (27 September, p. 743) have been very unfortunate in losing three infants following vacuum extraction in association with disturbances of the blood-clotting mechanism. Malmström first described the lesion of subaponeurotic haemorrhage in the infant as "subgaleal haematoma," and we in Worcester have seen 15 cases in some 1,500 vacuum extractions, a frequency of approximately 1%, which is materially less than the nine cases in 232 deliveries observed in Glasgow. The blood-clotting mechanisms are still imperfectly understood, and it may be that these defects are more common in Scotland than in the west Midlands. In our experience this lesion is not nearly as frequent as in the smaller Glasgow series; furthermore, of our 15 cases only two required transfusion and all the infants left hospital in good condition within 10 days of delivery. With regard to the deaths in the Glasgow series, their Case 2 born with an Apgar score at two minutes of one, and with bilateral tentorial tears and a cerebellum covered in blood, may well have died from the intracranial lesion rather than the extracranial, which again may have been due to the forceps rather than to the vacuum extraction.

We have undertaken no studies of the blood-clotting mechanisms in our cases, but it is of interest that extremely low thrombotest readings were found in the other two fatal cases in the Glasgow series. While I agree that this is a condition which gives rise to anxiety in relation to vacuum extractions, in our experience it is neither as frequent nor as severe as the Glasgow paper would suggest.—I am, etc.,

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Filming during Anaesthesia

SIR,—The letter from Mr. I. T. Jackson and Dr. R. T. Nolan (27 September, p. 779) is a valuable warning. It should not be necessary if hospitals ensure that work of this type is carried out by qualified medical photographers, who should be aware of the risks, and who should have discussed the matter with the surgeon and the anaesthetist beforehand.

Most modern lighting can be dimmed between takes, and heat filters are not essential. Care, however, should be taken that the surgeon does not demand overlong camera runs, and that his assistant ensures that the surroundings of the field are protected by damp swabs which are regularly changed.

Large metal retractors can be a source of danger if they are allowed to act as heat-sinks.

But the essential point is that cinematography is no job for amateurs.—I am, etc.,

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Haemochromatosis and Venesection

SIR,—In a leading article entitled "Bone and Joint Changes in Haemochromatosis" (26 July, p. 191) the following statement appears: "Unfortunately venesection does not lead to improvement in the arthropathy. Indeed, progressive deterioration may be observed, though the patient in other respects is improved. Perhaps damage to the articular cartilage, once induced, is irreversible. This is true of other consequences of haemochromatosis, including cirrhosis of the liver. Removal of excess iron from the tissues, though it may lead to improvement in liver function, does not alter the fibrosis and nodular regeneration." I sense an internal contradiction: If "the patient in other respects is improved," how then can the "other consequences of haemochromatosis" be irreversible? Improvement must be a consequence of reversibility of some consequences of haemochromatosis. Because treated patients are improved and living longer, one may conclude that the fault lies in the assertion that the consequences of haemochromatosis are irreversible.

This pessimistic and misleading opinion may have arisen from an unfamiliarity with the results of adequate treatment of haemochromatosis. A report published earlier this year by Dr. R. Williams and co-workers¹ affords a better outlook for patients with this disease, that is to say an outlook which is more optimistic and at the same time more accurate than yours. When the excess iron of haemochromatosis was removed by repeated phlebotomies and the patients were thereafter maintained by infrequent bleedings in a state of mild iron deficiency their life expectancy was improved. "The calculated five-year mortality was 11% for the treated patients as compared with 67% for the untreated group, and the mean survival times averaged 8.2 and 4.9 years respectively." All of Williams's 18 untreated patients are dead, and 15 of the deaths are directly attributable to haemochromatosis. Eleven of 40 treated patients are dead, with six deaths attributable to haemochromatosis. The rest are generally well and their mean survival continues to extend now two years after conclusion of the follow-up.

You give specific attention to the question of cirrhosis in haemochromatosis. Williams has reported, "In five patients [with definite cirrhosis initially] serial liver biopsies showed a decrease in fibrosis and improvement in lobular pattern. In two these features appeared worse and in 21 other patients in whom adequate material was available there was no significant change." He also cites the published experience of others: "Although fibrosis, cellular necrosis, inflammatory infiltration, and possibly even hepatic fibrosis might be expected to regress with the removal of iron, a true cirrhosis with nodular regeneration and distortion of lobular architecture would not. However, reversal of cirrhosis was reported by Knauer, Gamble, and Monroe²

in one patient in whom serial biopsies showed disappearance of interlobular fibrosis and lobular distortion over a six-year period. Nevertheless, an underlying macronodular cirrhosis may be difficult to exclude in the small specimens obtained by needle biopsy. Of particular interest are the two patients of Weintraub, Conrad, and Crosby³ in whom the initial biopsy showed definite nodular regeneration with broad bands of fibrosis. At the end of venesection therapy the appearances were similar except that the iron had been removed, whereas eight years later, after the patients had been maintained on intermittent venesections, lobular architecture was normal with minimal fibrosis only. Pirart⁴ reported similar findings in a 47-year-old non-alcoholic patient with haemochromatosis. After removal of 48 litres of blood over a two-year period the liver was free of iron though fibrosis remained. Three years later a further biopsy showed disappearance of the fibrosis."

In interpreting Williams's own experience it is important to bear in mind his opinion that "a prolonged period may be necessary for repair of the initial damage to the liver after the iron has been removed and further accumulation prevented." Only 24 of his 40 patients had been under treatment for more than four years. That these patients, with two exceptions, had not shown increasing severity of cirrhosis indicates that they have not deteriorated in the manner of untreated haemochromatosis.

I respectfully submit that the authority of the *British Medical Journal* should not appear to encourage a passive attitude in a disease where patients can be salvaged by a therapy of demonstrated effectiveness.—I am, etc.,

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REFERENCES

- Williams, R., Smith, P. M., Spicer, E. J. F., Barry, M., and Sherlock, S., *Quarterly Journal of Medicine*, 1969, 38, 1.
- Knauer, C. M., Gamble, C. N., and Monroe, L. S., *Gastroenterology*, 1965, 49, 667.
- Weintraub, L. R., Conrad, M. E., and Crosby, W. H., *Medical Clinics of North America*, 1966, 50, 1579.
- Pirart, J., *Semaine des Hôpitaux*, 1964, 40, 170.

** It was not our intention to deny that venesection therapy can be of value in the treatment of haemochromatosis, but other publications by Williams and his group¹ have shown that arthropathy can develop even after venesection therapy has been completed, and symptoms of it, if it has appeared earlier, are not relieved like those of the other manifestations of the disease. As Professor Crosby points out, there is good evidence now that venesection therapy can prolong life and relieve many of the symptoms of the disease.—Ed., *B.M.J.*

REFERENCE

- Hamilton, E., Williams, R., Barlow, K. A., and Smith, P. M., *Quarterly Journal of Medicine*, 1968, 37, 171.

Adhesions and Fibrosis

SIR,—I am glad that Mr. F. T. Crossling (6 September, p. 593) accepts in principle my suggestion of a fibrotic diathesis (9 August, p. 350). Unfortunately he appears to have wrongly concluded that I was attributing all thick scars to such a diathesis.

Many scars without the marked surface elevation or irregular contour commonly associated with keloids remain palpably

thickened permanently. Most of the thickened scars in my series of (European) patients with a history of adhesion obstruction were of this type. Preliminary studies had shown a significantly higher incidence of thickening greater than an arbitrary 3 mm. in mature vertical central abdominal scars in these patients (18 out of 23) compared with a control series (13 out of 52). Scars so situated were chosen because all the adhesion patients had at least one, and controls with similar scars were readily available.

These results do, I believe, lend support to the concept of a fibrotic diathesis, but they do not lead to the conclusion that all thickened scars arise from this cause. Mainly because certain areas of the body are more prone to gross scarring, as Mr. Crossling pointed out, I am sure that many if not most thick scars are due mainly to dermal factors. Similar remarks would apply in the case of peptic ulceration.—I am, etc.,

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Immunoglobulins and the X-chromosome

SIR,—We are interested in the paper by Dr. K. Rhodes and his colleagues (23 August, p. 439) in which they compared the levels of IgM globulin in women with an additional X-chromosome (XXX) with those in normal women (XX) and normal men (XY). The mean IgM level was found to be highest in the XXX group, intermediate in normal women, and lowest in men; these differences were statistically significant.

We have determined the levels of IgM and IgG globulins in 27 women with Turner's syndrome (XO), and in two groups of normal women (XX) and normal men (XY) matched for age. Estimation of the levels of these proteins was carried out using the simple radial diffusion technique.^{1,2} Antibodies against *Esch. coli* WF 96 and *Listeria monocytogenes* were tested using the indirect haemagglutination method.³ The individual levels of IgM in the three groups are shown in Fig. 1. Statistical analysis of the data revealed a significantly higher mean IgM

FIG. 1.—Individual values and mean levels of IgM globulin in XO, XX, and XY subjects.

level in the XX group than in the XY and XO groups ($P < 0.01$). No difference was observed between the XY and XO groups ($P > 0.5$). The mean levels of IgG globulins were similar in the three groups. Fig. 2

FIG. 2.—Levels of antibodies against *Listeria monocytogenes* and mean values in XO, XX, and XY subjects. Titres expressed as "score."

shows the individual titre of antibodies against *Listeria monocytogenes* in the three groups. Previous studies have shown that these antibodies are associated with IgM globulins in subjects not experiencing an acute infection.⁴

The statistical analysis of results was carried out using the antibody titre expressed as score.^{3,4} The mean level of antibodies against *Listeria monocytogenes* was higher in the XX group than in the other two groups ($P < 0.01$); once again there were no differences between XY and XO ($P > 0.5$). Similar results were observed testing the antibodies against *Esch. coli* WF 96.

These data support the suggestion expressed by Dr. Rhodes and his colleagues that genetic factors control the levels of IgM globulins in man. These studies will be published in detail elsewhere.

This work was supported by the Spastics Society and the Medical Research Council.

—We are, etc.,

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REFERENCES

- Mancini, G., Carbonara, A. O., and Heremans, J. F., *Immunochemistry*, 1965, 2, 235.
- Adinolfi, M., Gardner, B., and Martin, W., *Journal of Clinical Pathology*, 1967, 20, 860.
- Gardner, B., and Adinolfi, M., *Guy's Hospital Reports*, 1968, 117, 19.
- Race, R. R., and Sanger, R., *Blood Groups in Man*, 1958, 3rd ed. Oxford, Blackwell Scientific Publications.

Sugar and Ischaemic Heart Disease

SIR,—Since atherosclerosis leading to occlusive arterial disease such as ischaemic heart disease is generally supposed to be a process that extends over many years, Dr. J. M. McGarry (30 August, p. 530) is right to point out that one needs to assess the