was present but caused her little inconvenience. Repeat arteriography showed occlusion of the whole of the popliteal artery with well marked collaterals. She refused further operation in view of the paucity of her symptoms.

Occlusion of the artery was due to contact between the intimal surfaces of the vessel without thrombosis. Conservative removal of the gel restored pulsation, and patency of the artery was demonstrated arteriographically following the operation. However, reocclusion occurred within one year, and this supports the opinion that in cases of complete occlusion arterial resection with autogenous vein grafting should be performed in preference to simple evacuation of the cyst.—I am, etc.,

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Lymphocyte Sensitivity in Cancer

SIR,—Cellular electrophoresis has recently been applied by other workers in this unit to demonstrate lymphocyte sensitivity in cancer patients to a basic protein isolated from nervous tissue (encephalitogenic factor —E.F.)[1] and similarly derived extracts of tumour tissue (12 June, p. 613). Changes in electrophoretic mobility of irradiated guinea-pig macrophages that had been incubated with human lymphocytes and putative antigen were measured in a cytopherometer. The test probably depends on alterations in surface charge induced by non-antibody soluble proteins (lymphokines)—perhaps macrophage migration inhibition factor (M.I.F.)—released by human lymphocytes after interaction with specific antigen. Unfortunately the cytopherometer is capricious and consequently the more widely used macrophage migration inhibition (M.M.I.) test, which has given results parallel to the cytopherometer in a known delayed hypersensitivity condition,[2] would perhaps afford a technically simpler detection of lymphokine production.

Considerable experience of the M.M.I. test has been acquired in this unit,[2 3] while a recent modification enables the use in one experiment of 300 or more microcapillaries. Thus 30-40 degrees of freedom are available in making a statistical evaluation of results so that migration inhibitions of about 10% become highly significant.

Peripheral blood lymphocytes, purified by a methyl cellulose carbonyl iron method,[4] from a group of patients that included three neurological and 12 carcinoma cases were tested by M.M.I. in parallel with the cytopherometric method. Migration chambers were prepared as described elsewhere[3] with capillaries containing a mixture of 5% human lymphocytes in guinea-pig peritoneal exudate cells.[5] Migration inhibition due to addition of 33μg/ml of basic protein to the nutrient medium (20% pooled normal guinea-pig serum in 199) was measured after 16 hours' incubation. A mixed lymphocyte reaction (mean migration=87·0%; S.D. 15·6; n=34) was partially eliminated by 100 r irradiation[1] of the guinea-pig cells. Results are set out in the Table.

	No. of Patients	Significant Inhibition P<·01	Not Significant
(*a*) Using Nervous Tissue Basic Protein (EF):			
Carcinoma	12	2*	10*
Neurological disease	3	0	3*
Sarcoidosis	1	1*	0
Control (autologous guinea-pig lymphocytes)	3	0	3
(*b*) Using Tumour Tissue Basic Protein:			
Carcinoma	4	4*	0
Neurological disease	3	2*	1*
Control (autologous guinea-pig lymphocytes)	3	2	1

*Lymphocytes tested by the cytopherometric method gave positive results in all cases, P ⩽ ·001 (12 June, p. 613).

The M.M.I. test indicated significant inhibition with E.F. in only three of 16 cases (mean migration 96·6%; S.D.=10·7; n=16) which the cytopherometric method showed to possess highly significant sensitivity. Probable cytotoxicity of the tumour tissue extract evidenced by inhibition of control cells (mean migration 88·5%; S.D. 3·5; n=3) invalidated the stronger inhibitions (though not significantly different, P=0·4-0·3) obtaining with four carcinoma and two of the neurological cases in the experimental group (mean migration=76·7%; S.D.=10·7; n=7).

This preliminary study has shown that a modified M.M.I. test, employing human lymphocyte and guinea-pig peritoneal exudate cell mixtures of greatly enhanced sensitivity and reproducibility, failed to detect the lymphocyte sensitization to E.F. previously revealed using the cytopherometer. However, it is possible that further tumour antigen isolates may be less toxic in the M.M.I. test and yield specific inhibition.

The unquestionable superior sensitivity of the cytopherometric method may relate to an essential difference between two methods both making use of biological amplification (through lymphokines acting on normal macrophage indicator cells) of a small initial specific cellular immune response. Lower levels of lymphokine may be required to produce measurable reduction of an artificially induced electrophoretic mobility in the cytopherometer than to effect the biological interaction responsible for inhibition of active migration in the M.M.I. test.

—We are, etc.,

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Adaptation of Houses for Home Dialysis

SIR,—The article "Some Administrative Problems in Adaptation of Houses for Home Dialysis" (12 June, p. 637) performs a useful service in bringing to light sources of unreasonable delay experienced in completing home adaptation for renal dialysis patients.

Our experience in this department is that where the adaptation of an existing room is satisfactory this can be completed within three to six weeks of the case being brought to the attention of the Health Department, and always before the patient is ready for home dialysis. We are fortunate in two respects. Firstly, at the time when our first case was in hand, the health committee authorized the medical officer of health to deal with cases as they arise, thus avoiding the delay consequent upon the need to obtain committee sanction for individual cases. Secondly, the repairs section of the City Housing Department has carried out the structural alterations for us in each case and has done so skilfully, economically, and, above all, with a sense of urgency. A representative of the repairs section is always present at the initial site meeting.

The Health Department's assessment officer also attends the site meeting and, in the knowledge of the rough estimate of cost arrived at there, explains in detail the basis on which the patient's contribution to the cost will be assessed. No difficulty has been experienced in this connexion.

There have been three cases in which room adaptation was not practicable and in each case rehousing was recommended. In the event, one case was dealt with by renal transplant, but the other two were transferred to suitable municipal tenancies within four and five weeks. I suggest that in many instances where room adaptation is not possible rehousing in more suitable accommodation may be the speediest course.—I am, etc.,

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Chloroquine Myopathy

SIR,—Your recent leading article (12 June, p. 605) on chloroquine myopathy was timely in view of the extensive use of this drug in malaria and rheumatoid arthritis. However, the suggestion that only large doses lead to toxic symptoms may give rise to a spurious confidence when prescribing this drug in small doses for long periods of time.

A patient with rheumatoid arthritis was known to have taken only one 250 mg tablet chloroquine daily for 18 months before she developed severe muscle weakness of both legs together with progressive macular blindness.[1] A biopsy of the left tibialis

anterior muscle showed on histological examination extensive "vacuolar myopathy." Three months after stopping chloroquine the patient recovered the use of her legs; a second muscle biopsy showed an increased number of intact muscle fibres and almost complete disappearance of myopathic vacuoles. Unfortunately, owing to extensive damage of her retina by chloroquine, she obtained only slight visual improvement.

Detectable amounts of chloroquine have been found in urine, red blood cells, and plasma of patients with chloroquine retinopathy for as long as five years after stopping the drug,[2] and in experimental animals, such as albino rats, chloroquine was found to be present in the retina 14 months after stopping the administration of the drug.[3] In a large series of patients with rheumatoid arthritis treated with low doses of chloroquine for one to nine years, 10% of patients were found to develop characteristic chloroquine corneal deposits.[4]

Thus the use of even small doses of chloroquine for long periods of time cannot be recommended with confidence.—I am, etc.,

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1 Ebringer, A., and Colville, P., *British Medical Journal*, 1967, **2**, 219.

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Mutants, Hyperlipoproteinaemia, and Coronary Artery Disease

SIR,—The paper by Dr. D. S. Fredrickson (24 April, p. 187) with comments on the recommendations of the Atherosclerosis Study Group[1] acts as an invitation to give a few additional remarks on the subject from a practical point of view. For dietary measures on large scale—for example, prescribing the amount and kind of fat in the diet, it must be realized that the number of individuals with a carbohydrate-induced hyperlipidaemia and/or decreased glucose tolerance and/or too high insulin production can be fairly high and percentages up to 30, 15, and 30% of adult individuals of the respective population groups under study have been reported.[2] [3] About the genetic factors no information is available and these cases might not be types IV hyperlipoproteinaemia as defined by Dr. Fredrickson. Nevertheless, a low-fat high-carbohydrate diet does not seem the measure of choice for the hyperlipidaemia of these subjects.

Since there is evidence that the decreasing effects on the serum lipid levels of fats rich in polyunsaturates is larger in high-fat (35-50 Cal%) than in low-fat (20 Cal%) diets there is no need for fat restrictions (to less than 35 Cal%) if the total amount of the polyunsaturates is about 40% of total fatty acids, even for fat-induced hyperlipidaemias in males,[4] and even apart from the fact that hardly anyone is aware of his dietary composition in Cal%, and therefore changing it is a haphazard procedure.

This would mean that stopping of smoking, increasing (not uncontrolled for adults) or maintaining physical activity to a total energy expenditure of twice the B.M.R.—resulting in low serum lipid levels irrespective of the dietary composition (under Dutch conditions),[5] which will also counteract obesity—are measures suitable for all individuals. The same applies to the appropriate increase of the polyunsaturated fat content of the daily food by taking the special brands of margarine (>50% PUFA) and edible oils which are on the market.

Only biochemical measurements—preferably by automated central laboratories producing data on a nationally and internationally standardized way—can provide the information for a more detailed dietary adjustment whether or not it is complemented by drugs normalizing hyperlipidaemia, hypertension, low fibrinolytic, and/or high clotting activity, etc.—I am, etc.,

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Amsterdam, Holland

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Pathogenesis of Myasthenia Gravis

SIR,—May I refer to your leading article on "Pathogenesis of Myasthenia Gravis" (3 April, p. 1). There are three reports of sarcoidosis with myasthenia gravis to be found in the literature.[1-3] This supports my suggestion (1 May, p. 275) that the myasthenia syndrome is sometimes caused by sarcoid inflammation. Two cases had atypical hyperthyroidism, and the weakness in both was improved by prednisone treatment. Sarcoidosis is relatively common, but the subacute inflammation is often silent and anyhow covers its traces soon. Earlier biopsies and Kveim tests are needed to diagnose more cases. For instance, another example of "sarcoid hyperthyroidism"[4] was proved recently in a 10-year-old girl with granulomas in the gland.[5]—I am, etc.,

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Accident and Emergency Services

SIR,—The decision of the Central Committee for Hospital Medical Services to propose a career structure in accident and emergency work (*Supplement*, 19 December, p. 65), and the timely and influential advocacy of my orthopaedic friend John Charnley (1 May, p. 279) signal what I hope will soon be the end of the weary journey towards the establishment of services directed undividedly towards the injured. I was very heartened to see that Mr. F. C. Durbin (15 May, p. 400) also believes that casualty departments must be staffed by men making this work a permanent career. I had thought that we might be in disagreement when he took me to task in his earlier letter (16 January, p. 177), saying that I envisaged a traumatologist as a general surgeon with no real expertise. But he misunderstood me. I envisage a traumatologist as a broadly based surgeon with general rather than orthopaedic (or, say, neurosurgical) expertise in the management of the whole injured patient. I cannot see such a man as the "narrow traumatologist" (surely a contradiction in terms?) mentioned by Dr. C. S. Flowers (20 February, p. 462). Specialization is at present badly in need of some counter trend, and traumatology, the original form of general surgery, would provide this nicely.

Neither Mr. M. Ellis nor I (26 December, p. 800) suggested that a single consultant in attendance from 9 a.m. until 5 p.m. would solve a casualty department's problems, though Mr. Ellis indicated that even this might be better in many respects than if the department were under the care of an orthopaedic department whose interest in trauma was not its primary one. Indeed, Mr. M. A. Nelson's and Mr. F. F. Silk's (27 February, p. 506) unwillingness to allow "accident and emergency" even the status of a department has been the common ivory-tower view from teaching hospitals, which believe that, because all specialties are available, trauma should not be a specialty. This error ignores the needs of those non-teaching hospitals which have to deal with nearly all the nation's trauma, but without either a full range of specialists or men trained comprehensively enough to deal with all types of injury.

The argument over semantics is unimportant except that it is usually better to mean what one says. "Traumatologist" is an ugly word, but it does describe accurately what is needed and what is the man's primary interest. "Accident Surgeon" would do as well. Indeed, some orthopaedic surgeons might welcome the opportunity offered by this reorientation of their work to describe themselves more accurately—unless of course their primary interest and work were the straightening of children. This debate will also be less confused if trauma can be distinguished from non-traumatic emergencies. A good man, well trained to deal with accidental injury, will usually be able to cope adequately with most emergencies but, as Messrs. Nelson and Silk say, he should not normally be expected to have the additional responsibility for cases which properly belong to other specialists on the staff of the same hospital.

Lack of money and staff continue to be blamed, but I still believe that these are secondary deficiencies. Why give money to combat it if trauma is not a subject and doesn't deserve even a department? And why—except to fulfil examination requirements of the Royal College of Surgeons—go in for work in which there is no career? At last, it looks as if the correct diagnosis is being reached in this difficult and chronic case.—I am, etc.,

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