and inadequate dietary intake in the production of abnormal S.G.O.T. activity after acute alcoholic intoxication. Likewise all the patients of Neame and Joubert (1961) were in a state of poor nutrition. In contrast, our patients showed no signs of malnutrition, although a considerable proportion of their total calorie intake was supplied by the alcohol. In a study of the dietary habits of alcoholics in France, Pequignot (1960) found no difference in nutrition between those with cirrhosis and those without, but those with cirrhosis had taken on average two and a half times as much alcohol as those without. Measurements of nutrition, however, are seldom defined, nor do they usually extend much further than a clinical estimate.

Some patients with alcoholic hepatitis (acute or subacute icteric or subicteric) give a previous history of hepatitis said to be of viral origin. Sometimes such jaundice occurred after the patient became an alcoholic, but in others it preceded this.

The ability of the liver to withstand the damaging effects of alcohol may be dependent on the quantity of intracellular enzymes capable of breaking down alcohol—that is, the concentration of alcoholic dehydrogenases. This concentration may be basically determined by constitutional and hereditary factors but subsequently reduced by such events as prolonged malnutrition or liver-cell damage and increased by adaptation to gradually rising intake of alcohol. On this theory, therefore, the rate at which alcohol reaches the liver appears to be the most important factor, but the critical one, above which liver damage occurs, may vary from individual to individual according to the enzyme content of their cells.

It is evident from the cases described that any chronic alcoholic in recurrent alcoholic bouts may be subject to repeated attacks of acute hepatitis, icteric or subicteric, and that these attacks may easily pass unobserved or undiagnosed. A parallel exists in viral hepatitis. Many patients with subicteric hepatitis have been found in epidemics by needle liver biopsies, and, more recently, by serum transaminase estimations. Are these repeated episodes of hepatitis, recognized or unrecognized, steps in the evolution of cirrhosis in the alcoholic? This theory has much to commend it, and is supported by Bang *et al.* (1958) among others. As only a relatively small proportion of lifelong alcoholics ultimately develop cirrhosis, some factor other than alcohol must operate—perhaps, as suggested above, the individual sensitivity of the liver cells and its enzymes to alcohol. The evidence presented strongly favours a direct toxic action of alcohol on certain livers vulnerable to it in some way as yet unexplained.

Summary

Acute alcoholic hepatitis without jaundice may follow intensified drinking by the chronic alcoholic, who develops anorexia, nausea and vomiting, upper abdominal pain, and fever. A liver biopsy shows evidence of foci of liver-cell degeneration and necrosis surrounded by acute inflammatory changes, also present in the portal tracts, together with the changes of any underlying pre-existing disease. This illness may occur in the absence of cirrhosis. Raised concentrations of the serum transaminases are usually the only biochemical abnormalities indicative of liver-cell damage. Five typical cases are summarized.

Although misdiagnoses are apparently common, recovery usually occurs spontaneously. The role of this

condition, often recurrent, in the evolution of alcoholic cirrhosis is briefly discussed.

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CAREER CHOICE IN MEDICINE

BY

A GROUP OF FIFTH-YEAR MEDICAL STUDENTS

AND

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The wide variety of careers now open to new graduates, the probable shortage of doctors, and the long duration of medical education all make it imperative that individual choice of career should be sound and also that planners should have some idea of the intentions of medical students. Partly to explore this field and partly as an educational exercise in survey techniques, we have carried out a local pilot study of three main questions: (1) What branches of medicine do Aberdeen students intend to enter? (2) At what stage are decisions made or preferences developed? (3) What factors influence choice of career?

Methods

As time was limited, information was collected by questionnaire. The response rate varied by class as follows:

Year of Study	Proportion Returning a Usable Questionnaire
1	57 out of 85 (67%)
2	80 89 (90%)
3	54 73 (74%)
4	49 69 (71%)
5	40 44 (93%)
6	18 67 (27%)

The relatively low return in the first year may have been due to a feeling that the survey scarcely applied at that point in the course. The very poor response from the final year seemed, on the other hand, to be due to a more sophisticated attitude, coupled, perhaps,

*The members of the Study Group were: Robin C. Fraser (chairman), Stanley Cruickshank, Wm. G. H. Diack, Christabel Fraser, George B. Fraser, Derek W. G. Gray, Marion H. Hall, Ove J. Hjort, Hans M. Hoyeraal, Calvin H. R. Inalsingh, and Arnt Jakobsen.

with a feeling that time and thought could be more profitably used on the last lap before the final examinations; furthermore, owing to its being divided into several sections, the final year could not be approached as a whole; and this, too, may have affected the response. In view of these low returns, the first- and final-year questionnaires have not been included. This paper deals with the 223 replies received from students in the second to the fifth years.

To check the representativeness of the response in each year, three items of information on the returned questionnaires were compared with similar information for all students in each year recorded on the annual registration form, which was completed a few weeks before our survey. This comparison showed that in respect of sex ratio, age, and place of birth the students who responded were very representative of their class.

Results

Background Data

The mean age of British male students ranged from 19.6 years in the second year to 22.7 in the fifth year; overseas students were on average two to three years older, and women about six months younger, than these ages. The ratio of males to females fluctuated between 7.2 to 1 and 1.8 to 1, so it is clear that female opportunities for certain hospital house-jobs in the area will depend very much upon year of graduation.

Of considerable interest is the origin of these Aberdeen students. In presenting the data (Table I) we have assumed that place of birth is a reasonably good

TABLE I

Year of Study	Place of Birth				No. of Students Completing Questionnaire (100%)
	North Scotland	Rest of Scotland	England and Wales	Abroad	
2	54%	8%	15%	23%	80
3	44%	17%	17%	22%	54
4	43%	14%	21%	22%	49
5	28%	5%	12%	55%	40

guide to place of upbringing and education (though it probably slightly overestimates the proportion of overseas students). How much such variations are due to selection policy, overseas recruitment, or wastage by failure is not known, but the effect of these factors is to produce cohorts that are very different in at least this one important respect.

Students were asked to state their father's occupation so that some measure of social background could be obtained. Eleven per cent. of the respondents did not answer; the rest were allocated to the Registrar-General's social classes. Of the students who replied, 73% came from class I and II (professional background), 24% had parents in class III (clerical and skilled manual occupations), and in only 3% were the fathers in classes IV and V (semi-skilled and unskilled jobs). Even if all those who omitted to give their parent's occupation belonged in fact to social classes IV and V, and even with generous allowance for upgrading by informants, there would still be as big a bias in social background as there is in geographical origin.

Time of Choice

Table II gives the proportion of responding students in each year who said they had decided which specialty they wanted to follow (the questionnaire included general

practice as a specialty), the proportion who had not yet made a choice but had already developed an interest, and the remainder who did not know what they intended to do. The proportion who said they had

TABLE II

Year of Study	Definite Choice	Special Interest	Don't Know	No. of Students Completing Questionnaire
2	23%	63%	14%	80 (100%)
3	17%	64%	19%	54 (100%)
4	18%	58%	24%	49 (100%)
5	33%	57%	10%	40 (100%)

chosen their career remained fairly low until the fifth year, when it rose sharply—a trend due obviously to the fact that by the fifth year students have some experience of almost all branches of medicine. Experience could, however, hardly be the basis for the high proportion of second-year students who expressed interest in a particular subject; the preferences most frequently mentioned by these preclinical students were surgery, general practice, and mental health—all fields very much in the public eye and about which everyone knows, or thinks he knows, something.

It would, of course, be unwise to read too much into student preferences, especially those that are expressed at the preclinical period when actual medical experience is so slender. How reliable undergraduate statements of choice or interest are as predictors of the actual careers taken up will be known only from a long follow-up; the point is clearly important in that if early decisions are adhered to, then it should be possible, by undergraduate vocational counselling, to increase the soundness of choice, whereas if these student opinions are often changed later, then advisory services should concentrate upon the postgraduate period.

Nature of Choice

As the patterns of choice and interest were similar, they are combined in Table III; the preclinical category comprises students in the second and third years of

TABLE III.—Main Career Intentions

Subject	Preclinical Students	Clinical Students	No. of Students Stating Preference
General practice ..	28%	28%	52 (28%)
Surgery	20%	23%	40 (22%)
Obstetrics and gynaecology ..	12%	9%	20 (11%)
Paediatrics	9%	8%	16 (9%)
Psychiatry	7%	1%	9 (5%)
Medicine	2%	19%	16 (9%)
Other	22%	11%	33 (18%)
Total	100%	100%	186 (100%)

study. Rather surprisingly, experience seems to have very little effect upon the proportions choosing general practice, surgery, obstetrics, and paediatrics, whereas medicine appears to recruit almost entirely from the clinical years. Psychiatry, on the other hand, suffers a drop in popularity among the senior students. If overseas students are excluded, the proportion interested in a general practice career rises to 32%. The category labelled "other" was a heterogeneous collection of choices and preferences ranging from aviation medicine to homoeopathy; but one point did emerge: the spread of unusual subjects was much smaller in the clinical years than in the preclinical period.

Factors Associated with Choice and Preference

Men tended to choose general practice, surgery, and medicine; women preferred paediatrics, general practice, and obstetrics and gynaecology.

The one major difference in students from abroad was the small proportion (10%) who intended to take up general practice—medicine, surgery, and obstetrics were all more frequent in the overseas replies. General practice along British lines is uncommon in African and Asian countries, and no doubt their pressing need for specialists is reflected in the intentions of students from abroad.

More than half the students did not mention any factors that had influenced their choice or preference, but among those who did certain trends emerged. Potential general practitioners and paediatricians valued the close contact with people and children, whereas those who hoped to become surgeons or physicians gave special liking for the technical aspects as the main factor. The questions asking why students did not want to enter various branches of medicine were, on the whole, unproductive, but it was of some interest to see what kind of objections to general practice were recorded. Eleven students said "interesting cases are lost to the hospital"; seven thought that general practice covered too wide a field and was therefore apt to be superficial and unsatisfying; five felt that isolation from hospital medicine was the chief drawback; a further five said general practice was "much too hard work"; and the remainder gave replies too vague for meaningful classification. Most of these critics had little or no personal experience of general practice—the origin of their views would be an interesting study in itself.

Country of Practice

The question, "In which country do you intend to practise, and why?" brought a variety of plans to light. Of the 53 overseas students who replied, 50 (94%) said they would return to their own country of origin, one said he wished to remain in Britain, and two preferred another country abroad. Almost all of these students felt an obligation, or were in duty bound, to return to the country that had sponsored their education in Britain and which, with one or two exceptions, had acute medical problems to solve.

The intentions of the British-born students are shown in Table IV. To suppose that these intentions amounted

TABLE IV.—*Practice Preferences*

Place of Practice	Males		Females		Total	
	No.	%	No.	%	No.	%
Britain	73	59	15	33	88	52
Abroad and then Britain ..	7	6	4	9	11	7
Abroad (unspecified) ..	5	4	4	9	9	5
Underdeveloped country ..	4	3	3	7	7	4
Commonwealth or U.S.A. ..	14	11	5	11	19	11
Vague, omitted, and don't know	20	16	15	33	35	21
Total	123	100	46	100	169	100

to firm plans would, of course, be quite unjustified, but to ignore the possibility that between one in five and one in four of British students are considering going abroad to practise would be equally unwise. Indeed, at a time when medical emigration is causing concern in a country already short of doctors, these student plans are disturbing. Analysis of motives is always difficult,

but the following reasons given by the British Nationals for going abroad to practise are at least pointers to further study:

Destination	Main Reasons (in Order of Mention)
Underdeveloped countries ..	1 Doctors urgently needed 2 More scope and challenge 3 Desire to travel
Temporary stay abroad ..	1 Richer experience 2 Desire to travel
U.S.A., Canada, Australia, New Zealand	1 More scope and opportunity 2 Prefer the freer conditions of work 3 Dislike the National Health Service 4 Better climate

It is, however, worth observing that most of these potential emigrants had positive rather than negative reasons for wanting to practise elsewhere; very few expressed dislike of British conditions, most seemed to want to see for themselves what opportunities lay abroad.

Discussion

Four main points are raised by the results of this survey.

The first is recruitment to general practice. At a time when the future of British general practice is uncertain it is reassuring to find that about 30% of senior students, despite the most slender experience, give this as their first choice of career. Estimates based on national data would suggest that about 40% of graduates eventually enter general practice. The small difference between these two proportions offers little support for the view that general practice is often a second choice forced upon those who stick on the ladder to consultant status. Nevertheless, it may be argued that improved schemes for introducing undergraduates to general practice ought to be given priority in medical education as a means (though this is not the only aim of such schemes) of ensuring that choice of general practice as a career is more soundly based.

Second, though the actual size of the British shortage of doctors is doubtful, there is enough opinion that a shortage exists to make it imperative to use our resources to the best advantage. Little is known about the prevalence of medical misfits or indeed how to measure this phenomenon, and even less seems to be known about whether and how new graduates obtain vocational guidance. Why different specialties attract different students remains largely speculation—perhaps the time has come for deeper study of the whole field of vocational selection and counselling of medical students.

Thirdly—and to a large degree our findings merely confirm what is already news—the extent of intended emigration needs further exploration. At a time when Britain is heading for a shortage, perhaps a serious shortage, of medical man-power, when a new hospital service is being discussed, and when training and research opportunities have never been brighter, the fact that so many doctors are going abroad and so many students intend to go abroad when qualified should at least initiate a careful study of the conditions at home that these emigrants find unattractive.

Finally, these tentative findings point to the need for prospective surveys to test the validity not only of stated career intentions but also of the way in which career choices are made. The curricula of medical schools are now under review, and substantial changes are being proposed in the belief that these will turn out graduates who are better educated and therefore presumably more able to make a sound choice of career. Only good operational research can provide the evidence.

Summary

Aberdeen medical students were asked by questionnaire what they intended to do when qualified, why they had chosen a particular specialty, and where they planned to practise. This paper is based on the answers of 223 students in the second to the fifth years of study.

There was considerable variation between students in different years in respect of sex ratio and place of upbringing. The social background of these medical students is shown to be predominantly professional.

A majority of both junior and senior students had either made a definite choice of specialty (including general practice) or had developed a special interest. One out of every three British students intended to enter

general practice; most overseas students wanted to train as soon as possible for one of the specialties urgently required in their own country. Some of the factors associated with the various patterns of interest are described.

Nearly one out of every four British-born students said they were considering going abroad to practise, and the countries most often mentioned were Canada, U.S.A., Australia, and New Zealand. Although the prediction value of such statements is obviously uncertain, these intentions reinforce current concern about medical emigration and support the need for an objective national study of the reasons why so many students and graduates wish to practise abroad.

SOME REFLECTIONS ON MEDICAL EDUCATION AND TEACHING IN THE DEVELOPING COUNTRIES

BY

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The following article embraces the subject-matter of talks and discussions on medical education and teaching held during 1961–2 at various medical schools in East and West Africa, Egypt, Sudan, and Iraq.

By medical education and teaching I mean study and instruction in medicine in order to produce medical practitioners, but the scientific and cultural aspects must not be forgotten. Although the two aspects on the training of a doctor—education and teaching—cannot be divorced, the former tends to lay emphasis on the intellectual features of medicine as part of the whole corpus of knowledge—for example, its relation with other sciences and the humanities and the development of the faculty of judgment—whereas the latter tends to imply instruction in current technical methods. Medical education must include some practical training and medical teaching should include some broader philosophical aspects. Historically the training of medical men from the earliest times has had a cultural association, particularly with religion. Thus the witch-doctor (with his psychosomatic associations) and the priests of ancient times (with access to the gods of health) tended to underline the importance of medicine as an art or mystique rather than the application of pure techniques. In the mediaeval universities medicine became identified with studies conducted in the intellectual atmosphere of a university (the unity of scholars), and it has so held its place right up to modern times.

It should be noted, however, that in England this was not always the case, for methods of instruction were by the apprenticeship system supervised by the various professional bodies of physicians, of surgeons, and of apothecaries, quite divorced from university life. Indeed, even during the last century there were few university graduates practising medicine in London, most of the profession being licentiates of the various societies or colleges. Towards the end of the last century, however, the training of medical students became finally regularized when all medical schools came under the jurisdiction of the universities.

It would seem that throughout the world the profession of medicine tends to be recruited from that part of the intellectual élite who are given a long and arduous university education and hospital training lasting some six to seven years. Originally this training was devised to make the doctor proficient in almost all disciplines, but with the rapid advance of medical science many new subjects have been added, so that the evolution of the curriculum has resulted in a multi-purpose training which lacks direction and is not in keeping with the times. For example, in Britain the student is drilled in the modern techniques of curative medicine as practised in hospitals, with little relation to preventive medicine or indeed to general practice outside.

Medical Assistant or Doctor?

At this point it may be well to pause and consider whether or not it is necessary for the general practice of medicine to recruit an intellectual élite for a long and costly course of education when the needs of society may well be served by training a basically-not-so-well-educated or a not-so-bright group (they are not the same) in the techniques of applied medicine. This latter is already in being in Tanganyika, Kenya, Uganda, and the Sudan, where medical assistants receive a four-years training at special schools for service in country districts. Similarly, in Russia many women are employed in general practice after a four-years course of training which resembles somewhat a nurse's training, with some knowledge of techniques usually performed by doctors. This form of medical assistant may well appeal to some developing nations who must husband their resources economically and in man-power for an interim period, particularly those with large but scattered populaces dependent on an agricultural economy.

I believe that this type of medical assistant has much merit, and he may be a useful supplement to the doctor who has been university trained. It is interesting, however, that the establishment of new university medical schools appears to be an integral part of the national pride of the new emerging nations, and wherever I have posed the question of choice between a school for medical assistants or a university school for doctors the answer has invariably been in favour of the latter. The general consensus is that medicine should be practised by university-trained men rather than technically trained medical assistants. This amounts to subscribing to a policy that it is better to have a few islands of excellence within a sea of mediocrity rather