MEDICAL EDUCATION IN ISRAEL

BY

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"Who are you?"

"I'm a medical student from London."

"Oh, yes; and what do you want in this department?"

"I'd like to see what you're doing here, and to find out about your teaching methods in particular."

"I'll take you to meet the professor, then; I'm sure he won't be too busy to see you."

Usually the professor was very busy, but he always found time to see me. He was often able to show me round himself, and the mention of the magic words "medical education" would usually evoke a confession that this was one of his special interests. I asked if he could tell me what his department was teaching now, and, more important, what it hoped to teach next year? Our conversation would frequently end with the question, "When are you coming out from England to help us?"

The observations that follow were made on a study tour of Israel for six weeks during the summer of 1956. I was then just entering my last clinical year. The bulk of the discussion is based on very full visits to the medical departments of the Hebrew University, on participation in some teaching sessions, and on long discussions about medical education with many students and teachers during a three-weeks stay in Jerusalem.

Historical Background of the Medical School

The enthusiasm shown by the typical professor is characteristic of all activities in Israel, and has reached into the New Hebrew University Medical School in Jerusalem, pervading both its staff and its student body. Without it, Israel would not have been able to tackle, let alone overcome, the immense difficulties of the formation of the new State. It would also have been impossible to establish the present impressive medical, scientific, and technological facilities despite great economic troubles. The Hebrew University was opened in 1924, and the Medical School was represented in those visionary days only by a Research Institute of Microbiology. By 1936 plans had been agreed upon for the building of a new medical centre containing a university hospital and nursing school on Mount Scopus, and this was completed in 1939.

In 1947 the British mandate ended, and after a year of intermittent fighting to repel a combined Arab attack from all sides the State of Israel emerged on May 14, 1948. Unfortunately, while Mount Scopus itself was a demilitarized area, the road to it was in Arab hands: the new Medical School and the great National Library could not, and still cannot, be used. Nevertheless, the Medical School opened in 1949 in temporary premises with a second pre-clinical year and started a clinical course a few months later for students who had done their preclinical work abroad. The full course was completed over the next year, and in 1952 there were for the first time students in all stages. The school now produces about 60 new doctors each year.

At this point it is necessary to mention Hadassah. This is the 300,000-strong Women's Zionist Organization of America. Money is raised in America for medical work in Israel, and to-day Hadassah has made itself responsible for all hospital services in the Jerusalem area, and also for hospitals in Beersheba and Safed. In addition, Hadassah finances the whole of the Hebrew University clinical teach-

ing and runs the social medicine research unit in Jerusalem. The School is therefore known officially as the "Hebrew University—Hadassah Medical School," and all its activities are in part controlled by Hadassah. The preclinical departments are financed by the Hebrew University with Government assistance, and the board of management of the Medical School includes four representatives each of Hadassah, the Medical Faculty, and the University, and two representatives of the Israeli Government.

Immigration and the Need for Doctors

"The State of Israel will be open to the immigration of Jews from all countries of their dispersion"—Declaration of Independence, May 14, 1948. Since that date the 1,200,000 predominantly Russian and German Zionists have been joined in eight years by another 600,000 people—that is, a 50% increase in numbers. The Arab minority of 200,000 in 1948 has remained stable. Many of the new immigrants were old, ill, and destitute; half of them had been ejected from relatively less advanced Afro-Asian countries and the other half were the pitiful remnants of Eastern European Jewry that had survived the second world war. All these people had to be incorporated into a vigorous Westernized State with the status of full citizens. In spite of the necessity for money to maintain a large defensive army, and in spite of the development of a thriving agriculture and of the enormous capital investment in irrigation and building schemes, somehow the money has been found to build hospitals and a research institute at Rehovot and to assimilate this vast immigrant population. It is against this background that the need to produce new doctors has to be viewed.

At one time Israel had the best doctor-patient ratio in the world, 1:450. However, 55% of the doctors in the country are over 50, and most of them are in the three cities—Jerusalem, Haifa, and Tel-Aviv. To-day about 30 Zionist doctors immigrate each year and the Hebrew University produces another 60. The ratio should soon become relatively stable at about 1:750. Even at this figure the outlying areas of the country have to be "doctored" by National Service conscripts, serving a further year after their official two and a half years in the Army. Under these circumstances the production of new doctors is a matter of vital national interest, and the School is determined that they shall be as good as possible—so much so that when the Government recently asked for 75 doctors a year (a 25% increase) the School declined to comply with this request because to do so would have meant lowering its standards.

Aim and Organization of the Curriculum

Israel has aimed at providing a full therapeutic medical service from the beginning and has also stressed preventive medicine. The aim of the curriculum is to produce doctors with a highly scientific approach to curative medicine who will forget neither the preventive nor the social and environmental approach.

The curriculum was set up with the help of an outside advisory committee consisting mainly of distinguished American Jewish doctors. The aspiring medical student must pass the pre-university entrance examination in one scientific subject. The other subject offered need not be scientific. Whatever his previous scientific background, the 18-year-old new student spends the first 18 months on physics, chemistry, a little biology, some statistics and psychology, and an English course. These subjects are taught by the appropriate University departments in consultation with the Medical School. The next 18 months include anatomy, physiology, and biochemistry; the fourth year is entirely devoted to pathology, bacteriology, pharmacology, and parasitology. The first clinical year is spent in a series of appointments in the wards and the second year is mainly spent in out-patient departments. Thus the curriculum is an unusual combination of a very thorough four-year pre-clinical education and a two-year clinical training similar to

that of American medical schools. Finally, a student does not graduate M.D. until after a year of rotating internship, during which he also has to write a thesis.

Departments Visited

Because of the impending move into a permanent centre, the University has been reluctant to spend money on the erection of large temporary buildings. Equipment, however, is freely transportable; there is therefore the paradox of inconveniently small and overcrowded departments magnificently provided with the latest American equipment.

Both the Anatomy and Pathology Departments have great difficulty because of religious objections to the examination of the cadaver. Consequently, eight or more students may work on a single body for the whole year, and this number was once as high as 20. Nevertheless, the students I met appeared to have at least as thorough a knowledge of topography as any of my Oxford contemporaries. When the Department first started there were only brains to study; it is now the custom to start dissection with the C.N.S. as an example in anatomical method and always to refer back to it. There is unfortunately very little emphasis on surface or surgical anatomy. The Histological Laboratory is furnished entirely with round tables centrally lighted, seating eight students. This attractive system saves space and makes for easy demonstration.

Physiology and biochemistry are taught as separate "block" subjects, and lead easily into the pharmacology of the fourth year. The all-purpose changeable laboratory for these subjects is makeshift and clearly inadequate at present. The departments are extremely well equipped and actively engaged in research. While the lecture syllabus is very full, the practical course is still unfortunately based mainly on animal experiments, and there is no adequate course in human physiology. Staff difficulties are common; usually one man in six is out of the country on a research grant; and all personnel must do one month each year in the Army. These factors, coupled with occasional illness, contribute to periodic overloading of the teachers.

The Pathology Department is very modern: it has a room for pathological photomicrography and an excellent small departmental library. Students have to master about 400 slides, and appear to receive a very thorough training. Museum facilities, however, are still poor. The Department runs the biopsy (about 7,000 a year) and necropsy (about 300 a year) services of Hadassah; it also teaches medical and dental students, engages in research, and holds weekly clinico-pathological conferences and sessions with many special departments—for example, thoracic, paediatric, and neurological.

The present clinical school has found temporary accommodation in a large polyclinic building and a series of hospitals not designed for teaching, but tolerably near each other. The wards are small and crowded; a ward with 10 beds would in London have only six. Neurosurgery and cardiac surgery are performed in Jerusalem and Tel-Aviv. In one small shed in the grounds of the Beth Hagedel Hospital were a ballistocardiograph, for which students are research subjects, and all the apparatus necessary for cardiac catheterization. This housing of difficult techniques in small sheds is a characteristic paradox of life in Israel to-day, but should be unusual within 10 years.

The selection of clinical material was quite excellent, comprising the whole range of London hospital medicine as well as infestations and infections seldom encountered there. All patients are very thoroughly investigated, and students are expected to be absolutely *au fait* with their own four or five patients. Students are responsible for routine blood counts, urinalysis, and microscopy, and the students' notes are official and are consulted along with those of the intern. This system gives clinical clerks a more possessive attitude to their patients and allows students to feel that their views are important and that the hospital would be the worse off without their work.

Hadassah Social Medicine Centre at Beth Mazmil

The emphasis on a scientific and research attitude to medicine is so great that it sometimes surprised me that students seemed to know their patients so well. The new Social Medicine Centre should counteract the tendency to forget the individual patient within the welter of investigations. It is described in some detail because social medicine is paid so much lip-service in Britain while so little is done outside of special postgraduate units. This centre was set up by a South African and an English doctor who aimed to do first-class general practice which would be as good as the best in their own countries. Special emphasis had to be placed on the preventive approach and on research. The population to be cared for consists of about 5,000 people who are largely new immigrants and range from destitute Moroccans to Anglo-Saxon intellectuals. All these people have been recently rehoused in a new estate in the Beth Mazmil suburb of Jerusalem.

The Centre itself is financed by Hadassah and has just moved to ample and pleasant new buildings. The staff of the Centre includes six G.P.s, of whom three are usually away (Army or study leave or illness), eight to ten well-trained nurses, a psychiatrist, psychiatric social workers, and an anthropologist. An infant welfare clinic and a birth control clinic are run from the main building. This last was less popular when two of the doctors became pregnant! While the doctors must have the exclusion and treatment of organic disease as their first concern, they are always on the *qui vive* for disease of psychosomatic origin. Psychosomatic illness is extremely widespread in Israel, presumably because of the horrors of the background of many immigrants and the daily stress of life in a new and pioneering country. The Centre has resident nurses who are each responsible for about 300 families, and it is therefore able to tackle this type of disease quickly and easily.

At the moment, students go out for lecture-demonstrations. They are allocated families to follow, usually including at least one with a pregnant mother where they can later study neonatal growth. In one or two years' time, when the Centre is fully on its feet, students will each do about three weeks of full general practice under supervision from the Centre. They may also participate in the research projects that are run from the Centre.

New Centre: Future Plans.—With regard to Mount Scopus, Hadassah has cut its losses. It has already started to build an enormous new centre in Ein Karim, a western suburb of Jerusalem, to hold schools of medicine, dentistry, pharmacy, and nursing, a library, a polyclinic, and 550 teaching beds, to be expanded later to 900. This scheme should be finished by the end of 1958, and is already ahead of schedule. It will be the main postgraduate medical centre of Israel.

Topics in Medical Education

Student Selection

The current joke of the Medical School is that the Hebrew University must be the most antisemitic in the world. Only 60 students are selected from about 300 applicants, and the University is not anxious to train students other than Israeli citizens or foreign students who have definitely immigrated and are still under the age of 21. At first the Medical School accepted those who had done their preclinical work elsewhere, but now acceptance is for the first year only. Three years ago 30% of the students were women, now only 6%. Private practice in Israel is more difficult to obtain even than in England, and consequently women are as unlikely to lead a full professional life there as they are in England. There is, however, no strict quota system, and women who are academically very good will be accepted. Money is not a factor in student selection: the School disburses £1,50,000 (£10,000 sterling) in scholarships, mainly provided from outside, and each diploma costs the School about £3,000.

sterling. The School is prepared to make loans to students. Parental background is not important, and there is obviously no problem about the sons of alumni.

The pre-entrance examination has eight papers—four in science and four in the humanities. A student may be examined in two scientific subjects or in one scientific subject and one other subject. After this examination a hundred students go forward for the interview. Here there are about six teachers, and the object is the same as in other schools. The sub-dean, Dr. Prywes, described his method of interview and explained why he always wanted to know about special interests and hobbies. This was not because they might be of importance in themselves, but in order to test the knowledge claimed and to enable him to judge "how far the student was honest with himself about his hobby and might therefore be expected to be honest about medicine." Round-table arguments among students with teachers watching were discarded because they were technically difficult to arrange and students were shy. There is no discussion, and each selector marks for "in," "in if places available," or "out." By comparing the students' academic results with the original opinions of each selector, it is hoped to obtain over the next few years a group of good student selectors—or, at any rate, good selectors of good examinees—without regard to position on the staff.

The attitude of the Hebrew University to its selections is unusual. If a student fails (failure rates are as low as 3%) it is regarded as the fault of the school that selected and taught that student. Laziness is very unpopular with the faculty, but nevertheless failure without obvious cause is regarded as a slur upon the whole educational procedure.

Atmosphere of Learning

In the conversation quoted at the beginning of this article, both the approachability of the professor and his interest in and enthusiasm for teaching itself are typical of Israel and would be much less generally encountered in Britain. The most exciting facet of Israel for the visitor from abroad—and for the Jew in particular—is the atmosphere of everyone working together to create a new country quickly. Something of the infectious "muck in together" enthusiasm of the country expresses itself in the Medical School. Staff want to teach and students want to learn, both because they are really interested in their subjects and also because they want to produce good doctors for their country. Consequently staff-student relationships are amazingly informal with very few exceptions, even though not quite on first-name terms.

In the new buildings, staff and students will sit together at meals. Any problem can be discussed easily with any teacher, even with the professors. This type of relationship means that the retinue of registrars and housemen and the unnecessary formality of many English chiefs' rounds can be dispensed with and that students can learn much faster in this atmosphere. Much more emphasis is placed on the bedside tutorial and on the weekly seminars where staff and students can sit comfortably and discuss any problem which may arise during the week about the condition and treatment of particular patients. Unfortunately, I did not speak enough Hebrew to benefit from attending one of these seminars, but students assure me that these are very lively, popular, and instructive two-way procedures.

The Israeli student is as old as his English contemporary, but there the similarity ends. Often he is married; he may have one or more destitute relations to assist in supporting; he will usually take a laboratory job—at any rate during his clinical years; and, above all these major differences, he is passionately interested in medicine. He arrives at the hospital at about 8 a.m. and he might not leave it until 12 hours later; he works extremely hard. It is, of course, a pity that he should have to take these jobs, but it is agreed that these paraclinical jobs supplement formal teaching. He is said to miss a lot of the fun of student life and to be the worse for the lack of it. If so, I did not notice it and I enjoyed his company.

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Assessment

Curricula

Hospital appointments are nearly always full-time, and even a very senior chief will have only about six hours a week for his private practice. This increased time in the teaching hospital and the other factors of familiarity with students make examinations largely a formality. The teacher usually knows more about his students than an examination can tell him. Formal records are kept and examinations are held, but most students know they will pass. One student felt that there was "no feeling of competition to put out another student" as at her American university, but she "had to work very hard to keep up." In the final examination there are no formal written papers, but the detailed differential diagnosis has to be written and discussed in the clinical examination. Objective-type papers are not used.

Clinical Curricula of Two Students Chosen at Random

5th Year—In-patients	6th Year—Out-patients
Surgery 6 weeks	Internal medicine .. 4 weeks
Tuberculosis .. . 3 "	Gynaecology .. . 3 "
Preventive medicine .. 3 "	Dermatology .. . 3 "
Internal medicine .. 12 "	E.N.T. .. . 3 "
Obstetrics and gynaecology .. 8 "	Physical medicine .. 2 "
<i>à choix</i> (extra medicine in Jerusalem) .. 4 "	<i>à choix</i> (Kaplan Hospital, Rehovot) .. 4 "
Holiday .. . 8 "	Psychiatry (residence in mental hospital) .. 4 "
Paediatrics .. . 8 "	More neurology and internal medicine .. 4 "
52 "	Radiotherapy .. . 2 "
	Ophthalmology .. . 3 "
	Military medicine .. 2 "
	More surgery and paediatrics .. 5 "
	Social paediatrics (antenatal work) .. 1 week
	Holiday .. . 2 weeks
	Final examination .. 1 week
	41 weeks

Comparison with the English Curriculum

Psychology is more emphasized and is taught earlier than in Britain. Parasitology is very important and is taught in detail. However, students will conduct only about eight deliveries themselves (the obstetrician delivers babies), and they have no undergraduate training in anaesthetics. Paediatrics is very much emphasized: Israel is a growing country with a lot of children, and the care of these is in any case a major national obsession. The system of two months' work *à choix*—in Jerusalem or elsewhere—is attractive: choices varied from extra neurology in Tel-Aviv to a month with the G.P. on a communal settlement or in Beer-sheba among the Bedouins. Time spent on preventive medicine includes trips to factories in Haifa and to restaurants and sewers locally; there are seminars on such diverse subjects as the social incidence of tuberculosis, prostitution, and coronary atheroma.

Integration

Integration, if not a nasty word, is certainly a thorny problem. All agree that more is needed, but nobody is sure of how it should be done. Attempts are frequently made: a paediatrician lectures on neonatal growth and takes students to his wards during the anatomy course, and there is an x-ray machine in the anatomy department. Neuro-anatomy and neurophysiology are taught together, and the teaching in histology is of a functional character. Physiology, biochemistry, and pharmacology will eventually be integrated, at least in practical work. There is also discussion of a projected bioclinical course to give more basic science in the last two years. Clinico-pathological and clinico-radiological conferences and weekly hospital staff meetings are popular. Dr. Prywes, however, does not believe in full clinical-preclinical integration; instead he is concerned to try to get surgeons into the anatomy department and more doctors in the preclinical departments in general. He thinks the best method of integration is to encourage a system where teachers have dual appointments in the medical school and in the hospital—and there is a slight tendency towards this.

Summary

The historical background of the Hadassah Medical School of the Hebrew University is reviewed.

Visits to several of its departments are described.

Its curriculum and its attitude to selected topics in medical education are discussed.

The following three aspects of its work are emphasized: (1) the tremendous enthusiasm of both staff and students; (2) the acceptance of full responsibility by the University for the students it selects; and (3) the innovations and the interest shown in the field of medical education.

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THE STUDENT AND THE CLINICAL CURRICULUM

BY

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In 1956 and 1957 the British Medical Students' Association conducted inquiries into the pre-clinical curriculum. The reports were published in November of 1957, and the comments reaching the association have nearly all been complimentary. This year a survey of the clinical curriculum has been begun, and the first part has been designed to produce a broad outline of teaching methods throughout the country and to find what the students think of them. Nearly all the people concerned have been most co-operative and helpful, but at least one dean has refused to allow the questionnaires to be answered in his school, apparently because he considers the work "audacious."

From this, many questions might arise, but there are probably two which stand out prominently. Firstly, what is the students' place in the clinical curriculum? and secondly, Can students make a useful contribution to medical education? One way of considering these questions is by examining the part each teaching unit plays in the curriculum.

One hundred years ago the student's place was clear-cut and exact. He spent most of his time learning direct from his teachers and the remainder in reading his books. This system was reasonable at a time when the teachers could know most of their subject and therefore knew what to teach the students. To-day the situation is vastly different, and no consultant, let alone a student, can hope to know more than a small proportion of Medicine as a whole. While a cardiologist may master his subject he certainly cannot master the whole of clinical medicine; and yet in many, if not all, teaching hospitals the specialists admit general medical cases to their wards and teach general medicine. This method is essential if the specialist is to retain a balanced view of medicine, and to some extent this type of teaching is very good; but we may find the consultant whose specialty is cardiology teaching on a case of ulcerative colitis when it is not inconceivable that the student may

know more of this subject than his chief, having been instructed in it by a gastro-enterologist. Many consultants realize this and concentrate most of their teaching on cases of their own specialty, leaving the diseases with which they are less conversant to registrars and other consultants. As a result, a large bulk of the teaching falls on the shoulders of the registrars.

The second major factor in the student's education is the reading he does. This varies tremendously, as in fact it should, but under the present methods of teaching and examinations it is easily possible for a student to pass all of his final examination, at the first attempt, without looking at a textbook for the first half of his clinical course, and certainly he need never open a medical journal. At one time there may have been many arguments in favour of a situation such as this, but to-day a textbook is often out of date by the time it is published, and it is only by constant, carefully selective reading of both books and journals that a doctor can keep abreast of medicine. At how many medical schools in this country is the student taught how to read? It is very easy to say that this is something that every student must learn for himself, but all too often one meets a student who proudly boasts that he has twice read his textbook of medicine from cover to cover before entering his final examination. While this may be a very effective method of passing examinations it is neither an adequate nor a correct preparation for professional life.

It is my belief that too much is left to chance in medical teaching, and as a result, particularly in the London teaching hospitals, the training is far too vocational. This is not to suggest that spoon-feeding is required. It is very easy to criticize, particularly when one is young, but in many ways the student is closer to the curriculum than are his teachers, and as the newly qualified doctor prepares to enter his first professional appointment he may be all too aware of the deficiencies in his teaching.

The Place of the Medical School

The primary function of the medical school is to produce a doctor with a good basic training in all parts of his profession. No matter what branch he will eventually specialize in he must have a good understanding of all the major aspects of medicine. This must include an adequate training in psychiatry, and the emphasis might well be on the neuroses rather than on the more sensational but considerably less frequent acute conditions. Social medicine, general practice, and marital relations are three more subjects which are so important and yet occupy such a small place in the curriculum.

The medical school should aim at giving the student a broad university background. In London, owing to distance alone, he is almost completely cut off from his university, and five or six years at a place training for only one profession must, in many instances, tend to give him a narrow and biased outlook.

A good doctor must have a thorough understanding of normal family life and the influence of illness and disease upon it. If it is necessary to know the normal anatomy before learning surgery, how much more important it is to understand the normal person before trying to understand the ailing one. It is basically wrong to teach diseases as biochemical reactions or separate entities when so much of any disease lies in the mind.

I do not propose to discuss the many ways in which a student may be helped to gain this understanding, but one effective and fairly uncomplicated method, used in some