

the total picture which is important, and not just the liver. The liver itself, being an organ capable of undergoing cell division, does not demonstrate degenerative changes with age as much as do other organs containing fixed postmitotic cells.

Finally, I quite agree with Kohn, as amplified in the paper, that if cells continue active cell division they can essentially remain immortal; but the cells of many mammalian organs, such as the brain, lose the ability to divide and thus the ability to throw off mutations. Degeneration is the inevitable result, and they drag the other organs to the grave with them.

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## Medical Students:

### Source, Selection, and Training

The shortage of properly trained physicians in the United States is a constant problem and one which is made even more complicated by the surprising amount of misinformation currently being circulated about the source, selection, and training of medical students.

The source of medical students is a varied one. It is sometimes assumed that many of them come from physicians' families. Some students do, but not a significant proportion of the doctors-in-training. Many medical students grew up on farms and there obtained an initial interest in biology—an interest which often leads a student into medicine. Others trained in the armed forces where some hospital work was included, and after World War II a considerable number of veterans found that their interests were in medicine, and they carried on successfully in spite of having families and being older. This maturity was advantageous rather than a handicap.

Many good students (male and female) come from hard-working families with no financial reserves—miners, laborers, construction workers, and others. Earning the needed money is hard and often lengthens the period of training, but scholarships, loans, and gifts are becoming more readily available. No student who thinks he would like to be a doctor should give up this ideal. A visit to a medical school may show him that he has a good chance of

acceptance, and good work will mean financial assistance if it is needed.

There is an acute need for doctors and consequently for medical students. With this in mind parents should encourage their children to test their interest in medicine. Sometimes a summer spent working in a hospital or medical school may show a student that he does have a real interest in medicine.

Selection of medical students is of the utmost importance and presents many problems. An applicant should be healthy, strong, honest, and determined. A liking for people and a pleasant personality are very important—also evidence of leadership. Scholastic ability in biology, chemistry, and physics is important, and lack of this ability could exclude an applicant. Many able and even famous physicians have carried the burden of invalidism, but they succeeded in spite of a serious handicap. Scholastic ability alone will not qualify an applicant for medical school—for an honor student may have a very cold and unpleasant personality which would be a grave handicap to a physician. Aptitude tests do not tell the whole story, and personal interviews are an essential part of the final review for acceptance into medical school.

Graduate students working for Ph.D. or master's degree may develop a deep interest in medicine and should be given very careful consideration. Likewise, special students or junior members of the basic medical school departments deserve serious consideration if they wish to consider a shift to the medical student group.

College science teachers often supply the acceptance committee with invaluable information about prospective students. They have, through the years, followed the progress of the students trained in their departments and have observed the type of student who proved to have real ability in medicine, and have fostered and encouraged such interest.

Breadth of college training is an advantage. Some students concentrate their attention wholly on science courses. It is probably better in the long run to broaden their college program. Once the science courses needed for entrance have been covered with satisfactory grades, it is wise for the student to take such subjects as history, languages, and sociology, depending on individual preference.

Students and parents sometimes think that the burden of outside work is a disadvantage. On the contrary, it is usually beneficial, if the college courses are not neglected in favor of the outside work. A school candidate can learn as much from outside work as from the college courses. Work in summer jobs teaches the students how to contact and understand people—an essential when subsequently they deal with patients who have been injured by disease or accident.

Medical school teaching is largely a person-to-person business. Students cannot be taught medicine in large groups of 100 to 300 no matter how good the lectures may be. The important work in the laboratory and clinics is discussed by teachers (senior and junior), with medical students in close contact, individually or in very small groups. This emphasizes the importance of having no more than 50 to 100 students to a class. If more doctors must be trained and excellence of training is a factor, then there *must* be more medical schools rather than having larger classes in the present schools.

A medical school must not be satisfied with good training in all important medical subjects. The special interests of students should be aroused in the hope that they will participate in medical research. This may lead to a longer period of preparation before graduation and ultimately to the role of a medical teacher. The better medical schools are very proud of the students who become teachers, and obviously such teachers are needed. This type of medical-teacher training requires active medical research with the necessary space and equipment, laboratory personnel, and animal quarters. Provision for such facilities must be included in the school's annual budget and such costs increase the cost per student per year.

Perhaps this is not a fair appraisal, but it emphasizes the important point that the best instruction for medicine includes opportunities for special work and research. This usually means that scholarships are readily available to superior students and to those who have demonstrated a real interest in research or in some aspects of medical teaching.

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