and the blood; as other nitrobenzene drugs had been previously incriminated in the causation of toxic blood reactions.[1]

The chloramphenicol story is an upsetting one from several standpoints: On the one hand, this drug is a great "broad-spectrum" antibiotic; no question about it. It works just as well and perhaps better when taken by mouth than many other antibiotics do when given by injection. On the other hand, it is at the same time a powerful antimetabolite, which means a cell poison or a material which interferes with the growth of proteins, cells, and it has apparently a particular effect on the bone marrow which is the chief factory, as I have said here, of blood cell production.

Thus, one must subordinate one's desire to use it because of the risk, it may do harm. In other words, great caution, great restraint, must be exercised by each individual physician when he prescribes Chloromycetin for a particular infection. It gets upsetting, too, that many times this restraint is not used by the physician and as a result great injury, sometimes irreversible, results—in the form of disorders of the whole marrow—aplastic anemia—or of one or another of its components; the red cells, the white cells, or the platelets. Those are the cells that are produced in the bone marrow and come out in the blood.

Now, since the drug is often used without restraint, and especially in infectious states when either no drugs or less harmful drugs can be used just as well, one must consider the possibility of restricting its use to certain well-defined conditions. This is something new, I must say, in my own thinking because some years ago we thought a simple warning would do the trick. Some years ago we thought that we could educate the medical profession by editorials, by articles, and so on. But, I must say this has not worked, and we see cases of aplastic anemia in which the drug need not have been used.

Senator NELSON. Do you have any opinion as to why the warnings have not worked, as to why the cautionary statements about the limitations of this drug have not been effectively translated to a sufficient number of physicians who still do prescribe it?

Dr. DAMESHEK. I have no real solid opinion about this. I think many warnings are honored in the breach rather than the observance. That is, people might look at them, either ignore them or just think that maybe this time it will not do any harm, because the severe reactions to this drug are relatively few. What is more, this antibiotic happens to be an exceptionally good antibiotic and can be given by mouth so that pediatricians like to use it. What is more, we have an affluent society, as has been said, in this country at least, and there seems to be an impelling need to use drugs even for minor infections. It is the thing to do because, if a doctor does not supply or does not prescribe drugs, a family thinks there is something wrong with him. So that, I suppose, there are many reasons why these warnings are perhaps ignored.

Mr. GORDON. Dr. Dameshek, may I ask a question at this point? Why is the public so drug oriented? Could it be the large number of articles about drugs which appear in the lay magazines?

Dr. DAMESHEK. Well, again I do not know. I have no solid answer. Advertising is an important feature here naturally. We know about a

[1] See exhibit A, p. 2399, infra.