be extended several additional years before a drug product is finally approved. The orderly progression in the development from a chemical compound to a drug product; that is, from the early toxicity tests in a mouse to a safe and effective drug product in man, is an extremely time-consuming and costly procedure. It is estimated that for each drug product that receives an effective NDA, in excess of 6,000 chemical agents are investigated for their potential usefulness in the treatment or prevention of disease.

The enactment of the Kefauver-Harris amendments to the Food, Drug, and Cosmetic Act in 1962 added a second basic statutory requirement, proof of therapeutic effectiveness, to the 1938 amendments. Prior to 1962 the statute was primarily concerned with a need to demonstrate safety of a drug product.

Senator NELSON. What is the status presently of the question of the therapeutic effectiveness of the drugs that went on the market prior to 1962?

Dr. VAN RIPER. Mr. Chairman, those are currently under review by a committee of the National Science—the National Academy of Science, National Research Council. I understand approximately 20 of those drugs have had their final panel review and have been submitted to the Food and Drug Administration for action.

Senator NELSON. To determine therapeutic effectiveness?

Dr. VAN RIPER. Possibly effective or not effective.

Senator NELSON. Twenty of them. How many more are there for review?

Dr. VAN RIPER. I understand there are some 1,200 or more. They hope to have completed a review of about 400 by July 1, 1968. We were so advised about a month ago.

Senator NELSON. Under the law as I understand it, there was no requirement in the marketing of drugs prior to the Kefauver-Harris amendment in 1962 that proof of therapeutic efficacy be made; is that correct?

Dr. VAN RIPER. That was not required under the law; no, sir. But I believe that most companies were not interested in the investment of marketing a drug that was not effective.

Senator NELSON. I don't know about that. We don't know, as of this date, how many are on the market today that are not therapeutically effective, do we?

Dr. VAN RIPER. We do not. That is the purpose of this current review.

Senator NELSON. So for a majority of the drugs on the market in America today, therapeutic effectiveness has not been formally proved; is that correct?

Dr. VAN RIPER. That is right—not under the law. There has been under the law, I think, clinical evidence, Mr. Chairman, that would indicate there are probably not many ineffective drugs. Now, in hearing the discussions by the review committee, they did indicate that certain indications for some drugs might be questioned and might require further clinical investigation to establish the claim that had been allowed until now.