Since the high-estrogen pills apparently do not provide any added benefit over the low-estrogen pills in the form of increased effectiveness, do you think we would be justified in following the British example in this country?

Dr. SALHANICK. I think that with all medications once you use the lowest effective dose that will do the job, and if we have lower doses of contraceptive agents which can assure a hundred-percent efficiency, then that would be my recommendation for a contraceptive agent. In that regard, if there is excessive estrogen in some of the pills I think those pills are not desirable.

Senator MCINTYRE. I yield to the chairman.

Senator NELSON. What is the protocol for a study to determine the minimum estrogen and progesterone that ought to be in the pill?

Dr. SALHANICK. I do not know that. Those studies would have to be initiated by the pharmaceutical houses or the agencies involved or the Government. But there may be data in the files of the pharmaceutical houses which have not been published, and I just do not have that information. But, to my knowledge, in the literature no one has done a dose-response curve of the contraceptive efficiencies, and I do not know what the future plans in that respect are.

Senator NELSON. Assuming consent on the part of the user, what is the great problem about setting up a controlled study in which you would simply arbitrarily reduce the amount of the estrogens and/or progesterones in the pill down to one-tenth of what it is now?

Dr. SALHANICK. None; that is correct.

If the individuals involved experimentally are willing to participate, being fully informed, of course, that they may become pregnant at the lower dosages, then I think that is a desirable experiment.

I might add there may be alternate ways of approaching the information by having patients use mechanical methods of contraception while the study is being done, and attempting to use biological indicators for the evaluation of the dosage, so that if there were alterations in the gonadotropins, for example, which indicated that the doses were still effective as contraceptives, the subject would not be undergoing a risk of pregnancy, and the dosages would be defined to a closer approximation. The ultimate experiment, however, is the one which you cited, with some risks to the patients.

Senator NELSON. There are, of course, large numbers of users of pills who are simply using it for the purpose of spacing pregnancy, not that it is a simple matter to seek out and find these people but, on the other hand, it is not impossible, and that somebody who then was going to quit using the pill probably would be prepared to test a much lower dosage one. But you know of no such studies going on now?

Dr. SALHANICK. I am not aware of any such studies going on now; no, sir.

Senator NELSON. All right. Go ahead.

Senator MCINTYRE. I might just remark it seems like a very good suggestion in the matter of testing low-estrogen pills.

Finally, in describing the metabolic effect of the oral contraceptive, you said, and I quote:

> There appears to be a characteristic pattern whereby the metabolic reserve is challenged. When ample reserves exist the effects are less marked. But when the reserve is decreased the effects become prominent.