

Dr. HERTZ. Not routinely. Some clinics now apply X-ray of the breast in cancer detection. This is being developed and the pioneer work of the people I have cited here in the documentation indicates that if they follow a group of women over a long period of time with periodic X-rays annually, the cases appear to X-ray before they are clinically appreciable. It is now proposed to undertake case finding efforts by routine X-ray to ascertain what the yield will be. This is a matter of great discussion among the medical profession as to whether this will be a valuable undertaking in terms of cost and time involved and so on. The yield would probably be small numerically but important clinically.

Senator NELSON. As I understand from previous testimony, there may be cellular tissue changes over a long period of time that would not be observable. But you are saying, are you not, that by the use of a radiograph you might at a much earlier date demonstrate a tissue change that would not be observable from palpation or other examination.

Dr. HERTZ. Also, which could be confirmed by pathological examination of the tissue to be cancer.

Dr. Gershon-Cohn of Philadelphia pioneered these studies, also Dr. Egan, and numerous others whose work I cite. We know more about this developmental phase of cancer of the uterus than we do for the breast because, as I bring out later, this cancer is accessible to vision and Papanicolaou smears, whereas in the breast we have no such access for palpation and X-rays.

Senator NELSON. Have enough experimental studies been made to give enough indication as to how early in the developmental stage a radiograph might demonstrate the tissue change that would indicate that—

Dr. HERTZ. All we can say about that is that it can bring out the presence of lesions which are not otherwise appreciable either by palpation or by physical examination or by symptomatic complaints of the patient.

Senator NELSON. It is my understanding from previous testimony or maybe it is in yours which I read a few days ago, that this developmental stage may extend over a number of years.

Dr. HERTZ. For the cervix of the uterus we know this as a matter of fact. We estimate it as from one to 7 years. For the breast we cannot yet state this exactly because the X-ray studies are not beyond the developmental stage. It would certainly be expected to be a minimum of 2 to 3 years from the experience gained at this time.

Senator NELSON. Please proceed.

Mr. DUFFY. Doctor, I would just like to pursue the question I asked you earlier. The advanced statement that I have received had page 5 missing, had it been there when I read your statement I might have asked my earlier question in a slightly different fashion. You say on page 5 that it has been shown since 1896 that in young women with breast cancer the removal of the ovaries will result in improvement in about half the cases.

Does that mean that when you remove the ovaries the body's natural estrogen producing mechanism is removed?

Dr. HERTZ. We have biochemical evidence of this. There continues to be estrogen formed from one other site in the body, namely the