

effectiveness with minimal side effects, some beneficial effects such as reduced menstrual flow and the elimination of premenstrual tension and painful menstruation. Finally, it allows spontaneous, uninhibited and uninterrupted lovemaking.

The question must be asked then, "Why has the pill been a subject of such hot debate?" There are at least two major health hazards which are indisputable which have generated much less discussion and virtually no action. I am speaking of the automobile which abruptly kills young and old each year in terrifying numbers. For those spared abrupt death by the automobile, there are the hazards of air pollution. Secondly, cigarettes clearly cause chronic lung disease and have a striking association with the development of lung cancer.

Is the furor over the pill genuinely related to a fear of its unknown effects, such as an ability to produce cancer? Biology does not enjoy the precision of physics or mathematics. One cannot write down a precise formula and predict what its effects will be. These effects are determined by experimentation: namely, giving the drug under controlled conditions and observing and recording its effects—Lasagna, L., "The Pharmaceutical Revolution: Its impact on Science and Society." *Science*: 166:1227, Dec. 5, 1969.

The pills have probably been the most carefully scrutinized medication in medical history, and we have been hard pressed to find any significant permanent or harmful effect from using these agents. At this point, the margin of safety of these tablets certainly exceeds those of penicillin and aspirin.

Senator DOLE. That statement is directly contradictory to a statement made by an earlier witness, who indicated there had not been anything done, or very little done concerning the safety of these pills.

Dr. SCHULMAN. I think it is perhaps a difference of degree. I could not really analyze the amount of investigation which went into the pills or other medication, say, prior to their release, but certainly since their release they have been more heavily scrutinized and I think we have more data—general systematic data on the pill which we do have on almost every other medication we use.

It is argued also that 10 or 20 years may be needed to know if these agents will produce breast or uterine cancer. The breast cancers produced in rats, rabbits, or dogs do not take 10 or 20 years to develop but develop within months. This type of argument accrues from such indirect evidence that people begin smoking in their teens and twenties but don't develop their cancers until they reach 40 or 50.

Or excessive X-radiation such as that experienced by the surviving Japanese at Hiroshima or Nagasaki has led to increased risk of developing leukemia following a period of 6 years. The time period clearly varies a great deal, and this kind of yardstick cannot be applied irresponsibly for if it were, penicillin would only have been released for usage during the past 2 or 3 years, and thereby have deprived millions of its benefits.

Why the furor then? It is my belief that one of the underlying currents that has not been faced in this meeting as well as in medi-