Case 2. (Fig. 7) shows impaired glucose tolerance, high insulin levels and high blood pyruvate levels in a young woman taking oral contraceptives and the return of these variables to normal progressively over a period of three months, when the contraceptives were stopped. A low dose progestagen contraceptive (chlormadinone acetate) 0.5 mg a day administered for four months did not cause any notable change in carbohydrate metabolism. Again this woman was symptomless.

Case 3. E.S. (Figs. 8 and 9) shows glucose tolerance studies in a young woman tested before starting the medication, at three months, and 12 months of therapy, and three months after the drug's withdrawal. One can see the progressive development of true diabetes mellitus, with elevated fasting plasma glucose levels and abnormal glucose values in the glucose tolerance test combined with impaired and delayed insulin secretion. This abnormality was symptomless when it was discovered at 12 months and the metabolic abnormality disappeared when the drug was withdrawn. One wonders, however, what would have been the effect of the prolonged administration of this medication unhampered by any insight into what was happening to this patient's carbohydrate metabolism.

Case 4. (Fig. 10). C.H. shows the oral glucose tolerance of a patient who was referred because her blood pressure had become elevated after 27 months of oral contraceptive usage. The results show chemical diabetes and high insulin levels while on medication and the return of these variables to normal two months after its withdrawal. Her blood pressure (180 mm Hg systolic, 110 mm Hg diastolic) while on oral contraceptives also reverted to normal (120/70). Of further importance is that the patient was found by means of the electrocardiogram to have had a coronary occlusion, although this was symptomless.

Case 5. (Fig. 11) C.K. was referred because her blood pressure, previously normal, had become elevated after 20 months of treatment with oral contraceptives. The blood pressure was 150/110. This patient's oral glucose tolerance was abnormal. Her serum lipid values were strikingly abnormal. The triglyceride and cholesterol levels were measured in samples of bood taken every two hours throughout the 24 hour period. These values became normal several weeks after stopping the contraceptive steroid as did the blood pressure (120/80). Of special interest was the fact that this patient was shown also to have had symptomless pulmonary embolisation.

These studies have been selected out of many which could have been presented, in all of which the safety of the contraceptive medication is called into question.

I would like now to mention two other abnormalities which have been found in oral contraceptive users, because these must be understood before I can consider the possible influence of the metabolic changes on the health of the user. These two disorders are the abnormal clotting of blood and the development of high blood pressure (hypertension) in women taking oral contraceptive steroids.

Within a few years of the introduction of the oral contraceptive in Great Britain, sporadic cases of thrombosis involving both veins and arteries began to appear in the medical press. Several years, however, were to elapse before the first proof of an association between oral contraceptive use and the development of thrombotic disorders was established. In this respect, the work of Doctors W. H. W. Inman, M. P. Vessey and Richard Doll (British Medical Journal 27th. April 1968 p. 193 and p. 199) were outstanding. They clearly showed that there was a substantially increased risk of thrombosis occurring in veins, and in cerebral arteries, and a possible increase in coronary thrombosis in women using contraceptive steroids. Blood clots forming in the veins (thrombosis) can become dislodged and travel in the bloodstream, finally reaching the lungs to cause obstruction to the pulmonary arteries. This disorder is called thromboembolism. The risks of death from thromboembolism was increased about eight-fold in the user compared to the non-user of oral contraceptives. There was about a tenfold increase in the incidence of non-fatal thromboembolic attacks in the users which necessitated hospitalisation. The incidence of less serious forms of thrombosis was not reported upon. Fatal cerebral arterial thrombosis (stroke) showed a sixfold increase in incidence. There was almost a doubling in the incidence of coronary occlusion in women below the age of 45, but this did not quite reach the conventional level of statistical significance except in the youngest age group studied. In a similar type of study an American investigation essentially confirmed the British results, (Second Report on the Oral Contraceptive, Food and Drug Administration, August 1969, Appendix 2).