CHAIRMAN’S INTRODUCTION

It seems inappropriate for the introductory remarks to the session on genetic and environmental aspects of sex to be given by an obstetrician who, during his training, seldom heard the words ‘genetic’ or ‘environment’ and whose working life was largely taken up with the treatment of serious complications of pregnancy and labour, aspects of sex which are not on the agenda of this symposium.

The reproductive field does, however, provide examples of the importance of genetic and environmental factors. Malformations of the central nervous system, an important cause of stillbirth, have a genetic component and the importance of environment is well illustrated by the increase in the death rate from these causes, especially anencephaly, with decreasing social status of the mother. Furthermore, the death rate from anencephaly increased between the years 1951 and 1963, probably because the mothers were born during the severe industrial depression in the early 1930s and were undernourished and short in stature. The young mothers of today are, on average, taller and fitter than their mothers and the standard of obstetric care has also improved greatly. As a consequence of both factors the perinatal mortality rate fell by 30% between 1958 and 1967 and is still falling.

The way is now open to study pathological conditions which are related more to inherited characteristics than to malnutrition or inadequate standards of obstetric care. Progress in clinical genetics is difficult because the long interval between the generations makes it difficult to trace families back for more than one generation in any detail and with any degree of accuracy. One can only hope that the need to correct this state of affairs in the future by data linkage is receiving the attention it deserves.

More active co-operation between the basic scientists in many fields and the clinician is needed. The academic staff of clinical departments in our Universities will require to be more varied and specialized in their interests and training so that strong links can be formed with other departments, such as endocrinology, biochemistry, physiology, genetics and sociology. However, progress has been rapid and exciting in the field of cytogenetics.

In the second number of the British Medical Bulletin on New Aspects of Human Genetics which has just been published, one-third of the volume is devoted to cytogenetics. The volume is edited by Ford and Harris and we are very fortunate to have Dr Ford as our first speaker today—a distinguished scientist and Fellow of the Royal Society. For the last 20 years he has been Head of the Section of
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Cytogenetics in the Radiobiological Research Unit at Harwell. His work is particularly well known to clinicians because he is an expert on the genetic effects of X-rays, whether therapeutic or diagnostic. We are all very conscious that our survival may depend on the research work of scientists like him.

I have great pleasure in asking him to give his paper on ‘Cytogenetics and sex determination’.