

made by the parents concerned and must take into account how they feel about their responsibility to future generations. But to make such a decision parents must be counselled and made aware of their responsibility to their descendants.

I would now briefly like to examine some of the genetic influences on childhood disease. It has been estimated that about 50 per cent of chronic illnesses of children have their origin before the child is born. Conditions such as hair lip, cleft palate, club foot, mental retardation, epilepsy and allergy, to mention but a few, are present at birth. Although the patterns of these diseases have been laid down prenatally, we should not necessarily presume that they are hereditary. The point is that because a condition is present at birth and is congenital, not all congenital conditions are hereditary. By the same token, some hereditary conditions are not congenital, that is, they do not become apparent until much later in life. An example of this is Huntingtons' chorea. Nor should it be forgotten that there are other environmental influences at work prenatally other than purely genetic ones.

The environment of the embryo includes the immediate environment of the uterus, the placenta, membranes, etc. However, it also includes the body processes and health of the mother, including enzymes and hormones, and her illnesses acute and chronic such as rubella, diabetes mellitus. Also it includes the nutrition of the mother. This may be of great importance in situations where severe protein or vitamin deficiencies occur. Finally, there is the induced environment through drugs administered by the doctor during pregnancy, and excessive cigarette smoking, all of which may have a profound effect on the developing embryonic tissues. Also, we should not forget radiation, be it therapeutic or diagnostic, and radioactive fallout if administered in large enough doses.

All these so-called environmental factors complicate or may even make it impossible to determine whether a particular defect has been caused genetically or through environmental influences. Cleft lips and cleft palates are examples of defects that could be produced either through genetic or environmental factors. The genetic counsellor, therefore, must be extremely cautious in predicting the outcome of future pregnancies in a woman who has borne a child with such defects.

It has been determined that congenital malformations account for between 20 and 30 per cent of total neonatal deaths. By studying the genetic make-up of the mothers and children involved, through detailed family histories and through metabolic and environmental investigations, it may be possible to determine how congenital malformations are produced.

A very important field of genetic research is in the study of mental retardation. A great deal of research is being conducted to attempt to investigate the cause of mental retardation however hopeless. The finding of genetic causes could lead to effective steps in prevention and treatment. Epilepsy is another problem of considerable magnitude in children and one variety, the centrencephalic type, has been demonstrated to have hereditary tendencies. In the case of epilepsy, the genetic factors are

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not simple but seem to be dependent upon the interaction of several genes.

Another aspect of the science of genetics and of its value to medicine is in the clarification of the human blood-group systems with its applications to the problems of forensic medicine, transfusion, and hemolytic disease of the newborn. I have already referred to the studies of the hemoglobin molecule and the genetic variations found in sickle-cell and other anaemias. This is a typical example of the application of genetic techniques to clinical research. However, it must be remembered that medical genetics is still in an early stage of development and its most important contributions to clinical medicine will be in the definition of specific disease entities and the provision of reliable data as to familial distributions.

In conclusion, Mr. Speaker, medical genetics and the process of genetic counselling is contributing in great measure to our understanding of the processes of heredity. New interpretations of the relationship of heredity and environment are assisting man in controlling his own evolution. The science of genetics contributes to unifying our concepts of disease and assists in counselling and advising those who have encountered problems which may be of a genetic nature. The science of genetics also enables us to understand more fully the environmental effects in the prenatal stages.

The Acting Speaker (Mr. Richard): Order, please. The doctor's hour, however educational it may be, has expired. The hour appointed for the consideration of private members' business having expired, I do now leave the chair until eight o'clock.

At six o'clock the House took recess.

AFTER RECESS

The House resumed at 8 p.m.

GOVERNMENT ORDERS

GOVERNMENT ORGANIZATION ACT, 1970

PROVISIONS RESPECTING DEPARTMENTAL REORGANIZATION, MINISTRIES OF STATE, PARLIAMENTARY SECRETARIES, ETC.

Mr. Rowland: Mr. Speaker, at five o'clock I was just about to commence dealing with the section of the bill concerning the ministers of state proposition. I find this section of the bill somewhat ominous. I think a careful reading of it is an indication that it means the Prime Minister (Mr. Trudeau) will no longer have to come to Parliament to seek its approval of the reorganization of government departments. Through the device of ministers of state and the powers given to the Prime Minister in connection with the creation of this new office, the Prime Minister will be able to shift about sections of departments at will and Parliament will have