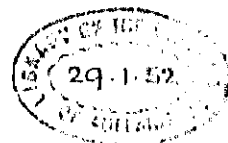


Thesis submitted for the degree of Doctor of Medicine
in the University of Adelaide by Arthur Dudley Packer.

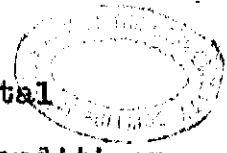


THE INFLUENCE OF MATERNAL DISEASE ON THE UNBORN CHILD.

Part I A Critical Review of the Literature.

Part II Personal Investigations.

- (1) An Investigation into the Aetiology of Fetal (Post-Natal) Congenital Abnormalities in South Australia over a Three and a Half Year Period (January 1947 - June 1950).
 - (2) The Influence of Maternal Measles (Morbilli) on the Unborn Child.
 - (3) Description of a Four-Month Foetus with Abnormalities Following Rubella in the Mother.
 - (4) The Experimental Production of Congenital Defects in Mammals - with a preliminary report of a new method.
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In the course of reading on the subject of congenital abnormalities and their relation to disease and other conditions in the mother, it became evident that such information was widely scattered in the literature with no recent review covering the influence of abnormal maternal environment on the offspring in utero.

It is claimed that Part I of this thesis makes good this deficiency with an extensive search into recent literature and a fairly brief critical review of present knowledge regarding the effects produced on the unborn child by disease in the mother.

Part II presents the results of original investigations into:-

- (a) the aetiology of human congenital abnormalities.

Apparently no such general enquiry has been made previously in South Australia and the latest general investigation which could be found in the literature was in 1940--before attention had been directed to environmental factors by the discovery of maternal rubella as a cause of congenital defects. New teratogenic agents (and related factors) are indicated from the results of the present research. Also, with the recent emphasis on rubella as a cause of congenital abnormalities, this investigation (carried out in the absence of any recent epidemic of rubella) helps to place in proper perspective our views on the importance of this disease as a teratogenic agent.

- (b) the effect of maternal morbilli on the unborn child.

This investigation was carried out by the 'direct' method of enquiry into notified cases of measles in married women during a recent epidemic in South Australia. This approach gives a much better indication of the frequency of ill-effects on the offspring than the 'indirect' method of enquiry into the gestational history of mothers after they have given birth to abnormal offspring. Very few other investigations have been made on virus disease complicating pregnancy by this 'direct' method and no other recent report in the literature has been based on as many cases of maternal measles during pregnancy.

- (c) congenital abnormalities present in a 'rubella-foetus'. There are very few autopsy reports on defective infants born to mothers who had rubella during the early part of pregnancy. Several microscopic examinations of abnormal eyes in foetuses have been made but this is the first report of a general macroscopic and microscopic examination of a foetus rendered abnormal by maternal rubella.
- (d) the experimental production of congenital defects in mammals. A preliminary report of a new method of producing abnormal offspring in rats by occluding the blood supply to the pregnant uterus is given. It is claimed that this method most closely simulates the production of abnormalities in humans by inadequate nutrition of the embryo such as occurs in ectopic

pregnancies. No other report could be found of congenital defects in mammals produced by this means.