appendicular skeleton are all affected. The skeletal anomalies are associated with, and perhaps due to, a severe temporary anaemia as a result of deficient haemopoiesis in the yolk sac, apparent in the eight-day-old embryo. This is corrected when the liver takes over haemopoiesis and so is no longer apparent at birth. Another example is a condition in the rat involving syndactyly, and a short tail. Here the skeletal anomalies have been found to be secondary to hyperplasia of the epidermis, including the apical ectodermal ridge of the limb buds. Mechanisms of this kind would be very difficult to detect in man.

The distinction between primary and secondary defects of skeleton can in fact often be made experimentally in rodents. Highly inbred strains of mice and rats are, like human identical twins, histocompatible; transplants are possible to and from abnormal and normal individuals. Professor Grüneberg describes these experiments where they have been made. Such transplants show for example that in the condition in the rat known as "cartilage anomaly" the abnormality lies in the cartilage cells themselves. In contrast, growth centres of costochondral junctions from rats with "transient osteosclerosis" grow soundly when transplanted into normal rats; though it is not certain yet whether the host is supplying normal osteoclasts or normal parathormone.

The next step in the analysis of genetically determined abnormalities in the skeleton will be the detection of the exact biochemical error. Here, however, little progress has yet been made. Professor Grüneberg reports that we do not know in a single instance in the mouse or rat the nature of the chemical abnormality. In this respect only students of man are a little way ahead of students of the mouse. Obviously one must be cautious in drawing close parallels between human and rodent diseases. In man we can at present only speculate about embryological mechanisms. But the animal work enables us to speculate intelligently, and if and when a human and a rodent genetic disorder is shown to involve the same abnormality in enzyme production, it will be reasonable to presume similar developmental mechanisms.

In a final chapter Professor Grüneberg discusses some of the interactions of genetic and environmental factors in the causation of some of the common and minor skeletal variations in the rat and mouse.

The subject matter of this book is inevitably complex, but it is lucidly written and very well illustrated by line drawings and photomicrographs.—C. O. CARTER.

Die Geschichte Deutschen Orthopädischen Gesellschaft von der Königsberger Tagung 1936 bis zum 50 Kongress in München 1962. (The History of the German Orthopaedic Society from the Meeting in Königsberg in 1936 to the 50th Congress in Munich 1962.) Edited by Prof. Dr Peter PITZEN. 10×7½ in. Pp. x+299, with 18 photographs of Chairmen. 1963. Stuttgart: Ferdinand Enke Verlag. Price DM 62.

The German Orthopaedic Society was founded in 1901 and is the second orthopaedic society to have a continuous history to the present date, the American Orthopaedic Society, founded in the 1890's, being the first. Its establishment was due to the reluctance of general surgeons to give enough time for orthopaedic papers at their meetings. The Society adopted its present name in 1913. In 1945 it was dissolved by the Americans together with all other Nazi organisations, and refounded in 1947; it is perhaps wrong, therefore, to say that its history was continuous. The history of the Society until 1936 has already been published by Dr Peter Bade in 1939. The Society has lived through two periods of war which, if they have stimulated an interest in trauma, have had serious disadvantages for the Germans themselves. During the "Thousand Year Reich" the Society was organised on the "Führer-prinzip." This disorganisation of its democratic nature occurred during the years 1933 to 1947, the chief attendant disadvantage being the exclusion of Jewish members. In consequence the membership of the Society fell to an extremely low level during the war due to "natural death, emigration, concentration camps, war or flight." The membership of the Society is now 1,028. All Jewish members who suffered and survived have been restored to their original membership, and all those members who can be traced have been invited to join the Society again.

The greater part of the present volume is taken up with a report of the Congresses which took place between the dates given. Not unnaturally, the limitations imposed on the Society have also limited the value of their Congresses, and interesting as the material is, there is relatively little original work among it. Since 1947 the papers largely echo the work of other countries.—J. G. BONNIN.