41. *The Pancreatic Activity in Diabetes Mellitus.*

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That a deficiency of the internal secretion of the pancreas is the immediate cause of glycosuria is already incontestably proved. As regards the external secretion of the pancreas in diabetes mellitus, the results are still in debate from none abnormal to all abnormal with every intermediate stage between both extremities. It is desirable therefore to make a careful investigation in order to solve this problem. It seems necessary at first to take into consideration why this controversy occurs. The most important factor seems to depend on the methods employed. As we mentioned in the foregoing paper, all methods applied hitherto meet theoretical as well as real objections as regards the quantitative tests. Therefore we made investigations on this problem using our newly devised method which may be considered for the first time, as a quantitative test of the pancreatic secretion in its true meaning. The results of an unselected group of twenty one cases of diabetes with 33 estimations were as follows :

1. The total proteolytic efficiency in three hours specimens showed in 67 per cent, amylolytic efficiency in 33 per cent and lipolytic efficiency in 57 per cent values below our minimal normal limits. In 29 per cent of the cases the efficiency of the three ferments proved to be within normal limits, in 24 per cent all enzymes were abnormally low. From the enzymatic activity judged, the proteolytic activity showed in 43 per cent, the amylolytic activity in 20 per cent and the lypolytic activity in 43 per cent of cases values below our minimal normal limits. In 48 per cent of cases the activity of three enzymes proved to be within normal limits and in 14 per cent abnormally low. The deviation of abnormalities in these two standards depends mainly on the fact that the amount of the duodenal return was in some cases very scanty. The disturbance of the pancreatic function manifests itself in the diminution either of the enzymatic activity or of the amount of the juice or of both. The method in which only the enzymatic activity is used as a scale of the pancreatic function misses these two latter evidences. The greatest

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alterations in enzymatic efficiency as well as activity were noted in the proteolytic and lipolytic ferments.

2. The severity of the diabetes does not necessarily run parallel to the degree of disturbance in the external secretion. There are cases which showed severe disturbance of both the internal and external secretion of the pancreas, whereas others showed a marked disturbance only of the internal secretion while the external secretion remained normal. There are also diseases in which the internal secretion is sufficient to maintain the normal glycoregulatoric function whereas the external secretion is markedly disturbed. The representative cases of these three forms were carefully observed.

3. The senior cases showed almost all abnormalities of the enzymatic efficiency of one or more of the enzymes. It is likely that some serious damage to both the insular and acinous cells prepares the ground for such abnormalities in these cases.