

Concluding Remarks

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Concluding remarks

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The very interesting papers and vigorous discussion at this Discussion Meeting are evidence of a field of research in a very active state of development, with many fundamental problems still to be resolved. The theme of the first session was the surprisingly large numbers of agents able to elicit secretion through specific receptors, acting either additively or in a cooperative manner. The physiological meaning of such multiplicity is puzzling. There were also suggestions that, however valuable in an analytical sense studies on isolated cells may be, they may not be an accurate representation of behaviour in the intact tissue where cell interactions may be of great significance. In contrast to this profligacy, membrane utilization appears to be characterized by parsimony, with extensive recycling even to the extent of recovery of membranes from lysosomes. The complex translocation events described called for regulators. There is general agreement that Ca^{2+} ions are the most important regulators and it may be that the complex regulation of events is achieved with this ion and cyclic AMP through the operation of segregated pools. Mitochondria are a major reservoir of intracellular Ca^{2+} which have a dominant effect on the level and persistence of evoked changes in free Ca^{2+} .

The increased turnover of phosphoinositides remains an intriguing feature of stimulated glands, but a direct connection with Ca^{2+} metabolism seems elusive. However, the new evidence focuses attention on the mono- and diphosphates of phosphoinositides, which are broken down at a much higher fractional rate. The electrophysiological studies concur with the biochemical studies in a major role of Ca^{2+} as an intermediate in the regulation of ions and presumably water movement at the basal cell membrane. It is presumed that this is also the regulator at the apical cell membrane, which is after all where secretion takes place, but Professor Petersen pointed to the great paucity of information about any events at the cell apex. It was an interesting reflection on the way in which secretory biology is advancing that the appreciation of results obtained in one system was accepted as having relevance to other systems and that system specialization could be superimposed on the basic biological plans that were being elucidated.