APPENDIX

**Electron Microscopy of Islets of Langerhans in Rabbit Pancreas
Slices Incubated *in vitro***

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Slices of rabbit pancreas were incubated for 1 hr. in medium containing 30 or 300 mg. of glucose/100 ml. by the same methods described in the preceding paper (Howell & Taylor, 1967). Immediately after incubation, 1 mm. cube blocks of tissue were cut and fixed in 3% gluteraldehyde, post-fixed in 1% osmium tetroxide and embedded in Epon. Thin sections were examined in an RCA EMU3B electron microscope.

It would seem that the physiological characteristics of the β -cells, including the ability to secrete insulin, are well preserved under the conditions used for incubation.

Thus cellular organelles including secretion granules of both β - and α -cells were well preserved in slices incubated at the low glucose concentrations. At high glucose concentration margination of β -granules, release of granules and microvillus formation were prominent (Plates 1 and 2). These are the same morphological changes that have been associated with insulin secretion *in vivo* (Lacy, 1961).

REFERENCES

- Howell, S. L. & Taylor, K. W. (1967). *Biochem. J.* **102**, 922.
Lacy, P. E. (1961). *Amer. J. Med.* **31**, 851.

EXPLANATION OF PLATE I

Electron micrograph of portions of a β -cell (lower left), an α -cell (upper left) and an acinar cell (right-hand portion of micrograph). Margination of β -granules (arrow) and microvillus formation (below) are evident. Magnification $\times 15000$.

EXPLANATION OF PLATE 2

Electron micrograph of a portion of a β -cell, showing release of a β -granule (arrow) into extracellular space.
Magnification $\times 27000$.