

SUGGESTIONS FOR FURTHER WORK

In continuation of the work described in this thesis, the following suggestions for further work are now made.

- (1) It would be interesting to study the exact nature of the surface defects which occur in the suture monofilament during degradation. For example, are they small pores or micro-cracks or some other type of defect? The most appropriate technique for studying this would be scanning electron microscopy (SEM). The knowledge gained would improve our understanding of the surface phenomena which affect suture performance.
- (2) In this project, the 'in vitro' biodegradation experiments were all carried out at the normal physiological pH of 7.40. It would be interesting to see to what extent, if any, the rather long absorption periods of 'Maxon' and 'PDS II' (> 20 weeks) would be shortened in a more acidic medium of, say, pH < 4, such as is found in certain parts of the human body.
- (3) It is essential to study the chemical microstructure of synthesized copolymers in as much detail as possible. Only by doing this can we hope to improve our understanding of the relationships between the microstructure and properties of potential new suture materials.

- (4) Procedural problems still exist with copolymer synthesis. This needs more detailed studies of the conditions of copolymerisation in order to be able to control such fundamental properties as copolymer composition, monomer sequence distribution, molecular weight and crystallinity.
- (5) Both 'Maxon' and 'PDS II' have a good balance of properties and are gaining increasing acceptance. However, surgeons have become so used to the softness and flexibility of the multifilaments that they expect the same of monofilaments. Therefore, more research needs to be done to find ways of improving the flexibility and knot security of monofilaments through chemical structure modification. This is the challenge which faces the polymer scientist in the 1990s.