# News and Views

## CINDERELLA WILL NEVER BE BEAUTIFUL!

The 7th Harden Discussion Meeting sponsored by the UK Biochemical Society, the Italian Company Fidia s.p.a and the Norwegian Chemical Society, dealt with the topic of Physical Methods for Glycopolymer Characterisation. It was held over the weekend of 11–13 September 1992 at Eynsham Hall near Oxford. This is one of the most impressive venues for a scientific meeting I have been to and partially compensated for having to start a session at 8.30 am on a wet Sunday morning.

It was organised by Steve Harding and Liz Hounsell from the UK, Sergio Paoletti from Italy and Kjell Vârum from Norway. The nationalities of the seventy participants reflected to some extent those of the organisers.

The scientific sessions were entitled electron microscopy, X-ray methods, NMR, hydrodynamics and rheology, thermodynamics and light scattering and other fine structure techniques. There were 20 presentations of 30 to 40 minutes each and 16 short ten minute contributions. Substantial time was allowed for discussion.

Some of the sessions came through as being more diverse than I personally would have liked, though I accept the argument that one of the purposes of a meeting of this kind is to provide a cross fertilisation of ideas between scientists who are using a wide variety of different techniques on different molecules.

From a personal point of view I was interested in the vast difference between the relaxed and rigid energy maps shown for isomaltose by David Brandt and also the failure of molecular dynamic simulations of carbohydrates in the presence of water to find predicted energy minima. What use are rigid disaccharide energy maps for predicting mean solution conformations of polysaccharides? The issue of the order of polysaccharide helices will still not go away, though maybe one day we will all go along with Ted Atkins and believe that no clear thinking person can consider the ordered xanthan conformation as anything other than a double helix. Something I feel that will be resolved more rapidly is the origin of the endotherm seen when polysaccharides and apparently proteins are heated at low water contents below the so-called glass transition temperature. Mike Gidley, in one of four elegant short presentations which proved that Unilever's polysaccharide research still lives, showed that the enthalpy of this endotherm is dependent on the water content but why does it take so long to return after an initial heating?

The issue of the conformation of one species in a polymer mixture is no doubt something that synthetic polymer scientists have given a lot of thought to, and is certainly now recognised as important if we are to understand food systems that almost always contain mixtures of biopolymers. In this context I thought that Tim Hardingham's experiment, where he demonstrated by chromatography that cartilage proteoglycan shrinks substantially when eluted in the presence of dextran, could be usefully extended to other mixed biopolymer systems.

Most of the final day was given over to light scattering and the question of obtaining molecular weights for these difficult macromolecules. The issue first raised in Gisela Berth's lecture and subsequently by Kjell Vârum, of the interpretation of light scattering data when small amounts of high molecular particulate material is present, was addressed theoretically by Herbert Dautzenberg. It would have been useful to have had more discussion about whether the gpc methods combined with on-line light scattering, covered in short presentations by Roger White and Connie Jumel, get round the problem. Steve Harding argued that ultracentrifugation was the answer but how do we handle the problem of non-ideality?

As Olaf Smidsrød said in his summing up and Harry Reynaers demonstrated for carrageenans on the final afternoon, glycopolymers are complex macromolecules and their characterisation takes years of effort. It is unlikely that the advent of modern techniques will really alter this. Steve Harding described glycopolymers as Cinderella molecules. The problem as Professor Smidsrød said is that these Cinderellas are ugly. The pressure to attend the publication ball has resulted in some making brief appearances in subdued lighting covered in cosmetics, which gives an impression of beauty, but only delays the time when the truth will be revealed.

**John Mitchell**

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