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CBET Bulletin Newsletter for the Centre for Bioethics & Emerging Technologies

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The Emerging Technology of Food Packaging

How can new plastics for food packaging be created that reduce waste and damage to health and the environment? This was the theme of a two-day seminar hosted by the Centre for Bioethics and Emerging Technologies, St Mary’s University College on 1st and 2nd September. Polymer scientists, chemical engineers, environment- als and policy experts from 17 countries gathered to explore how nanotechnology may be at least part of the answer to these important questions.

The Centre’s director, Prof. Geoffrey Hunt, who is a specialist in the ethics of new technologies, explained that nanotechnology is the engineering of matter at such a small scale that very novel and useful properties appear. “In fact,” he said, “scientists can now manipulate matter at a scale much smaller than bacteria. This gives them tremendous power to create new materials with almost any properties that they want.” This means they can avoid the damaging effects of some of the old chemistry and physics to create novel food packaging plastics which are stronger, lighter, keep food fresh for longer, are easier to recycle, biodegradable and non-toxic and which reduce the overall use of plastics packaging.

“Plastics from food packaging are a major environmental problem,” he said, “damaging eco-systems and affecting human health, sometimes in subtle long-term ways which are difficult to reverse.” Nanotechnology could provide some of the solutions. “But there is a catch,” he added. “Novel polymer nanomaterials could introduce new problems, unless this time we think ahead with careful risk-assessments.” The seminar was funded by two EU sources: Cooperation on Science and Technology (COST) and Framework Programme Seven (FP7), in which St Mary’s is a partner.

The seminar comprised four main state-of-the-art sessions of technical presentations, a visit to the UK’s National Physical Laboratory, a poster session, book stall and networking opportunities. It was attended by polymer scientists, engineers and other technical specialists, and some academicians and industry representatives and guests from 17 countries.


Session 2 covered toxicological, health, safety and environmental aspects together with an overview by CBETs Dr Trevor Stammers of past medical impacts of polymers, as well as standardisation and labeling. Session 3 opened with an overview from two leading experts at the National Physical Laboratory’s polymer unit, and covered characterisation, metrology, fast scanning CCS, ellipsometry and some life cycle issues. Session 4 covered some novel and alternative approaches to polymer development for food packaging, including properties for recycling, the use of lignin, and biodegradability by microbes. Reflecting liaison between FP7 projects, this seminar was attended by Dr Michael Riediker, leader of NanoImpactNet, who made a presentation on the toxicological work of his parallel EU project. The seminar established or reinforced coordination between experts in the field, who were able to keep abreast of new ideas and methods.
Ethics and the Engineer

In November 2009, Professor W. Richard Bowen presented a seminar entitled 'Engineering Ethics: Developing Philosophical and Theological Approaches' and hosted by the Centre for Bioethics & Emerging Technologies at St Mary's University College, Twickenham. Those who attended the seminar were deeply impacted by the ideas presented by Prof Bowen, finding the ideas he presented both inspirational and thought provoking.

Now a wider audience can engage with the ideas and thinking presented by Prof Bowen as he has developed his talk into a paper which has recently been published by the journal, Studies in Christian Ethics. Recognising that the work of engineers can make a contribution both to human wellbeing as well as human suffering, in his paper Prof Bowen notes the stark paucity of theological engagement with engineering ethics as a whole. He proceeds to explore the basis of a possible theological approach in this area by drawing upon the work of Zizioulas, Dussel and Yannaras and the significance they place on community and the importance of communion. In this turn helps to establish a context for understanding engineering as "a creative means of promoting the communion of persons through contribution to material wellbeing". Prof Bowen proceeds to look at specific cases which help to highlight and reorient the role of the engineer in terms of promoting peace, removing infrastructural poverty and the responsibility of engineers in developed countries. The complete paper can be read in Studies in Christian Ethics 23/3, pp.227-248.

W Richard Bowen is a Fellow of the UK Royal Academy of Engineering and a member of the Academy’s Engineering Ethics Working Group and of its Teaching Engineering Ethics Group. Widely recognised as a world leader, particularly in the development of membrane processes and the application of atomic force microscopy, Prof Bowen’s work is centred on chemical and biochemical engineering. He holds chairs in the Schools of Engineering at the University of Wales Swansea and the University of Surrey. He has carried out extensive consultancy for industry, government departments, research councils and universities on an international basis, currently through i-Newton Wales.

As the new Government settled in we heard of innovations reflecting their view of how Government and Parliamentary democracy should function. Not least, the appointment of both members and Chairmen of Commons Select Committees, charged with critically scrutinising Government policies, is no longer within the gift of party whips but instead decided by secret ballot of all MPs. Since 2003 the position of Committee Chairman is also salaried. It has been suggested that these factors represent positive steps towards rebalancing power away from the executive and towards the legislature.

Parliamentarians cannot have expertise in all the issues they consider so rely on specialist briefings to inform their deliberations. Select Committees are part of that process and can be highly influential. They are expected to establish the relevant evidence objectively, by inviting written submissions and then seeking further information as appropriate including through rigorous cross-examination of expert witnesses. They develop policy recommendations based on this evidence. This is their remit and for the democratic process to function effectively it is important that there is a clear and common understanding of, and commitment to, this remit. Examination of a recent inquiry by the Science and Technology (S&T) Committee raises concerns.

At the end of 2006, following a public consultation, the Government issued a White Paper outlining their proposals for updating the law on human embryo research. They proposed a ban on the creation of human-animal hybrid embryos, noting both the degree of public concern and the lack of consensus within the scientific community as to the potential benefits. This prompted the S&T Committee to set up an inquiry.

The consultation period was just 12 days. The focus of the inquiry was largely on proposals for creating cytoplastmic hybrids (‘cybrids’), created by fusing an animal egg, with its nucleus removed, with a human nucleus or cell.

Among the submissions received were four from scientists who sought to research on cybrids. Examination of the written and oral evidence demonstrates that scientific evidence of likely benefit from cybrid research was very limited: The claims made were largely speculative, little analogous work using non-human species was reported and counter-evidence was submitted which raised further doubts. Scientists expert in the relevant field and favouring such research were invited to give oral evidence but the Committee failed to use the counter-evidence to challenge the conjecture offered. They failed even to seek the scientists views of the likely scientific and medical consequences of a ban. Instead they asked each whether they supported a ban. This was not a scientific question but a political one.

Evidence available both then and subsequently suggests that public support for such research was limited and conditional on the prospect of real benefit. No evidence of such prospect was provided. Nevertheless, the Committee concluded that such research was ‘necessary’ and should be permitted. They argued that the scientific community was supportive, backing this up with questionable scientific evidence and failing to acknowledge the strongest counter-evidence. It is difficult to see the Committee’s approach as compatible with its remit.

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Activities in brief

In terms of CBET’s Resource Healthcare Allocation Project, the final process of consultation is now underway. Prof. David Jones did a presentation about the project at the Catholics in Healthcare conference in Liverpool at the end of June. The hope is to produce a final version of the booklet in September/October and a launch in early November. The recent NHS White Paper raises serious issues for the topics considered by the Catholics in Healthcare conference in the Netherlands and Oregon and evidence for a ‘slippery slope’. This was presented by Prof. David Jones at a Royal Society of Medicine symposium on 30th June 2010.

On 8th-9th September, David Jones at a Royal Society of Medicine symposium on 30th June 2010.

An alumnus of the MA in Bioethics at St Mary’s considers the role of the UK Parliament Commons Science and Technology Committee.

Scrutinising the scrutineers

By Pauline Gately

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