



Cambridge Society for the Application of Research

Churchill College
Storeys Way
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Molecular Gastronomy

The Science of Taste and Flavour

Professor Peter Barham
School of Physics, University of Bristol

7.30pm, Monday 19^h May, 2014

Wolfson Hall Lecture Theatre, Churchill College, Storey's Way, Cambridge

The Lecture:

Professor Barham writes:

It is often said that flavour is the combination of taste on the tongue and aroma in the nose.

We have at least five distinct types of taste receptors on our tongues (for each of the five recognised taste sensations: Salt, Sour, Sweet, Bitter and Umami). We have evolved to know have these clear taste sensations because they are essential for our survival – they are either the taste of essential nutrients or warn of potentially lethal substances we must avoid eating. So we like the taste of foods that contain necessary ingredients (sugars, salts, amino acids, etc. but tend to dislike those of potential poisons (bitter and strong acids). But we are unable to identify foods from the taste alone this is a relatively crude sense – with just five basic inputs and only a limited ability to discriminate intensity we can really do little more than describe a food as salty or bitter, etc.

Our noses by contrast have the ability to distinguish an enormous number of different aromas – the organ contains several hundred different types of aroma sensor. It is 'aroma' that supplies by far the largest part of the data which enables us to determine the flavour of a food.

In reality the determination of flavour is far more complex than simply the sum of the inputs from the tongue, the mouth and the nose. As we will see all our senses have a role to play in determining the 'flavour' of a food. We are beginning to understand how people 'construct' the flavour of a food as they eat it, but we are still a very long way from understanding what makes a person like or dislike a particular food. We know that memory plays a most important role, but we are still a long way from the goal of being able to predict what foods a particular individual will love and hate.

Even so, with the little knowledge we do have it is already possible to help chefs to design new dishes that have a general appeal (to most people) and to create a playful and challenging environment in their dining rooms.



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About the speaker:

Peter Barham is a Professor of Physics at Bristol University UK, honorary Professor of Molecular Gastronomy in the Life Sciences faculty of the University of Copenhagen and honorary Professor in the department of Zoology at the University of Cape Town. In Bristol, as well as carrying out his own original research in fundamental Polymer Physics, and in the conservation of penguins, he is largely responsible for ensuring the quality of all undergraduate and post-graduate teaching in the Faculty of Science as well as overseeing curriculum development within the faculty. In Copenhagen, he is helping to create up research and teaching activities in the new and emerging area of Molecular Gastronomy (the application of physical, biological and medical sciences to understanding our appreciation of food as prepared in the home and high quality restaurants). In Cape Town he is involved with a group trying to save the endangered African penguins.

In addition, Peter is very interested in raising the public awareness of science and its relevance to everyday life. In this context he has developed a series of lecture demonstrations (or performance science) mostly based around the science involved in cookery and on penguins. Professor Barham presents about 50 such talks each year at a variety of venues including schools, Women's Institutes, Science Festivals, etc.

In 2003 he was awarded the 2003 Kelvin Medal by the Institute of Physics for his contributions to the promotion of the public awareness of science.

Peter has introduced a number of chefs (including Heston Blumenthal) to the concepts of the science of cooking and the psychology of taste and flavour. He has actively been involved in bringing science more closely into the kitchen, both at home and in the restaurant.

The Organising Secretary adds: see also this FT article:

<http://www.ft.com/cms/s/2/517cd716-36bf-11e3-8ae3-00144feab7de.html#ixzz31aLtoWVP>

Practical Matters



Those attending the CSAR lecture may park in the Senior Car Park on Churchill Road, which is off Storey's Way. More parking is available further along Churchill Road. **Please do not park in the Möller Centre, or outside the houses opposite Churchill in Storey's Way.**

CSAR lectures are open to all; CSAR members are admitted free. Pupils and students may register for free membership at the lecture reception desk.

Non-members are asked to make a nominal contribution of £3.00.

Coffee and biscuits are available in the Wolfson Foyer from around 7pm. For further directions, see:

www.chu.cam.ac.uk/about/visitors/directions.php