

Chefs as Innovators and Process Designers: A Historical Perspective

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The Australian Food Service Academy Pty Ltd offers advice to food service organisations in cutting edge innovation. Its director, Professor Svetlana Rodgers, held executive positions in academia, institutional and commercial food service sectors. Her latest academic position was Professor in Food, Hospitality and Culinary Arts and Head of the Advanced Culinary Technology Research Group at the University of Brighton (UK). Her expertise lies in the field of large scale food service systems and the interface between natural science and management principles. She published extensively in top peer-reviewed journals and is a reviewer/ guest editor for a number of international journals including the Journal of Foodservice and Journal of Culinary Science & Technology.



Technological innovation provides the foundation for competitiveness, differentiation and cost leadership. This is especially critical in large scale organisations such as clubs and casinos, which charge less for food to attract large number of visitors, as well as institutional catering outlets with strict budgets. Better equipment design may result in a reduction of cooking time, energy efficiency, labour saving, superior process control, modularity and flexibility, superior food quality, better Hazard Analysis Critical Control Point (HACCP), Good Manufacturing Practice (GMP) and improved service. It is taken for granted that creativity in new food product development is part of a chef's professional skills. Few realise that historically chefs contributed substantially to the design of catering equipment and kitchen operations.

Since the inception of industrial kitchens, chefs have experimented with new ways of cooking and storing food. For example, mobile stoves and heating units for transportation of meals designed by Alexis Soyer, the celebrity chef of Victorian London, which were used in the English Army during the Crimean War, cut the consumption of wood by 37 times. Upon his death, Florence Nightingale wrote:

'Others have studied cooking for the purpose of gormandising, some for show, but none but he for the purpose of cooking large quantities of food in the most nutritious manner for great number of men.'

Another example is the kitchen at the Royal Brighton Pavilion (Brighton, UK) designed for Antonine Carême to serve the Prince Regent, future George IV. It featured such novelties as running water and centralised steam supply. Food was kept cold in a large ice house, then reheated and kept hot on the 'steam table' prior to service. This was a precursor of modern food service systems such as cook-chill, cook-freeze and sous vide. Sous vide or cooking-in-a-bag was originally invented by French chefs to prepare foie gras and was later popularised by the Roux brothers. Eventually, these developments resulted in the evolution of Industrial Cuisine which is now common for large scale organisations and typically involves a CPU (Central Production Unit) and a network of satellite kitchens. Principles of Industrial Cuisine are used in stadia, airlines, convention centres, hotel/ restaurant chains, educational institutions and health care services.

While chefs are not expected to find solutions to complex engineering problems, they may scan developments in other 'high tech' fields for potential applicability in the kitchen. The European Union technology transfer programs INICON (2002) was funded to impart knowledge from science and food technology to the kitchen. The high profile participants of this program, Ferran Adria from El Bulli (Spain) and Heston Blumenthal from Fat Duck (UK) restaurants, use laboratory-type units - immersion circulators, centrifuges, distillers and water baths. This results in an unusual texture, shape and appearance of food and is called Molecular Gastronomy. The term is somewhat misleading as no manipulations on the molecular level take place; it reflects the reliance on scientific principles rather than on practice and intuition.

Another critical aspect is organisation of labour and process flow in the kitchen, which is described by the discipline Operations Management. Again, very few would realise chefs' contribution to the field. Meal provision in large quantities may have been one of the first manufacturing processes invented. During the Middle Ages hundreds and sometimes

thousands of guests were fed in the kitchens of monarchs, nobility, military and religious institutions. In the early 19th century Carême made mass meal production more efficient when he introduced four basic sauces or *fonds* from which over a hundred derivatives were made - the 'food platform' principle. Later on, Escoffier replaced the 'ancient regime' (a number of sections working independently) with five interdependent *parties* each responsible for different types of operations: *garde-manger* for cold dishes, *entremettier* for soups, *rotisseur* for roasts, grills and fried dishes, *saucier* and *pâtisseries*. In modern terms, this could be described as a process-oriented layout, which is still applicable to CPUs. There are sophisticated modelling tools such as Computerized Relationship Layout Planning, Factory Flow and Promodel, which can be used to design complex processes taking place in a large industrial kitchen.

Staff training, standards and manuals as elements of quality management evolved in 19th century England. Soyer organised schools of regimental and hospital cookery 'to plan kitchens, to draw up schemes for general diets, and to compose particular receipts'. He supported this with the booklet 'Instructions to Military Hospital Cooks, in the Preparation of Diets for Sick Soldiers', which were adopted by all military hospitals. Today, although chefs retain many management functions, food service managers have gradually taken over the tasks of planning and design. Specialist degrees at the tertiary level to support this development are yet to evolve. This may signal the birth of the profession, the new generation of food service operators with technical expertise, which would contribute to growth in sophistication and professionalism in kitchen operations built on the latest developments in technology and operations management concepts to keep the long standing tradition of chef-innovators who looked to the future.

FURTHER READING

More detailed historical accounts mentioned in the article can be found in:

Morris, H. 1980 Portrait of a chef – the life of Alexis Soyer. Oxford University Press, Oxford.

Menell, S., 1985. All Manners of Food: Eating and Taste in England and France from Middle Ages to the Present. Blackwell, Oxford, p. 159.

Detailed discussion on technological innovation and educational needs in food services can be found in:

Rodgers, S. (2010). Food Service Research: an integrated approach. *International Journal of Hospitality Management* (in press)

Rodgers, S. (2009). Novel Concept of a Functional Meal: Technological, Industry and Consumer Perspectives. *Journal of Foodservice*, 20, 214-223.

Rodgers, S. (2009). The state of technological sophistication and the need for new specialized tertiary curricular in food services. *International Journal of Hospitality Management*, 28, 71-77.

Rodgers, S. (2008). Technological innovation supporting Industrial Cuisine, Fast Food and Fresh Food production philosophies. *International Journal of Contemporary Hospitality Management*, 20 (1), 19-34.

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