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Out of the Box

This column tells some of the story of *The New Nutrition Science project*, as work in progress now and looking towards the rest of this decade. For those who have already seen and heard the project initially presented at congresses, and/or who have read the special issue of this journal in which the conceptual framework of nutrition as a three-dimensional biological, social and environment science is outlined[1,2], updated information is included.

This is also in response to many requests for a current introduction to the project and to the transformation of nutrition science that it advocates. Further, the 27 of us from six continents who are now steering the project are an opportunistic bunch; and my esteemed editor-in-chief tells me that 1000 additional copies of this issue are being distributed to the delegates to the First World Congress of Public Health Nutrition in Barcelona, Spanish Catalonia.

This also gives me the opportunity to mention that the new nutrition science will be the subject of one of the closing plenaries at Barcelona. Also, a two-day workshop designed to develop its governing and guiding principles is being held out of session immediately before the conference begins, and the outcome – including agreements made there – will be available by the closing sessions. So new readers, please also start here.

New maps for old

Why a new conceptual framework for nutrition science? A sufficient reason is that the world now is transformed from that mapped by 19th and early 20th century theories and principles, including those that changed nutrition from being part of a philosophy of life into a biochemical science.

As from the last decades of the 20th century, interrelated electronic and genomic discoveries, and linked and sequential demographic, nutritional and epidemiological shifts, have accelerated. This is all in the context of associated and also inter-linked social, cultural, environmental, economic and political developments, commonly known as 'globalisation', that all together have made a new world that needs new maps[3–6].

And so, as Ricardo Uauy, the current president of the International Union of Nutritional Sciences (IUNS) states: 'The chemical and biological sciences have provided a strong base for nutrition and have been essential in establishing nutrition as a science with public health relevance. However, these approaches are clearly insufficient to address the main challenges that confront nutrition science now in the twenty-first century. There is a pressing need to include the social, economic and human rights aspects within an ethical framework, in order to define future policies that will secure the right to safe and nutritious food for all'[7].

Mark Wahlqvist, immediate past president of IUNS, makes a complementary statement: 'Nutrition science has made giant strides in the last century. But the human population continues to increase; and the global climate is changing, with vast implications. Our science has been good in specific ways, but has ignored and overlooked planetary welfare and thus the basic determinants of human health and well-being. We must now ensure that the practice of our science supports sustainable eco-systems and healthy environments'[8].

Correspondingly, the first principles stated in *The Giessen Declaration*[2], the document that also includes the rationale and definition of the new science, are introduced as follows. 'All sciences and all organised human activities are and should be guided by general principles. These should enable information and evidence to be translated into relevant, useful, sustainable and beneficial policies and programmes'. Further: 'The overall principles that should guide nutrition science are ethical in nature', and 'should also be guided by the philosophies of co-responsibility and sustainability, by the life-course and human rights approaches, and by understanding of evolution, history and ecology'.

Homage to Barcelona

This is all lofty. What may it mean on the ground? Here is one personal take. Let's think of Barcelona and the territories of the whole of the Mediterranean littoral.

Elsewhere in the special issue of this journal[9], 39 more specific principles are suggested as needing more consideration; and this process will begin at the Barcelona workshop. Thus for example: 'Food systems that are biodiverse are superior to those that reduce biodiversity'. And: 'Traditional cooking, rooted in the home, supplies good nutrition, agreeable social life and autonomy'. Other suggestions emphasise the value to population health and well-being, and to planetary welfare, of regional and local food systems and culture.

It is in this spirit that I mention 'Spanish Catalonia' above, simply to indicate that Catalonia is also in France, and not to imply any special sense of possession. Indeed, as I write, the Spanish and Catalan governments have just agreed a greater degree of autonomy for Catalonia South of France, with all this implies for recognition and preservation of authentic tradition, culture and cuisine. Plus Barcelona, whose visionaries commissioned Antoni

Gaudí to begin the creation of the Sagrada Família cathedral – and who now command the cash and clout to mastermind and mythologise a football team that beats my team Arsenal in the final of the European Cup, is a singular city.

More power to Catalonia to me feels like a blow struck against global hamburgerisation. It is perhaps even a reminder that 'The Mediterranean Diet' – which, as First World Congress president Lluís Serra-Majem reports, enjoyed 740 000 Google® entries in early 2005[10] – refers to a great variety of associated food systems, all part of the cultures of the lands bordering the Mediterranean Sea. These often have in common, fish, bread, pulses, fruits, olives and their oil, garlic, many herbs, wine and water.

Local is nourishing

But Mediterranean diets can be exported only in a general sense. Their quality comes from traditional food systems suitable for the climate and terrain, and from being local and fresh. Decades ago I rode a mule into the hills above the town of Skopelos in the Northern Sporades, to visit ancient tombs. Half way up, Ioannis our guide spread a cloth in a glade under a tree, and served us bread, olives and cheese, with water from the well, and then reached down branches loaded with warm plums that burst in our mouths. We all remember experiences like these, because they are unique. I bought some local wine back home from that holiday, opened it, and wondered why its special savour was lost. Yes, it was made without preservatives; but it was also out of place: it belonged in Skopelos.

And so let's celebrate the autonomy of Catalonia with all this may imply. We have been trained to think that big is beautiful even when big makes no good sense. In her masterpiece celebrating the composite state of Yugoslavia as it was in the late 1930s[11], Rebecca West tells a story that illustrates how people who want to belong in small countries with coherent histories and consistent beliefs may be seen as irrational and primitive. 'Once in Nice, as I sat eating langouste outside a little restaurant down by the harbour', she writes, 'there were some shots, a sailor lurched out of the next-door bar, and the proprietress ran after him shouting "Balkan! Balkan!" He had emptied his revolver into the mirror behind the bar'.

Rebecca West believed in Yugoslavia. But she shows that its artificiality hardened hatreds that led to assassinations that triggered the First and maybe the Second World War, and then the massacres in the 1990s. But now times have changed. A remaining composite football team from the land of the Southern Slavs is about to become two teams, Serbia and Montenegro, in good time to prepare for the 2010 World Cup.

For what happens when global organisations choose a crop as a motif? FAO (the Food and Agriculture Organization of the United Nations)? Wheat. IUNS? Wheat. Well, at least it's not a hot dog. Not yet. By contrast, Lluís Serra-Majem has chosen a loaf, a fish and a carrot. If Jesus had followed this example and performed the miracle of the loaves, fishes and carrots, his disciples might have netted bigger catches at night – and Alan Davidson tells us he could have done, for carrots were grown in the gardens of Babylon in the 8th century BC, though more for the fragrance of their leaves and seeds than for the root[12].

Perhaps the sailor shot up the bar in Nice because there was no local wine and cheese to be had, and was simply acting out our fantasies when only plastic bread and instant coffee is on offer in our hotel when we are on holiday – or at a congress. Vive Québec! May every Indian state become a country! Let a thousand staple crops thrive! Balkanise! Balkanise!

My inner editor is telling me to quit this personal excursion, and give you some more information about *The New Nutrition Science project*, in my role as one of the signatories of *The Giessen Declaration*. Very well.

Biology writ large

The Declaration is the product of a four-day workshop meeting held at Schloss Rauischholzhausen, a facility of the Justus Liebig University of Giessen in Germany, in April 2005. The location has a special significance, for it was at Giessen that Justus von Liebig developed nutrition science as a biochemical discipline[13].

After the meeting was completed and the Declaration agreed, participants moved to the Liebig Museum in the city centre, within which the offices and laboratories of the great biochemist are preserved. In the small lecture theatre in which he taught the first generations of his students, who then went on to shape nutrition science in Europe, the USA and all over the world, all participants in turn read out a clause, and then signed.

The main text of the Declaration begins by stating: 'Now is the time for the science of nutrition, with its application in food and nutrition policy, to be given a broader definition, additional dimensions and relevant principles, to meet the challenges and opportunities faced by humankind in the twenty-first century'.

It goes on to state: 'As originally conceived and as now usually studied and practised, nutrition is principally a biological science. This classic biological dimension of nutrition science is and will remain central. Descriptively it is concerned with the interactions of food and nutrition with physiologic, metabolic and now also genomic systems, and the effects of these interactions with health and disease. Prescriptively it deals with the nutritional control and prevention of disease and the improvement of health in humans, at all levels from individuals to populations; and also with animals and plants usually as human resources'.

One concern that has been raised since publication of the Declaration is that the 'classic' biological dimension

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seems to be relegated. But this is not so. Indeed, the three-dimensional approach should encourage biological scientists working in the field of nutrition to appreciate the social and environmental meaning and implications of their work, which should increase its value.

It is with this in mind that the Declaration continues: 'Those now concerned with the future of the world at all levels, from local to global, generally agree that their overriding shared priority is to protect human, living and physical resources all together . . . Nutrition science is one vital means to this end.

'This implies expansion and enlargement of the science, and its identification as a broad, integrative discipline, enabled to identify and address the circumstances, challenges and opportunities of the twenty-first century'.

Inclusion of the environmental dimension was agreed after long discussions, as a result of which all participants agreed that nutrition science must now face environmental facts and projections. Thus: 'Many planetary environmental indicators are now deteriorating. These include global climate change and the persistent depletion of stratospheric ozone; the depletion and degradation of topsoil; the accelerated loss of species and of fresh water and sources of energy; and increased use and of persistence of many chemical pollutants. Recent and current modes of food production have made major contributions to such adverse changes.

'If these environmental changes are not arrested, the conditions of the natural world will deteriorate for future generations. The extraordinary significance of these changes is that, for the first time in human experience, the overall size and the economic activity of humankind exceed the capacity of the planet to supply, replenish and absorb. The biocapacity of the natural world is now beginning to diminish'.

A new conceptual framework requires a new definition. And so: 'Nutrition science is defined as the study of food systems, foods and drinks, and their nutrients and other constituents; and of their interactions within and between all relevant biological, social and environmental systems.

'The purpose of nutrition science is to contribute to a world in which present and future generations fulfil their human potential, live in the best of health, and develop, sustain and enjoy an increasingly diverse human, living and physical environment.

'Nutrition science should be the basis for food and nutrition policies. These should be designed to identify, create, conserve and protect rational, sustainable and equitable communal, national and global food systems, in order to sustain the health, well-being and integrity of humankind and also that of the living and physical worlds'.

Getting the message

At this stage in its progress, *The New Nutrition Science project* is enjoying a good press. Thus John Waterlow, Emeritus Professor of Nutrition at the London School of Hygiene and Tropical Medicine, while emphasising the importance of physiology and biochemistry, writes: '*The Giessen Declaration* has reminded us that environmental science should be included in nutrition's field of interest'[14].

Marion Nestle, Professor of Nutrition at New York University, writes: 'Expanding the definition of nutrition science to encompass social, economic, political and environmental dimensions is a really good idea, especially now that nutrition problems are so universal and so complex... This Project should be required reading for everyone who investigates or applies nutrition science'[15]. And Harriet Kuhnlein, Director of the Center for Indigenous Peoples' Nutrition and Environment at McGill University in Québec, writes: '*The New Nutrition Science project* holds much promise to develop our thinking . . . about the issues of people living at the "grass roots" in the real world of global environmental and economic, and hence nutritional, change'[16].

Derek Yach, now at the Rockefeller Foundation in New York City, and others, report on a workshop on the future of nutrition involving key stakeholders including industry, held on the occasion of the Durban congress. In referring to *The New Nutrition Science project* they write: 'The International Union of Nutritional Sciences has taken the lead in a project aimed at redefining and broadening nutrition science and practice to include biological, social and environmental dimensions in an attempt to address nutritional problems in a way that will balance the health of humans and of the biosphere'[17].

And writing in the UK *Nutrition Society Gazette*, Esté Vorster, chair of the Durban congress and a signatory of *The Giessen Declaration*, says; 'Scientists are rethinking and reformulating the definition, dimensions and scope of nutrition science, in order to be able to address global nutrition problems in a more sustainable, environmentally friendly way'[18].

Confluence of thinking

The new nutrition science is also a renewal. What is new is also often a return to what is ancient in new circumstances, and so it is here. A paper published in the special issue points out that 'while the Hippocratic *díaita*' (which means the whole way of life) 'has shrunk to "diet" in modern times, a comprehensive nutrition science should be concerned with *díaita* in the broad sense again'[19].

Towards the end of the 20th century an increasing number of professionals working in nutrition science, food and nutrition policy, and allied fields, became increasingly concerned to emphasise the broader personal and social aspects and implications of their work.

In this they have been and are acting in the spirit of the originators and champions of the great public health movements of the 19th century, such as Rudolf

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Virchow[20], who insisted on the social responsibilities of scientists and correspondingly campaigned to ensure that the ruling classes of the day accepted the need to institute public works, such as closed drains, to protect the health of populations. A substantial number of professionals now describe themselves as public health nutritionists, or more broadly as public nutritionists, for such reasons.

Others in the field have linked nutrition as a biological science, with its environmental aspects and implications. Nutrition ecology, and then the discipline of Vollwert-Ernährung ('wholesome nutrition'), became taught at the University of Giessen[21], and Mark Wahlqvist and others began to develop the concept of 'eco-nutrition'[22]. Comparably integrated approaches to nutrition science and food and nutrition policy had and have also been developed by Nevin Scrimshaw at the Institute of Nutrition of Central America and Panama (INCAP) and then at Massachusetts Institute of Technology; John Waterlow at the London School of Hygiene and Tropical Medicine; Malden Nesheim, Michael Latham, Cutberto Garza and other leaders at Cornell University; Ibrahim Elmadfa at the University of Vienna; and elsewhere.

Before and at the beginning of his IUNS presidency, Mark Wahlqvist decided to work towards the creation of a conceptual framework for this confluent thinking, teaching and practice. Informal discussions to this end were held at the inaugural meeting of the World Health Policy Forum in Camogli, Italy, in 2000; at a workshop meeting at the Bellagio Rockefeller Center, Lake Como, Italy, in 2001; at the International Congress of Nutrition in Vienna, in 2001; at international conferences in Melbourne and Auckland in 2002; at the World Summit for Sustainable Development in Johannesburg in 2002; at the annual meetings of the UN System Standing Committee on Nutrition in Chennai, India, in 2003, and New York in 2004; and at other venues.

After further discussions, Claus Leitzmann and I agreed to convene the project, a steering group was formed to guide the Giessen workshop and the special issue of this journal, the Durban presentations were commissioned, and the project became a joint initiative of IUNS and the World Health Policy Forum.

At the Durban congress, the plenary presentations were followed by a symposium during which those present were asked if they could help form new nutrition science networks. Almost 100 responses then and later came from Argentina, Australia, Belgium, Cameroon, Canada, Chile, France, Greece, India, Iran, Italy, Kenya, Micronesia, Morocco, New Zealand, Nigeria, Norway, Senegal, Serbia, South Africa, South Korea, Switzerland, Tanzania, Thailand, the UK, the USA and Zambia.

Plans include the development of the principles of the new nutrition at the second workshop being held in Barcelona. Then, in November at the 14th Congress of Latin American Nutrition (SLAN) in Florianopólis in Brazil, the plan is to begin to inform, empower and build capacity in the South, especially among young people. If you want to be part of the project then, dear reader, I am, yours sincerely.

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