

WN *Hot stuff*

World Nutrition **Volume 6, Number 9-10, September-October 2015**

Journal of the World Public Health Nutrition Association
Published monthly at www.wphna.org/worldnutrition/

Project Phoenix
Nutrition: Time to rise and fly in our new world

Access April 2015 Update on Project Phoenix here
Access May 2015 Update special on Project Phoenix here
Access June 2015 Update special on Project Phoenix here
Access July-August 2015 Update special on Project Phoenix here



The paradigm is shifting. As conventionally framed and practiced, the discipline and profession of nutrition does not work well. A whole new set of principles, fit for our times now, are taking shape

The *Update* team reports

Is modern nutrition science, confined as a biological and biochemical discipline, a burned-out case? Nutrition itself, properly understood, is crucial to the health and well-being of the human and living world. Many nutrition scientists continue to accomplish important and innovative work. But the indictments that in general, conventional nutrition science has become increasingly obscure, ignorant, obsolete, irrelevant, incompetent, complacent, and venal, summarised in *WN* this year (see links above) have not been cogently challenged. It is too soon to come to final judgement. More work is needed. Meanwhile it is now essential to devise and shape a science that will work well in the unique circumstances of this century.

> I am much encouraged by the work of *WN* in the first *Updates* on *Project Phoenix*. These and their concerted thinking could help to foster the eco-nutritional movement, now much needed.

This was a response from Mark Wahlqvist, former president of the International Union of Nutritional Sciences, and a *WN* editorial team member, to *Project Phoenix* (1). Former IUNS treasurer Claus Leitzmann, also a *WN* editorial team member, wrote (2) that the project

> Correctly points out the obvious paradox of ever more nutritionists and at the same time ever more nutritionally related diseases and continued hunger in the world. This dreadful situation requires and deserves urgent solutions. The only agenda of *Project Phoenix* is truth. For that reason the project is profoundly important since it can provide answers to the current nutrition problems and is no less than the start of a revolution, as was the rise of the mythical bird in antiquity and ever since.

So far all responses to *Project Phoenix*, informal and formal, have been positive. We have not heard or received any criticism or rebuttal. This is perhaps surprising, because – to repeat – the project indicts current dominant conventional nutrition science for its obscurity, ignorance, obsolescence, irrelevance, incompetence, complacency and venality. But first we should be clear about what is being indicted.

Definition

'Conventional nutrition' as used here refers to the now generally dominant form of nutrition science as studied and practiced, as set out in textbooks, as assumed or implied in papers published by nutrition journals, and as applied to food labels and used for other material designed to inform and educate.

A dictionary definition is 'The branch of science that deals with (*esp.* human) nutrients and nutrition'. Nutrients are usually identified as specified chemical constituents of food known to have biological activity, mostly necessary for life – essential fats, amino acids and vitamins, for example. Conventional nutrition is not just a basic science but is also concerned with health, in the sense of preventing and treating various physical diseases. A 2005 workshop meeting held in Giessen, Germany, whose participants included three successive presidents of the International Union of Nutritional Sciences, agreed on the scope and definition of conventional nutrition. Its scope is as a biological science, with biochemical, physiological, medical and now genomic aspects. Its definition, consistent with while broader than what has been implied above, is:

> Nutrition science studies the interactions of constituents of food and of diets, with human and other biological systems. The application of nutrition as food and nutrition policy is designed to prevent disease and sustain health in individuals and populations.

Context



Public policies and actions of all types, including all those concerned with food, nutrition and health, must work towards reducing what continues to be extremely rapid unsustainable population growth

The general context within which all relevant sciences and other organised activities are practiced, and make more or less sense and are more or less effective, has become transformed, most of all since the 1980s. This is summarised in Box 1, here:

Box 1

The 2015 Rockefeller Foundation - Lancet *Commission on Planetary Health*. Key messages

1 The concept of planetary health is based on the understanding that human health and human civilisation depend on flourishing natural systems and the wise stewardship of those natural systems. However, natural systems are being degraded to an extent unprecedented in human history.

2 Environmental threats to human health and human civilisation will be characterised by surprise and uncertainty. Our societies face clear and potent dangers that require urgent and transformative actions to protect present and future generations.

3 The present systems of governance and organisation of human knowledge are inadequate to address the threats to planetary health. We call for improved governance to aid the integration of social, economic, and environmental policies and for the creation, synthesis, and application of interdisciplinary knowledge to strengthen planetary health.

4 Solutions lie within reach and should be based on the redefinition of prosperity to focus on the enhancement of quality of life and delivery of improved health for all, together with respect for the integrity of natural systems. This endeavour will necessitate that societies address the drivers of environmental change by promoting sustainable and equitable patterns of consumption, reducing population growth, and harnessing the power of technology for change.



Refugees waiting for food aid in Damascus, 2015. Catastrophic and chaotic population displacement is only palliated by food handouts. The basic causes must be recognised, denounced and addressed

The rape of nature

The *WN Project Phoenix* series, accessible above, has so far summarised some of the shortcomings and general incapacity of conventional nutrition science as it is now. Its indictments bear in mind the general context of the world as it is now, whose unprecedented and ominous realities and prospects are challenging all relevant sciences and systems of thinking, policy and action. As stated in an earlier commentary:

> These include climate disruption, population increase, continual invasions, mass migration, flight to cities, financial instability, outrageous inequity, gross waste, persistence of hunger, rocketing rates of obesity and diabetes, overmighty corporations, and a dominant political and economic ideology that is unfair and self-defeating.

Nutrition science also is shaped by its own history and use in times that have now gone by. In its modern form it was invented in Europe around 200 years ago. At that time it enabled and was a tool of the industrial revolution and the rise of the great European imperial powers. Nutrition science continues to contribute to or in effect condone the troublesome or horrible phenomena quoted above. This it does as a technological activity part of whose purpose is to 'feed the world' with degraded profitable food products, rather than as a branch of public health centrally concerned with the structural causes of all forms of malnutrition. It does so directly, by enabling the formulation of ultra-processed junk food products that corrupt food systems all over the world, and the development of foul forms of industrial manufacture of degraded meat and animal products. It does so indirectly, by serving governments and corporations committed to grossly unfair political and economic policies and actions.

Nutrition is not the only science that is now in question and faltering. A general failure of current organised human activity in the face of staggering global change is encapsulated in the 'key messages' of the Rockefeller Foundation – *Lancet* Commission

on Planetary Health, whose 62-page report on *Safeguarding human health in the Anthropocene epoch* was published in July (3), and whose four key messages are in Box 1, above. The report's executive summary states

> We have been mortgaging the health of future generations to realise economic and development gains in the present. By unsustainably exploiting nature's resources, human civilisation has flourished but now risks substantial health effects from the degradation of nature's life support systems in the future. Health effects from changes to the environment including climatic change, ocean acidification, land degradation, water scarcity, overexploitation of fisheries, and biodiversity loss pose serious challenges to the global health gains of the past several decades and are likely to become increasingly dominant during the second half of this century and beyond.

Moreover

> These striking trends are driven by highly inequitable, inefficient, and unsustainable patterns of resource consumption and technological development, together with population growth.

Or to be even more pungent, in his encyclical *Laudato Si'*, published earlier this year (4), Pope Francis says 'The earth, our home, is beginning to look more and more like an immense pile of filth'.

Perception of the general context of the indictments of their profession as published in the last four issues of *WN* (accessible above) may make nutrition professionals feel rather less depressed. Yet many if not most scientists and also policy-makers whose practice impacts on public health, and public policy in general, are apparently overwhelmed, and even shocked into mental and moral paralysis (5), and fall back on to what they were taught, despite this now becoming drained of purpose or meaning, or even often plainly not part of any solution but part of the problem. Times requiring radical change are tough. As policy systems analyst Adam Kahane says (6).

> We can't make progress on problems within the context as it is now – this is either too unstable or too stuck. Secondly we can't transform the context on our own – it's too complex to be grasped by any one individual, organisation or sector. Thirdly, the people we need to engage to collectively shift these contexts don't understand or don't agree with each other, nor trust one another.

It is now safe to say though, that nutrition science, as still conventionally taught and practiced, needs systematic rethinking. Its current assumptions and methods no longer work well enough to be justified. The belief that the planet is flat, and then the belief that Earth is the centre of its planetary system, made sense in times gone by, given the then limits of knowledge and understanding, and worked well enough, until set aside in favour of concepts that made more sense in the light of more information and observations. By analogy, what is now known or is emerging about the nature of nutrition – 'nourishment' may be a better term – is discrediting and invalidating its conventional conceptual framework, inasmuch as any can be discerned.

Observations



Nutrition science applied to animals has enabled industrial agriculture, in which land is degraded, pollution multiplied and animals abused, to produce ever-cheaper meat and animal products

A previous issue of *WN* said 'We will begin to outline how nutrition now can, like the phoenix, transform and arise from the ashes, fit to face the relevant social, cultural, economic, political and environmental and other fundamental circumstances and prospects of this century'. What follows here is a modest beginning. The *Phoenix* project continues in later issues of *WN*, and we need more voices and more views.

Here we start with extracts from comments on *Project Phoenix* published in this issue of *WN*. They are by author, campaigner and editorial team member Raj Patel, now professor of nutrition at the University of Texas, Austin; the research scientist and regular *WN* contributor Anthony Fardet of the *Centre de Recherche de Clermont-Theix-Lyon* (INRA), France; and naturalist, author and editorial team member Colin Tudge (6-8). Coming from different disciplines, they all know how important nutrition is, and they agree that to fulfil its potential to work well in the world in which we live now and can foresee, the teaching and practice of nutrition needs to be transformed.

In whose service?

Raj Patel pays special attention to the nature and purpose of nutrition before as well as after its emergence as a modern science in the early 19th century:

> Take a hard look at the conditions of the birth of nutrition science. Chinese nutritionists served temples and emperors, as did European ones, Galen in particular. The modern science of nutrition emerges through thinkers like James Lind, whose 18th century discoveries about lime juice helped the British navy avoid scurvy, or Stephen Babcock and Edwin Hart, whose single-grain experiments a century ago helped create the concentrated animal feeding operations that now produce so much cheap meat and expensive health problems.



Taught and practiced as a technical discipline, nutrition science can identify elements in food that protect health and prevent disease. It also enables formulation of ultra-processed or junk products

> Nutrition has always served the powerful.
>
> The ability of a reborn nutrition to criticise power, particularly in capitalism's ecology, matters. In its new incarnation, to give a concrete example, public-private partnerships wouldn't be the objects of envy or competition within the discipline, but subjects of study – and scorn. This is the kind of acceptance that I'd like to see nutrition embrace.

From nutritionism to holism

Anthony Fardet focuses on the conceptual framework of nutrition science as it is now and as it needs to be, invoking the philosopher of science Thomas Kuhn's concept of shifts of 'paradigm' or systems of thinking:

> The 'nutritionism' paradigm, which is to say reductionism, has largely prevailed. This attends to foods only as sums of nutrients.
>
> This is not to say that nutritional reductionism is useless. It has indirectly saved very many lives, notably by elucidating the mechanisms of vitamin deficiencies. But reductionism is too prominent, and has become a dogma. Now its deleterious consequences are obvious.
>
> Reductionism has enabled and encouraged the fractionation and recombination of food ingredients in energy-dense, poorly satiating, ultra-processed food and drink products. If these were consumed occasionally in small amounts there would be no problem. But in many countries such products have become predominant, constituting in some urban populations the basis of their diet… People in such countries may on average live longer than their parents did – but increasingly in a diseased state.
>
> A holistic vision of diets should encompass their global health effects, and their environmental impacts and socio-economic and cultural aspects. The definition of what is a healthy diet should not be dogmatic and normative, implying only one type of diet. By adapting to specific local or regional realities, it should respect cultural habits, religious beliefs, environment, the pleasure of eating, and also the well-being of farm animals.



Physicians and cooks work with a basis of knowledge, and also rely in actual situations on intuition. Good medicine and good cooking are arts. So is – or should be – nutrition as taught and practiced

Unknown worlds and uncertainty

Colin Tudge points out that vast territories relevant to the nutrition – or nourishment – of humans and the living and natural world, are largely unknown territory for conventional nutrition science, and are only now being explored. He also questions the assumption that science in the form it takes now is a quest for permanent truths that can be discovered, measured, and accepted as if they are physical laws. In this extract he uses the term 'cryptonutrient' for substances also known as 'nutraceuticals' or 'functional foods'.

He also sees the need for a shift in paradigm, but not merely of nutrition science. He sees the entire scientific endeavour as in need of rethinking and reformulation. In particular, he challenges the notion that science, including nutrition science, can identify immutable truths. Nothing is certain. Circumstances change concepts.

> The concept of cryptonutrients and the renewed appreciation of microbes are internal shifts in the science of nutrition that present huge challenges and possibilities. The general realisation that life is too complicated to analyse exhaustively, and that the future is innately unpredictable, is a true paradigm shift that affects all science. It knocks on the head forever the 18th century Enlightenment conceit that we are edging inexorably towards omniscience. The idea that all our understanding in the end is narrative, a story that we tell ourselves, including the insights of science, is both chastening and exciting. Life remains mysterious, and always will be.
>
> The paradigm shift extends, or should extend, to all of life. For these past 200 years or so westerners have tended to put science on a pedestal, to look to it as the source not only of remarkable insights, which it does provide, but also of wisdom, which it does not. Thus politicians and tycoons speak of 'science-led policy', by which they mean for example that if some trial shows that some genetically engineered crop grows better in some circumstances than 'conventional' crops do, and is potentially profitable, then we should put political weight (and taxpayers' money) behind it.

> But if they could only see that science itself deals in partial truths and innate uncertainties, and is itself a narrative, they surely would put it more into perspective.
>
> They surely would see that the people who have been living and coping with innate uncertainty for 10,000 years – traditional farmers – are telling a richer narrative, precisely because, however extensive their knowledge, in the end they know they must trust their intuitions. Cooks do the same – and physicians too. They know they must work with uncertainty. They are guided by science but in the end they rely on intuition.

Principles

Just as money is too important to be left to economists, health too important to be left to physicians, and justice too important to be left to lawyers, nutrition is too important to be left to nutritionists. The profession of nutrition must not be reasonably seen as the activity of some sort of quasi-secret society based on assumptions, methods and pronouncements that are cryptic. Nutrition must make sense to all intelligent people.

Formally trained professionals should welcome the engagement and commitment of others from related disciplines; of citizens who want to learn and who have opinions; and of communities and people with inherited deep practical experience. Besides, by its nature nutrition, a topic and subject with its own identity, is also a kind of meeting-place. People with knowledge, experience and wisdom concerning many other disciplines and activities are qualified and entitled to be partners in devising a whole new map for nutrition. As we wrote in a previous commentary:

> A fruitful approach will be trans-disciplinary, involving professionals from many other fields whose work does or can enlarge the scope, range and power of nutrition as taught and practiced...This observation implies mutually trusting partnerships, to include partners whose idea of nutrition is rooted in various concepts of life and nature. Relevant professionals include journalists, gastronomes, toxicologists, agronomists, historians, anthropologists, psychologists, economists, and lawyers, and also representatives of public interest organisations and social movements.

The re-creation of nutrition as a discipline and profession needs to take place in the whole context of the world as it is now and as it can be foreseen. The recent Rockefeller Foundation – *Lancet* report on *Safeguarding human health in the Anthropocene epoch* (3) creates a whole context for *Project Phoenix*. Thus it ends with advocacy for radical action many of whose points are set out here, as follows.

> To advance planetary health, policies should:
>
> • Account for depreciation of natural capital and nature's subsidy so that economy and nature are not falsely separated. Policies should balance social progress, environmental sustainability, and the economy.

• Support planetary health by addressing the unfinished agenda of environmental health challenges (which are mainly related to poverty), increasing resilience to emerging threats, and tackling the driving forces of environmental change (resource use, population, and technology)—thus enhancing the integrity of the natural systems on which humanity ultimately depends.

• Facilitate action before irreversible changes in key natural systems occur—in the presence of uncertainty about critical thresholds or rates of change in natural systems—to reduce the risks of major catastrophic effects on human civilisation caused by failures of complex systems, both natural and human.

• Scale up resilient food and agricultural systems that address market failures leading to both undernutrition and overnutrition, reduce waste, diversify diets, and minimise environmental impacts.

• Complement the curative, biomedical, molecular approach to health…with a focus on addressing environmental and social roots of ill health through a preventive approach.

• Develop more resilient health systems, above and beyond the present discourse on universal health coverage, integrating health care and environmental care, particularly at the front-line primary level. Environmental health needs to be integrated into health budgeting and purchasing processes.

To advance planetary health, policies are needed that:

• Achieve improved governance for planetary health through cross-sectoral action at global, national, and subnational levels. Governance should help with a precautionary approach to reduce the risks to health and natural systems in a world where vested interests undermine the political will to act and where inequities have marginalised the voices of many disadvantaged groups.

• Implement creative financing—eg, reduction of harmful subsidies, revenue recycling, payment of providers of ecosystem services, and taxation of polluters—to support rapid transition to a more sustainable world economy than exists at present.

• Promote transformative change through combinations of different approaches using a range of regulatory, fiscal, and tax policies; mass media campaigns; and individual behaviour change interventions. These strategies should be assessed by rigorous research to define their effectiveness and tailored in view of the findings.

A transformed system

While not all directly appropriate or applicable, all this indicates the broad context within which a whole system of nutrition science, based on new principles, now needs to be created and made to work in the world in which we all live now. It needs to be integrated with other disciplines, bonded with civil society organisations and social movements and all entities working in the public interest, and with the strength, resilience and determination to inspire equitable political and economic policies.

The task of reconstructing nutrition science begins here and now. *WN* is pledged to play our part in this necessary transformation. The work of *Project Phoenix* continues. More contributions, please.

References

1 Wahlqvist M. *Project Phoenix*. They do things differently in China *[Feedback]*. *World Nutrition* June 2015, **6**, 6, 532-533.

2 Leitzmann C. *Project Phoenix*. The rise and fall of biochemical nutrition. *[Feedback]*. *World Nutrition* June 2015, **6**, 6, 534-535.

3 Whitmee S, Haines A, Beyrer C et al. Safeguarding human health in the Anthropocene epoch. Report of The Rockefeller Foundation–*Lancet* Commission on planetary health. Published online 17 July 2015, http://dx.doi.org/10.1016/ S0140-6736(15)60901-1. *Access pdf here*

4 The Holy See. Laudato Si'. Encyclical letter by Pope Francis. *Access pdf here*

5 Klein M. *The Shock Doctrine. The Rise of Disaster Capitalism*. New York: Picador, 2007.

6 Kahane A. *Solving Tough Problems: An Open Way of Talking, Listening, and Creating New Realities*. New York: Barrett-Koehler, 2004

7 Patel R. *Project Phoenix*. If the time is not now, it will come *[Feedback]*. *World Nutrition* September-October 2015, 6, 9-10, 742-745

8 Fardet A. *Project Phoenix*. Shifts to a holistic paradigm *[Feedback]*. *World Nutrition* September-October 2015, 6, 9-10, 745-748

9 *Tudge C. Project Phoenix*. From facts to wisdom *[Feedback]*. *World Nutrition* September-October 2015, 6, 9-10, 749-754

Status

Cite as: The *Update* team. *Project Phoenix*. Nutrition. Time to rise and fly in our new world. *World Nutrition* September-October 2015, **6,** 9-10, 683-693. All contributions to *World Nutrition* are the responsibility of their authors.

How to respond

Please address letters for publication to wn.letters@gmail.com. Letters should usually respond to or comment on contributions to *World Nutrition*. Usual length for main text of letters is between 350 and 1,200 words. Letters are edited for length and style, may also be developed, and once edited are sent to the author for approval.