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"EATING THE PLANET" - SEEKING A PHILOSOPHY OF FOOD IN THE ANTHROPOCENE²

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ABSTRACT

This paper discusses possibilities of renewing the philosophical discourse on food as part of interdisciplinary approaches to understand the global changes of food systems and the transcultural consequences of these changes. Social and environmental changes in the epoch of the Anthropocene, of globalization, industrial food production, and genetic modification of food products, require interdisciplinary analyses. The philosophy of food did not become influential in the history of philosophy and not in present social and ecological food discourses, except in fragmentary themes as the ethics of food production and consumption. The traditions of interdisciplinary and synthetic thinking in philosophy give reasons to renew the philosophy of food to analyse and reflect the wider social, cultural and ecological problems of food production and consumption. Such critical analyses require, beyond empirical research and its assessment, knowledge syntheses, theoretical reflection and normative judgements. The themes include the paradoxes of modern food and agriculture systems: hunger and abundance of food, unequal distribution of resources and access to food in market systems, commodification and de-commodification of food and natural resources, the limited availability of natural resources for human consumption and the continuing economic "growth mania". The metaphor "eating the planet" describes risks for food production and consumption under conditions of global social and environmental change. Why such a cognitive programme should develop under the name of philosophy is discussed with arguments referring to knowledge synthesis, critical analysis and the practical significance of the philosophy of food for searching solutions to food and resource problems.

Keywords: philosophy of food; sustainable food production; globalization of food; changing cultures of food; food justice

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"Dismissal of food as a proper subject for philosophical inquiry is well rooted in the history of thought. Food, food preparation, and the appetite that drives them have been thought to be too mired in the body to be of any philosophical interest"

(Ray Boisvert, Philosophy Regains to its Senses, in: "Philosophy Now", 32, 2015)

INTRODUCTION – CULTURAL HISTORY OF FOOD

Reconnecting knowledge about food from specialized research in the humanities, the social and the natural sciences is necessary to discuss critically the many problems and consequences with food production, processing, distribution and consumption in the globalizing world. Knowledge synthesis and critical reflection are part of a broader interdisciplinary trend in research developing in the second half of the 20th century (Thompson Klein 1990). In this process philosophy is involved through its traditions of synthesis, epistemological, normative and critical reflection. Also in the research on nutritional, social, cultural and environmental aspects of food several philosophical disciplines play a role, beyond traditional forms of practical philosophy, such as the ethics of food. More important are newer forms of epistemology and theory of science, philosophical anthropology, cultural and social philosophy, developing in 20th century in interdisciplinary communication and knowledge use.

What are the social and environmental problems connected with nutrition and food? Why - and in which forms - should they be reflected philosophically? These questions guide the following discussion of a renewal of the philosophy of food, to find answers *to the solution of problems in the epoch of globalization or the Anthropocene*. This new term for the modern society, created in environmental research, refers to the short period of time, less than three hundred years of industrialization, that brought changes in the ecosystems and the environment through human activities as never before in the long history of human civilizations. The man-made global change, including climate change, reduction of biodiversity and land use change through rapid urbanization, generates a series of problems of food that did not exist before in human history. Most of these problems are connected with the role of science in food production, processing and consumption cultures, although this causality does not always appear in the food discourse. Intended and non-intended consequences of food research can be studied better in interdisciplinary approaches than in specialized research in food science.

Two assumptions regarding the consequences of global change in food processes guide the following discussion:

- *The global spreading of food resources is not a new process and not a standardizing development*

towards a universal (Westernized) food culture through modernization. Global trade in food products has been continuous for five centuries in the modern economic world system. Reactions to global exchange and trade of food resources range in many forms from acculturation of food from other cultures and countries to the revitalization and defence of local food production.

- *Food production, preparation and consumption are more than other natural resource use culturally shaped and differentiated processes of complex material and symbolic food cultures.* All processes of refinement from the raw to the cooked (Levi Strauss 1964) mediate between humans and the natural environment, in cultural transformations of food through human labour and the use of energy, knowledge and technology. The global exchange of, and trade in food resources is a politically regulated economic process, but the manifold cultural transformations of food are only partly influenced by it.

A renewed philosophy of food can help to maintain the collective memory of modern food cultures that are rooted in very old processes of social and cultural change in human history. Cultivation of food plants through agriculture is part of the ecological and cultural specificity of humans in the long process of human evolution. The global spreading of food products in modernity is a continuation of older processes of human conquering of the earth, accelerating since the invention of agriculture in the "neolithic revolution", in different parts of the world. This "Promethean revolution" (Georgescu-Roegen 1986) changed the forms of energy transformation and modes of production that helped to feed larger populations. The three significant revolutions of this kind in human history are connected with changes in food production and consumption: the use of fire by humans, the transition from hunting to agriculture and from agriculture to industrial society. The cultural memory of modernity usually covers the time since the European conquest and colonization of the Global South that started more than 500 years ago. Since then food cultures were continually globalized through the import of colonial goods into Europe that included to a large degree food products – fruits, vegetables, spices, sugar, coffee, cocoa, and tea. Some of these products (coffee, alcohol, tobacco) show the cultural change of modern Western culture to a "soft drogue culture" as it was called by Sahlins.

The ancient agricultural civilizations described as historical world systems (Egyptian Empire, Roman Empire, Han China, Amerindian Empires) created the modern food products through domestication and influence food cultures to this day. These civilizations developed through the cultivation of a dominant and characteristic staple food that became the main food for the masses. In the oriental and occidental cultures it is wheat, in the Chinese culture rice, in the Amerindian cultures maize; the three crops are still the most important food crops today. Although the Western food culture could be called a culture of meat, with meat products becoming the dominant food components in industrial society, it is still wheat that marks its identity ever since the early civilisations, biologically (as a plant) and as a product of human culture (bread). The cultural modifications of food processes in human history are investigated in several disciplines and subject areas including, beyond agriculture and food science, anthropology (Suehara 2012), environmental history (McNeill 2003, Crosby 2004), historical ecology (Bilsky 1980, Balée 2006), biogeography (Simmons 1980), human ecology (Bruhn 1972), cultural ecology (Steward 1972) and social ecology (Fischer-Kowalski and Rotmans 2009). Changing production and nutrition practices influenced population growth and human capacities of adaptation, the "Malthusian theme" of ecology. With the development of agriculture humans demonstrated their capacity as the most adaptable

species, as specialists in adaptation to different natural and climatic conditions, a capacity based on the invention of culture as brain- and memory-based system of storing and altering behaviour (Crosby 2004: 13f).

The changes through globalization since early modernity imply the accelerated growth of economies, natural resource use, human population and environmental destruction. Local food cultures in Europe changed continually through imported fruits and plants from the colonies, with the potato becoming the most important when it was cultivated in Europe as a staple food. Fruits like bananas, oriental spices, tea and coffee became part of European "meal cultures" (Hamburger and Teherani-Krönner 2014) only during colonialism. The last 500 years in Europe have been a continuous globalization process based on "*Columbian exchange*" as Crosby called the exchange of products between the ecosystems in different parts of the world that were earlier in history separated territorially and culturally.

This historical process of global exchange of goods, part of modernization, includes many forms of exchange and acculturation of food products, framed by two contrasting global processes:

- the continuing *Columbian exchange* tending towards variation, enrichment and blending of food cultures all over the globe, and
- the *reduction of agrobiodiversity* through modern agriculture tending towards standardization and uniformity of food products – ecologically, economically and culturally.

The global flow of food products was for long time unidirectional, from the colonies or the periphery to the European metropolises or centres. Still today the largest part of natural resources flows from the Global South to the Global North, and the exchange is determined by the economic processes of capitalist production and reproduction. Changes of food cultures are specific in these broader global flows of resources, described, e.g. in the sociology of flows (Mol and Spaargaren 2006). The question to discuss in the philosophy of food is not that of the global flows in monetary and physical dimensions, but of the cultural adaptation and transformation of food processes as specific processes within the economic dynamic: not independent from it, but modifying this dynamic in manifold ways. The changes of agriculture and food production in modernity can be seen as part of the "great transformation" (Polanyi 1944) to modern society, including:

- *acculturation* of food through exchange of food products as a process of enrichment of local food cultures;
- *physical changes of the landscape* through agricultural production (forest clearing, fields, cultural landscapes);
- *scientific transformation* of food (scientific knowledge for preparing, conserving and consuming food);
- *economic transformation* of food from local subsistence production to market-based production (monetization, commercialization);
- *transformation of food into a scarce good* in power-driven processes of appropriation and commercialization (not as natural scarcity of food products): the same global economy that produces affluence in some countries and for a part of the human population produces malnutrition and hunger for another part.

The brief discussion of food history shows potential themes of a philosophy of food in the sense of an interdisciplinary science:

(1) A renewed philosophy of food can help to understand the *contradictions of food related processes*: the interaction between contradictory social processes of unequal access to food, affluence and poverty, food and hunger. These dilemmas require as part of the solution a transformation of modern agriculture and new normative orders for regulating natural resource use. In human history unequal access to food and malnutrition has not vanished but grown, reaching unprecedented dimensions during modernization. Hunger is today a man-made process of excluding the "absolute poor" from the access to food through markets, no longer a consequence of natural disasters that created hunger throughout human history. The growth of affluence is accompanied by growth of permanent hunger for a larger part of the human population. The attempts to combat hunger and malnutrition through technical modernization, domestication of plants and animals, and the development of high yield varieties- processes controlled by agricultural scientists, economists, engineers and private enterprises- resulted in a development trap. This trap is a consequence of unequal access to, and distribution of food through market-based processes, of commercialization, monetization and transformation of food and natural resources into private property, of overuse of natural resources and environmental disruption. Not technology but redistribution of food products and natural resources more generally is required. Redistribution is on the political agendas through the sustainability discourse, but in the practice of agricultural and environmental policies it is still disputed. In a more limited sense redistribution is discussed as a problem of food safety and security (Hongladarom 2015).

(2) A renewed philosophy of food can help to understand *cultural transformations of food processes and products* through historically specific theoretical analyses and theoretical framing of the analysis of food cultures and their changes. Macro-sociological theories of modernity and globalisation as well as the political-economic theories of modern capitalism seem too broad and general with their universal concepts to catch the cultural constitution of processes of food production, preparation and consumption; these can be understood as specific modes of cultural production within economic modes of production. Eric Wolf (1982) has in an exemplary way shown that the macro-social process of the global spreading of capitalism is not determined by the economic logic, but is throughout modernization constantly integrating manifold locally specific forms of economy, production and consumption, is a process requiring adaptation and integration of local cultures. From empirical research and local case studies in cultural and ecological anthropology the continuing diversity of local cultures is easily confirmed (Sahlins 1999); but without theoretical synthesis, codification and interpretation the knowledge remains in the state of particularism and does not allow the formulation of common properties, interrelations and trends. Furthermore, the empirical knowledge requires reflection in philosophical terms and forms. In the following discussion such an interdisciplinary philosophical perspective is unfolded in four steps of:

- summarizing *philosophical analyses of food in the history of Western philosophy* as context from which to develop an interdisciplinary food discourse;
- illustrating the interdisciplinary analysis with *exemplary empirical studies* that show the present problems

of food and nutrition;

- developing an *interdisciplinary perspective* for the analysis of the transformation of food processes in modernity in a macroscopic cultural perspective;
- concluding reflections about the *development of a new philosophy of food* and its justification as philosophical analysis.

WESTERN PHILOSOPHY OF FOOD IN HISTORICAL PERSPECTIVES

In Western philosophy, a knowledge culture of a person- and male-centred individualism, food remained a marginal theme, dealt with in form of examples, illustrations, aphorisms, footnotes. The philosophers did not see food production, processing and consumption as requiring philosophical knowledge. Philosophy of food remained a theme of practical philosophy, in the traditional philosophical discipline of ethics, and in modern forms of practical or applied philosophy (documented less in the Journal "Practical Philosophy", more in the "Journal of Applied Philosophy"). The neglect of food in the philosophical discourse contrasts with the importance of philosophical concepts and knowledge for the analysis of food-related processes. Only a few works with a more systematic analysis of food are found in ancient and modern philosophy. Some of these are world view and religion-based reflections of eating (e.g. Bellows 1867). Many popular books on food philosophy published today are more advisory books for everyday life, not aiming at a philosophical science of food (see the recent example of philosophical reflections on eating by Davey 2013 or Lemke 2014). Important ideas for a modern philosophy of food as synthetic science can be found in the following sources (chosen for their reviewing and summarizing discussion of food):

(1) Shields (2015) describes *Aristotle's* theory of the soul that connects to the systematics of plants, animals and humans, with nutrition as an important component. The theory cannot be judged with modern biological knowledge; it is an early example of analysing nutrition as part of the complex process of life and as a life-supporting process. Aristotle rejects a simple mechanistic view of growth in material terms arguing with the complexity of life and growth processes that require theoretical analysis and reflection. In modern biology and ecology such processes are analysed in specialized research that requires further theoretical and interdisciplinary synthesis. Only some complicated and controversial theories developed integrated and holistic analyses, as the examples of the holistic biology of Uexküll (1920) or the more recent theory of autopoietic systems (Maturana and Varela 1980) show; these transgress the boundaries between biology and philosophy.

(2) In the philosophical anthology of *Althoff and Monroe* (2007) that starts with Epicurus as *the* food philosopher, a reason for the popularity of practical food philosophy today becomes visible: hedonist motives direct the philosophical discourse of food. Philosophical hedonism is not necessarily arguing for luxurious and conspicuous consumption; it can also, as does Epicurus, argue for moderate food cultures. Philosophically relevant themes of food- food values, meat and vegetarian diets, eating disorders, taste, aesthetics and ethics of food, hunting, and meal cultures- are discussed by the authors in a somewhat eclectic fashion. The discussion is philosophical in the sense of reflections of the relations between humans, society and food to show the problems within these complex webs of food processes – beyond the ecological analysis of food webs (Sch-

oender 1989). What is lacking is an integrated and synthetic perspective for the critical reflection of modern food research and the problems of access to and security of food.

(3) In the discussion of *Korthals* (2008) main arguments supporting a new and critical philosophy of food appear. He discusses the alienation of philosophy from food as "*the philosopher's incoherence*", throughout the history of Western philosophy visible in attempts to get rid of the body or reducing bodies and eating to secondary activities, not relevant for philosophical reflection. Kant's ideas for a theory of the social meaning of food production and consumption are mentioned as an exception from which the philosophical discussion of food in modern society can start again, necessary because of the growing social problems with food visible in global hunger and obesity, competing food styles as fast and slow food and their consequences for the environment and human and animal welfare.

(4) *Heldke* (2013) reflects the relation between philosophy and food, showing some themes of a renewed philosophy of food: applying philosophical categories to new or unaccustomed topics; reconceptualizing an existing philosophical discussion as one of food; recovering the value of previous philosophical work for the study of food; revealing new categories of philosophical understanding through analyses of food. This attempt to systematize the subject area is useful for the thematic description of a new philosophy of food, but limited through a conventional understanding of philosophy. Traditional philosophical ideas and concepts are used, interdisciplinary knowledge synthesis less so.

(5) *Onfray* (2015) shows in exemplary way the end of traditional philosophical reflection of food, less so because of his self-description as a post-anarchist ethical hedonist, or his selection of authors like Diogenes, Rousseau, Kant, Fourier, Nietzsche, Sartre, Marinetti. Onfray's conclusion regarding the connections between eating and thinking in philosophy is: no ideas are really new, all is reactivated and recycled from past ideas, coming with that message close to a postmodernist credo. The results he describes connect to the interdisciplinary food discourse: food cultures are part of a broader ethic or morality, for example, asceticism; food cultures show the advances of civilization, visible in refined techniques of food production, preparation and consumption; diets of people show the values and knowledge of their cultures and societies.

(6) Female philosophers are excluded from Onfray's reflection of food and thinking, as from Western philosophy in general. Nevertheless women contributed to philosophy throughout its history (Rullmann 1998, Villanueva Gardner 2003). The female contributions to Western philosophy are not necessarily concentrating on food or reflecting on the social and genderized division of labour in food production, although they include food and health related reflections. The notion of philosophy becomes rather diffuse with these reflections developing from various disciplines. Critical food analyses are found today in interdisciplinary research, detached from philosophy, for example, in the discourse of cultural ecology with the concepts of meal culture and meal policy (Hamburger and Teherani-Krönner 2014).

The examples above show that the themes discussed here, the changing conditions of food production and consumption in the epoch of the Anthropocene, are lacking in conventional philosophy. Globalization, industrial food production and genetic modification of food products require knowledge and ideas from different disciplines as well as the connection and synthesis of knowledge. The authors in Kaplan (2012) give some ideas

for answering questions of food safety, quality and justice beyond the practices of ethical norm formulation and legal control. Their interdisciplinary and philosophical reflections include themes of aesthetics, hunger, genetic modification of food, animal welfare and animal ethics in agricultural production, agricultural and nature politics as well as nutrition and food safety. These themes from different knowledge fields cannot be integrated into one overarching theory or framework; they require more complex forms of synthesis, discourses, combinations of theories, analyses and cooperation of scientists from different disciplines, approaching similar forms of new knowledge production as transdisciplinarity (Nowotny et al 2001).

EXEMPLARY EMPIRICAL STUDIES OF FOOD PROBLEMS IN MODERNITY

The following examples of empirical studies of food problems do not represent the whole spectrum of specialized empirical research that generates new knowledge about food processes, only some illustrative examples. The heterogeneous themes, views and perspectives in these studies show: food studies require more integrated, holistic and culturally embedded approaches for analysing food problems, some kind of interdisciplinary synthesis of knowledge directing towards a philosophy of food in the form discussed here.

(1) *Health care - the philosophy of preventive nutrition*: Fardet and Rock (2014) discuss a new philosophy of preventive nutrition with a holistic paradigm to support more efficient nutritional recommendations. The reductionist approach dominating in human nutrition research in Western countries has helped to identify some fundamental mechanisms of food nutrients (e.g. those resulting in deficiency diseases) and to increase life expectancy, together with progress in medicine and pharmacology. But after forty years of nutrition research epidemics of obesity and diabetes are continually growing worldwide, in developed and developing countries, with decreases in healthy life years. It has become clear that interactions between nutrition and health relations cannot be modelled as linear cause-effect relations, but as multi-causal, non-linear relations. In spite of the methodological weaknesses of reductionist analyses, they seem necessary, as holistic approaches to show different consequences of philosophical thinking on nutrition, regarding different aspects as public health, environmental sustainability, breeding, biodiversity, food science and processing, and physiology that contribute to nutritional recommendations. It is expected that holistic approaches can show global solutions to the problems encountered "from the field to the plate", coming away from pharmacology and analyses of foods as drugs (Fardet and Rock 2014: 430). Although uncovering the limits of reductionist methodologies in nutrition research, the solution discussed as interactive or holistic thinking is limited as well, simplifying philosophy to world views.

(2) *Environmental problems - the organic food culture*: Schösler et al (2012) study Dutch food consumption and its importance for transition towards more sustainable global consumption of natural resources in a cultural-historical analysis. Focusing on consumer options for organic food from ecologically integrated farming and more carefully produced food, the study takes up part of the questions discussed here in more theoretical perspectives. It is shown that the choice for organic food happens in culturally framed processes where consumers practice individual food philosophies in ethical terms. The organic food culture, dating back to historical social movements as the German "Lebensreform" (reform of life) and the American Natural Foods Movement, implies the wish to return to natural lifestyles, distancing from materialistic lifestyles in modern

industrial society, and finding individually meaningful moral ways of life. These- not new- ideas and values of connectedness to nature, awareness, and purity connect in the choices of lifestyles. Such values are shared by a larger part of Dutch society which seems to enable expansion of organic food consumption as part of transitions to sustainable consumption. The study shows the dilemma of consumers' choices of food products: these cannot be realized simply as individual choices of consumption in the sense of buying other food, but require complicated changes of lifestyles that are part of collective action processes and of complex social processes of transitions to sustainability. The sharing of cultural values alone is not sufficient to realize transitions, although it is a component of larger changes.

(3) Eating the world – food consumption as part of local and global processes of change: Scruton (2003) sees a long chain of connections between the following processes: clearance of the rain forests, the desertification of the grasslands, soil erosion caused by deforestation, the loss of boundaries and intensification of agriculture, the accumulation of landfill sites, the pollution of the landscape by non-biodegradable waste, the destruction of the high street and the town centre by the out-of-town supermarket, the escalation in food miles to the point where food may consume its own weight in fossil fuels before arriving on the supermarket shelf, the spread of fast food and the culture of fast food, the disappearance of the family meal, the pauperization of the small farmer, the growth of genetically-modified organisms and patented crops, the use of World Trade Organisation rules on 'trade-related intellectual property rights' to obliterate local food economies, the increasing obesity of populations in wealthy countries, the aesthetic pollution of historic townscapes by the logos and facades of the fast-food chains, the disappearance of the village shop and the local market. All these phenomena are seen as dis-equilibrating forces of production, processing, distribution and consumption of food. The many interdependent factors and processes in food production and consumption require holistic analyses, but Scruton's observations do not show how a new philosophy of food can be constructed to integrate knowledge more systematically.

(4) "Eating the planet" – a social-ecological scenario: Erb et al (2009) develop a global scenario for different food categories for 2050. The metaphoric title symbolizes the connections between human food production and consumption and primary production, consumption and reduction processes of ecosystems; it refers to the new risks in food production and consumption under conditions of global social and environmental change that require social and ecological solutions to food and resource use problems. The scenario uses the medium population forecast of the United Nations (9.16 billion in 2050) to project the demand for infrastructure areas and to calculate total food demand. FAO, the Food and Agriculture Organization of the United Nations, projects for 2050 crop yields to grow by 54% and crop land area by 9%. This projection is compared with two other crop production scenarios: wholly organic crop production and a mix of farming systems that create a mean yield between the FAO and organic crop systems. Four different diets are assessed, ranging from a 'western high meat' diet (3 171 kcal/cap/day, rich in animal protein) to a nutritionally sufficient 'fair less meat' diet (2 800 kcal/cap/day, sufficient protein and fat, low in animal protein), and three different livestock rearing systems ('intensive', 'humane' with free range, and 'organic'). All three crop production variants seem feasible: (a) feeding the world with organic crops and an organic livestock system, with a nutritionally sufficient diet; this requires a high degree of equality in food distribution to avoid malnutrition; (b) the 'Western high meat'-diet

requires high crop land expansion; (c) the mix of farming systems requires crop land expansion and the development of 'organic' as well as 'humane' livestock rearing systems (Erb et al 2009: 8). This scenario is complementary to the discussion of food cultures above. It shows a wide range of possible futures of agriculture and the different environmental and resource use effects of these. A limiting factor of growing food production is the possibility to expand crop land which is already scarce.

(5) *Feeding the world in 2050 – food security*: The thematic journal issue discussing the future of the global food system edited by Godfray et al (2010) shows in a number of studies different food problems expected in the mid of this century, when global population growth is approaching its peak and global climate change has significant influence on food production. The discussion includes food-related aspects of global population projections, food consumption trends and drivers, urbanization, income distribution trends, arable crop yields, livestock production, marine and inland fisheries, aquaculture, competition for water and land, ecosystem services, energy, globalization, food prices, agricultural research and development, food waste, healthy food, and food scenarios. These can be seen as important factors, trends and processes that influence the future of the global food system. The themes do not give a completely coherent picture, but show the main problems to discuss in integrated perspectives.

Empirical studies of food production and consumption cannot be integrated without further methodologies and theoretical reflection. Global scenarios and projections in food science work with models. Modelling alone does not help to understand the future, potential development and changes; theoretical and epistemological analyses and reflections are required to deal with incompatibilities, contradictions, dilemmas and conflicts that appear with socio-cultural changes and transformations. Only in few approaches as that of Arnason (2003, 2006) develop more differentiated and integrated methodological and theoretical perspectives to analyse food-related processes as part of multiple modernities and as multi-scale phenomena. These perspectives range from micro- to macro-sociological views, from local to global forms of interpreting or constructing the world. Historically varying forms of interaction between nature and society are connected with the material and symbolic cultures of food production and consumption. Theories used to interpret these interrelated processes need to show how competing and conflicting cultural interpretations of collective actors and social groups shape food cultures, but also how these cultures are influenced by structural constraints of societal systems.

INTERDISCIPLINARY ANALYSES OF FOOD PROCESSES IN LATE MODERNITY

In interdisciplinary knowledge production appear new forms of generating and using empirical knowledge for which the scenario "*eating the planet*" (see above, 3) gives an example. Much more data and information need to be used and analysed in global scenario construction that develops rapidly in environmental research. In the environmental discourse preferences for different food cultures- traditional food, local food, slow food, vegetarian food, organic food, and others- are discussed in ethical or moral terms, in traditional forms of practical philosophy. To understand the significance of such alternatives for solving nutrition problems requires comparison, theoretical reflection, and knowledge synthesis.

The paradoxes and dilemmas of modern food and agriculture systems give an example of complicated questions requiring broader analysis and reflection from several perspectives: coexistence of hunger and abundance of food, unequal distribution of resources and access to food in market systems, commodification and de-commodification of food and natural resources, limited availability of natural resources for human consumption and continuing "growth mania" of the market economy, locally specific and transcultural criteria of food quality and security. There is no single methodology, approach or theory to analyse the dilemmas sufficiently. Broadening of analytical perspectives, combination of different theories and methods, and epistemological reflection are attempts to deal with the increasing complexity of resource problems in modern society of which the dilemmas of modern food systems are a part.

Local food, its production and consumption, is part of the complexity of societal development. As counter-trend to the industrialization of food production it is a renewal of non-industrial production forms in modernized and globalized food cultures, in attempts to maintain criteria of food quality and safety that cannot be achieved in industrialized food production (for European countries see Fonte and Papadopoulos 2010). To study the conflicting and contradictory development of such alternative cultures and the dominant food cultures requires analyses of the connections of food production to economic and population growth and multi-scale processes of use and governance of natural resources, especially water and land. *Sustainable food systems* are not just local food systems; they become part of a global transformation of resource use and food production discussed as sustainable development, guided by the ideas of intra- and inter-generational solidarity of resource use, sharing and redistribution. Changing roles of food in agriculture and rural development, the alternatives of food or bioenergy production on agricultural land, changing conditions of food quality and security, and possibilities to maintain cultural, social and ecological diversity, need to be studied in interdisciplinary analyses, as discussed in the social-ecological discourse (e.g. Fischer-Kowalski and Rotmans 2009, Bruckmeier 2013), including the problems and dilemmas mentioned above.

Whether such an interdisciplinary programme should develop under the name of philosophy, or from the discourse-leading disciplines in environmental research, remains controversial. The controversy cannot be resolved here, but arguments can be drafted for a critical philosophical analysis and reflection of food problems. Some arguments can already be described from the points discussed so far, with interdisciplinary knowledge synthesis as a joint idea.

(1) *The heterogeneous forms and results of research, the specialized knowledge, and the heterogeneous theories in the food discourse cannot be reflected upon and integrated within the boundaries of disciplinary discourses.* A renewed philosophy of food should help to break through these knowledge boundaries of specialization and support a transdisciplinary discourse through syntheses of knowledge from various sources, scientific and local knowledge forms. The first step is a synthesis of empirical knowledge from different fields, especially sociology, cultural anthropology, economic and political science, agricultural science, biological and ecological food research. Building on such – thematically specific – syntheses the second step is theoretical synthesis, using concepts and criteria from several social scientific and natural scientific theories, as done in an exemplary way in social ecology. This theoretical synthesis is in the third step reinforced through the use of epistemologi-

cal and philosophical reflections about food related knowledge. Finally, the synthesized knowledge needs to be transformed in methodologically controlled ways for use in the practices of environmental research, action and governance. Such progressive syntheses (using a term from ecological research, see Ford and Ishii 2001, but in more complex variants of interdisciplinary syntheses) include sociological knowledge which is relativized, (re-) contextualized, reflected and discursively used in comparison with knowledge from other disciplines and research areas. In this way scientific knowledge practices become similar to practices of knowledge use in policy and resource management, where rarely one single discipline, approach or theory is used.

(2) *The practices of food production* that require interdisciplinary perspectives and reflection "imitate" interdisciplinarity with the complexity of resource use achieved in modern agriculture. Food processes are no longer separate and autonomous as production, processing, distribution and consumption, or locally limited; with modernization they became part of the globalized industrial system in multi-scale processes of exchange and acculturation of food. In food production many other resources are used: water as a natural resource and food itself, oil and other fossil energy resources, land, synthetic fertilizers, machine technology, and increasingly the technologies of genetic modification of plants and animals. Among these resources water is scarce: about 70% of global freshwater is used for agriculture (irrigation and other production techniques; for further details see the AQUASTAT information system of FAO). To enlarge agricultural water use requires technologies like desalination of ocean water that lack economic and ecological rationality, continuing the vicious circle of production forms that use more energy and material than they produce. The use of many resources and technologies in food production means: humans "eat the planet", they not only consume its biomass in the form of plant and animal products or the "virtual water" that is required to produce food, but also its mineral resources and the land on which food is produced. This complicated networking of food production with other processes of resource use is not sufficiently described as "scientification" that is understood mainly as improving the quantity and quality of food, its hygienic and dietary quality, protecting human health and well-being. The non-intended consequences of scientification and industrialized food production appear with the slogan "we feed the planet", meaning the few hundred multinational firms that today control the commercialized global food production. The contradiction between "we eat the planet" and "we feed the planet" is obvious: the first formulation implies to become aware of and to deal practically with the non-intended and negative consequences of modern food production that uses more and more resources; the second formulation neglects these consequences with the myth that there is no alternative to industrialization and economic globalization of food production to meet the demands of a growing global population.

(3) *Transcultural exchange and globalization of food production and consumption are complicated and require analyses from different perspectives.* They include continuous recombination of food practices in manifold forms. The local coexistence of different cultural food practices can be seen as a positive form of cultural contact and enrichment of local food cultures. Eating of Chinese, Indian and other food from non-European countries has become part of cultural practices of food consumption in European countries, without national, regional or local food cultures in these countries vanishing. With the exchange of food products between European countries in an integrated European economy some products, for example, olive oil have lost their regional identity without negative cultural or nutritional consequences. However, in food trade the products do

not travel alone between cultures and continents – with them travel negative components, e.g. diseases and ecological risks. Also the commercialization of food consumption through fast food in global restaurant chains is more problematic – economically, ecologically, culturally and in terms of health effects. When living resources, plants and animals, are exchanged or spread globally, negative consequences may be caused through species invasion; this may achieve the degree of ecological catastrophes as the introduction of the Nile Perch in the African Lake Victoria resulting in the extinction of local fish species (documentary film of Sauper, "Darwin's nightmare"). In the broader context of globalization the territorialization of food processes and products, with local food as a marker of quality and cultural identity, appears as part of complex, differentiated and multi-scale changes of food cultures.

(4) *The modification of nature through humans, mainly done through food production, shows food cultures as part of broader cultures and of global processes.* The melting of nature, culture and society are among the difficult and theoretically controversial themes in the social sciences that require interdisciplinary communication and cooperation. An interdisciplinary theory of society-nature interaction, so far not advanced (for further description see Bruckmeier 2015), can support the analysis of positive and negative effects of modifications of nature. In the history of critical theory in the social sciences such a theory was developing with the analysis of "societal relations with nature" (Biro 2011). Today such integrated and interdisciplinary perspectives are renewed in other forms in ecological and social-ecological research (Bruckmeier 2013), analysing the contradicting processes in coupled social-ecological systems, the development of technonatures (White and Wilbert 2010) and socionatures (Swyngedouw 2010). Whereas food consumption cultures have not become globally standardized, standardization processes are part of food production. The contradicting nature of globalizing food processes requires more differentiated, multi-perspective approaches to analyse the forms of differentiation and blending, technical refinement and simplification of food production and processing, of changing cultural and scientific norms and standards of food quality and security, of changing combinations of local and non-local food in meal cultures.

(5) *Socio-cultural analyses of processes mediating between nature culture and society develop towards interdisciplinary, epistemological and philosophical analyses and reflections including food, however, in limited degrees.* Food cultures can be analysed with the figurational sociology of Elias (2000) for the study of civilizational processes to show the disciplining power of culture and socialization in food consumption, reading the civilization process as one of cultural refinement and "taming" of the emotions. Broader is the interdisciplinary approach of Braudel for the analysis of civilizations, starting from the material infrastructures to analyse how "space, land and its contours, climate, vegetation, animal species and natural or other advantages" interact and how humans dealt with these basic conditions of life (Braudel, 1993: 9). Such analyses are not advanced in an explanatory capacity, but rather are more descriptive. For a systematic interdisciplinary analysis of civilizations and their development the approach of Arnason (2003), developing from a dialogue between philosophy and the social sciences, gives an example. The complex concepts of civilization and culture are connected in the comparative analysis of civilizations and cultures in their social and historical contexts. With further concepts required in the analysis of cultures and civilizations, especially nature and society, the difficulties of this approach begin where the concept of society remains somewhat diffuse and under-theorized. The interaction

between nature and culture as a potential theme of inter-civilizational comparison of cultures (Arnason 2003: 62f, 304) is methodologically more difficult.

With these arguments and examples the justification of an interdisciplinary philosophy of food can be discussed further in epistemological, methodological and thematic terms:

(1) *Epistemologically and methodologically* seen integrative frameworks and theories for synthesizing knowledge create difficulties that are hardly discussed or solved today. Syntheses require methodologies (e.g. Mieg et al 2008) and theories (e.g. Jones et al 2011), but these need to be reinforced through meta-theoretical and epistemological reflection of knowledge. A renewed philosophy of food requires concepts, methods and theories for knowledge production, synthesis and reflection, developed and used in an open, inter-disciplinary and inter-theoretical discourse with changing forms and different themes. In approaches and theories from historical, cultural, human and social ecology emerges an interdisciplinary knowledge culture (see Bruckmeier 2015). Concepts and theories can be combined and integrated in flexible forms for different purposes, in broader theoretical perspectives and reflections of food production and processing as an integral part of the human use of natural resources (paradigmatic forms include Arnason's civilizational analysis and social-ecological theories of societal metabolism).

(2) *The themes and questions* of interdisciplinary approaches that can be used in further philosophical reflections of food are complementary to specialized sociological and other disciplinary research where questions as the following can hardly be dealt with (for further description see Bruckmeier 2015):

- *Multi-dimensional and multi-scale processes of development and change in modern society* include the relations between human beings, nature, society, culture, civilization; the cultural logic and the culture-specific components of food processes in the overarching processes of modernization and globalization; normative cultural interpretations of food processes; combination of ecological analyses with cultural and social analyses of food processes.
- *Transformation of food cultures under conditions of global social and environmental change* includes analyses of the paradoxes of modern food and agriculture systems, food and hunger, economic growth and limits of natural resources; industrialization of food production and new alternatives as food or bioenergy production; local food production and consumption under conditions of globalization and multi-scale food governance; changing conditions of food quality and security, and possibilities to maintain the cultural, social and ecological diversity of food; possible future forms (global scenarios) of agriculture and food production and resource use; possible ways of transformation of modern society towards sustainability.

What characterizes such analyses of food cultures or natural resource use more broadly is the complexity to deal with that requires the combination of different themes and analytical perspectives, social and natural scientific, empirical and theoretical knowledge. Difficulties appear with the structuring and connecting of different forms of specialized knowledge. The themes described above require further development of a philosophy of food: to clarify social aspects of food processes; the development of an overarching theory of nature-society interaction; to reflect the relations between civilisation and society to deal with the contrast-

ing views of society as territorially limited, local, regional or national societies and a global or world society; to systematize the different forms of structuring of society (cultural, social, political, economic) for a coherent interpretation of the development of food systems.

CONCLUSIONS – NECESSITY OF A NEW PHILOSOPHY OF FOOD?

The philosophy of food to develop is not a closed theoretical or philosophical system in the traditional forms of philosophy. It develops in an open discourse, in multi-dimensional analyses of food processes with cultural, social, political, economic and ecological knowledge components, and in knowledge syntheses to address complex problems and dilemmas of food production in late modernity. The practical solution of such complex problems is not done with knowledge transfer from science to politics. This solution is part of transforming the industrialized food system towards a sustainable one, another "great transformation" of society that comes on the agenda of the sustainability discourse, in response to the deficits and failures of the earlier sustainability process. It seems useful to decompose the broad sustainability process in different parts and more specific analyses to be able to deal with its complexity: beyond synthesized empirical studies this requires normative and theoretical thinking. In transformations of modern food systems a series of normative principles is required regarding environmental sustainability (ecological principles of resource use), environmental justice (including distributional fairness), and ecological citizenship (constituting new normative orders beyond national citizen rights, strengthening human rights). Theoretical analysis is developing with the unfolding debate of an interdisciplinary theory of nature–society interaction as discussed above (see 4).

Philosophy as integrative and synthetic thinking and knowledge use is not an exclusive approach to discuss the complexity and the future of food production, processing and consumption, but it cannot be neglected. Its methodological and epistemological approaches discussed above are even used in knowledge syntheses that are not arguing philosophically; normative reasoning, value-based judgements, epistemological and theoretical reflections are required in all forms of food discourses. Arguments in favour of a philosophical approach include the following:

(1) *Knowledge from the natural and social sciences and the humanities* can be integrated and synthesized in philosophical discourses, supported through ontological, epistemological and methodological reflection. A philosophy of food is a way to connect such reflection with knowledge integration from different disciplines and sources and to add further themes, methods and knowledge to interdisciplinary analyses.

(2) *Normative, positive, scientific and local knowledge* can be used in philosophical discourses in other forms than in their original and disciplinary contexts: for critical discussion, reflection, assessment and synthesis. Normative, especially ethical and aesthetic, knowledge and judgements are disputed and in continuous need of discussion and clarification. Values and norms of food production, processing and consumption are not eternal and unchangeable values or principles, but part of social- scientific, political, life world- processes and practices of action. Food production and the changing food related practices require continuous debate and interpretation in methodologically structured philosophical forms of reasoning.

(3) *The problems and risks of genetic modification of plant and animal organisms* in agriculture require

new ethical reflections of food production, ethics that work in collective decision-making and action processes where food production and processing is negotiated and decided. Also the technical norms and standards for production need to be ethically validated. New ethics of food production require ethically reflective practitioners in food governance and continuous ethical discourses that guide the practices of food production and modification of food products.

(4) *A long-time perspective of thinking about the future*, although not in the trivial sense of eternal truths, is required in sustainability research and policy processes, including the themes of food production and consumption. Ecological research about risks, vulnerability, resilience and sustainability shows possibilities and forms of thinking to reflect temporal dynamics and perspectives that cannot develop from the established practices of planning, management, decision-making and prognostics. Inter-generational perspectives in the sustainability discourse can develop only with growing experience in interdisciplinary knowledge use and syntheses.

Much of that what characterizes the interdisciplinary discourse of philosophy of food in the sense described above is part of larger discourses and wider themes of interdisciplinary civilizational-cultural analysis. The broader interaction of nature and society in the historical process constitutes culture as mediating between social and natural or ecological processes. This interaction cannot be reduced to economic processes of global exchange and technical transformation of natural resources. Multiple criteria analyses, knowledge syntheses, combined theories, and philosophical reflection of the complex interaction in different perspectives should help to avoid short-cut analyses and misleading conclusions found in large parts of food research and production, justified with doubtful epistemological constructions of limits of knowledge and veils of ignorance.

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