In a corner of the campus of Pennsylvania State University is a small brick structure built in 1902 by the Bureau of Animal Industry and the United States Department of Agriculture. Transformed into a museum in 1970, this building is the birthplace of animal nutrition studies in America. It is there that the calculation of the energy content of fodder, that is animal food, was first performed before it was generalized to industrially processed edibles for people, viz. "human food." The contraption inside the building was designed in 1898 by Henry Prentiss Armsby, and is called a "respiration calorimeter." The Armsby Respiration Calorimeter is a unique apparatus: it is the only one in the world which is big enough to encage cattle and measures energy directly.

Armsby knew the state of the art of "energy studies" around the world. While in Europe, he had studied the experiments of the German physicists who had put a man on a bicycle into an isolated box and had measured during three days all what came into and went out of the box in the form of food, oxygen, excreta, carbon dioxide and heat. He had studied all attempts to devise calorimetric cages since 1842, the year when Julius Robert Mayer had equated metabolic heat with mechanical force. He was also conversant with Justus von Liebig's experiments on plant "nutrition." Liebig was able to grow plants in solutions of chemical elements: he invented hydropony, soil-less cultivation. Before him, the soil was called "the stomach of the plants," Nature's great wet-nurse. Liebig not only commercialized urea, the first synthetic fertilizer. Applying the same idea to "human nutrition," he created the first instant food firm, whose brand name is still "Liebig."¹

Back home, Armsby found out that there was no better calorimeter in the world than the one devised by Atwater and Rosa in Middletown, Connecticut. He enlarged it in order to make it capable of imprisoning large animals, and, like Liebig, he mentally reduced food to chemical elements, nutrients. The core of the Armsby Calorimeter is a box in which a cow can stand for several days. All that gets in as fodder, water, air, and heat, and all that comes out as milk, solid, liquid and gaseous excreta and again heat is measured. The cow becomes conceptually a black box on which an input-output analysis can be performed.

¹ See the author's comments on Liebig on p. 95f.
During its more than sixty years of active life, the Armsby Calorimeter issued the first chemical and caloric equivalents of foodstuffs, whose list, when approved by the Federal Food and Drug Administration, can still be read on packages of cornflakes or nutritional supplements. Armsby's pioneering work has greatly contributed to the paradigm that still dominates the nutrition industry. It inextricably conflates the law of energy conservation, the reduction of edibles to chemical elements, and hence the idea that food, fodder, nutrients and fuel are the very same thing, measurable in calories or joules. Modern "fast food" is the popular form of that nutritional hydropony. Yet, if vegetables grown in Dutch greenhouses are green, fat and tasteless, what about rosy kids fed by Big Mac and Burgerboy? Ingesting chemically and calorimetrically correct junk food is like imprisoning oneself in a mental calorimeter.

What Martina Kaller-Dietrich proposes in "Macht über Mägen" is not to fight the nutritional paradigm, but to do better things, for instance cooking and eating joyfully. Though she does not mention the calorimetric cage textually, she refers to its conceptual scions and even dubs them "patriarchal" (p. 18), a locution that to my ears sounds too nice for the calorimetric cage, but that, as a man, I can only swallow with an epistemological "gulp": indeed, only Western males could ever think of putting men and cows into calorimeters! Her book breaks the cage open and firmly roots good life in a relationship to real soil. In a nutshell: the art of eating, the most tasty expression of a people's sense of good life, will not be reclaimed over calorimetric nutriology by obeying or resisting scientific laws enforced by bureaucracy and industry, but by caring for meaningful relations to others, to the soil and the rain, the river, the forest. Since the path-breaking books of Frances M. Lappé, critical readers have been accustomed to the argument that there is enough food "for a small planet," but that scarcity is artificially created or distribution facilities are wanting. What these books proposed were reforms within the paradigm. Martina Kaller-Dietrich revisits the debate from a completely different angle. Whatever is called nutrition is incommensurable with what, since time immemorial, is called Essen, "eating," a verb and a name that in German can sound as "being," like in the sentence "der Mensch ist was er isst." Without endorsing the materialistic philosophy of Feuerbach, who popularized phrase in the calorimetric nineteenth century, Martina Kaller-Dietrich re-embeds the activities of eating in a tapestry of meanings which interconnects the field, the kitchen and the table, as well as the elementary powers whose gifts become meals once dressed on a table.

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For all her reluctance to found her arguments on quantitative "facts" – the reader will enjoy a refreshing absence of graphs and tables3–, one might surmise that Kaller-Dietrich wants to enhance symbolic meanings that have been obliterated by calorimetry and nutriology, but she eschews from the outset the word "symbol." Doña Elvira is an old peasant woman of Southern Mexico with whom she used to talk. For Doña Elvira, cooking is a re-enactment of cosmic relations that transforms the fruits of the soil and the rains into meals. Eating them – a communal activity –, in turn confirms the table companions in their place in the world. At the appropriate time, Doña Elvira "gives the earth to eat." Neither the preparation of the repast nor its consummation and not even the gifts to the earth are "symbolic" in the modern sense popularized by de Saussure. These acts are not signs referring to something else according to an arbitrary code but bodily responses to the calls of a reality woven out of concrete, sensorially perceptible relations. "When [Doña Elvira] gives the earth to eat, it is certainly not a matter of symbols or of symbolic acts, but of self-referring practices weaving her perceptions of possible relations to the earth or the water into her social relations" (p. 24).4 Not unlike Tamati Ranapiri explaining the Maori way of giving to anthropologist Elsdon Best,5 Doña Elvira gives Martina Kaller-Dietrich a résumé of her "théorie de la pratique." Theory meaning literally vision, the expression is not preposterous. The liveliest part of the book is the one in which Martina Kaller-Dietrich comments on Doña Elvira's teachings. If I stand on that peasant woman's milpa (maize field) – and in my more than thirty years in Mexico, I have met some of them too – it is homo calorimetricus, the prototypically protein- and calorie-fed human being that appears as a symbolic construct who can only interpret his own behaviour following the arbitrary code that education, health and planning institutions have compelled him to internalize. That the words of a poor Mexican woman were able to open a Western scientist's mental cage has an almost evangelical flavour. Yet, two conceptions of the word "symbol" are clashing here. "Symbol" comes from the Greek verb symballein whose original sense is "to throw together." Before oral agreements gave way to written contracts, their memories were often kept in tally sticks, pieces of wood.

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3 With one single exception on p. 257.
4 The original in German is: "Es geht ihr gewiss nicht um Symbole oder symbolische Handlungen, wenn sie der Erde zu essen gibt, sondern um eine eigenbezügliche Praxis, in der ihre Vorstellungen über die Möglichkeiten, Beziehungen zur Erde oder zum Bach zu unterhalten, in einem Kontext mit ihrem Verhalten in sozialen Beziehungen stehen."
cut in such a way that, put together again they would fit like key and lock. At the covenant's completion, the two pieces would be thrown together on the table. Or the meals contributed by different clans would be thrown together in large baskets during the great tribal encounter, and then, the tribesmen would gather around the baskets and reconstitute their body social by ordering every clan's gift into a mirror of their cosmos. In its sense of bodily reenacting a cosmic order by the "throwing together" of gifts and counter-gifts, Doña Elvira's acts are truly symbols with ontological participation, a concept that only made sense when reality was relational. However, Martina Kaller-Dietrich prefers to speak of the "mutual attunement" (p. 70) of women, men, soil, the valley and its people's unique demeanor, its rivers, mountains, the quality of its air and the taste of its water. For her, communal eating and its preparation have always to fit the place's specific tone, just as the music of the *banda* fits its people's mood. For the reminiscence of the Greek *tonos* implied by the word "attunement," I accept to follow the author's instruction to by-pass the word "symbol," for, as far as it is understood in its modern, post-Saussurean way, Martina Kaller-Dietrich is perfectly right: Doña Elvira's activities are not symbolic of some remote shore, but bound to her immediate reality and attuned to it. In contrast, severed from any concrete place by his/her mental calorimeter, the client of the nutritional industry is out of tune everywhere where a meal is packaged food and calories. Her/his hunger can only echo a state of relational deprivation and can henceforth not be grasped. As Martina Kaller-Dietrich reminds us, the English language does not help its speakers to break that mental cage open: "In English, *food* refers to the set of all edibles that humans and other creatures ingest as *substances for life*. *Food* corresponds to nutrition. *Nutrition* refers to all *food materials* and designates the process of their utilization, a result of enzymatic action. Nutrition thus is perceived as a procedure that guarantees successful reproduction: 'Nutrition. All forms of life, plant and animal alike, from simple single-cell organisms to complex mammals, require certain food materials in certain minimum amounts and proportions to ensure an active life and successful reproduction'" (p. 77).German has

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6 The quote on the definition of nutrition is from the Encyclopaedia Britannica, vol. 16, 650. The rest of the original quote in German is: "'Food' ist im Englischen der Begriff für alles Essbare, das Menschen oder andere Kreaturen als 'substance for life' zu sich nehmen. 'Food' entspricht der Bedeutung von Nahrung. Ernährung oder 'nutrition' bezieht sich auf alle 'food materials' und bezeichnet den Prozess ihrer Verwertung, der sich auf 'a result of enzymatic action' zurückführen lässt. Ernährung wird als Vorgang verstanden, der eine erfolgreiche Reproduktion garantiert."
more differentiated terms, but it is in the Spanish word *comida* that Martina Kaller-Dietrich finds the antidote to modern nutritional certainties. The word relates the verbal sense of "eating" to the substantive sense of "a meal" and puts the kitchen's fires in consonance with the *milpa*, the rain-fed corn field, the giver of most of the *comida*. She quotes Gustavo Esteva: "The whole community's life is in fact organized around such fires, the center of the kitchens, the source of *comida*. The very essence of the *milpa* is here, and not in the corn emerging in the fields – the only element of the *milpa* perceived by experts, the agronomists."⁷

In a way, *comida* verifies Teodor Shanin's definition of a community in subsistence societies: "those who eat from the same bowl."⁸ Martina Kaller-Dietrich comments: "To share and ingest a meal means the incorporation of the eater into the community. Simultaneously, one's personal place within the community is assumed and confirmed. An 'oral bi-directionality' takes place during the meal: food is incorporated into the body and the body is integrated into the community" (p. 73).⁹ To be a guest, that is to be bodily present at a host's table, is to make his/her *comida* part of one's own flesh and to accept a place in his/her community, an experience about which Martina Kaller-Dietrich has much to say. This double incorporation is an ongoing dialogue between hosts, guests and all that belongs to the meal: the *milpa*, the soil, the rain, the forest, and the wide world beyond them all.

Martina Kaller-Dietrich has arranged her book like a *comida* at a Mexican peasant table. It starts with a description of the ingredients: the village she knows best, San Pablo Etla in Oaxaca, the conversations with Doña Elvira, the encounter with Gustavo Esteva and his conversant group of friends, the celebration of the *comida*. Then, she contrasts what she has learned from her Mexican friends with the main tenets of the nutritional paradigm. When

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⁹ The original in German is: "Essen zu teilen und aufzunehmen, bedeutet die Einverleibung der Esserin/des Essers in die Gemeinschaft. Gleichzeitig wird damit der persönliche 'Platz', den jemand innerhalb der Gemeinschaft annimmt, eingenommen und festgestellt. Eine 'orale Bidirektionalität' zeigt sich beim und durch das Essen: Essen wird in den Körper einverleibt und der Körper wird in die Gemeinschaft integriert."

Doña Refugio, another villager, prepares a meal, she buys the produce that she does not grow herself from relatives and neighbors, so "that a person who is a member of her personal net of relationships stands behind the ingredients" of the meal (p. 167). This emphasis on "where," "when," and "how" every part of the meal was generated is, according to Martina Kaller-Dietrich, what most decisively sets comida apart from food. It is what the nutritional sciences and technologies, and the whole food industry most systematically destroy, so that their clients are comparable to the patients of the biomedical system or to the consumers of academic fast food. Their autonomous power over their own household, milpa, garden, valley, and, finally over their own stomach has been jeopardized in the name of statistical survival, calories, proteins: health! Healthy junk food makes rosy and fat kids, but it maims "stomach power." The food industry is a tyranny over powerless stomachs. The more scientific and historical second part of the book shows how this came to be in a much more precise way than my caricature at the beginning of this review.

Jean Robert