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BREAD

an interdisciplinary perspective

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In copertina: *Medieval baker* (Public domain).

3. Food as an epistemic entity. The case of bread

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Bread can be used in a number of different ways, and has considerable and varied cultural significance that has led to a vast range of visions of the world. Considering bread as an epistemic entity makes it possible to realize what Yhuda Elkana defines as “images of knowledge”¹: a multi-dimensional reading of many phenomena and processes which “constitute the long lost bridges that effectively link the pure and simple social world (norms, values, ideologies) to the body of knowledge”². Thanks to these intrinsic characteristics, bread carries us onto an interdisciplinary terrain, which breaks down the traditional divisions of knowledge connecting the living world and the environment through a process of contamination by which we can rediscover the profound significance behind the production and consumption of food.

It is difficult to establish which cereals were selected in prehistoric times. However, already in the Neolithic, the main problem regarded their conservation and later preparation. In fact, special terracotta containers were produced and a flat stone was used on which the precursor of unleavened bread was cooked³. In ancient Egypt, the Pharaoh was the lord of both wheat and the irrigation channels through which the Nile was controlled, which were so important for the success of the harvest. The Egyptians considered bread to be a symbol of discovery and object of research, whereas for the Jews, it represented the symbol

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¹ Y. Elkana, *Antropologia della conoscenza*, Roma-Bari, Laterza, 1999, p. 25.

² Ivi, pp. 29-30.

³ A. Marinoni, *Pane. Storia, tradizioni, ricette*, Milano, Acanthus, 1988, pp. 16-21.

of transcendency and the incarnation of the meaning of life, and it accompanied this population during their escape from Egypt⁴.

In ancient Greece, this food played an important social role. In fact, civilized men were referred to as “bread eaters”. Consider Odysseus for a moment described by Homer⁵ in his meeting with the Cyclops. Furthermore, the goddess, Demeter, presided over the cult of bread, which from Sicily later arrived in Rome. Simple in their ways, the Romans were not worried about the ingredients or shape of their loaves, and the yeast, which had been long discovered, was rarely used. During the reign of Augustus⁶, there were two important types of flour. The first, which was obtained from wheat, was used to make the bread of the patricians, while the second, which was lower in quality, was utilized to make the so-called “secondarius” loaf. Of extreme importance was the birth of the baker and the inclusion of such a role in Roman society, which led to the creation of organizations that rigidly controlled this trade.

In the Middle Ages, this product embodied the battle between the “real” religion and the others. In fact, it was the Christian scribes who emphasized the importance of bread compared to the foods of the other populations⁷. This era also saw the creation of the first mills, whose presence led to the net distinction between the work carried out by the miller and the baker. The regulation of the various trades started in the XIII century during the reign of Louis IX.

The year 1492 was significant given this was when the Americas were discovered. This led to the evaluation and later to the introduction of completely new and unknown products, such as corn, into Europe.

During the 18th century, following the birth and development of Enlightenment, many people in Europe began to reflect on the state on living conditions in their countries. This was particularly the case in France culminating in the Revolution (one of the causes being the serious lack of bread). When peace was restored, the problem regarding food shortages was resolved and, for the first time, the bread of

⁴ *Ivi*, pp. 23-39.

⁵ Omero, *Odissea*, Torino, Einaudi, 2014.

⁶ A. Marinoni, *Pane. Storia, tradizioni, ricette*, op. cit., pp. 51-75.

⁷ M. Montanari, *Mangiare da cristiani: diete, digiuni, banchetti. Storie di una cultura*, Milano, Rizzoli, 2015.



Fig. 3.1. Medieval baker (Biblioteca Casanatese, public domain).

the nobility (white bread) became the bread of everybody. In the early 19th century, together with the introduction of the first fertilizers, new steam machinery was developed, which facilitated agricultural production.

Last century saw the birth of Corporations, and, in 1906, the first Congress of Bread Makers took place at the end of which the bakers founded the National Federation, leaving the Association of Roman Bakers with the job of organizing a statute to be distributed to their Italian colleagues⁸.

One can therefore freely state that bread is the food of man and that it has accompanied man's evolution. In 1929, in the book "How

⁸ A. Marinoni, *Pane. Storia, tradizioni, ricette*, op. cit., pp. 201-211.

Great Cities Are Fed” written by W.P. Hedden, the term “foodshed” was introduced. This term was recently reintroduced by Arthur Getz in his article “Urban Foodsheds” in “Permaculture Activist” published in 1991. The objective of this term is to indicate the geographical area that produces food for a given population and at the same time the stimulation of a strong sense of responsibility in the local people towards their environment. Therefore, this is why through the preparation, the distribution and consumption of this foodstuff, man is able to express himself and his culture within the society to which he belongs. The choice of bread itself is directly linked to the geographical, social and economic choice with which on the one hand man expresses his eating habits and on the other defines the position he holds within the community of his belonging.

Already in the 1960s, the writer, Murray Bookchin, commented on the interdependence of the relationship between individuals and society, and how the evolution of this concept was conditioned by materials coming from the environment itself and the collective ideals generated by living together⁹. Therefore, if one must consider the two environments to be closely interconnected, in order to re-establish a form of equity between the two parts, the development of society must be directed «in such a way that all members can realize themselves, developing a sense of identity and responsibility towards society and nature»¹⁰. Furthermore, in this context, as the French historian, Fernand Braudel, observed «eating and drinking are not only necessities, or social luxuries, but community games, relationships between man and society, between man and the material world, between man and the supernatural universe¹¹».

Therefore, bread is subject to experience, the result of beliefs and cultural considerations, but it is also a consumer entity and as such can be subject to risks so linking it to the concept of safety. When there is a lack of knowledge, food can become unsafe. In fact, every day, public health officers must evaluate food risks and often the standards

⁹ M. Bookchin, *The Ecology of freedom: The Emergence and dissolution of Hierarchy*, Palo Alto Cheshire Books, 1982, p. 4.

¹⁰ J. Clark, *Political Ecology. Introduction*, in Zimmerman et al., *Environmental Philosophy. From Animal Rights To Radical Ecology*, Prentice Hall, Upper Saddle River, 1998, pp. 345-363.

¹¹ F. Braudel, *Il Mediterraneo*, Milano, Bompiani, 1988 - ed. orig. 1987, p. 69.

required are defined by the Commission of the Codex Alimentarius¹², an international body founded in 1963 by the FAO and the OMS.

One aspect that is cause of concern regards, for example, the corn cultivated in Italy. As GM corn is not used, it is attacked by *piralide* larvae which provoke wounds through which toxic funguses of the *Fusarium* genera can enter and cause damage by releasing fumonisins, microtoxins which probably are the main cause of esophageal tumours and congenital malformations of the neural tube during gestation. In the last three years, 55% of Italian corn has been found to contain such high levels of toxic agents that it failed to meet the parameters established in the European recommendations 1126/2007. There is general consensus regarding the fact that Bt GM reduces the presence of fumonisins three to ten times more than non GM corn without having to use pesticides, which damage the environment. Furthermore, the use of the GM version would make it possible to produce safe corn and do away with two techniques that seriously damage the environment, namely the utilization of pesticides and the transformation of the corn hit by fumonisins into biofuels. This would help reduce crop losses and increase yields by approximately 20%. Paradoxically, the fact that organic corn production does not use chemical agents means it is particularly exposed to *piralide* larvae and therefore at higher risk¹³.

The food and health sectors have become closely connected and this has created a number of problems such as the concept of trust. Risk and trust are strongly linked. Food consumption represents one of the supreme acts of trust: we cannot trust products that are offered us without any reasonable form of guarantee. While the "evaluation of risk" is generally a community activity, the "evaluation of trust" is an activity each one of us carries out according to personal experience, which influences our choices. However, trust in a product is never questioned until one considers personalized foodstuffs, for which the connection between the food and health sectors is absolute. Therefore, it is necessary to guarantee clarity not only regarding operative procedures, but also concerning the interpretation of moral norms and values¹⁴.

¹² <http://www.fao.org/fao-who-codexalimentarius/en/>

¹³ R. Defez, *OGM, biodiversità e decisioni consapevoli*, Scienza e Società, n. 23/24, 2015, pp. 51-60.

¹⁴ Mejiboom, L.B. Frank, *Trust, food and health. Questions of trust at the interface between food and health*, Journal of agricultural and environmental ethics, 2007, pp. 231-245.

The bread produced today is generally realized with refined white flour. Its consumption became consolidated in 1880 with the introduction of roller mills, and the use of powders in the bread making process started in 1838, while in 1850 the tartaric acid based powders and later the phosphate based powders started to appear on the market. Following the studies of Pasteur, complex yeasts were used. They were adopted in order to avoid the natural physical alteration of the flour¹⁵.

It is, therefore, important to consider the quality of a foodstuff such as bread due to the fact it is so widespread. Its value as food can change owing to the possible loss of germ oils, vitamins of group B (folic acid), minerals and bran fibre. The lack of such elements directly affects the metabolism which inevitably leads to a weakening of a person's natural defences. In fact, here, we must consider how the consumption of "daily bread", which today is more treated and therefore more "sophisticated" also due to the use of "refined" flours, has provoked an increase in food intolerance and the reappearance of a number of diseases (the use of refined cereals is closely linked to obesity, insulin resistance, diabetes, hypercholesterolemia, some forms of tumour, metabolic syndrome, ...). Therefore, it is important to limit the use of these refined products "as much as possible"¹⁶. The French agronomist, Claude Aubert, observes: «bread, at first sight, seems to be one of the least unnatural products, given that it is principally made with flour, salt and water. Nevertheless, some additives are permitted: broad bean flour, ascorbic acid, malt extract, propionic acid and, in cases of filosity, lactic acid, phosphate, calcium acid, acetic acid, calcium acetate. These additives are few if one considers what can be found in the bread produced in America (which could become our bread of the future in the next ten or fifteen years) which contains: 50 kilos of enriched flour; 0.7-1.2 kilos of yeast; 0.5 kilos of soya; 1 kilo of salt; 1.5 kilos of sugar; 1-1.5 kilos of lard; 1 kilo of skimmed milk; 150 grammes of mono and diglyceride; 90-120 grammes of calcium propionate. The additives are: 0.0230% of starch; 0.0066% of benzoyl peroxide; 0.0030% of niacin; 0.0027% of iron; 0.0016% of tricalcium phosphate; 0.0011% of potassium bromate; 0.0004% of thiamine mononitrate; 0.0003% of ribo-

¹⁵ M. Rotini, *Pane quotidiano. Storia, industria, ricette per l'autoproduzione*, Viterbo, Stampa alternativa/Nuovi equilibri, 2014, pp. 119-120.

¹⁶ W.C. Willet, M.J. Stampfer, *La nuova piramide alimentare*, Le Scienze n. 414, 2003, pp. 46-53.

flavin; 0.00006% of magnesium carbonate. French bread appears to be more natural but made with white flour which has lost a considerable part of the nutrients contained in wheat. Compared to a “complete” loaf (extraction at 98 per cent), a loaf that has been 75 per cent sieved (like most normal white bread) loses 50 per cent of its phosphorus, 60 per cent of calcium, 60 per cent of iron, 70 per cent of vitamin B1 and 67 per cent of vitamin B2, 87 per cent of vitamin B3 (PP). Also lost is the bran, which has finally been recognized as being important for the intestines. At the chemist’s, at considerable cost, it is now possible to buy bran pills and crackers, despite the fact for fifty years most nutritionists sustained that bran was useless, even damaging. Having removed the bran and most of the protective elements (vitamins, trace elements) from the wheat grain, white bread is basically composed of starch and glutes which means it provides above all calories. The salt added to the flour is also refined and therefore lacking in magnesium and the trace elements contained in unrefined sea salt. The use of yeast, the quickening of the kneading process and reduction in cooking time, and the baking at higher temperatures gives bread the visual characteristics of today: white, light, insipid and uneatable the day after. Regarding packaged bread, a number of chemical products are added in order to improve conservation. For example, the contents of a so-called “country loaf” include: flour, milk serum, leavened wheat, salt, malt, yeast, E471, the emulsifier E322, the antioxidant E300, calcium propionate E282¹⁷.»

At the beginning of the 19th century, the Authorities defined bread as a “product obtained from cooking dough composed of a mix of wheat flour, sourdough, alcohol yeasts, drinking water and salt”¹⁸. The bread thus obtained formed the basis of the Mediterranean diet and represented half of the food ration of farmers. Today science can confirm what we had in the past understood instinctively: 9/10 of the total of what is eaten daily should be a combination of proteins, fats and carbohydrates, while the remaining tenth should be basically fruit and vegetables¹⁹.

¹⁷ C. Aubert, *Un altro piatto: consigli pratici per un'alimentazione sana, semplice, gustosa ed economica*, Milano, Sperling & Kupfer, 1981, p. 240.

¹⁸ M. Rotini, *Pane quotidiano. Storia, industria, ricette per l'autoproduzione*, op. cit., p. 123.

¹⁹ *Ibidem*.

It is essential not to limit ourselves to defining what we eat. We must, in fact, also define how it is produced. Food is obviously also the result of a profound learning process, this acquired knowledge being then converted into action. We learn from others and we then make changes according to our own personal preferences.

In recent years, academic studies regarding the food sector talk of “foodways”, indicating with this term the study of the production and consumption of food. The analyses of consumption and choices suggest that one reverts to wisdom and past traditions when dealing with the questions regarding dietary risk and consequential trust in what we eat.

Culture and knowledge act as a guide which can direct us in various situations and define the standards that we must follow²⁰.

Choosing a product instead of another (in this case between two types of bread) is often the result of a relationship between desire and the subconscious: we often feel the need for something while at the same time feeling a certain disgust. In this sense, the epistemological process is affected by psychological and physiological conditioning. The criteria involved in epistemological investigations, such as the concept of truth, can be applied to knowledge, but are unable to deal with sensations such as desire and need rather than disgust. When it comes to food, the role of the epistemic process, through which knowledge is developed starting from beliefs and evaluations, is in any case strongly contrasted by physiological notions and by subconscious motivations. From the traditional mind-body dichotomy derives the division between health and pleasure. When eating, one searches for metaphors that can bridge the gap between these two factors, leading to new forms of enjoyment through food which enhances a more responsible form of hedonism that in any case takes into consideration various individual sensations²¹.

However, as already mentioned, bread is not simply a foodstuff. In fact, it represents a source and continual generator of culture. But this culturalization is also a complex process. «The many forms of bread, which indicate, through their countless variations, every day places and festive moments, both exceptions and the norm hand in hand,

²⁰ M.L. Axelson, *The impact of culture on food-related behavior*, Annual review of nutrition, vol. 6, pp. 345-363.

²¹ Van der Weele, cor, *Food metaphors and ethics: towards more attention for bodily experience*, Journal of agricultural and environmental ethics, vol. 19, n. 3, 2006, pp. 313-324.

status, vital and temporal occasions and ethnic identity, shows that it, although not always and not everywhere and not for everybody, constitutes, more than any other type of food for a large area of the Mediterranean, one of the constant elements and is a form of identification which demonstrates a form of common cultural belonging²²».

Care is however paramount when considering such matters. As underlined by the Swiss semiologist and linguist, Ferdinand de Saussure, when contemplating symbols, the connection between meaning and significance is purely arbitrary²³, and given that culture is the mother of all symbols, it is constantly influenced by varying historical-geographical interpretations. In this sense, the case of black bread is a perfect example. In the period preceding the economic boom, the lower classes that had always desired bread made from soft wheat flour, were forced to consume dark bread as their daily fare. However, at the end of the last century, this type of bread became a symbol of good eating and a symbol of social belonging.

«A thousand differing sensations, stemming from the same object, all concur because no single sentiment can represent an object. It can only indicate a certain conformity or relationship between the object in question and the organs or the mind. [...] Beauty does not exist in the objects themselves but only in the head of the observer and every mind perceives beauty differently. A person can also perceive deformity where another sees beauty [...]»²⁴. Therefore, can we not even talk of objectivity when referring to gastronomy? There have been many



Fig. 3.2. Reaper grain (courtesy Archivio di Stato di Rieti).

²² C. Papa (a cura di), *Antropologia e storia dell'alimentazione: il pane*, Perugia, Electa Editori Umbri, 1992, p. 14.

²³ F. de Saussure, *Cours de linguistique générale*, Roma-Bari, Laterza, 2009.

²⁴ D. Hume, *On the standard of taste*, David Hume: essay moral, political and literary, Ed. Eugene Miller, Indianapolis: Liberty classics, 1985, p. 230.

philosophers apart from Hume who have tried examine the concept of taste, above all, in its most elementary form, as a sensorial ability for tasting food. Obviously, the description of the perceptive input that we receive is based on individual experience so it is therefore difficult to define global concepts²⁵.

If we consider the action of “speaking” as a sort of “social poetry”, we must conceive it as the result of a form of communal action inside of which we try to identify a vision. When this happens, it is because the individuals involved in the attempt to reach this objective have had similar experiences. This idea was well evidenced in the work of the American philosopher, sociologist and psychologist, George Herbert Mead, when he insisted on the need to find a series of terms able to provoke in the other members of the community the same emotions which each one of us feels when experiencing something²⁶. In this sense, the fact that food itself is an experience means it provokes emotions that need to be described, above all, because they can be conceived as a form of imprinting that can direct future community choices. Therefore, one must proceed by adopting a form of neo-Aristotelian approach, which could help us widen our knowledge involving us in the fruitful process of forming opinions that will lead to decision making and later consumption²⁷.

Therefore, food enriches us with symbolic values and as such becomes a vehicle of communication, through which it is possible to transmit a series of notions obtained, in more or less full awareness, from our daily behaviour. It is, above all, the passing on from generation to generation of this behaviour which makes it possible to enrich our knowledge and traditions and which have formed the foundations of our rituality, rites long forgotten that are returning to the fore today, above all, in the food production phase. A perfect example of this can be seen in the rediscovery of forms of leavening, which are no doubt slower and more complex, but which produce a higher quality product. There are many legends regarding the discovery of natural yeast.

²⁵ M. Shaffer, *Taste gastronomic expertise, and objectivity*, in F. Allhoff e D. Monroe eds. *Philosophy and food: eat, drink, and be merry*, Blackwell publishing, Malden MA, 2007, pp. 73-87.

²⁶ G. H. Mead, *Mind, self and society*, 1934.

²⁷ Beekman, Volkert, *Feeling food: the rationality of perception*, Journal of agricultural and environmental ethics, vol. 19, n. 3, 2006, pp. 301-312.

Leavening comes about through the actions of microorganisms, bacteria, which feed on the sugars and starch that can be found in dough so activating a process of fermentation. In the initial phases of the process, the yeast consumes the oxygen that can be found within the dough. When it is almost finished, the alcoholic fermentation initiates, which by acting on the simple sugars produces alcohol and carbon dioxide. This gas remains “imprisoned” in the dense network formed by glutes and as a result the dough begins to rise. At the same time, the enzymes trapped in the flour start to break the starch down into simple sugars, so becoming an important ally of the yeast in the leavening process. The rediscovery of sourdough makes other forms of fermentation possible, thanks to the presence of lactobacilli which can also ferment lactic acid. The main difference between leavening with sourdough and alcohol yeast lies in the large number of bacteria: in the former, there are both anaerobic bacteria in the form of Lactobacilli and Saccharomyces (the bacteria present in sourdough are very important in order to help our bodies function correctly because they are able to destroy the phytic acid present in flour so that the dough becomes more digestible and easier to conserve); brewer’s yeast contains only Saccharomyces Cerevisiae²⁸.

Despite the fact the consumption of bread today is considerably lower than it was²⁹, independently from the way it is produced, it however remains the only type of food that can provoke a sense of privation when it is missing. The lack of bread has always been considered an index of famine and a factor that provokes wars. Even today there are no populations, more or less civilized, that do not have their own type of bread, whether it be unleavened bread or a shapeless loaf.

Every population has its own traditions in the kitchen, including the kind of bread it consumes.

The nomads of Afghanistan eat flat bread that is cooked on special stones that the itinerants carry with them. In Turkey, fasting is interrupted in the evening with the consumption of unleavened elongated flat bread. Flat bread is also traditional in many regions of Italy, above all in Liguria³⁰. In North Africa, apart from unleavened flat bread, another type of unleavened bread is produced which is cooked on a decorated terracotta plate. In Mexico, the tortillas, made with the type of wheat

²⁸ B. Rangoni, *Pasta Madre (ignoto il padre...)*, Modena, Damster Edizioni, 2013, pp. 9-10.

²⁹ <http://www.coldiretti.it>

³⁰ A. Marinoni, *Pane. Storia, tradizioni, ricette*, op. cit., p. 214.

which provoked the famous “revolt of the tortillas”³¹, are the flat loaves for both the rich and the poor. They are used as a form of fork which can be used to carry food from the plate to the mouth. In Russia, people prefer rye bread, in the form of a braid and is considered as a symbol of life. The custom of sprinkling the top of bread with cumin seeds or other spices spread from Iran to Russia and later to Central Europe. This kind of bread is traditionally thought to bring good luck. There are also many Russian farmers that, in order to make their bread tastier, cook it in winter on a bed of maple or oak leaves³².

In Germany, more than two hundred different sorts of bread are produced, with rye or wheat or mixed cereals, with yeast or through natural fermentation. In northern countries, ring-shaped rye bread was produced which were then thread onto a rope and hung from a wooden beam near a fireplace to guarantee its conservation. Also in Switzerland, many types of bread are produced which vary from canton to canton. The best known is from Bern, which is characterized by a great cut on the side, and is round in shape. In Paris, rye bread is still produced and served with oysters. The year 1510 seems to be the official date when the traditional form of bread took hold in France, namely the *baguette*, which is 70 centimetres long, 6 centimetres tall and weighs 250 grammes. Its name derives from the latin word, *baculum*, even though its confirmation as a symbol of France did not take place until the 19th century. In Brussels, Sunday bread, which is called *pistolet*, was longer and thinner compared to the French loaf. In Provence, and also in some areas of north Africa, some leavened loaves are cooked in special terracotta pottery. On the other hand, in China, Cambodia, Thailand and Vietnam rounded loaves are produced using wheat, sugar, fat, salt and yeast, which are placed in bamboo baskets and steam cooked. In Italy, every region, and every city has its own specific and characteristic bread³³. Thanks to this wide and complex variety, Italian bread is considered an ‘epistemic object’ a position that was magnificently described in his studies on food in France by Roland Barthes:

“Food serves not only as a “sign” for issues but is also linked to specific situations; and this, when all is said and done, means that it can emphasize rather than simply express a certain type of life style. Eating is

³¹ F. Galletti, *Pappa mundi*, Milano, Guerini e Associati, 2015.

³² A. Marinoni, *Pane. Storia, tradizioni, ricette*, op. cit., p. 216.

³³ Ivi pp. 219-225.

a form of behaviour that develops its own ends replacing, uniting, generating other behaviours, and it is precisely this that makes it a “sign”. But what are these other behaviours? Today, we could almost say that a ‘polysemy’ of food characterizes modern life; in the past, only festive occasions were “signed” by food in a way deemed positive. Nowadays, however, even the working life has its own specific food: light, energy foods are considered as a real “sign”, and not as a simple indication of participation in modern life... today we can see an extraordinary expansion of situations associated with food, and this list is getting longer and longer. This adaptation usually takes place in the name of hygiene and improvements in the quality of life, but in reality, we must underline once again that food has a double value, being the basis of nutrition but also protocol and its value as a form of protocol becomes ever more important once the fundamental nutritional needs have been satisfied”³⁴.

This ‘double value’ that Barthes talks about can be seen in the traces that bread has left throughout the history of civilizations and which touches the lives of millions of people and countless resources in various production, economic, social, and political combinations that contribute to “making history”. In this way, bread does not simply represent the concept behind the relationship between producer and consumer but goes further, having led to the development of fundamental meanings concerning work and the very nature of things.

³⁴ R. Barthes, *Toward a Psychosociology of Contemporary Food Consumption*, In *Food and Culture*, edited by Carole Counihan and Penny Van Esterik, New York, 2008 (1975), pp. 28-35.