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In praise of complexity: From gastronomy to gastrology

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ABSTRACT

The pandemic caused by COVID-19 and the way in which the disease is propagated involves a clear risk for the hospitality industry. This industry, particularly in countries whose economies depend largely on tourism, has been forced into implementing many different kinds of measures to guarantee safety and hygiene. This has involved a great logistical challenge and has radically changed the gastronomic experience, making it more complicated. From a point of view that is less focussed on the resolution of the “urgent”, the situation we are experiencing may constitute an opportunity to reconsider the cognitive and institutional framework in which gastronomy has developed until now. This paper proposes a new paradigm called gastrology, which is a departure from the social imaginaries of gastronomy, with its common sense definitions, burdened with normativity. COVID-19 is a challenge to the scales in which we think about the world. The pandemic teaches us that, for example, the micro and the macro -the propagation of the virus in the form of aerosols and the global economic crisis, or the microbiome and climate change-are intimately related. In this multiscale context, gastrology is an attempt to resignify gastronomy as a boundary-object: a convergence of all those scales that range from the planet to our intestine. This paradigm will require the confluence of multiple scientific disciplines that are disposed to abandon their certainties and rethink themselves as a consequence of contact with an object of study that is as complex as gastronomy.

Introduction

In 1977, the architects Charles and Ray Eames produced for IBM the definitive version of a visual essay entitled *Powers of Ten* that they had been thinking about since 1968. In just 9 min, it shows the complex configuration of the world and its different scales of observation by zooming in and out from an everyday scene: a picnic in a park in the city of Chicago.¹

However, *Powers of Ten* is not merely an exercise in viewing scales. These scales of observation can also be understood as spheres of existence, since in each one of them different events *take place* simultaneously. That these scales cannot be seen by the unaided eye should not lead us to think that nothing happens in them. That we do not, in the phenomenological meaning of the term, perceive them, does not mean they have no consequences at the systemic level. This would be irrelevant if it were not for the fact that the confusion between what we sense and what happens means that we often persist in giving biographical solutions to systemic problems (Beck & Beck-Gernsheim, 2001), which in turn leads to an unstoppable accumulation of precisely these kinds of problems.



In *Powers of Ten*, for every 10 s that pass we see the scene from ten times further away, and so our field of vision is ten times broader. By means of a prolonged zoom out, the picnic turns into a city, and the city becomes a “blue marble”, that image of the Earth, obtained for the first time in 1972 from Apollo-17, that had such an impact on the collective

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¹ The film can be seen at this link: <https://www.youtube.com/watch/0fKBhvDjuy0>.

imaginary of the period. This view marks the beginning of what Heidegger calls “the age of the world picture”, the idea that the world is something else from the time that we have an image of it (Heidegger, 1997). Based on this view, we are aware that we live on a “planet”, something that will largely determine the way in which we land on it (Latour, 2018).

Once it reaches the most remote depths of space, the image of *Powers of Ten* retraces its path in a quick zoom in to the initial picnic scene, focussing in on the hand of one of the two people shown (the man, not by coincidence), in successive scales that show the hand becoming a cell and then ... “dark matter”. Are we looking at a culinary, almost a comedy, version of Genesis, demonstrating that “in the beginning God created ... the picnic”?

It has become common to attribute to this film an educational usefulness aimed at making the concept of scale comprehensible (Jones, 2011). There are also more critical readings that talk of the unidirectionality of *Powers of Ten* and stress not so much what it shows, but what the visual narrative excludes: the woman’s hand, the food on the blanket, etc. So, the Eames film and the book that accompanied it (Morris & Morris, 1982), widely used in schools in Europe and the United States, were designed with an intention. This intention was not only educational but also political, given that they “contributed to framing the collective gaze in a linear way, such that interscale relationships and the interactions among genes, bodies, societies and technologies were perceived as automatic, non-problematic and apolitical” (Jaque, 2016). Phenomena such as COVID19 show the limit of this linear and accumulative conception of scales. In this new context, the micro and the macro are connected in a dynamic, non-linear way. As we will see later, there is a dynamic and complex connection between the virus and the global economy, or between climate change and our microbiome. The pandemic has produced these new heterotopias to which gastronomy has to adapt its focus.

Powers of Ten has acquired an extraordinary relevance today, as a result of the COVID19 pandemic, in that it updates the importance of scales. If the pandemic has challenged something, it is the radical separation of a world of the small, and another world of the large. In other words, it has questioned the micro-macro dichotomy, which we frequently assume unproblematically. What is more, it has done so in two directions: as a zoom in and a zoom out. It has revealed, firstly, the systemic consequences of the propagation, via aerosols, of an infinitesimally small virus; and secondly, on a different scale, the effect that systemic processes such as deforestation have on infectious diseases such as zoonoses (Malm, 2020).

This new pedagogy of the gaze, one that knows how to see the big in the small and vice versa, is, then, the heir of formal exercises such as *Power of Ten* and its counterintuitive choreography of scales: from 100 light years away, the Earth is as small as the last atom in a hand. From an extended world (*res extensa*), inhabited by recognizable things or figurations,² we move to a multiscale view of the world (Martínez de Albeniz, 2008) which challenges “common sense”. Some of these new scales, which range from the atom to astronomical constellations, only within reach of those scientists who work with them, open up the possibility of new narratives. For example, understanding the implications of the pandemic, the relatedness between different scales, is possible to the extent that we are able to zoom in and zoom out. However, to do this, it is necessary for these scales to be made known publicly, for them to be put within reach of a “citizen science” (SOCIENTIZE, 2014), a science that does not turn its back on general publics.

Gastronomy is a boundary object

The German philosopher Walter Benjamin stressed that official

² As the scientist Juan Fueyo points out, it was the invisibility of viruses that stopped Aristotle philosophizing about them (Fueyo, 2020).

narratives have to be challenged by the voices and the presences that have historically been relegated to their margins (Benjamin, 1969). This article aims to extrapolate *Power of Ten* to the sphere of gastronomy to see whether, through it, it is possible to weave an alternative narrative. In order to do this I would like to speculate regarding what kind of narrative or version of *Power of Ten* would be obtained if, challenging the anthropocentric reading of the film, instead of the man’s hand, we zoomed in on those parts that have been excluded by the visual narrative: the food that rests on the blanket being used for the picnic, or on the grass that frames the scene, to mention two objects that will feature in the gastronomical narrative to be put forward at the end of this article.



This speculative exercise will be used in order to reimagine or resignify gastronomy under a new name: gastrology, aspiring to go beyond what common sense or, to put it another way, the established social imaginary (Castoriadis, 1998), understands by gastronomy: ingredients, recipes, techniques, dishes, chefs, restaurants, Instagrammers, Michelin stars, etc. This new narrative would propose that gastrology is the expanded version (Krauss, 1979) of a gastronomy that embraces everything that is “between our intestine and the planet”. This expanded spectrum of scales and their respective “realities” will, then, constitute the new object of a possible *science of gastronomy*.

Given the complexity or the multiscale character of its object(s), gastrology is not called upon to achieve a transdisciplinary status, given that it has not yet been unanimously recognized as a scientific discipline. Rather, it must be born as a transdisciplinary scientific proposal, because it arouses the interest of scientific disciplines that operate in different dimensions of reality (microscopic, socio-anthropological, algorithmic, geological, etc., . I mean to say that gastrology would not operate like other sciences, adapting its object, gastronomy, to the standards of a specific discipline, but rather aim to adapt the discipline to the consideration of its object as a boundary object (Leigh Star & Griesemer, 1989). A boundary object is an object that is both plastic and robust. Plastic because it allows the perspectives of different disciplines to flow into it, but at the same time, robust, because it keeps an identity beyond these disciplines, stopping any of them appropriating or enrolling their object, thus deactivating its promising heterogeneity:

“Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual use. These objects may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable, a means of translation. The creation and management of boundary objects is a key process in developing and maintaining coherence across intersecting social worlds.” (Leigh Star & Griesemer, 1989: 393)

This article will argue that, in the discipline of gastrology, the gastronomy boundary object unfolds like a multiscale network of critical zones (Latour & Weibel, 2020). The text will conclude by looking at some possible critical zones that constitute a “gastrological” perspective that

attends, first of all, to the complexity of the material, technical and social processes involved, and, secondly, is aware of the set of scientific disciplines that must be used as a basis in order to observe the many scales that, as we shall see, the gastronomical event takes place in.

Our starting point, then, is that gastrology, as a meta-discipline or “discipline of disciplines”, has to respond to the fact that, in the sphere of gastronomy, the intersections among three worlds, matter (Ingold, 2007), the scientific-technical component, and the cultural-anthropological dimension, reach an intensity that occurs in very few other activities. In fact it is surely this polyhedral or hybrid character of gastronomy that has appealed to so many scientific and humanistic disciplines. Paradoxically, then, it is an activity like gastronomy, which is struggling to obtain scientific status, that in a more natural way combines the complexity of its object with the disposition to open up to the influence of other disciplines. Disciplines that, by the way, hardly collaborate among themselves under normal conditions, with each one stationed in its laboratories and its certainties. There must be some advantage in being the last one to arrive at the party: the stagefright –or even inferiority complex– that gastronomy has experienced when faced with the established sciences becomes a promising lack of prejudices.

Making gastronomy public

Since it has achieved public renown, gastronomy has felt itself in a certain way called upon to face the challenge of elaborating a definition. It has had to find out about itself in order to explain itself in society. To do so, it has resorted to different strategies. One of them has been to draw up a scientific or systematic definition of, from and for itself. In this regard, it is worth mentioning the Bullipedia project, led by the chef Ferrán Adrià, whose first volume was entitled none other than *Qué es cocinar* [“What Cooking Is”] (ElBullifoundation, 2019:53).³ However, this kind of encyclopaedic (not to say cyclopean) approach is far from being the most frequent one. For now, we must be content to state that, given the lack of a universally accepted definition, the growing social visibility of gastronomy has meant that everyone is talking about it (Correa & Martínez de Albeniz, 2018), that it has permeated the social conversation and is now almost ubiquitous.

In this article, I would like to map this social conversation or controversy (Venturini, 2010) regarding gastronomy. For this, I will assume as an axiom that how things are depends on how they are made public (Latour & Weibel, 2005) and that this process of being made public will depend largely on the relationality that they show: not so much what they claim to be, but rather what they do and with what they relate in order to, as Spinoza indicated with the illuminating notion of *conatus*, persevere in their being. Therefore, if what gastronomy is depends on how it is presented in society, it can be inferred that it would be important to think about the objects that it is linked with, establishing with them a common public materiality (Marres, 2012) that (re)presents it socially. For example, in the case of the Bullipedia project already mentioned, the important thing is not (only) the answer to the question of “what cooking is”, but that this has been reached through an encyclopaedic-style project,⁴ with the mobilisation of the material, financial, technological and scientific resources that this involves.

Now, once it is understood as public materiality, gastronomy becomes a target for cultural criticism. At this point, the questions start to multiply. Is it unimportant that the gastronomy news is included in the

Lifestyle sections of newspapers,⁵ instead of in the Science, Environment or Politics sections? What implications does it have for gastronomy that children are taught how to spherify, that the Kitchen Farming Project is put forward as an example to follow, or that the concept of *terroir* is used when promoting public policies for building a nation-brand? How is gastronomy built, and how is the world built through it, through these and other possible public materialities? For the moment, we are in a position to give only a provisional or operational definition of gastrology. Gastrology analyzes the type of relationality through which gastronomy is articulated.

It would be possible to bring up the Lacanian real-symbolic-imaginary triad (Lacan, 1982) in order to illustrate the scope of the “gastrological” proposal. As public materiality, gastronomy has been made known so far attending only to two of the three dimensions of the Lacanian triad: the real and the imaginary. Approaching the real, that is to say, to the material substratum of that which it “feeds” on (and what feeds us), gastronomy has aimed to respond to the question of whether it can be identified as a science. In terms of the imaginary, the question is put to another discipline with which it has also settled accounts recently: is gastronomy art? In short, looking to draw up a definition of itself, gastronomy has publicly linked itself to two activities, science and art, upon whose social legitimacy it has tried to support itself. This is its first “relationality”, the one that expands its field of action towards the scientific and the aesthetic.

The question of whether cookery is an art was given an irony-laden answer when, in 2007, the Spanish chef Ferrán Adrià was selected as guest artist for the Kassel *documenta*, one of the most prestigious international art events. This fact created an enormous controversy in the sphere of contemporary art. Instead of coming to the German city, like the other artists selected, Adrià proposed that *documenta* come to Rosas (Girona, Spain), declaring his restaurant, elBulli, to be another of the event’s pavilions. In a performative operation loaded with symbolism, the Catalan chef did what he had always done: fed people. He thus showed that gastronomy is, for art, and making use of a Duchampian term, a ready-made, a found object. All that is required is to show it, to make it public, in this case at a high-profile art event, to make it art.⁶ The artist Richard Hamilton, who worked with elBulli restaurant for many years, was one of those who saw the artistic potential of cookery, recognizing it as an object that had to be dignified, as occurred in Pop Art with other everyday objects (Hamilton & Todolí, 2009). With the case of art resolved, there remains the rather more controversial question of whether cookery is a science.

It could be said that there is a *family resemblance* between cookery and science. With the passage of time, it has become a commonplace to emphasize the similarities between restaurant kitchens, particularly those of avant-garde restaurants, and scientific laboratories. It is certainly the case that lab coats and chef’s uniforms seem to be ever easier to exchange.⁷ That said, rather than answering the question of whether gastronomy is, or is not, a science, it would be interesting to pay attention to its *conatus*, to the resources it mobilizes, and to the kind of relationship it establishes with science. In this regard, it is possible to find different varieties of the science-gastronomy link.

⁵ For example, in Spain’s most read print media outlet, El País newspaper, to reach information about gastronomy, one has to first go to the People section, and then the Style subsection. Should one understand by this that El País sees gastronomy as a matter for “people with style”?

⁶ A current known as relational art (Bourriaud, 2002) has granted gastronomy an artistic nature by introducing it, in the format of happening or performance, into museums and art galleries. In this respect, the artist Rirkrit Tiravanija stands out.

⁷ Given that the wait for a systematic ethnography continues, is very stimulating to see university centres such as the Basque Culinary Center, at which kitchens and laboratories are found side by side, adding to that ever more intense and intermingled dance of scientists’ coats and chefs’ whites.

³ In Bullipedia, cooking is defined as “an action that involves the transformation of a product (raw material) into a food, as a consequence of the use of certain technique (or several), the use of one or more tools (with exceptions, in which the hand replaces the tool) and the application of a certain knowledge.”

⁴ Bullipedia defines itself as “The encyclopedia of gastronomic knowledge” and is the product of the application of a methodology that the elBullifoundation calls the “Sapiens method”.

Scientific gastronomy could be understood as that form of practicing gastronomy that, from an instrumental viewpoint, uses science as a technical resource or, in a more promotional way, uses it as a rhetorical resource. Here, science is a way of *adjectivising* gastronomy, one characteristic among many. There would be, then, by exclusion, gastronomies that are not scientific, and do not aspire to be so, and even gastronomies that are resistant to the scientific method, which advocate a craft approach in the kitchen, “perfect imperfection”.⁸

The **gastronomical sciences** refer to those scientific disciplines that come together in gastronomy, brought either through a search for knowledge or because of an ambition to achieve greater visibility, making the most of the interest that food and cookery kindle socially. In this last case, gastronomy works like a “service door”, as an effective tool to popularize science or improve society’s scientific culture (Sørensen & Mouritsen, 2019). The concurrence of these disciplines would make of gastronomy a multi-disciplinary science (Nicolescu, 2008). That said, the “gastronomical sciences” tackle gastronomy from their particular point of view, using their own theories and methods. It is clear that they add something to gastronomy, because they give it a varnish of systematicity, but they usually do so for their own benefit.

Molecular gastronomy (Cassí, 2011; Vega & Ubbink, 2008), gastrophysics (Spence, 2017a) and neurogastronomy (Sheperd, 2011) are all varieties of **gastronomic science**. In these cases, the science is not simply an adjective, nor is gastronomy a focus for a scientific gaze that could extend to any other field of reality. This kind of interdisciplinary science (Nicolescu, 2008) is based on the fact that gastronomy is something *substantive* in the scientific proposal. Gastronomic science is science that can combine existing theoretical-methodological designs in the pursuit of a new discipline. So, for example molecular gastronomy is the scientific discipline focussing on the mobilisation, always seeking quality in culinary creations, of knowledge related to the physical-chemical *processes* that ingredients undergo when they are cooked.

Finally, the **science of gastronomy**, what I am calling here gastronomy, is the only kind that would aspire to make of gastronomy a unique and distinguishing perspective from which to observe the world. In this case, we are talking about a transdisciplinary proposal because, as has been pointed out, each concurrent scientific discipline is transformed as a result of coming into contact with the boundary object of gastronomy.

Towards a new gastrological paradigm

The notion of paradigm that Thomas Kuhn used in his book *The Structure of Scientific Revolutions* (Kuhn, 1952) 1962 is frequently employed to give a scientific stamp to everything it touches. However, we are facing one of the most hackneyed and controversial concepts in the field of philosophy and the history of science. If this notion is applied to some field of knowledge, does this mean that field acquires scientific status? Or is this rather an abuse of the polysemy (Masterman, 1970) of the concept? Are we talking about a paradigm with all the Cartesian rigor of epistemology and methodology, that is to say, in relation to the set of knowledge and rules that define a scientific discipline? Or do we do so from the perspective of its sociological or cultural dimension, which refers to the commitment of the scientific community to these practices, rules and theories, even when that community faces scientific evidence that refutes them?

Raimundo del Moral makes reference to the fact that in the history of gastronomy it is possible to talk about the existence of at least four

paradigms (Del Moral, 2020). We are currently going through a period of quick change that anticipates the appearance of a possible fifth paradigm. I will now look at the last two stages of his chronology, because the previous paradigms (the first two feature individuals –Carenme and Escoffier– and the third, French Nouvelle Cuisine, has a more collective character, which is of some significance) are almost universally recognized, if not as scientific paradigms in the strict sense, then at least as schools or tendencies with a capacity to “discipline” gastronomy. This is not the case with the fourth, the most recent, which Del Moral calls abstract cuisine or *total* gastronomy. This would be a gastronomical paradigm that, as has been stated above, has opened up to the influence of other disciplines, both scientific and humanistic. It is just this expansion of its reference points that provokes controversy if we compare it with the previous paradigms, which moved within the limits of the socially established imaginary of gastronomy.

The two essential characteristics of total gastronomy, according to Del Moral, are culinary abstraction and the revolution involved in the matter of textures. Returning to Lacanian terminology, it could be said that in this case science, particularly molecular gastronomy, offers the part corresponding to investigating the *matter* of texturization; art, however, contributes with the *imaginary* dimension of abstraction. Let us look at an example that illustrates the possible scope of the “total” gastronomy paradigm.

In the beginning was ... spherification. Spherification can be understood as the perfect synthesis of the two principle characteristics attributed to total gastronomy: texture and abstraction. This technique certainly has a paradigmatic character, given that it has been seen as an emblem or icon of a certain way of understanding cookery. It constitutes an almost pure example of interdisciplinary relationality between science (texturization) and art (abstraction).⁹ The result is a new culinary form, known as techno-emotional cuisine (Arenós, 2011), whose keystone is what has come to be known as the gastronomical experience (Martínez de Albeniz, 2018): experience and experimentation, working together. This is the new relationality of gastronomy within the framework of the paradigm (questioned by many) of total gastronomy: art and science enable a central concept, the experience, for the development of which gastronomy becomes an unprecedented achievement in the scientific/technical sphere and in the sensorial/emotional/aesthetic sphere.

Now, this paradigm of total gastronomy is characterized by an also “total” absence of the social dimension. To put it metaphorically, it makes the dish, literally, its “world”, the terrain in which gastronomy develops; and not, metaphorically, the world, the society in which this gastronomical paradigm operates, its dish. Raimundo Del Moral himself tries to remedy this lack by making reference to a last stage of transition, where we would be at present, which would break with the duality that underlies this pendular science/art movement. This last stage is characterized by a “global socialisation of gastronomy”.¹⁰ Yet, where is this expansion towards the social taking us? And, above all, what does “socialisation” mean?

The main features of this trend, which, given the ever more evident decline of techno-emotional cuisine, is competing to become the new

⁹ The extreme and opposing positions of science and art are reflected in the distance between Hervé This’s Note by Note cuisine, as an example of the purest kind of scientific cuisine, and the approach that turns its back on the scientific model and takes refuge in the romantic figure of the chef as artist-genius. Few chefs, like Pierre Cagnaire and Ferrán Adrià himself, have managed to move skilfully between these two often irreconcilable worlds.

¹⁰ In this regard, it is worth citing the project 50 Glimpses. A Creative Journey through Contemporary Gastronomy, carried out in 2018 at the Basque Culinary Center (Correa and Martínez de Albeniz, 2018), as an attempt to expand the social side of gastronomy towards five constellations: gastronomy as a social conversation; gastro-activism; gastronomy as a value chain; gastronomy as a scientific-technical system; and gastronomy as a hedonic experience.

⁸ In Spain, for example, in reaction to a cookery that is inclining more and more towards the techno-emotional, there is now talk of recovering *cocina de muñeca* (or “wrist cookery”), alluding to the unrepeatable, unreproducible, untransferable (that is to say, contrary to the reproducibility that science requires) gesture of the chef at the grill.

paradigm are: the emergence of low-cost restaurants; the internationalisation of Spanish tapas; the growing importance of the role of the mass media in the development and prescription of gastronomic trends; the gradual disappearance of professional food critics; the meteoric rise of ethnic cuisine; the growth of organic, local cuisine (locavorism); and the development of innumerable diet fads and egocentric approaches linked to social media (Del Moral, 2020). We are looking at a paradigm that is something of a rag bag, and a concept of the social (or socialisation) this is presented as a rather disjointed mixture of economics, gastronomic (multi-)culturalism, communication, psychology and an unthreatening consideration of the environmental question.

Despite its limitations, it would be unjust not to recognize that the expansion towards the social proposed by del Moral goes beyond the hackneyed anthropological reading of gastronomy, linked to an idea of communal eating which, as a universal value, understands gastronomy as a vector of community solidarity, that is to say, as a “social cement”; or, in another order of things, the “humanitarian” viewpoint that comes to the fore when gastronomy is called on to intervene in situations of crisis or social emergency.

From the sociological perspective, the Social Gastronomy Movement (SGM) is more interesting, both because of its global dimension and because of its goals, “to use food to transform the world”.¹¹ Social gastronomy (Navarro-Dols & González Pernía, 2020), also known as 360° gastronomy (BCC, 2020), constitutes the most ambitious attempt to date to approach gastronomy as a total social fact (Mauss in Kasuga, 2010). I am not talking here about “totality” in the way meant in the total gastronomy paradigm. As has been pointed out, whenever it is enclosed in the notion of a gastronomic experience, this paradigm understands 360° gastronomy as an “immersive” exercise based on the sublimation of the senses.¹² With gastronomy’s social turn, I am referring to other meanings of totality and of 360°. The matter in question is whether this opening involves a change in public materiality and to what degree it transgresses the frontiers of the reigning social imagination on the subject of gastronomy, as well as the narratives it proposes.

Gastronomy as an association

Nomos is rule, power, authority. Gastronomy develops in normative societies, where a few prescribe and many obey. *Logos* is knowledge, science. This is the dimension that prevails in reflective societies (Beck et al., 1994): societies that *know themselves to be societies*; in which there is a more or less general assumption that society is a sphere in whose construction it is possible to intervene actively. In reflective societies, also known as science societies, as opposed to the more normative culture societies (Lamo de Espinosa, 1996), all ontology, is, then, *onto-politics*: every definition constitutes, in and of itself, a controversy. The gastrological perspective being put forward in this article corresponds to this kind of society, as long as it does not attend to what gastronomy is, much less what it should be, but rather to how it is articulated socially or publicly. In reflective societies, the more the *logos*, the less the *nomos*. The more the *how*, the less the *why* (Wagensberg, 2006).

The striking thing about the crossroads where we find ourselves is that we are aiming to introduce the social dimension into the equation of gastrology at a time when sociology is undergoing a profound crisis of object. In order not to die trying, we can nonetheless begin with popular wisdom, which says that “one nail drives out another”.

¹¹ <https://www.socialgastronomy.org/>, <https://www.finedininglovers.com/article/social-gastronomy-can-food-change-society>.

¹² cf. Roncero & Gonzalez (2020) *Sublimotion*, Barcelona: Planeta Gastro. This paradigmatic book, which is sold together with 3D glasses, aims to gild the lily and make a sensorial experience out of the reading of a book about a sophisticated and expensive gastronomic experience, called “sublimotion”, that takes place every summer on the island of Ibiza.

As is repeatedly pointed out by Science and Technology Studies, and specifically the theory known as Actor-Network Theory (Latour, 1995; Callon, 1984; Law & Hassard 1999; Larrión, 2019), mainstream sociology, when it talks about the social, is based on a limited, because anthropocentric, understanding of its object. What is understood by social is that field of study in which the human constitutes the limit of its intelligibility. Any other kind of agency is removed from the social equation. For example, when, in sociology, food is studied, the dimensions that prevail are things like eating together or the relationship between consumption habits and social determining factors (social class, culture, religion, etc.). The society that an individual belongs to would explain their consumption habits and tastes (Bourdieu, 1987). The social is, then, that which explains (*explanans*), never that which has to be explained (*explanandum*). It is the ultimate guarantee, that which keeps us together; never what has to be sustained. The reading that Del Moral makes of the global socialisation of gastronomy responds to this same bias, given that the question asked is how certain social factors (independent variable) influence gastronomy (dependent variable).

The concept of the social, as it is used in the mainstream social sciences, is a hypertrophied concept because it fails to cover the complexity of what happens in society. It falls exclusively on a “spectrum” inhabited by those realities which, tautologically, the social imaginary “recognizes” as social. I offer an example to illustrate this bias: the last two winners of the Basque Culinary World Prize.¹³ The 2019 prize was awarded to Anthony Myint, who runs the Zerofoodprint initiative which mobilizes the restaurant industry and its allies in the public and private sectors to support healthy soil as a solution to the climate crisis. A year later, in 2020, the winner was the chef José Andrés, the main promoter of World Central Kitchen, an NGO that develops imaginative logistical solutions for palliating hunger caused by situations of social emergency. What concept of the social is being used, given that the first recognition is not social, because it is measured in soil quality standards, and the second is because it shares thousands of rations of food among a population that needs it? Might it be that, while we recognize as social anything that sounds “humanitarian”, we are not able to do the same with more complex narratives that are woven in relation to, for example, “sustainability”¹⁴?

Once again, the COVID19 pandemic gives us an epistemological advantage when facing those dilemmas because it reveals how limited it is to take refuge in frameworks that are tranquilizingly human and, therefore, biographical (or even heroic), to the detriment of systemic frameworks (Alba Rico, 2021). Renouncing the systemic focus and prioritizing a more narrative-type focus means denying, among other things, that viruses are fully-fledged social agents that form part of our biological and socio-cultural existence. The cause of these biased interpretations probably lies in the fact that our atavistic anthropological condition of tellers of and listeners to stories only allows for narratives about what happens on the condition that they have a flesh-and-blood protagonist, with whom we can identify, to whom things happen and/or who makes things happen. The narratives that we are used to

¹³ This prize celebrates a chef of any nationality who shows how gastronomy can have a positive impact in fields such as culinary innovation, health, nutrition, education, the environment, the food industry and social or economic development (<https://www.basqueculinaryworldprize.com/>).

¹⁴ A very significant occurrence happened recently to the author of this text. The Spanish national television company, RTVE, asked him to contribute to an “innovative” programme about gastronomy that aimed to go beyond the usual standards, introducing, they said, a sociological viewpoint. The programme, called *Como Sapiens*, ended up being a parade of celebrities, who acted as gastronomic reporters. The same production company has a programme broadcast at peak viewing time on which the meteorological information plays an important role. So, offering unthreatening information about gastronomy and the weather involves deactivating two of the main critical zones in which our future will be decided: food, and what can be called the new climatic regime.

(with a beginning, an end and a set of events, characters and heroic acts along the way) are no use for representing what happens in pandemics, with an enemy that is invisible, lacks a personality and has no goals (Fueyo, 2021).

Actor-Network Theory, the perspective that acts as a theoretical basis for the gastrological hypothesis put forward here, would sustain that the two initiatives that received the culinary prize are social, but they are social in different ways. It would defend the viewpoint that, from a *symmetrical anthropology*, which grants the same capacity for agency to non-humans (CO2) as to humans (and their “humanitarian” actions), the important thing is to explain how, based on what associations or assemblies, each of the initiatives is able to construct gastronomy as a link that is able to last over time (*conatus*). To see this is to base oneself not so much on a *sociology of the social* whose exclusive (and excluding) object is society and the human beings who inhabit it, but a *sociology of associations* that, by society, understands only one possible type of association, not the only possible form of association. As one of the most ignored thinkers in the history of sociology, Gabriel Tarde, argued over a century ago, the social is not a special domain of reality, but rather a principle of connection (Tarde in Tirado and Domènech, 2005). So, given events as illuminating as the pandemic, another thing that loses currency along with this limited view of the social is the anthropocentric bias that stops gastronomy from measuring up to the complexity of the processes that gastronomy itself activates.

In this way, we incorporate the social dimension into the gastrological perspective and add it to the material and the imaginary, thus completing the Lacanian triad. To do so, before asking what gastronomy is (or “what cooking is”), we should answer the following question: what kind of association, assembly or public materiality gives consistency to gastronomy, making it “durable”?

What gastronomy can learn from the pandemic

The pandemic caused by the SARS-CoV-2 coronavirus has brought a hidden intensification of the controversy between the gastronomical and gastrological perspectives. From the point of view of *gastro-nomy*, this period of deep uncertainty has provoked a closure. I am not referring, *literally*, to the situation of confinement, but rather to a “categorical” closure, a kind of “mental” confinement that freezes the institutional imaginary of gastronomy into a limited repertory of practices and representation regarding what eating and cooking mean socially.

In general, the pandemic has brought a dispute between the important and the urgent. By urgent, I mean that set of measures or protocols aimed at making gastronomy a safe activity. In this area it has been possible to see, revealed and developed in public, logistical marvels, but also an unending dance of figures and measures that have ended up overwhelming the population. By important, I mean the more or less general social perception, although one hardly articulated in terms of public opinion, that the pandemic is a result of the problematic nature of our relationship with the environment we inhabit. The bottom line so far is that what is urgent has outweighed what is important: the (immediately relevant) importance of the urgent –the hygiene and safety implemented in the restaurant industry– has outweighed the (structural) urgency of the important: the role that gastronomy plays in the way we construct the world we inhabit.

In this line of categorical closure it is striking, for example, that at a time of immense logistical difficulties, gastronomic events have continued to be held, at which novel techniques have been demonstrated, new ingredients revealed, and the talent of certain chefs put on show, as “if nothing had happened”. In this regard, moments of great symbolism have been experienced. I offer here one, by way of example. During the months of April and the Vocento communication group, which organises the two main gastronomy conferences in Spain, Madrid Fusión and San Sebastián Gastronomika, ran an online event called Gastronomika Live. The aim was to have a presence in a virtual environment which, given the impossibility of relating “in person”, emerged

in a striking manner in the field of gastronomic events. At this conference a highly symbolic moment occurred: in the course of a conversation with Ferrán Adrià, he announced that he was making available, to all those attending the conference, free of cost, a pdf document of the first volume of Bullipedia, referred to above, the one entitled *Qué es cocinar*. This is what I am referring to as a “categorical closure”: at a moment of great uncertainty for the restaurant industry, we attended what could be called, without exaggeration, an act of refoundation, at which one of the most, or even the most, authorized figures in the field of contemporary gastronomy traced *urbi et orbi* the conceptual limits of the discipline.

Another of the characteristics, somewhat complementary to the one just mentioned, of *resistance* to the opening of gastronomy to that which, in opposition to the urgent, I have called “important”, is the triumphant return during the lockdown period of comfort food (Pérez Rodrigo, 2020; Di Renzo, 2020; Scarmozzino & Visioli, 2020), as well as the factors linked to the exponential increase in the habit of cooking at home and the return of eating together (Uggioni et al., 2020; Nuijten, 2020). This movement is interesting because behind the idea of comfort food there is a specific relationality.

The term “comfort food” is generally *associated* with homecooking, with the kind of food people ate during childhood, and that their mothers cooked for them. It involves those kinds of foods that, at a phenomenological level (sensorial, subjective), trigger a kind of child-like feeling, based on oral somatosensory qualities caused by light textures that provoke comfortable and nutritional sensations (Spence, 2017b). With respect to *association*, then, in this form of eating/cooking, the link between physical quality and social quality is established. As Charles Spence rightly points out, there is empirical evidence that, in difficult times, both professional and amateur chefs put this kind of dish on their tables. Besides, many of them took the chance and move to the comfort of home, becoming social media stars, or adapt/*domesticate* their gastronomic proposal to delivery of comfort food. With the aim of facing up to the external danger involved in the pandemic, the internal safety and care that homecooked food provides us with are activated.

In a certain way, comfort food enables a domestic *comfort zone* that hides other, less comfortable or obliging facets of gastronomy, ones that, paraphrasing the sociologist Bruno Latour, I will call *critical zones*. This division between comfort zone and critical zone radicalizes the separation of two planes, the phenomenological and the systemic, which was put forward at the beginning of this article in reference to what “we sense” and what really “happens”. The consequence of all this is the schizoid situation we experience, feeling ever more protected at home, when “out there”, in the “desert of the real” (Zizek, 2013), things are ever more uncertain.

Conclusion: gastrology as a science of critical zones

From its domestic comfort zone, gastronomy can also be understood as an *epistemological* comfort zone. Gastronomy would be, as the joke goes, looking for the “lost key” of its object in the area illuminated by the light of a streetlamp, but not because it is sure the object is there, but rather because that happens to be the area that is lit up. This illuminated zone of gastronomy is often an everyday lifeworld (Habermas, 1988) that comfort food represents perfectly. The refuge-food feeds a refuge-world that might be represented by the bloodless image, faraway yet snug, of the blue marble. In this context, gastronomy develops like a global conversation, splendidly nourished by the social media which incidentally give it a cosmopolitan varnish, among smiling foodies who, confined as they are to their homes, cook and eat continually.

I would like to end this article by committing to a displacement, of political but also of epistemological consequences, from this unthreatening *cosmopolitanism* to a *cosmopolitical* proposal (Stengers, 2005). This commitment focuses on discerning/elucidating how domestic securities can create systemic uncertainties. The gastronomy versus gastrology controversy discussed can be enunciated as the conflict between those who, following the path of the first, make the dish *their* world, and those

who, choosing the second, consider that the world is also a dish to be “cooked”.

Gastrology is the *science of critical zones*, one that can be made use of by those who wish to venture into those less comfortable territories.

The term ‘critical zone’ is used by geochemists, biologists, and ecologists to designate the surface and near-surface environment of the earth. It is a constantly evolving layer, a few kilometres thick, where living organisms, but also soil, rock, water, and air interact, and it is where life forms have created conditions favourable, so far, to the continuity of their existence. ‘Critical zone’ also underlines the fragility of this thin layer, and the many controversies triggered by the new political attitudes necessary to cope with the New Climatic Regime (John, 2020).

The unthreatening image of the blue marble as that home where we live together continues, despite everything, to be very convincing. Among other things because there is no equivalent public representation of the critical zones. That is why we need to use the zoom function, to be ready to make a landing that will probably be an emergency one (Solnick, 2020). The first thing is to put into quarantine the “spectrum of the social” that we have been in up until now, expanding it to other scales where the tranquilizing human/non-human dichotomy, which translates everything into biographical narrative, no longer works. This opening up towards the non-human (and one could also say “more-than-human”) activates micro and macro scales that are incommensurable with the anthropocentric perspective.

If we use our zoom to penetrate those objects that in *Powers of Ten* have been hidden (“by the hand of man” as it were), it is possible to observe that many of them –the food they eat, the grass they are on, the air they breathe, etc.– are gateways to new narratives. However, the great paradox is that these critical zones have no shared social representation because they are made opaque by the image of the blue marble. The best way to transcend that image is to start to see it as a network of critical zones, as scientists, from their many observatories, have done for centuries; without forgetting that, etymologically, the verb observe means not only to look, but also to care for.

Tentatively, and making use of the zoom function, it is possible to differentiate at least four gastrological scales:

- The nano (gastronomical) scale of the so-called “dark matter” of food (Barabási et al., 2020). The microbiom emerges here, together with the unknown dimension of the chemical composition of foods, as a promising critical zone.
- The micro scale of gastronomy in which the most common scientific research, and most of the innovations applied in the restaurant industry (molecular gastronomy) and the food industry, take place. However, also the composition of the soil where we grow our food, for if we leave the plate, new spheres of study, such as soil studies, constitute a critical zone too. To see its relevance, we only need to imagine soil as the dish upon which we cook (Pollan, 2006).
- The meso scale, at which the established social imaginary regarding gastronomy unfolds, its everyday or “common sense” definition. This is the sphere that I have defined as the epistemological comfort zone of gastronomy.
- Lastly, the macro scale,¹⁵ which attends to the systemic consequences that result from the way in which we eat and cook. Here, the new climatic regime (Latour, 2018) takes on particular importance. Many of these consequences are unintended (Merton, 1936) and are not made public. That they are not included on the menu of topics of social conversation related to gastronomy means that they do not belong to our field of perception.

¹⁵ Until it is understood as a public health problem and adopts the form of a disease, as has occurred with SARS-CoV-2, sustainability lacks a narrative for that majority of people who do not consider it to be a question of activist commitment.

However, it is not a matter of enumerating the critical zones as if they were new objects or scales, but rather of observing how they are linked among themselves, how they are woven together in a kind of network of critical zones that goes from the very big to the very small, as if in a hypothetical *Powers of Ten* of gastrology. The Gaia hypothesis could be useful here.

The small — the bacteria — holds the big — the atmosphere — while the big also resides inside the small. Their discovery made it impossible to retain the Russian doll models that earlier allowed us to move up and down the scale (...) What is a part and what is a whole is everywhere thrown into doubt: cells, societies, as well as climates. This new metric transforms what it means to have an identity, to belong to a place, to share competences with other beings (Latour & Weibel, 2020).

On the epistemologically tranquil terrain of gastronomic culture, which is transmitted socially from generation to generation, we have already assumed, in general, the principle that “we are what we eat”. This idea challenges a common sense that resists seeing the complexity of the world. The relative popularisation of the innovations that have arisen in the world of haute cuisine, many of which have a scientific origin, has also favoured the socialisation of a second principle, particularly among the gourmet public, which has made it into a central principle of its existence: “we are how we eat”.

We are, at present, facing a vital crossroads that demands we go beyond the borders of the plate within which our common sense has worked until now. The COVID19 pandemic has made manifest a reality that was previously only known to the scientists who observed the, unsettling *immunitas* of gastrology, we must dare to let our common sense open up in a natural way to the largest and the smallest scales of gastrology. Beyond the walls of our house, we are “that which eats what we eat” (Pollan, 2006). What we eat/cook is a cosmopolitical factor: it makes the world. Within the walls of our intestine, we are “what our bacteria do with what we eat”. What we eat/cook is a biopolitical factor: it makes us. Associating these two principles is to know/be able to see the big in the small, and the small in the big.

Implications for gastronomy

This article questions certain cognitive and institutional frameworks of gastronomy that are overwhelmed by the complexity of contemporary social processes. The pandemic has exacerbated this deficit. An alternative analytical framework is proposed, called gastrology, which is built based on a theory of complexity.

CRedit authorship contribution statement

Iñaki Martínez de Albeniz: Conception and design of study, acquisition of data, analysis and/or interpretation of data, Drafting the manuscript, revising the manuscript critically for important intellectual content.

Declaration of competing interest

I declare that in this article there is no conflict of interest of any kind.

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