

Anthropology: Science and Philosophy

Beatriz Ruiz

Postulating anthropology as a science

Boas, according to Harris, put the matter very succinctly: 'Anthropology is a science, but science is history'.¹ Malinowski sought a scientific definition of culture in his turn. In a posthumous text entitled *A Scientific Theory of Culture*,² he offered a minimal definition of 'science' for the humanistic scholar, which would thus be differentiated simultaneously from abstract thought and from common sense.

The *scientific* treatment differs from that of common sense, first in that a student will extend the completeness and minuteness of survey much further and in a pedantically systematic and methodical manner; and secondly, in that the scientifically trained mind, will push the inquiry along really relevant lines, and towards aims possessing real importance.³

For Malinowski, the scientific attitude was as old as culture, in so far as the minimal definition of science is derived from some kind of practical activity. He arrived at this conclusion as much through his researches on non-Western peoples as thanks to the progress of modern physics, which made its appearance during the early years of the twentieth century.

Our minimum definition implies that the first task of each science is to recognize its legitimate subject matter. It has to proceed to methods of true identification, or isolation of the relevant factors of its process. This is nothing else than the establishment of general laws, and of concepts which embody such laws. This, of course, implies that every theoretical principle must always be translatable into a method of observation, and again, that in observation we follow carefully the lines of our conceptual analysis. Finally, in all this the inspiration derived from practical problems . . . is an invariable corrective of general theories.⁴

A precondition for being able to act and participate in the process of social action is to have a certain theory of knowledge available which gives an account of reality, while also being operational, that is, presenting bridges between theory and empiricism. The history of Western culture has more often focused on the first term, theory, than on the second, empiricism; in reality, we have only confronted this question for two centuries. The whole history of metaphysics and some part of the history of science have attempted to resolve the question of being: what are we? However, the twentieth century was characterized by the appearance of a new question, meeting certain success at the start of the third millennium: what is happening to us?⁵ The grand theory and the preoccupation with the search for the truth are no longer pertinent. Extreme rationalism has already found

British empiricism in front of it while, in the face of theoretical absolutism, Marxism has gambled on the imbrication of theory and practice. None the less, the scientific inheritance of Anglophone empiricism was *normally*, Kuhn might have said, closer to absolutism than was believed, while applied Marxism gave practice an absolute status so as to convert it into bureaucracy.

Ideas about the world in which we live, various concepts of reality, come fundamentally from theories of physics, as philosophers of science have demonstrated. For the most part, the science–religion debate which has been evolving ever since what we call ‘the Renaissance’, is in reality a polemic between the two conceptions of physics, that of Aristotle and that of Newton. I also believe that the debate on physics is what unifies the greater part of the debate started at the beginning of the twentieth century between qualitative and quantitative social science. The debate about physics also lies fundamentally at the bottom of the formulation of anthropology as a science. The relations anthropology has established with physics or other sciences have brought a dynamic element to theories and techniques playing a central role in anthropology, in so far as they posed problems and questions which have been very fruitful from the viewpoint of discovery.

It appears that in order to open the debate on anthropology we have to position ourselves in the paradigm of evolution proposed by history and biology. However, it is the same paradigm that was disputed by Boas in the United States, with his historical particularism, and by Malinowski in Great Britain, with his synchronic functionalism. These two approaches, on the face of it so different, have in common the fact that they have physics as their departure-point.

Physics is as much a determining element in Boas as in Malinowski. Boas and Malinowski debate the multiple *ad hoc* hypotheses posed by the historical biological paradigm, on the basis of the counter-hypotheses which the new revolution in physics offers this theory, the most important being the negation of the theory of causality. Harris explains that, as strongly maintained by Boas’s disciples Kroeber and Paul Radin, he was, despite everything, not a historian. Kroeber put it very succinctly: ‘In brief, one may define the Boas position as basically that of the physical scientist’.⁶ This position was to have a very strong influence on the question of method. For Boas, particularist history was the method which came closest to the positions he had adopted in physics.

In the United States, sociology at the beginning of the twentieth century used arguments very similar to Boas’s anthropological postulate, with his ‘historical particularism’. Like Boas, the sociologists set in motion qualitative research techniques called the ‘method of personal documents’. Concrete studies, on a micro-scale, which are synchronically situated and able to be observed, the broadest expression of which is given by life stories or personal letters, are the current subject matter of the Chicago sociologists. Paul Radin, Boas’s follower, was one of the first anthropologists to make life-histories following this method.

This commitment of Boas, and of the Chicago school sociologists, to micro-studies, and their fear of general laws were also shared by Malinowski, with his synchronic functionalism, in also opposing the epistemological implications which the paradigm of historicist evolutionism (which had been the subject of so much speculation in the nineteenth century) brought with it.

Boas, the Chicago school sociologists and Malinowski confronted the great problems surrounding the question of movement, central theme of physics, which is expressed in various ways in the social sciences: in terms of population (migrations); in political terms

(colonialism); and in economic terms (increase in the power of movements of capital). And for the study of movement, as physicists affirm, the question of observation techniques is central.

Is anthropology a science? Comparative study of anthropology and other sciences

However, what I am interested in demonstrating now is a possible reply to the question, 'Is anthropology a science?' on the basis of results of research that I have undertaken.⁷ In this fieldwork my research focused on the question of what the physicists, mathematicians, biologists and experts in logic, indubitably scientific, think about the scientific character of anthropological practice. I should like to thank them all for their kind cooperation: Carlos Saavedra, researcher in evolutionary genetics at CSIC; Oscar Cabeza, specialist in quantum physics at the University of La Coruña; Alejandro Sobrino, expert in fuzzy logic and Professor at the University of St James of Compostella; and Paulo Bueno Capeans, mathematician and computer scientist. To all of them I proposed collaborating in fieldwork, consisting of the discussion of certain questions central at once to anthropology and to the concrete science in which each of them worked.⁸

What is the scientific model proposed by the 'hard sciences'? Often, when we compare the procedures of the 'hard' and the 'soft' sciences, we make mistakes since for most of the time we do not speak of hard sciences (physics, mathematics, biology), but rather of scholastic physics and scholastic logic, in other words our knowledge of the hard sciences is esoteric. Newton, Euclid and Aristotle are the scholars often invoked as the basis of judgements which are very 'scientific' and very positive in the social sciences. On the other hand, once in a while the 'hard scientists' who analyse the social sciences happen to be unaware of history. Now, anthropology is a science, but science is history.

We should perhaps ask ourselves if the dichotomy of *hard sciences versus soft sciences* is pertinent, or whether we should speak rather of *normal versus revolutionary science*, as Kuhn does; or whether, indeed, on the contrary, we face the dilemma of *exact, or simple, sciences versus complex sciences*. For the time being, I incline towards the last dichotomy, which seems to me the most relevant. Development of this point is deferred to later in this article.

I aim to show how the articulation of theoretical and methodological paradigms, implying the use of qualitative techniques in anthropology, is very similar to that of the theories and methods involved in the highly topical debates taking place in the new sciences. And that anthropology, within what we call 'paradigms of complexity' is closer to physics, biology, non-Euclidian geometry and fuzzy logic than, for example, certain schools of sociology and psychology which favoured the study of what is unchanging to that of movement. To return to the fieldwork, however: the physicist smiled as he spoke of causality, including objectivity, considering these notions as anachronistic in physics; the mathematician was unable to understand the concept of absolute space, no matter how quantified, and where many social sciences operate; the biologist adopted certain anthropological theories to such an extent one would think we worked on the same subject; fuzzy logic attributed an ambiguity to scientific arguments, greatly reducing the importance of general laws. Let us return, however, to a closer examination of the results of the fieldwork with the scientists.

Quantum physics

From the beginning of our conversation with Oscar Cabeza, a first point of interest appeared on his side as we spoke of global–local relations. We quickly encountered a first problem common to quantum physics and anthropology: this was the problem of *scales*. Physics has to tackle the decision as to how to articulate the different levels and scales: the sub-atomic level, the Newtonian level, then that of astrophysics; this is a central problem in physics today. In the case of anthropology, we speak of different units of analysis or *scales*, the person, family or domestic group, gender, social networks, nation, state, zones of economic influence, the planet and so on.

From this first observation, and by starting from this theoretical problem of *scales*, a methodological problem immediately appeared, common to physics and anthropology, which we might call the question of *perspective*. The dilemma of subjectivity, which is one of the crucial elements in demarcating the frontier between sciences and non-sciences, according to the thinking of most of the social scientists, emerges as the central element at the very heart of quantum theory. The nature of the quantum element (corpuscle or wave), reveals itself in so far as an observer is there to take measurements. This would mean that in the physical system, being by definition indeterminate, *the object of study and the subject* who studies it, consisting of the researcher and his or her techniques, are part of the theory. I do not know whether all researchers in the social sciences would be able to accept this.

Another common element, also very surprising, is the abandoning of the law of causality in physics, which in anthropology continues to be defined by the holistic dimension, in other words, cumulative and articulated.

Fractal geometry

The Greeks, Paulo Bueno Capeans told me, invented a system of geometry of which Euclid was the best-known representative. Euclidian geometry invented ‘pure’ figures, where the circle unites all symbols of perfection. This was a fundamental question in Greek philosophy, as we all know.

This schema allows one to hypothesize that it is not the geometrical figures which have the appearance of natural objects (which lie at the origin of geometry), but that it is rather the natural objects which resemble geometrical figures. Taking this position to the extreme, one even manages to assimilate natural objects and geometrical figures, by finding truth in mathematics and error in nature. Thus certain curves which lie at the origins of fractal geometry and which have their origins in nature, such as the curves of the coastline, for example, were considered ‘teragon’ in traditional geometry.

From the geometrical viewpoint, Paulo told me whilst I told him about qualitative techniques in the social sciences, a fundamental question is that since Newton people have believed that nature is smooth and continuous, while the new geometry, generically called ‘non-Euclidian’, believes that it is a question of an idealization and that in reality it would be better to apply the geometrical model which does not in the least stem from what is smooth and continuous, Newton-style, but from what is irregular, pointed, discontinuous.

The Newtonian model dates from the seventeenth century: for the second, fractal, model we had to wait until the middle of the twentieth century. An example of non-Euclidian geometry is supplied by fractal structures, characterized not only by their irregularity and their angular appearance, but also by something which seems to me to be very interesting, namely their self-similar characteristic.

To take things more slowly: as Mandelbrot's book, *Fractals: Form, Chance and Dimension*⁹ explains, one could say that there is a conception and a fractal geometry of nature. It is principally based on the concept of self-similarity, which represents the property of systems displaying invariant structures while the scale of the observation varies. Put differently, when the *parts*, however, small, resemble the *whole*.

The fractal dimension describes an aspect of the rules of articulation of natural systems, the resemblance of parts to the whole. To take the most famous example, if one considers the coastline of Brittany, we see from a geometrical perspective that it is a matter of an irregular curve, chaotic, disordered. None the less, according to Mandelbrot, the fractal order does exist: 'In fact, even if the coasts are very irregular, the degrees of irregularity corresponding to the different scales are broadly the same'.¹⁰

This becomes more complicated: not only do we encounter interactions between the sciences and anthropology, but also between the other sciences, and the interest of my informers grew on each occasion for each of the other sciences. The idea of self-similarity seems to be able to give a reply, at least of a methodological order, to the problem of scales, which is as much a central theoretical problem in physics as in anthropology. Moreover, the fractal concept of nature is increasingly applied to biology.

Evolutionary genetics

From a theoretical viewpoint, anthropology is very close to biology: both sciences study the process of life reproduction and both are based on the theoretical paradigm of diversity, each within its own discipline. However, the results of conversations about this fieldwork have led to the following conclusions.

The principles on which the theory of evolution is based, said Carlos Saavedra, fit in logical or methodological terms a sequence or typology going from stability to change. We have all, he said, a common origin, whether in diachronic terms – evolution – or synchronic terms – composition of DNA. But at the same time there are mutations and changes of various types, structural and conjunctural, according to the terms of anthropology.

In both sciences the analysis of diversity is given a vital role: genetic variability in one instance, social heterogeneity in the other. Diversity is fundamental for what biology calls biological efficiency: the capacity to survive and leave descendants. It is the same in anthropology, in relation to what, since Malinowski, we have called *satisfaction of basic needs*.

In relation to the genetic origin of diversity, it is interesting to observe how the problem of the replication of DNA is also, perhaps on another scale, that of cultural transmission. The two concepts are articulated around the permanence–change opposition. The idea developed by genetics, according to which most changes are inoffensive or neutral, seems very interesting to me, for, from the point of view of the social sciences we

have always privileged, it seems to me, above all, during the nineteenth and twentieth centuries, the problem of change. The theme of permanence found itself eclipsed. Perhaps the latter is not the same as the concept of social structure, but it has to some extent clumped together with the notion of self-similarity in fractal geometry.

Fuzzy logic

Logical empiricism dreamed of a logical formalization of scientific language and, nevertheless, it is this same dream which has shaken the scientific status of sciences as hard as physics. The latter has undergone a process of 'softening' as much in relation to its own laws, which have become somewhat uncertain, as thanks to the interest of physicists in new questions.

The conversations with Alejandro Sobrino showed how, from the viewpoint of the formal nature of arguments, an increasing and significant interest has been displayed in the positions of fuzzy logic. We have reached the point, he told me, with anthropological arguments, of submitting that the extreme importance given to formal (Aristotelian) logic in Western culture had more to do with a particular vision of the world than with questions of a scientific and methodological nature. Developments in fuzzy logic have had an enormous impact on Japanese culture, the world-view of which is less dichotomic and Manichaeic (the theological version of dichotomic thought) than that of the West.

Fuzzy logic is the science which studies the correct nature of approximate reasoning, or the uncertain inferences in themselves. Arguments which contain premises with a vague signification or concerning which our information is incomplete. Before even attempting a definition, we found an interesting point of contact. Alejandro said: 'The value of the truth of an inexact proposition amounts to choosing a *universe of discourse* in which to record the signification'. This means that fuzzy logic is local, context-dependent. By way of conclusion I would add that this is called *culture* in anthropology. Culture is a context and that is why ethnographic data can find expression in our holistic, integrative and interactive perspective.

Alejandro brought an important question to this discussion: he said that in the perspective of fuzzy logic, the fact that the signification was contextual did not mean that it was arbitrary. Being subject to interpretation, and in cases of dispute subject to negotiation, its subjective character does not deny it the possibility of being reasonable and plausible. He added, 'It is not only the signification of the predicate which is contextual'. The signification of the quantifier is as well! Fuzzy logic does not talk of true or false but, depending on context, of absolutely false, very false, fairly false, neither true nor false, fairly true, true, very true, absolutely true. The certainties of social scientists do not seem very scientific; nor do those of the 'hard' sciences either.

Now, that is to say, at the beginning of the twenty-first century, some theories which I discussed with my scientific informants, such as the physicists, have been operating now for more than seventy years. According to Kuhn's propositions, we should already be in the 'normal period' of scientific development, which, however, does not seem to be the case. The revolutionary change assumed by quantum physics has been poorly assimilated

by the social environment, scientists included. It is well known that Einstein opposed certain parts of quantum physics that could not be demonstrated by experimental means until barely a few years ago. De Broglie's principle, formulated in 1923, was only validated experimentally at all in 1982.

Oscar Cabeza began the paper that he mapped out with a view to the debate which was going to develop within the framework of the doctoral course which I was teaching by quoting the physicist John Gribbin: 'If all the books and articles that had something to do with the theory of relativity could be piled up, they would probably reach the moon. Everyone knows that Einstein's theory of relativity is the greatest scientific conquest of the twentieth century, and everyone is mistaken . . . However, if one piled up all the books and articles written on quantum theory, one could cover my work-table . . . In popular mythology quantum physics is seen as something hidden and mysterious, a fantastic and esoteric chapter of physics, which nobody really understands nor knows what use it is, assuming of course that one knows anything about it at all'.

Anthropology and quantum physics

The next question was: did this lack of comprehension also affect those called the founding fathers of anthropology? I am going to try and prove the contrary, but I must recall the fact that Boas was a physicist, just like Malinowski. First of all, in order to answer this question, let us go back to the beginning of the twentieth century. What was happening at the time when these questions were being asked? What was happening at this historic point in time, when a revolution was occurring in physics on a scale comparable to that of Darwin's theory of evolution?

The first great emblematic date of quantum physics was the year 1901. In that symbolic year, Max Planck found the solution to a critical experiment, proposed in 1897 and questioning the ideas of classical physics. What was discovered was that a hot body does not release calorific energy (in the form of radiation) in a continuous manner, but, on the contrary, by 'fractions of energy', each of which was called a 'quantum of energy'. The first step towards the formulation of quantum physics, which even gave it its name, postulated that nature was not continuous but discontinuous, *fractal*, as Mandelbrot said in the 1960s.

Studies on light, like those of Einstein and those on atoms, spread at great speed. However, it was De Broglie who in 1923 postulated the wave/corpuscle principle. It was a question of explaining the ambiguous behaviour of light, which escaped the explanations of classical theory.

The principle states: 'Every moving particle possesses a wave which accompanies it', meaning that the particle appears to spread out in the form of a cloud throughout space, although the greatest probability of meeting it is in the places predicted by classical physics.

In 1927, Heisenberg postulated his famous uncertainty principle, explaining that it is impossible to know exactly both the speed and the position of a particle at any given moment in time. He added, more interestingly: independently of the techniques used for this end. Let us now leave physics and rejoin anthropology. However, we are going to

discover that it is impossible to detach ourselves too much from physics. Remember that Boas and Malinowski were physicists before becoming anthropologists.

The calling into question of the principle of causality and the idea that nature is not continuous and smooth (you remember what Paolo the mathematician said) was absolutely revolutionary in their day. The question is: did Boas and Malinowski know of the challenge to this principle of causality, when they postulated a holism for cultural phenomena? Harris cites the following text of Boas:

In my opinion a system of social anthropology and 'laws' of cultural development as rigid as those of physics are supposed to be are unattainable in the present stage of our knowledge, and more important than this: on account of the uniqueness of cultural phenomena and their complexity nothing will ever be found that deserves the name of a law excepting those psychological, biologically determined characteristics which are common to all cultures and appear in a multitude of forms according to the particular culture in which they manifest themselves.¹¹

But most interesting is the fact that the same Harris asked, in commenting on Boas's text: 'what [did] Boas [intend] to convey by means of the phrase "as rigid as [the laws] of physics are supposed to be?"' Harris continues: 'This phrase would seem to indicate that Boas was aware of the changes which the concept of scientific law had undergone as a result of relativity theory and quantum mechanics.' He concludes: 'But if this were the case, why should anthropology continue to be burdened by Newtonian concepts that physics had abandoned? If probabilities had replaced mechanistic certainties, why should anthropologists demand that their laws admit no exceptions?'¹²

There is another interesting fact relative to this question. Sahlin in his book *Culture and Practical Reason*¹³ states that Boas did some experiments as a physicist about light and that the conclusions of these types of experiments led him to occupy himself with perception and, by the same, to the study of culture.

As far as Malinowski is concerned, it is significant that several of his professors of physics at Cracow were disciples of the physicist and philosopher, Ernest Mach. According to Stocking, Malinowski inherited the concept of function from Mach. For Mach, this concept implied a relation between the things which 'made superfluous "the ordinary concepts of cause and effect"'.¹⁴

Was the influence of these theories, on the continuous and discontinuous, unknown to the anthropologists when they promoted the study of informal phenomena? And what is most important: did they not accord central importance to the study of method? And, in the case of Malinowski, did he not seek, to the end, to repeat what the physicists were doing, namely to clarify to the utmost the conditions of the experiment? He went to the extent of keeping a diary which explains in a rigorously scientific manner what the conditions of the experiment (and of Malinowski himself) were in the course of the research. Something more significant than a 'footnote to anthropological history', as R. Firth described it in the Introduction to the *Diaries*.¹⁵

If anthropology and the social sciences have one object, it should be complexity. We could also express this in methodological terms: was that not fundamentally a question of a debate between 'quantitatives' and 'qualitatives'? A debate so passionate that in the faculty of sociology, founded at Chicago in 1904, there were games of baseball between the 'quantitatives' team and that of the 'qualitatives', as Ken Plummer points

out.¹⁶ The foundations brought to physics by quantum theory were a major revolution, affecting science and art. It is strange to note in the very same years of the 1920s surrealism painted this new world which physics had just postulated.

Anthropology and philosophy: pragmatism

However, anthropology is something more than a science. 'Anthropology is a science, but science is history.' Let us remember Boas's message: history itself implies various historiographies, various theories of history.

Another point of coincidence between the qualitative sciences (anthropology and sociology) in the United States and the British anthropology of Malinowski comes from the passions roused in both places by pragmatism, a very poorly understood philosophy, often confused with utilitarianism, which is totally distinct from it. As Leach explains to us, the pragmatism of William James was more a creed than a philosophy: a practical guide to correct behaviour. James was profoundly suspicious of all forms of abstraction. It was the same suspicion of theoretical abstractions, combined with the importance of the concrete experience of life, that were, as two central points, at the base of all Malinowski's work,¹⁷ and that of the Chicago sociologists. We should remember that a large number of them were journalists.

This physical and philosophical concept of scientific practice prompted two vital consequences in Malinowski's theory, making the formulation of anthropological theory as science possible. First, its opposition to the historicism of the nineteenth century; secondly, its opposition to Durkheim's structural sociology.

Malinowski criticized first of all the historicism of the nineteenth century, which was under the sway of a crude and progressive conception of the social evolution of human groups. Which led him to immerse himself further in static sociological-type knowledge and, finally, to spurn history by turning towards a synchronous functionalism. Nevertheless, the simplistic label, 'functionalism', regularly attributed to Malinowski conjures up a concept of culture as something perfectly integrated. Leach says: 'Malinowski professed to ridicule the resultant picture of bodies of men conforming to meticulously detailed customs in a rigid and mechanical manner. He sought to replace the notion of custom as an accidental product of history by the notion of culture as a rationally defined tool.'¹⁸

Then, Malinowski was opposed to the sociological knowledge represented by Durkheim, but not to that of Weber; in this case, too, on the same grounds of suspicion of abstract thought.

In Durkheim's book, *The Rules of Sociological Method*, the author attempts to rescue it from the accusation of psychologism, very well defined in Wright Mill's book, *The Sociological Imagination*: 'psychologism rests upon the idea that if we study a series of individuals and their milieux, the results of our studies in some way can be added up to form the knowledge of social structure.'¹⁹

Durkheim tried to save it from the problem of psychologism which, as he himself recognized, is very widespread among sociologists, by attributing a conscious entity to the social being, as distinct from the individual being: 'In aggregating, penetrating and fusing, the individual souls engender one being, psychic if you like, but constituting a psychic individuality of a new kind'.²⁰

Malinowski noted in his controversial *Diaries*, regarding the concept of *social fact* defined by Durkheim:

writing a diary requires profound knowledge and thorough training; change from theoretical point of view; experience in writing leads to entirely different results even if the observer remains the same – let alone if there are different observers! Consequently, there is no such thing as ‘history’ as an independent science. History of observation of facts is keeping with a certain theory; an application of this theory to the facts as time gives birth to them.²¹

Another time he described the same thing in a very ingenious and graphic fashion, as the general theoretical sauce which had to be seasoned by his concrete observations.²² These comments by Malinowski conceal a criticism of Durkheimian thought, which speaks of ‘objective facts’, in other words existing separately from the observer, and, as a result of this fact, capable of being observed in the same way by an indefinite number of observers. If it happened, says Malinowski, that when we ourselves reread the data recorded previously our interpretation varied in numerous ways over time, this would mean that the data had no separate existence. They depend on the theory used to observe them, on the person of the observer and the ways in which she or he makes his or her observations.

Malinowski begins by laying the foundations of his technique of data collection which was to have the name ‘participating observation’, which he defined as ‘*the method of statistic documentation by concrete evidence*’.²³ Leach maintains that Malinowski’s best contribution is his methodology, the technique he developed for field work: ‘The difference between the dry record of “old style ethnography” and the vivid life of “Malinowskian ethnography” is not merely an artistic device, it is a matter of theoretical insight’.²⁴

Anthropology and social action

To the methodological and theoretical analysis of scientific knowledge has just been added during the twentieth century the analysis of the socio-political and economic context, in which science develops. Popper and Feyerabend are the protagonists of an interesting discussion which falls within the social preoccupation with deontological questions derived from past scientific practice and society’s possible intervention in their planning. On the one side, Popper made his famous assertion, *Save science from society*: scientific knowledge is something very specific, addressing itself uniquely to the scientific community; it is by means of this delegation that science can advance progressively, accumulate knowledge. On the other side, Paul Feyerabend posits his thesis: *Save society from science*.

Scientific knowledge is recorded in the specific theories of knowledge, in specific paradigms, but also in national contexts, which realize certain scientific policies in well-defined political or socio-economic situations.²⁵

To overlook this aspect would make us believe that science is not context-dependent, and this is not the case. The empirical and theoretical success of Malinowski’s anthropology and of the qualitative sociology of the Chicago school does not depend solely on scientific questions, besides physics, we also find there a philosophy and an ethical theory for action.

Scientific rigour, yes; but also ethical and political rigour in the production of knowledge and information. This question is vital for the new information society in which we are submerged.²⁶ It is imperative to deepen the process of the democratization of knowledge by means of the elaboration of discourses that are clear without necessarily being simple. After all, scientific discourse directs its empirical investigation, according to what Malinowski says, towards pertinent questions, of real importance. What is real importance? Malinowski observes in his *Fieldwork Diaries*,

To sketch out a new plan where living man, living language, as much as the living facts brimming with vitality, form the kernel of each situation . . . The man of genius breathes life into these things, but why not be inspired by life itself, why should one not take life as the first theme to analyse and understand, later to reveal what remains in its light?

Anthropology is a science, science is history. But, moreover, anthropology like other sciences is supplemented by philosophical, ethical and political positions which are inserted in national contexts and economic networks. Can we be scientific and bypass this issue? To paraphrase Feyerabend, in conclusion: let us save science from superstition, but let us also save life from science.

Beatriz Ruiz
UNED, La Coruña/Ferrol
Instituto de Sociología de Nuevas Tecnologías, UAM-Madrid
(translated from the Spanish by Daniel Arapu;
translated from the French by Juliet Vale)

Notes

1. Marvin Harris (1968) *The Rise of Anthropological Theory: A History of Theories of Culture* (London, Routledge and Kegan Paul).
2. Bronislaw Malinowski (1944) *A Scientific Theory of Culture and Other Essays* (Chapel Hill, North Carolina Press).
3. Bronislaw Malinowski (1922) *Argonauts of the Western Pacific: An Account of Native Enterprise and Adventure in the Archipelagoes of Melanesian New Guinea* (London, George Routledge and Sons Ltd.), p. 12.
4. Malinowski (1944), p. 18.
5. I owe this idea to Professor José Alcina Franch.
6. Cited in Harris (1968), p. 276.
7. The origin of this scheme are also to be found in the doctoral course that I taught as a professor at the Ph. D programs anthropology and psychology at the University of Santiago de Compostella. In 1997, after discussions with various scholars, I attempted to compare the paradigms and methods used by the so-called 'hard' sciences and those of anthropology.
8. I started by explaining to these scholars what the basic principles of anthropology consisted of, and above all what 'fieldwork' relied on, as a qualitative research technique sometimes neglected by the 'hard social sciences' because considered too subjective in their eyes. This initial work led to a second series of conversations in which each of them attempted to give a reply from their particular science to the questions which I had formulated from anthropology: common endeavour gradually created a common language which anthropology, physics, biology, mathematics and logic could share and which aided the drawing-up of a discussion document for all the participants at the end of the course. This text demonstrated principally how the paradigms and scientific methods studied (quantum physics, fractal geometry, evolutionary genetics . . .) were less dissimilar than one would have supposed at first sight.

9. Originally published in French as Benoit B. Mandelbrot (1984) *Les objets fractals. Forme, hasard et dimension*, 2nd edition (Paris, Flammarion); English translation: (1977) *The Fractal Geometry of Nature*, updated and augmented edition (W.H. Freeman and Co., New York).
10. Ibid.
11. Harris (1968), p. 282.
12. Ibid. p. 282.
13. M. Sahlins (1976) *Culture and Practical Reason* (Chicago, University of Chicago Press), p. 76.
14. George W. Stocking Jr. (1996) From fieldwork to functionalism: Malinowski and the emergence of British social anthropology, in *After Tylor: British Social Anthropology 1888–1951* (London: Athlone Press), pp. 233–297, quotation at p. 245.
15. R. Firth (1976) Introduction, in Bronislaw Malinowski, *A Diary in the Strict Sense of the Term* (London, Routledge and Kegan Paul), p. xviii.
16. Ken Plummer (1983) *Documents of Life: An Introduction to the Problems and Literature of a Humanistic Method* (London, George Allen and Unwin), p. 45.
17. E. Leach (1957) The epistemological background to Malinowski's empiricism, in R. Frith (ed.), *Man and Culture: The Evaluation of the Work of Bronislaw Malinowski* (London: Routledge and Kegan Paul), p. 121.
18. Ibid. p. 126.
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