A Sociological View of Biology

Claude Javeau

We will deal with "biology" in essentially two distinct meanings of the term. The first one pertains to a certain class of facts, which concur to the existence of a certain order of things, a realm of its own. So we are entitled to speak of a "biological order", the way we speak of a "physical" or an "anthropological" order. The second one designates an individual scientific discipline, with its own paradigms and research methods, which is taught as such at school and at university. What I shall try to describe, inevitably in a rather simplistic way, are the views that sociology, as a scientific discipline, deems legitimate to cast upon both the "order" and the scientific discipline coined as "biology".

BIOLOGICAL ORDER AND ORDER OF THE SOCIAL

The biological order of things has *life* as its landmark or conspicuous object, as opposed to the physical order, whose landmark is made of inanimate objects (at least that is what is postulated by the scientific community). In many discourses it is also opposed to the psychological (or psychic) order. There exists, in Western thought, a long tradition of separating "mind" and "body", e.g. in Descartes' theory of the two substances, the thinking one and the extensive one (*substances "pensante" et "étendue"*). The building-up of "biology" as an "order" necessarily raises the problem of its borders, within which the objects assigned to biology as a scientific discipline are contained. This border is multiple, since it pertains as much to the distinction between "living" and "non living" as to the one between "living" and "dead". This last category of objects has been ignored *per se* by the majority of biologists since the advent of biology as a science (previously divided into botany and zoology). As far as Mankind is concerned, the contemporary dead bodies are nowadays the subject of a new discipline, thanatology, while dead bodies of the past ages have become the subject-matter of a specific branch of history, with the exception of those belonging to prehistoric ages, since many decades the subject-matter of human palaeontology, a subdivision of physical anthropology (and also, to some extent, of social anthropology). The other categories of dead bodies are monopolised by general palaeontology, if belonging to prehistoric ages, and, if more recent, but only occasionally, by history. As in most scientific fields, the borders of biology are somewhat blurred notwithstanding the efforts of scholars in universities and other scientific institutions to maintain frontiers on traditional bases. Even when biologists devote themselves to the study of the basic mechanisms of life, i.e. molecular biology, border clashes with organic chemistry are not uncommon.

Biology deals with space related phenomena, such as the dissemination of species, giving way to the present revival of systematology. But also to time related phenomena, of which evolution is the epitome. Evolution is not only a process, now relatively well know, but also a problem, as shown in the U.S. by the everlasting conflict between evolutionists and creationists, with the recently appeared "intelligent design" theory[1] (or rather doctrine). For the sociology of knowledge, this conflict exemplarily illustrates the theoretical problem of the relationship between "science", as a social construct, and "society", as a set of forces, power agencies, traditions and so on.

The evolutionary process in the animal world gives way to societal groupings of different natures, ranging from ants colonies or herrings banks to globalized industrial corporations. Each of these groupings displays certain specific characters, related to "sociality" (the way individuals live together) and "sociation" (the way individuals are induced to live together). What we are led to call a biological order is transformed, at least partially, into a societal order. Both orders are very intimately intertwined. In their social configurations (Elias), individuals tend to be determined by their biological peculiarities; on the reverse, it is within social configurations that they biologically reproduce themselves. This is one aspect, in its crudest form when dealing with very "primitive" animal societies, of the now well-known "structuration process", as theorized by Anthony Giddens[2].

If we turn our eyes on human societies and on the order of the social[3] which characterizes them, a new problem arises, that of "culture". Separate human societies take place within an all-encompassing human realm, Society as a whole, with "culture" as its main feature. This poses indeed another border problem, since what social anthropologists usually

call "culture" as a set of patterns transmission, can be found in animal societies[4], and not only among closely related-to-man primates, bonobos or chimpanzees, but also, for instance, among coal-tits in the U.K. with their acquired ability to open milk-bottles.

THE THREE SUB-ORDERS OF THE HUMAN ORDER

The human order, or order of the social, is "social" in nature, since culture, as the essential attribute of Mankind as a gregarious species, cannot be separated from the biological determinants of this species. Trying, in any human being, to distinguish between what is "biological" and what is "social" leads to an empirical deadlock. From a didactical point of view, I think it is possible to point out, within the order of the social, three sub-orders, these having to be considered as always tightly interwoven and influencing each other as an inseparable threesome : the "biological" sub-order (Man as an animal), the "symbolic" sub-order (Man as a speaker) and the "structural" sub-order (Man as a agent of politics)[5]. What seems typical of Mankind is the importance to be admitted to the "symbolic" suborder. This derives historically from the invention of *grammar*[6], allowing the signifier to be separated from the signified in speech acts. Some specialists believe that this invention marks the biological leap from ape to Man. From this it follows what we traditionally call culture in the restrictive sense of the word, encompassing all intellectual productions in the fields of literature, science, philosophy, music and the visual arts. If "language" is the first trademark of the human species, one should not forget that it does not only pertain to the biological and symbolic dimensions of the human order. Any utterance, even the most down-to-earth one, does combine the recourse to a phonic device, the use of grammatical and syntactic rules, and also the location of the speaker on a status scale. Every speech act is an act of power: this fact is unfortunately neglected by most semioticians and linguists.

On the other hand, the biological dimension of human behavior is also too often overlooked. Even in the most human, i.e. "culture" patterned, productions, biology never ceases to play its part. After many hours of having his or her pen crossing on sheets of paper, the most gifted philosopher inevitably falls asleep. Is then wilsonian sociobiology a good answer? Bestowing natural selection with the power (and the right, so to speak) of founding human behavior in its infinite range of patterns, leads to a political misuse of the concept of "nature", and might lead, as it easily gives way to social evolutionism as a guideline for political action, up to eugenics. To sociologists of the humanistic tradition (dating back to the Age of Enlightenment), the idea of contemplating the genetic factor as the main, or even the sole, explaining factor of human conduct, is irrelevant. True, Man is an ape, a speaking ape with an history, other than "natural", but still as an ape never leaves the animal world; and this legitimates the existence, as a separate branch of the sciences of Man, of human ethology, this being nevertheless a close cousin of social anthropology and sociology.

In this respect society appears as a natural phenomenon, aimed at protecting the offsprings of the humans; and, since a human offspring is very vulnerable at birth, as compared to the new-borns of other species, even the closely related ones, this means having to rely on a rather high amount of individuals for one infant in particular. This protection allows human litters to be much smaller than those of most animals, and the chances of survival to be much higher, especially in present-day very developed societies, where it is not very far from one hundred per cent. Biological conditions at birth make society an unavoidable necessity. Man is also characterised by a considerable development of the brain. The question is to which extent these two phenomena are related: does the need for a wider societal environment stem from the enlargement of the brain and its capacities, or does this enlargement entail the need for a wider societal environment? Surely there exists a link: human societies, as collections of individuals, could not have been brought in the never-ending spiral of historical development without the existence of the very special abilities of the human brain. On the reverse, the presence of human societies, in all their intricate sophistication, made it possible for the human brains to produce the most sophisticated tokens of human culture (and the intricate sophistication of human societies eventually called to lead through the process of urbanization).

Now the recurrent problem which continues to haunt most scholars in the field of anthropology lies in the question: "When did it all begin?". Surely there never happened something like a sudden jump from ape, say bonobo, to *homo*. As far as we know, manlike apes and manlike humans stem from already anciently differentiated boughs on the same phylogenetic tree. *Homo sapiens sapiens* (Cro-Magnon), now the only human species to be found on the Earth's surface, is a late comer, but surely "culture" as we nowadays mean it, had already gone a long way be-

fore Cro-Magnon replaced the previous version of *homo* (Neanderthal). We are left to guess or dream about the first step for (genuine) humanity. Perhaps the quest should be left to philosophers or even poets?

BIOLOGY AS A SCIENTIFIC DISCIPLINE

In modern societies, biology evolved over a few centuries as a fully-fledged and autonomous "science", holding a well established position at the fore of the most publicized disciplines. Being at the hinge of "natural" and "human" sciences, it draws much attention from large audiences, since it deals with present-day much discussed issues such as genetical engineering or the tracking down of malignous deformations before birth. Which is of course but a thin slice in the biologists' programme: as a matter of fact, its largest part would sound incomprehensible to a vast majority of TV-viewers.

The everlasting "will to know" amongst humans has led in the course of centuries to the development of specific and sometimes (too) neatly demarcated fields of knowledge, nowadays called scientific disciplines, with their hardcore paradigms, ways and means of posing problems and resolving them, habits and customs within the researchers' community, and so on. Biology was born with empirical medicine, zoology and botanics as aiming at the systematic classification of animals and plants: the names of prominent scientists like these of Cuvier, Linné or Buffon are well-known. Then the Darwinian revolution came in the midst of the nineteenth century and a bit later the discovery of genetic transmission. Evolution gave way to evolutionism, a basic feature of modern sociology, namely Durkheim's theoretical thought[7]. "Social darwinism", as we know it from historical disastrous experiences, is back nowadays as the cornerstone of so-called neo-liberalism. Genetics, for its part, today plays an important role in birth-control and in forensic medicine. But reducing biology to such examples would undoubtedly be proved misleading. For the sociologist, however, these constitute a rich field of investigation, besides what really happens in laboratories and research outfits.

Biology as a separate realm of research, "stretches" from highly sophisticated research labs to public debates on societal issues. What happens on a day-to-day basis in these labs constitutes ground nurture for the specialists of the now fully developed "Sociology of science". From a micro-sociological point of view, biology labs surely display specific traits, pertaining to their specific subject-matters. In particular, the presence of animals in some of these labs gives way to special problems, not only of keep, but also of an ethical kind. On the other hand, from a macro-sociological point of view, the all-pervasive ideology feeding on the principle of precaution, strongly related to the emerging of the "risk society"[8], leads to questioning biology about its role in the shaping of the Mankind's future , especially in the developed societies[9].

One of the main fields of such questioning is about *bioethics*. The mass media and the press have largely popularized issues as genetical engineering, the cloning of animals and even of humans, the manipulation of the human genome, or the temptation of reintroducing eugenics as a demographic regulation device. In a few decades, life expectation at birth will be much extended, but it is also stated that a large proportion of elders will be afflicted by degenerative diseases, such as senile dementia or Altzheimer's disease. For the poorer among these ill people, what solution will be left, if social security goes on declining or has then all-together disappeared? Besides implementing means of getting rid of these costly burdens in the decentest way possible, another solution could be keeping a close watch on pregnancies so as to avert the birth of future "problematical" offsprings (this concerns also people with one or another foreseeable somatic or psychic abnormality). Biologists must be aware of the danger which threatens their current research ventures, should costs-and-benefits concerns be at stake rather than the overall improvement of living conditions on Earth, to put the matter in a simple way. Sure, biology can be much helpful to medicine, in averting diseases, in pre-birth control, in devising new vaccines, in making use of genetics in various healing processes. But most of these activities raise ethical issues, which scientists may not pretend to ignore or to discard in the name of the "advancement of science". The same can be said of the growing role of biological research in the field of ecology, as shown by the protection of species, the recourse to inbreeding for very endangered ones (i.e. the Australian dingo), etc. The frontier between a genuine concern for nature preservation and the devising of high-return GMO's for the globalized food market may be very thin. What is at stake here is not only health as a whole, but also survival for the peasantry in the developing countries.

THE BIOLOGIST AS AN EXPERT

The present post-modern age has witnessed the rise of the expert figure. In many debates on societal

issues, his or her advice is sought, and, compared to that of other experts, it engenders other debates. For the expert, besides his or her actual level of expertise, there arises the well-known weberian problem of ethics of responsability vs. ethics of conviction. It is not easy to formulate simple rules in this matter, since strictly opposing these two ethical positions may lead to a deadlock. There can be no responsability, consisting of carefully trying to match means and ends, without convictions i.e., without believing that the means to attain those ends pertain to values being worth assumed and fought for. There exists a double danger: either means prevail, as in the case of allowing researches funding by private capital, and then cynism may derive from this. Or ends prevail, at all costs, even at that of shady deals, e.g. with disreputable political regimes. Virtue, perhaps more than competence, is not for the experts an easy goal to reach. As any other expert, the biologist should remain an effective agent of democracy whose action is based upon the search for agreement and not upon jeopardy. This does not mean trying to avoid conflicts at any cost, but to be able to cope with demands for expertise hailing from various parts of the public space. The expert's role is not to make decisions, but to help decision makers with the most complete and correct posing of the problems the latter must face up. In the last instance, the duty to make decisions rests in the hands of those who have been democratically appointed to this task and this responsibility.

As far as the relationship between biologists and sociologists is concerned, surely the former may help the latter in devising wider ranging explanations to some social phenomena, such as aging, for instance. On the reverse, sociologists may help biologists in better defining social issues linked with the supervision of the life process and the governance of various living beings, not only humans, but also animals and plants. This desirable cross fertilization would be highly facilitated should both categories of experts know more about one another, regarding namely their specific constitution of objects and their specific ways and means in posing problems and trying to solve them. We are nowadays still very far from these mutual exchanges. I, for my part, and as a sociologist very conscious of the importance of the biological stance in the problematizing process of social phenomena, do regret it very much.

KEYWORDS Biology. Order. Sociology. Expert

ABSTRACT For the sociologist, biology as a scientific discipline, must be understood along two lines of thought. Firstly, as a science allowing for the understanding of that part of the all encompassing "human order", the biological sub-order, never to be separated from the two other sub-orders, i.e., the symbolic and the structural ones. Secondly, as a field of human activity pertaining to the everlasting "will to know", with its own organization, problem-settings and modes of dissemination, eligible as subject sciences. Just as biology may help sociology to enter new paths of thinking and reasoning the latter may help the former new ways of weighting the impact of its findings on the course of human affairs.

NOTES

1. See Crews F. Saving us from Darwin. The New York Review, Part I:24-27, Part II:51-55 (2001)
2. Giddens A. The constitution of society. Cambridge, Polity Press (1984)
3. I use "order of the social" so as to distinguish it from "social order", which has a definite political meaning, i;e. the way a given society abides by its laws and the rules of collective conduct deriving from them.
4. De Waal F. The ape and the sushi master. London, Penguin Books, p. 6 (2002)
5. See my article Javeau C. Sociologies du language. Raisons politiques, 2:79-87 (2001)
6. See a.o. Steiner G. Grammars of creation. London, Faber and Faber (2001)
7. Of course Durkheim should not be considered as a proponent of eugenism. For him, the order of the social, with its passage from "mechanical" to "organic" solidarity, simply prolongs, as an evolutionary process, the natural order.
8. See Beck U. Risk society. Towards a new modernity. London, Sage (translated from German, 1986, Risiko Gesellschaft) (1992)
9. It is worth reminding that these societies amount to 11% of the world population, while benefiting of 80% of the world wealth.

Author's Address: **Claude Javeau,** Professor of Sociology, Université Libre de Bruxelles, Avenue Jeanne 44 – C.P. 124, BE – 1050, Brussels, BELGIUM
E-mail: cjaveau@ulb.ac.be