

Anthropology and Reductionism

The interdisciplinary character of Anthropological Sciences

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It is necessary to provide some preliminary observations useful to clarify the meaning of what we are discussing in these pages. The first observation is about the news given by media in particular to the common audience, while the second one deals with the subject of the news itself. The basic scheme of a piece of information generally consists in making sure the news is noticed by the majority of people; in this process the information is necessarily “forced” and “reduced” to a simpler truth that can be understood by most of the people it has been addressed to. Moreover it often happens that this oversimplification proves even more convenient, transmitting many other elements with the news itself. This causes a sort of unconscious clash of interests that often interfere with the public understanding of science. In this way science loses credibility and a real understanding of the information becomes impossible. The distortion of the general sense of the scientific information, though not denying reality, dwells upon partial aspects of it, emphasizing and altering the original meaning that, on the contrary, would possibly have had scarce relevance on the whole. The “communicated whole” becomes in this way a relevant element as a news, but, on the other hand, it “sells” a distorted information.

The book by J. Marks stresses the problem and/or the conflict between “biological continuity” with other primates and “human uniqueness” between primates. While doing this, it also confronts problems that are not objectively “scientific” in the abstract, but that at times deal with racist politics and human rights, challenging the idea of an ethnocentric vision and in particular the way in which science presents itself to the audience. In this way the book clarifies all misunderstandings that media, on the contrary, did not consider. Seven million years ago, about the end of Miocene, the forefathers of humans, gorillas, and chimpanzees, underwent different evolutionary processes. Biology, history, philosophy, and religion, shape and link our vision of man, making anthropology a particular science.

At the present moment the homologies between genomes of various species, from yeasts, to mushrooms *Saccharomyces cerevisiae* (Dujon et al., 2004), to nematodes *Caenorhabditis elegans*, to insects *Drosophila melanogaster*, to murine species rat and mouse (Makalowski, Boguski, 1998), compared to human species, are estimated in a sequence that, starting from an homology of about 30% in the case of yeasts, through one of about 85-90% in the case of mice, arrives to a mean value higher than 97% of sequence identity in the case of primates, particularly chimpanzees (*Pan troglodytes*) and bonobos (*Pan paniscus*) (Cheng Ze et al., 2005). This surprising rate poses in a different way the homology of 97-98% with chimpanzee primate, which made it similar, though not equal, to humankind. Comparisons between numbers alter the information and

nobody is shocked by the homology of 90% with mice. It is the “power of numbers” A. G. Drusini refers to, when he states that “a reductionist believes a complex system to be nothing else than the sum of its parts, and therefore the system will be evaluated only after it has been broken down into its single components”. But, as Mayr says, “the interaction of components” cannot be weighted or quantified (p.3). In this way it is inevitable to agree with E. Di Mauro when he answers the question with a drastic “not much”, referring in particular to the relationship man-environment which, for human beings, assumes its own specificity. He states that “the point is that genes are not all expressed, not all the times, not all the same times and in the same amounts” (p. 6), concluding that “modern genetics is something so unfamiliar that it is hard to know whether we can even call it ‘science’ – since, after all, science was never supposed to weigh knowledge against profit” (p. 9). Therefore we all should be interested in human genetics and in its ethical implications in the future of our society.

Human biological constitution, his evolutionary history, his genetic inheritance, are not the only aspects worth taking into account, as if the concept expressed by the word “biological” would be the only one to be considered “scientific”. All history of mankind beginning from prehistory has been a continuous exchange between nature and nurture. It is worth noting, for instance, that the name Pan, used for the first time by German naturalist Lorenz Oken in 1816 to designate the two existing species of chimpanzees, derives from the Greek god of mountains and woods. Pan is a figure of a more goatish (he has horns and hooves) than apish constitution, more similar to an animal than a man; he represents the imaginary link between animals and men. Every mythology, particularly the Greek one, is full of half-human, half-animal divine figures: centaurs, sirens, sphinxes, harpies, satyrs, etc., are all quasi-human quasi-animal godlike figures. Shamans belonging to different cultures have continued to represent these strange divine beings with their masks and costumes, identifying themselves with the animal figures and altering their humanity.

What characterizes and still characterizes our thoughts about the reality of our being in the world is the succession, or simply the often conflictual passage, from belief to knowledge. The Earth is no more the center of the universe; we are not made in God’s own image and likeness; on the contrary, we simply derive from the development of the animal kingdom, our inner world is also characterized by a not conscious mind that we can know and understand. No Freudian “narcissistic wound” has occurred in this history of human thought, but a succession of beliefs and knowledge, struggles and oppositions, conflicts and persecutions by the power of belief, the violence of religious thought (the Inquisition is a classical example), as a continuous wall opposing to knowledge. A proper comprehension of reality is necessary to leave that anguished and anguishing world always proposed by such beliefs and fantasies, though they were often justified by the limits of the historical development. Ernesto De Martino said that history causes anguish insofar as it is not humanized: the acknowledgment of a becoming shaped by humans after their values doesn’t cause anguish, but heals from anguish (De Martino E. 1977). As long as one follows the road of science and medicine, one understands how humans always struggled in order to make a scientific knowledge of reality prevail over the limits religious thought opposed and still opposes to knowledge.

The point of view of anthropological thought can be considered as a scientific and cultural bridge crossing many particular sciences. The basic assumption of anthropological sciences is that human beings, like all other living beings, derive from

an evolutionary process. The theory of biological evolution is not only a scientific discovery; it is also a fundamental achievement in the evolution of human thought towards the comprehension of his own evolution and his own historical development. Different scientific disciplines, from social science to subatomic science, deal with different stages of matter organization; likewise the same organization can be visualized from various angles of observation. Sciences such as physics, chemistry, and biology, develop their specific methodologies to provide for these various levels of complexity of matter organization. This partition in layers is in part confused and not clearly definable; we can consider this ontological instability as related to the complexity rate and to the consequent status of the layers built one inside another. The theory of complex systems states that at different layers of organization, definite qualities and characteristics of any particular layer emerge. At every layer new considerations must intervene. (Morin, E. 1993). These characteristics set limits to a reductivist vision of human beings.

At every level there are different laws of organization requiring different descriptions and causal explanations. Such layers of organization are basically not reducible: biochemistry cannot be reduced to chemistry, nor can physiology to molecular biology. The research for the determining cause must be the one having the greatest effect on the system of every layer. A science, in order to be considered effective, needs the acknowledgment of its determining explanation, and therefore of the understanding of the layer upon which it is necessary to intervene. Without this acknowledgment, we would only have a waste of intelligence and human resources, a useless strategy distracting from the real tasks which science and society should accomplish.

References

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