

On the origin and the peculiarities of the human species
A collection of hypotheses set out by a non-specialist

1. Living things are individual entities. They are divided into the plant and animal kingdoms, *flora* and *fauna*. Each kingdom comprises innumerable species. Every living thing has a “body”, which corresponds to the space it occupies in the earth, or on the earth, or in the atmosphere or in water. The body of each species has a distinctive conformation of its own.

Living things are “organisms”. In an organism, the elementary components are in perpetual motion. As a consequence, the organisms themselves are in perpetual motion. The internal movement of an organism, whatever species it belongs to, is predetermined by its DNA and is specific to each type.

In all species, the DNA also predetermines movements relating to procreation, including the generation of the individual. In practically all species, movements relating to the successive life phases after procreation are also predetermined, such as movements involving relations with the beings generated, those with other members of the species, and those with members of other species.

For human beings, the predetermination of behavior is limited to the initial phases of procreation and generation.

All living beings, whatever their kingdom and species, are endowed with the ability to practice cause-and-effect relations between entities present and known or, if absent and not known, such as to be easily related to other, known beings.

2. For human beings an alternative arose – although given the present state of our knowledge we cannot say how or why (whereas, as we shall see, it is likely that we can determine “when”).

Homo sapiens, alone among the species, has disaggregated complex phenomena, or inversely has aggregated single entities and, for both the former and the latter

operation, utilized signs to fix and record the result. The rainbow has been broken down into single colors. Sounds and noises, beginning with those coming from the mouth (the voice) have been broken down into their elementary components. Each component has been assigned a name and a distinctive sign. Thus sound was transformed into “language”. the signs became “letters of the alphabet”, each corresponding to a particular sound. Within vocal expressions, “musical notes” have been distinctly identified, from which “song” and, more generally, “music” have been derived. The simultaneous perception of distinct entities led to the invention of numbers (each connected with a particular sign), and hence to “calculation” (arithmetic). The distinction between “round” and “straight” and their combinations led to the identification of distinct forms (geometrical shapes), to each of which again a name (e.g. square, rectangle) was assigned. The forms of human beings were identified (male, female, young, old) and the forms of the members of the plant and animal species. Letters of the alphabet (language), numbers (calculation), notes (song, music), geometrical forms (for example, stones arranged on the ground that have survived through the ages) all recall in some way the idea – the “concept” – of form.

These “advances”, singly or taken all together, are not the simple fruit of perception of the existent and application of the principle of cause among known entities. Each one leads to the identification of something that previously did not exist: the alphabet and its letters, the numbers, the notes of the scale, drawings and sculptures, colors, forms. Progress is just as palpable if we shift to another area, such as the coordination of human conduct. This has given rise to complex phenomena, such as religious creeds, reflections about nature (of which men and women were a part). They would give rise to philosophical thought.

Abstract reason was born.

3. *No man is an island* – man in isolation has never existed. An individual leaving the community to which he belongs from birth or which he has joined one way or another without becoming part of another community, would have a short life indeed.

The principal difference between human beings and other species, as noted above, is that the latter's behavior in specific phases or relationships is predetermined by their DNA, whereas for human beings this happens only within narrow limits. In general, for human beings behavior is a matter for individual choice. This difference lies at the origin of the "tribe", the elementary form of human community life. The "form" of the tribe was an extraordinary advance for humankind, the fruit of distinct, previous advances. The first was the coordination of conduct. By coordinating the conduct of individuals, the human species applied the principle of division of labor (the prerequisite for coordination) many thousands of years before Adam Smith posited it as the basis of the market economy. Coordination creates a force greater than the sum of the forces produced by the movements of the single individuals involved.

Coordination implies the concept of norm and, even prior to this, of the abstract fact – the elementary components of the law. As it becomes structured, the coordination of conduct gives life to the tribe. With the rise of the tribe, conduct is transformed into "function". The acceptance, by members of the community, of the norms that govern conduct, and specifically of those governing conduct transformed into function, is at the basis of the general phenomenon of acceptance, a fundamental constituent element of the phenomenon of law.

4. Abstract fact, norm, acceptance, coordination of conduct, transformation of conduct into function, tribe – these are the constituent elements of the law. And law is added to the other forms of expression of the human intellect; language, music, drawing, calculation, geometry, and so on.

Law is one more of these forms, but it differs from them in a fundamental respect: it does not use symbols but is based on concepts. It is the product of a higher level of abstraction.

5. Abstract reason in itself is innovative, creates reality. In this case, causality applies to the relationship between two entities, one of which is present or, if absent, known or easily known, while the other is absent, non-existent, simply posited or merely dreamt.

In the moment when the relationship takes concrete form, the known element is joined by an “*aliquid*” – something that stands for something else – that may correspond either to the specific, concrete form of the element posited or dreamt or else to the recognition that it is non-existent or unrealizable. In the case of concrete form, the “*aliquid*” is added to the known element. The sum of known element and the newly concrete *aliquid* is different, greater, than what was already known before. The innovative result may be purely cognitive in scope. It will be the source of new thought. This is the phenomenon that has produced and continues to produce scientific progress. If the result consists in a variation in the tangible, we have the creation of a new reality.

6. The capacity for abstract reasoning, cognitive effects, the ability to create new reality drew a dividing line between the human species and all the others – a division that would never be overcome.

7. We now have new elements. The human species has been able to send men to the moon, to explore, using technical implements of human devising, the known Universe up to its limits. These achievements are the fruit of abstract reason. Notwithstanding the human example, the other species, including animal species that men have domesticated like dogs, cats or horses, have clearly proven to be without

the capacity for abstract reasoning and unable to acquire it. Apart from anything else, their conformation has been consolidated in different use functions.

Hence, abstract reason is one certain factor differentiating human beings from all other living things. Prior to humankind's acquisition of the capacity for abstract reasoning, there must necessarily have been a stage, perhaps an extremely long stage, during which the conformation of human beings evolved gradually towards its present state. The species acquired the erect posture, two-footed locomotion, dual frontal eyesight, depth perception, diversified kinds of teeth, independent movement of arms and legs, manual dexterity – and a larger brain.

8. There exist at least two other species, bees and ants, whose life forms would appear to presuppose the capacity for abstract reasoning. We must therefore ask what the relationship is between the “conformation” of the species and abstract reasoning. Bees have conceived and put into practice a collective organization far more complex than that of the human tribe. As to ants, apart from the organization of the colony they carry the division of labor to an extremely high level. The conformation of bees and ants, the latter moving in and on the earth, characterized by their minimal size, has enabled these species to adopt a unique organizational model (bees) or a “coordination” (ants) that is suitable, with minor adjustments, anywhere on Earth, meeting the needs of the community in any part of the globe, however distant or different. It is worth remarking that ants are more numerous than any other species in the animal kingdom.

The size and overall conformation of the members of bee and ant species neither required nor permitted anything more. Despite these species' demonstrated capacity to avail themselves of abstract reasoning, their conformation produces the effect of a blockage.

9. Nor can we ignore a documented historical precedent that is now, given the present state of the world, unrepeatably: the indigenous populations of the Caribbean. On his first voyage, Columbus sailed for months among the islands of the Caribbean. His log makes it clear that the men he encountered had very definite, particular characteristics. They had never before met people from unknown lands. They were convinced that Columbus and his crew had fallen from the sky. These populations certainly had the capacity for abstract reasoning. Not only did they cultivate “hemp,” they made “bales” of it. They had canoes that could be propelled by up to eighty paddlers. They had everything they needed. The land and the climate recalled those of Andalusia. They lived naked. Their huts were clean and simple. Plants, trees and fishing were enough for their needs. They had recognized chiefs, including one who could be likened to a “king”. Everything occurred simply and naturally. They were – this is the overall judgment – a people without malice: generous, simple, peaceful folk.

They were a people who unquestionably vaunted a history of considerable length. And they had certainly acquired the capacity for abstract reasoning (demonstrated by their canoes, the cultivation of cotton, the bales of hemp). They were endowed with an excellent physique.

Yet in their practice of abstract reason they did not proceed beyond what they had already accomplished. They lacked material stimulus. Must we infer that acquisition of the capacity for abstract reasoning is not, by itself, sufficient to touch off a process of development?

To pose this question and give a suitable answer is a matter of no secondary importance. An affirmative response would strengthen the thesis that human development is bound up with man’s acquisition of the specific conformation that distinguishes us from the other species. This would be a hasty answer. It would neglect a fundamental fact, namely that the concrete application of abstract reason forges a new reality, and consequently every acquisition due to abstract reason automatically results in the creation of further new realities. Abstract reason is a self-

fueling process in which every new achievement generates stimuli for a further advance. Christopher Columbus had ventured to cross the ocean with his three caravels on the basis of a hypothesis set out by Paolo Toscanelli and other geographers. The verification of that hypothesis changed the world.

We should add that most of the time creative lines of thought originate in a sort of common seed-bed. Diverse but similar creations may flower as if by magic. This was the case of the pre-Socratic schools of philosophy in ancient Greece or the onset in the sixteenth century of the overpowering civilization of the Renaissance in Italy. It has often happened, and it can always happen, that fundamental scientific discoveries are made independently but almost simultaneously.

10. There remains the problem of dating. To what period can we date the simultaneous presence of the two necessary conditions for human development, i.e. abstract reason and an appropriate conformation?

Human beings endowed with abstract reason and an adequate conformation necessarily leave traces of their operations. These may be the fruit of collective or of individual activity.

As far as collective activity is concerned, the essential reference is the tribe. Tribes leave significant traces. These may be places dedicated to the memory of the dead (ossuaries, cemeteries), pointed stones, walls for defense against wild animals, the remains of foundations of buildings from vanished cities, and so forth. Then there are the remains of objects created by single individuals or groups of individuals. The general term for these early objects is expressive in the extreme: *artifacts*. Every stone that bears traces of the “art” of mankind is an artifact. It may be a stone that men have sharpened to a point, or to which they have attached a handle, or smoothed one side. These are the best-known hypotheses, those shown in every archeology or biology text, even school textbooks.

11. The idea of shifting our focus from the man or woman at work to the result of that work is a two-pronged one, from which two benefits derive.

First, thanks to the advances made in mineralogy, chemistry and physics, the time when any artifact was produced can now be established with certainty. *Nature* of 21 May 2015 (no. 24) reported on the discovery of artifacts – tools – dated as far back as 3.3 million years (although this dating has not yet been fully accredited). The previous dating, based on the characteristics of the hominids that produced the artifacts, in particular skull shape and size, put them at 1.8 million years ago (again, not confirmed). The difference is enormous.

12. The second benefit of refocusing our attention from *homo faber* to the product of this “making” is that discoveries of artifacts or other tangible evidence of human presence are much more common than those of human remains as such. New discoveries could come from previously neglected areas. The proliferation of sites, the differential dating of finds, would open up new lines of research. Among other things, archeological exploration would likely shift, or in any case be extended, from forest, lake and desert areas to areas that were of temperate climate in the various eras, environments that would have stimulated people to notice the differences between the various plant and animal species. These places are not distant from one another and can often be reached by water. Navigation at night prompts the contemplation and then the study of the night sky, the stars. It is no coincidence that the ancient Aegean civilization flourished in an area that had the most temperate of climates and the most diversified of characteristics.

13. Hypothesis – or fantasy!!!

Nowadays, we tend to downplay the imprinting that school always leaves on us. How could a “non-specialist” such as myself ever forget that at the start of his second year of *liceo*, as a prize for excellence the year before, he received a copy of Jules

Verne's *Twenty Thousand Leagues under the Sea*; and that at just about the same time, thanks to Book VI of the *Aeneid*, in Vincenzo Monti's translation, he learned of Icarus and his fantastic flight?

14. When Paolo Toscanelli imagined that sailing West men would realize an alternative route to the Indies, wasn't that a hypothesis? Columbus believed it. He discovered the Americas. Was that the dawn of a new age?

Giuseppe Guarino

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