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HUMANS AND ANIMALS: THE ENIGMA OF SHARED LANGUAGES

Does growing up in a certain environment – different from the human one – irremediably undermine the development of social and communication skills including language learning? And, on the contrary, can an animal educated in a human family – in this case a chimpanzee – learn a form of linguistic communication similar to human one?

Over the last two centuries, scholars from various disciplines (namely linguistics, anthropology, cognitive psychology, ethology and neuroscience) have extensively examined this double question. A strong interest in these topics developed in Western Europe, starting from the second half of the 18th century: as language was considered an essential component of the human being's natural constitution, it was to be unveiled how humans had invented it and whether they had been able to create it on their own. While the last epigones defended the divine origin of language (e.g. Johann Peter Süßmilch by a lecture given in 1756), the Berlin Academy organized a competition, inviting scholars to submit their papers to the origin-of-language question. Thirty-one manuscripts were submitted to the Academy (24 are preserved today in the archive of the Berlin-Brandenburgische Akademie der Wissenschaften: 11 in German, 10 in French and 3 in Latin) [1].

Many scholars of the time, even among those who participated in the competition, strongly supported the idea that ontogeny recapitulates phylogeny. Namely, infants' process of language acquisition was considered as a plausible model for the genesis of language of the whole human species. It was certainly not a new idea: since ancient times, various experiments had attempted to clarify the origins and ways in which human beings master language. More specifically, some tests had tried to raise newborns in conditions of isolation from "normal" human contact to understand if/when/what language they would learn to express themselves. The experiment of the Egyptian king Psammetichus I (664–610 BCE) told by the Greek historian Herodotus (about 429 BCE) is the most famous (but not the only) attempt [2] made before the 18th century. In this latter, human being's

new centrality and related studies would have prevented the voluntary isolation of newborns for study purposes.

The philosophical debate of the 18th century was largely articulated around the writings of Jean-Jacques Rousseau (1712-1778) and Étienne Bonnot de Condillac (1714-1780). Condillac (*Essai sur l'origine des connaissances humaines*, 1746 and *Traité des animaux*, 1755) supposed a kind of natural state anterior to the civilized world in which humans lived in conditions similar to those of animals (the latter would be capable of a pre-intellectual reaction, intentionally focusing their attention to objects surrounding them). Rousseau (*Discours sur l'origine et les fondements de l'inégalité parmi les hommes*, 1754) emphasized the crucial importance of human society for the formation of language, while maintaining his conception of a natural state of mankind, anterior to civilization, where the so-called "natural man" lived in harmony with the environment, whereas the "civilized man" had faced a corruption process of the original human virtues. The *homme de la nature* is healthy; he knows how to defend himself against the attacks of the beasts of prey. He ignores moral categories of the "civilized" world; his language arises as a result of basic needs' expression. Therefore, the first input for the invention of language comes from the satisfaction of needs. Cordula Neis (2020, 38) underlines that this Epicurean vision fully fits with Condillac's theory of *langage d'action* (action language), a first level of communication based on actions and gestures.

In the 18th century the discussion on this topic needed to be rooted in the study of real-life experiences. But how could a scientifically valid experiment be carried out to reconstruct language origin without exposing newborns to morally unacceptable situations of isolation? The answer was found through the cases of the so-called *feral (or wild) children*.

Victor or the wild language

In his *Systema Naturae* (10th edition, 1758) the father of modern taxononmy Carl Linnaeus listed wild children as a quadruped, mute and hirsute subspecies (*Homo sapiens ferus: tetrapus, mutus, hirsutus*)[3]. The upright position, the emission of significant sounds and the absence of a thick fur were therefore morphological elements characterizing Man in the modern civilized world. By studying the examples attributable to the *ferus* subspecies, it would have been possible to understand the evolutionary path of the human being and, at the same time, to shed light on the methods of language acquisition. The children who had grown up in the forests, in close

contact with or raised by wild animals, then found (or rather captured) by men who had "brought them back" – more or less forcibly – to civilization, could have given precious information about the natural state of mankind. At the end of the 18th century, the curiosity of the Parisian bourgeoisie had something to nourish itself thanks to the case of the wild child - presumably aged 12 - found in the woods of Aveyron, southern France. Already captured and escaped, at the beginning of the 19th century he was finally caught and taken to the city to be examined by the luminaries of medical science of the time. Thus, for him, a path of (re)education in sociality and in language use (French, in this case) was opened, promptly documented by the doctor who dealt with his case. Jean Marc Itard, a fervent admirer of Condillac, recorded this medical-pedagogical experience in two works: *Mémoire sur les premiers développements de Victor de l'Aveyron* (1801) e *Rapport sur les nouveaux développements de Victor de l'Aveyron* (1806) [4].

The French director François Truffaut made the film *L'Enfant sauvage*, released in 1970, himself playing the role of the doctor Itard. The wild boy, who was given the name Victor because he seemed to be particularly responsive to the sound of the vowel O, is played in the film by the very young gypsy actor Jean-Pierre Cargol [5]. The child runs away naked, chased by dogs into the woods; he is tracked down by hunters in the hole where he took refuge. He is treated as a rare beast by the inhabitants of the countryside, as a freak show by the bourgeois of Paris. Taken to an institute for the deaf and dumb, he does not socialize with other children. He sleeps on the ground, rolls around in the leaves of the garden. It feeds on acorns and roots, it cannot stand clothes. And above all, he cannot speak or understand the human language. Doctor Pinel judges him to be suffering from congenital idiocy:

> In short it seems that, regarding everything not concerning his nourishment or his entertainment means, this boy does not retain any ideas. Or rather that, lacking attention as he is, he only elaborates fleeting ideas, which disappear as soon as they are produced. […] The speech use lack – which could be considered the consequence of a vocal organs-exercise lack as a result of long isolation – constitutes a further element of analogy between the boy from Aveyron and many idiots who do not have any nervous disease (Pinel, 1972 [1800], 159, 168) [6].

According to the doctor Pinel's assessment, the boy had probably been abandoned by inhuman parents or in conditions of extreme poverty, with an organic pathology making him not susceptible to education. Like many

children suffering from idiocy or dementia, the eighteenth-century anamnesis denied, in these cases, the ability to have a systematic and continuous education. Doctor Itard's position overturns this perspective, focusing the problem on the environmental deprivation of human contact. Presumably lived alone in the woods for at least seven years, the boy, as a human, can still be (re)educated to a "normal" social life. Therefore, he can be directed to an educational program that Itard divides into five goals. The fourth one concerns language: "leading him to the speech use by provoking the imitation exercise through the imperious law of necessity" (Itard, 1970 [1801], 51). Victor's hearing is reactive to certain noises known to him, those of the forest, connected to his previous physical needs: a dangerous animal or a falling fruit. The sounds' articulation of human language is something unknown for him, yet to be learned. It was necessary to train the sensitivity of his acoustic nerve to grasp "new" sounds, with a speech training which became a long journey full of ups and downs, enthusiasms and small cruelties, conducted by Itard for five years with the help of the housekeeper-nanny, Madame Guérin. Before summing up, the young doctor underlined:

> The total lack of exercise makes our organs inept at their functions. If organs already accustomed to being used are so seriously impaired by this inactivity, what will happen to those who grow and develop without any stimulus tending to put them to work? It takes at least eighteen months of careful education for the child to stammer a few words; and one would expect a rude forest dweller, who has only lived in society for fourteen or fifteen months – five of which were spent among the deaf and dumb – to already be able to speak! This is not only impossible, but much more time and effort will be needed to reach this important stage in his education, much more than for the least precocious of children (Itard, 1970 [1801], 56).

The doctor Itard devoted himself energetically to the "civilizing mission" which was supposed to restore the faculty of language to the young Victor: we will analyse the results later on. Many scholars consider this pedagogical experience as the basis on which special education/special needs pedagogy [7] later developed. However, there is no shortage of critical references to the educational path adopted by Itard to (re)bring Victor back to speech and sociality.

The Italian philosopher Laura Marchetti (2016, 162-163) analyzed the etymology of the Latin word *in-fans* which derives from the privative of the verb *fari*, "to speak" and "to speak in the right, solemn sense". Therefore, the

infant would be in a permanent state of error, of cognitive imperfection, saying senseless things compared to the hierarchy established by the dominant discourse (which is adult, white, Western, male). The infant own body does not respect limits, rules and genders set by adults. Modern education has created a machine to domesticate the monster-child, marginalizing the intuitive and imaginative faculties, the curiosities, the expressive and creative power of the body and emotions: "a true paramilitary apparatus of parents, teachers, tutors, confessors, and then psychologists, pedagogists, educators, variously responsible for supervision, incitement, punishment, reward, guilt, confession, discipline, normalized integration". The divine children of ancient myths are then those who remember the primordial bond between human beings, animals and cosmic-natural elements. The "modern" attempt to distance in time and circumscribe in space the ferity of the infant – uncompleted, backward or bestial individual – will nourish colonial politics and pedagogy in the 19th century. But it will also be the basis for the special pedagogy's birth, given that every human being could have been "perfected" through education.

Wild children like Victor, in the 18th century, could provide men of science with useful material to consolidate or disprove their hypotheses on access to language, on sociality and the difference between human and animal nature. Following Condillac, the doctor Itard implements with Victor a kind of teaching which involves the gradual awakening of the five senses. In the countryside, in the doctor's house, Victor learns a lot. He becomes progressively more autonomous in managing his daily life in the "civilization". But Itard's fourth goal – to lead him to the speech use or rather to the autonomy of language – is only partially achieved. However, it is ungenerous to say that Victor does not learn to communicate or express his desires, and that he is incapable of showing attachment to the people he lives with. In the last pages of the 1806 *Rapport*, Itard tells the attempts of education in spoken language and the development of the affective faculties, reporting some important progress compared to Victor's starting condition. On the other hand, it is true, as Marchetti again points out (*ibid*., 164-165), that Itard's pedagogical project had been at times authoritarian and even cruel, too based on performance through logical and cognitive tools and too little careful to build a world of affections and new relationships. In short: would a less technical and rational training, more centered on empathy and emotions, have given better results in Victor's linguistic communication?

Laura Marchetti is convinced of this. Learning from the Other, from wild thinking, from infantile thinking; descending on the ground of children's play, of the need and the concrete; establishing correspondences rather than oppositions, maintaining a warm and tender relationship with Nature. Postponing to another time the operations of classification, abstraction, differentiation that distinguish adult, logical, "healthy" thought. Accepting the polymorphism of infantile (and wild) thought containing a sum of possibilities which adult thought tends to select, while it removes those unsuitable for the period/culture/social group to which the adult belongs.

The structures of infantile thought are fluid, not yet crystallized. Neural plasticity is extensive during developmental age, then it reduces with the transition to adulthood. Recent studies [8] hypothesize that adequate environmental stimulation is able to induce plasticity phenomena even in the adult brain. Doctor Itard had certainly acted methodically and generously but he should, perhaps, have recovered the multiple possibilities offered by primordial/infantile thought before directing his pupil towards the fixed structures of adulthood. He should have played wild life; he should have become "wild" together with Victor – and together with other children – at least for a part of the time dedicated to him. Perhaps thus, one day, in the forest near home, Victor would have articulated a syntax adequate to the language that the civilized world expected from him.

Critical periods and special education

For Itard, speech learning was primarily a matter of imitation. The ability to imitate, he writes, is powerful in the first years of life and then it weakens rapidly with age, isolation and other causes that make nervous sensitivity weaker. It follows that the articulation of sounds "must encounter enormous obstacles at an age other than early childhood" (Itard, 1970 [1801], 79-80). Itard makes no hypothesis relating to a preprogrammed linguistic infrastructure or an innate grammatical system being part of an organism's biological endowment (as Noam Chomsky will claim in the 20th century). But he had understood that there was a "critical period" for language learning which probably ended at the onset of puberty. According to this idea, for Victor (and for many other wild children found around the world) [9], it was too late to fully acquire mastery of a first human language.

Recent studies by MIT [10] (2018) suggest that children remain very skilled at learning the grammar of a new language up to the age of 17 or 18, but it is nearly impossible for people to achieve proficiency similar to that of

a native speaker unless they start learning a language by the age of 10. Today the critical period has lengthened and it is recognized that the study of languages in adulthood is an important factor in forming new connections in the brain and strengthening nervous system links, as well as it protects older learners against dementia and other degenerative neurological conditions improving concentration, memory, communication skills, creativity and problem solving [11]. But what happens to the human brain when a child remains for years in a state of sensory, emotional and cognitive deprivation, or simply he/she finds him/her-self in contact only or mainly with animal communication? If there was an innate structure (LAD = Language Acquisition Device) supporting language acquisition, this should still function even in the absence of an adequate external stimulus. That is, Victor and other wild children should have (re)appropriated (more) easily the structures of the reference language. Why wasn't this the case? Was Victor perhaps suffering from an unrecognized form of autism or an unidentified organic lesion? If so, could he have lived alone for many years in a wild condition?

Urged on the topic of wild children in a 1998 conference [12], Noam Chomsky underlined that it was – almost always – impossible to know their personal history in depth before their rediscovery. He mentioned the story of Genie who was "recovered" in 1970 in Los Angeles: she was 13 years old and, according to Chomsky, she was completely psychotic. Secluded by her father for more than a decade, with very little sensory stimulation and little food, she made no sounds or sobs. Within a year of being found, Genie was able to speak sentences of three or four words. But no one can go through a similar experience unscathed, says Chomsky: therefore, it is difficult to establish the extent of the psychological damage in Genie and how specific it might have been to a late development of her linguistic faculties. Then, a general psychosis can weigh heavily on the preprogrammed linguistic infrastructure which allows the spontaneous acquisition of a language. With a series of examples, Chomsky highlights that children, without external input, can create, spontaneously and naturally, a type of language to communicate with each other. Two deaf children who grew up in an oral culture – forcing them to read lips – also did it. Eventually the two children created their own sign language having about the character of a "normal" language ability.

But every wild child generally grows up in conditions of isolation from human society or in the company of animals. The news regarding wild children has often been poor and fragmentary, sometimes "mythical" or hyperbolic, poorly documented or clearly false [13]. In any case, the abstract communicative code (the language arbitrary signs normally adopted by human speakers) cannot respond to the satisfaction of the primary needs of these children. More useful – and therefore practiced – was the pantomime language which Victor had also used.

In the 1806 *Rapport*, Itard takes stock of Victor's development of sensory and intellectual functions, as well as his affective faculties during his educational journey which lasted (only) five years. Enhancing the perception and distinction of the sounds produced by the voice; training attention span; discerning written signs (without pronouncing them) and writing a series of words; identifying the different alphabetic letters by touch. So far, so good. The biggest problems arise when moving to a subsequent level of abstraction, that is, the association between an object and the arbitrary name which is conventionally assigned to it in a given linguistic system: "Thus, although for us the word *milk* is nothing more than a simple sign, it could be that, for Victor, it indicated in a confusing way the liquid food, as well as the cup containing it, and also the desire of which it was the object" (Itard, 1970 [1806], 105).

Through memory training, Victor manages to establish an identity between an object and its written name. Then he will be able to combine (categorize) objects similar in use and properties, to give new functionality to known objects, and also to introject the idea of different names for the parts of composite bodies. He is able to evaluate the different qualities of bodies through adjectives which define colours, weight, dimensions and consistency. He can understand the different actions expressed by verbs. He can write by imitating the signs drawn by Itard on the blackboard, to the point of "using his writing, albeit rough, and always remaining so, to express his needs, to solicit the means to satisfy them, and also to understand the expression of needs or the will of others" (Itard, 1970 [1806], 122). Here Itard's special education reaches its limits: Victor communicates with a pantomime language but he will never manage to use his own voice.

At the end, Itard admits that Victor could be considered like deaf-mutes, without their ability to observe and imitate. However, Itard will never try to make Victor learn LSF (French Sign Language). He will dedicate

an entire year to training Victor's sight so that he can grasp the mechanism of articulating sounds and then he can try to repeat them by voice. But this attempt fails completely when faced with Victor's emission of "formless monosyllables" and the experience ends with the observation of the student's "incurable mutism".

Victor will never tell, with any form of communication intelligible to human adults, his experience as a feral child. Itard noted that Victor's soul remained (more) sensitive to the joys of primitive life: the passion for the countryside, the moonlight, the snow, the stormy wind. The doctor-teacher, perhaps with belated nostalgia for Rousseau's thought, will write that the boy was free in his forests and only the "sterile and inhuman curiosity of men" had torn him from an innocent and happy life (Itard, 1970 [1806], 94 and 133). Itard will finally leave him with Mrs. Guérin in a private house near the Institute for the Deaf and Mute in Paris, with a state pension. Victor died in 1828, aged around 40, completely forgotten by the society of his time.

Another curiosity has guided, in more recent times, several experiments on the activation of language in chimpanzees and other animals educated in a human context. This time the question is reversed: what form of linguistic communication is possible with a chimpanzee who is treated like a child from birth?

From Gua to Nim Chimpsky: (almost) human language

Modern molecular studies have shown that the common chimpanzee (*Pan troglodytes*) and bonobo (*Pan paniscus* or *pygmy chimpanzee*) are the closest living evolutionary relatives to humans, sharing a 98.8 percent of their DNA. Jane Goodall's studies on the common chimpanzee revealed startling behavioural similarities but also features specific to humans, including habitual bipedality, a greatly enlarged brain and complex language [14].

From the 1930s up to the 1980s various American researchers conducted experiments with chimpanzees in the field of human-like language acquisition. The Kellogg couple's nine-month experiment with the chimpanzee Gua (1931-1932), who grew up in their family alongside their infant-son Donald, shows very similar reactions between the two. The child's attention span is more marked, in relation to his greater fluency in manipulating objects. But when Donald, at around 19 months, imitates Gua (who is 16 months old) in her games, in the prehensile behavior of the mouth and in the first linguistic expressions (a guttural sound similar to "uhu"), the

experiment ends. Gua needs social contacts; she vocalizes her laughter gutturally like humans; she eats with a spoon and learns to drink from a glass. But, at a certain point, linguistic behavior differs: during the experiment Donald spontaneously presents the vocalization and babbling phases while Gua learns to vocalize following external stimuli of a mostly emotional nature. She emits four types of bisyllabic cries but she will never be able to articulate the words. However, she can understand human language, she responds adequately to requests and she is capable of recognizing objects through their graphic representations. In this last task, Gua succeeds better than the child Donald who, for his part, seems late in learning to speak.

Anna Ludovico (1979), reporting the history of this experiment [15], underlines that Gua and Donald interacted in the games without any need to "speak" a human language. What would have happened if Donald had been left in Gua's almost exclusive company? What would have been his first language if his parents or other humans had not intervened in his educational path? Would he be able to fully use his phonatory apparatus or would he be a new Victor of the 20th century? It is difficult to answer, also because actions contrary to the "human linguistic recovery" of children like Donald would be a matter of ethics (and, in many countries, of justice). As for Gua, moral concerns regarding the fate of animals subjected to experimentation are (even today) less pressing. Gua and other famous chimpanzees such as Nim Chimpsky, placed in a human context – often in a real family – and treated like children for experimentation, were then "returned" to biomedical and behavioral research centers, where their relational life changed completely. Today, in USA, there are some "sanctuaries" in nature for chimpanzees retired from laboratory research [16]. Anyway, the leap from a strictly human company to a totally ape-like one is undoubtedly problematic, as well as recovering the traumas suffered in some research labs.

Viki with the Hayes (1944-1950), Washoe with the Gardners and after the Fouts (1966-2007), Sarah with the Premacks (1966-1987), Lana (1971-1977) with Duane Rumbaugh and Tim Gill, Nim Chimpsky (1973-1977) with Herbert S. Terrace and his assistants, are only the most famous chimpanzees studied by researchers with special reference to animal language acquisition. The researchers who worked with Viki, faced with the poor results obtained, concluded that the chimpanzee did not have the neuronal organization

sufficient to control speech. The subsequent experiences therefore concentrated rather on using the language of the deaf and dumb, which however presents "arbitrary" symbols, that is, to some extent not immediately corresponding to the things signified but established by convention. Washoe, for example, was able to learn a large number of signs; she was able to classify objects and to name correctly the objects represented in pictures. Sarah was trained to understand the hierarchical organization of a sentence through the use of shaped and colored pieces of plastic. Lana demonstrated the ability to use a computer keyboard with a series of symbols, or lexigrams, each of which stood for a specific word or phrase. She was able to construct correct sentences and to erase incorrect ones, but also to express her needs, not only for food [17].

Some final remarks seem significant with respect to the blurred boundary – also linguistic – separating humans and chimps.

The Lana project generated a new approach to help people with cognitive disabilities communicate. In 1970s the same method used with Lana was applied to a group of children in Georgia (USA) with severe developmental delays, who had failed to master even basic language skills using any other program, including sign language. They learned to request rewards, ask for help and carry on simple conversations [18]. If Victor had been born two centuries later, he might have benefited.

Much like a human child, Washoe underwent a regular routine with chores, outdoor play, and rides in the family car. Great care was taken to maintain warm and affectionate relationships with her. The Gardners surrounded her with interesting friends to communicate with and an interesting world to communicate about. Even when Washoe's first human family decided to send her to the University of Oklahoma, emotional continuity was ensured by the constant presence of Roger Fouts who went with her to the new location, together with his wife and two small children. Therefore, Washoe always lived in a large community made up of humans and chimpanzees, in an almost imperceptible continuum between scientific experience and ordinary daily life [19]. Communication with Washoe always took place in ASL (American Sign Language), on the assumption that this would create a less confusing learning environment for her. Probably, her psychological need for companionship was fully satisfied; her linguistic performances – and in general the communicative ones – drew the best results from such an environment.

Nim Chimpsky's story seems to proceed on a different track. He was a male chimpanzee (all others named here were female). He was the subject of an extended study of animal language acquisition at Columbia University. Project Nim was led by a professor of psychology, Herbert S. Terrace, with the psycholinguist Thomas Bever. The Nim Chimpsky's name was clearly a poke at the linguist Noam Chomsky, whose theories Terrace challenged, namely the idea that human language was far too complex to have been learned entirely from environmental input; humans had to have innate syntactical ability. Based on the ideas of Harvard psychologist B.F. Skinner, such as "reinforcement" and "imitation" principles, Terrace believed that language is basically learned, and so could be taught to nonhuman primates.

Nim was able to learn about 120 ASL signs in three years and to produce sequences of signs. But Terrace realized at the end that Nim mimicked symbols from his teachers in order to get a reward but he did not really understand the language nor could he create sentences conversationally. Terrace concluded that only humans are able to give things arbitrary/ conventional names and to create new meanings by recombining words. No animal has the ability of mastering the conversational, semantic or syntactic organization of language [20].

Project Nim's "failure" went further. Terrace started to analyse videos of previous researchers, included the Washoe experience, and he seemed to notice that the apes were being inadvertently prompted; therefore, the results obtained were not reliable. He also acknowledged publicly that Chomsky was right. While the scientific world was in turmoil following his statements, Terrace oriented his subsequent studies on apes' cognitive and metacognitive abilities, trying to understand how they could process information. By studying their minds, the goal was also to understand the foundation of mental processes which evolved into the present-day complex mind of humans, giving them the ability to speak. Also, Terrace insisted that language development in humans has much to do with early intimate socialization: the longer children are deprived of human interaction, the harder it is for them to talk [21].

Controversy over Project Nim continued long after its end. Articles, books and even a 2011 *documentary film [22] were released,* raising many questions about scientific objectivity and ethics.

Scholars involved in the previous experiences attempted a defence. Too many different assistants were changed with Nim; an inappropriate

methodology was applied to him, to the point that it was no possible to harness the chimpanzee's full cognitive and linguistic resources. Roger Fouts also reported [23] that a community of ASL-speaking chimpanzees (including Washoe herself) was spontaneously using this language as a part of their internal communication system, without human help or intervention. So, it was not the case of behavioural conditioning, where language is a method mainly of getting rewards rather than of raising communication abilities. There was a real process of acquiring language skills through natural social interactions. Further researches by scholars have tried to prove that chimpanzees use intentional gestures only in dyadic contexts (to attract the attention of others or to request some behaviour toward the self, not toward some outside entity to share or comment on it). So, their intentional gestures would be crucially different from human symbolic or conventionalized ones; even apes learning language-like signs, would use them almost exclusively for imperative, not declarative, purposes [24].

The topic is fascinating but it would require further in-depth studies on the most recent research. However you want to look at it – and whatever meaning the terms "language" and "imitation" may take on – it is indisputable that Nim's life was troubled, more than that of other apes involved in experiments on language, in particular Washoe. At the end of the project, Nim – who was strong and prone to increasing aggression – was transferred to the Institute for Primate Studies in Oklahoma and his life changed completely. Nim ended up in a pharmaceutical testing laboratory, then in isolation inside a pen of the Black Beauty Ranch, to finally have the company of other chimpanzees in the same ranch where he remained until his death (in 2000, at the age of 26). One of his adoptive "mothers", Laura Ann Petitto, wrote an article in his memory, published in *The Washington Post* [25]:

> I raised him like a human child and taught him American Sign Language in a pioneering experiment into the nature of the essence of language. […] Nim and I learned much in those early years, and he communicated through it all in rich ways. But ultimately, he mastered only some, not all, of human language, and we humans told the world about this. He taught us that parts of this remarkable thing we call language is special to humans.
>
> So, did Nim fail? No, he was one of science's great successes. He informed all chimp studies that followed to focus on the richness of chimpanzees' own communicative system rather than on drilling them in our own tongue. And Nim's successes laid the foundation for the truly exciting chimpanzee research

of today, showing us that chimps can provide an exciting glance at the evolutionary precursors of human language.

NOTES:

[1]. See: Cordula Neis (2020), 'Feral children and the origin-of-language debate in the eighteenth century'. *IJLRHSS* 3 (12), 38-39. www.ijlrhss.com/paper/volume-3-issue-12/8-HSS-880.pdf

[2]. *Ibid.*, 38.

[3]. *Ibid.*, 39-40. See also: Francesca Buoninconti (2019), 'Storie di ragazzi selvaggi'. www.iltascabile.com/ scienze/ragazzi-selvaggi

[4]. In this paper, all references and quotations are based on the Italian edition: Jean Itard (1970), *Il fanciullo selvaggio.* Roma: Armando Editore.

[5]. The film can be accessed in full on https://vimeo.com/554442062.

[6]. References and quotations are based on the Italian edition, with our English translation: Philippe Pinel (1800) 'Relazione presentata alla Società degli Osservatori dell'Uomo sul ragazzo noto sotto il nome di Selvaggio dell'Aveyron', 153-175. In: Sergio Moravia (1972, ed.), *Il ragazzo selvaggio dell'Aveyron: pedagogia e psichiatria nei testi di J. Itard, Ph. Pinel e dell'Anonimo della Decade*. Bari: Laterza.

[7].See:www.acsu.buffalo.edu/~duchan/new_history/enlightenment/itard.html ; www.britannica.com/ topic/special-education

[8]. See: https://frida.unito.it/wn_pages/percorso.php/681_neuroscienze-e-malattie-neurologiche/3051. Cf. www.ncbi.nlm.nih.gov/books/NBK557811.

[9]. See namely: www.britannica.com/topic/feral-children ; Francesca Buoninconti, *cit.*; Piergiacomo Pagano (2000 a/b): www.academia.edu/4400838/Bambini_selvaggi_parte_prima, www.academia.edu/4400834/ Bambini_selvaggi_parte_seconda

[10]. Massachusetts Institute of Technology, USA. See: https://news.mit.edu/2018/cognitive-scientists-define-critical-period-learning-language-0501 (Anne Trafton)

[11]. See: www.cambridge.org/elt/blog/2022/04/29/learning-language-changes-your-brain (Carley Spence)

[12]. Noam Chomsky spoke on "Universal Linguistics: Origins of Language" at Winona State University in Minnesota, USA, on March 20, 1998. The part

about the "wild children" can be seen here: www.youtube.com/watch?v=-30ZCHk1Ydk

[13]. See: Leonard Lapointe (2005) 'Feral Children'. *Journal of Medical Speech-language Pathology* 13 (1), VII-IX. www.researchgate.net/publication/298552250_Feral_children

[14]. See namely: The Chimpanzee Sequencing and Analysis Consortium (2005). 'Initial sequence of the chimpanzee genome and comparison with the human genome'. *Nature* 437, 69–87. https://doi.org/10.1038/ nature04072 ; https://janegoodall.org ; www.amnh.org/exhibitions/permanent/human-origins/under standing-our-past/dna-comparing-humans-and-chimps.

[15]. Anna Ludovico (1979), *La scimmia vestita. 47 casi di ragazzi selvaggi.* Roma: Armando Editore, 102-107.

[16]. See: https://releasechimps.org/chimpanzees/sanctuary-facilities.

[17]. See: Anna Ludovico, *cit.* Regarding the experiments with Viki: 107-108, Washoe: 108-110, Sarah: 110-113, Lana: 113-115.

[18]. See: https://news.gsu.edu/research-magazine/spring2018/the-lana-legacy (Jennifer Rainey Marquez).

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[20]. See: https://magazine.columbia.edu/article/hanging-language-tree (2009, Cindy Rodriguez).

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LES HUMAINS ET LES ANIMAUX : L'ENIGME DES LANGUES PARTAGÉES

Résumé: Depuis le XVIII[e] siècle jusqu'à nos jours, de multiples études ont été menées sur l'origine du langage, considéré comme une composante essentielle de la constitution naturelle de l'être humain. Les chercheurs évoquent fréquemment le cas d'enfants sauvages, élevés dans les forêts et/ou dans des conditions d'isolement du contact humain normal, comme un modèle approprié pour le moment même de la genèse du langage. Partant du débat philosophique autour des idées de Rousseau et Condillac, cet article étudie le premier niveau de communication basé sur les actions et les gestes (langage d'action). L'histoire du garçon sauvage Victor en France, ponctuellement documentée par le docteur Jean Marc Itard (1801-1806), marque le début de la « pédagogie spécialisée » et, en même temps, elle inspire la critique d'une conception « sauvage » de l'enfance à apprivoiser jusque dans le langage. Cet article discute également de la capacité des enfants sauvages à produire et à utiliser les signes arbitraires que le langage humain attribue conventionnellement aux objets, ainsi que des tentatives visant à enseigner aux chimpanzés l'utilisation du langage humain. Le sujet ouvre des scénarios fascinants à la frontière entre psycholinguistique et biologie, ramenant la discussion au sens profond des termes comme « langage » et « communication » humaine.

Mots-clés: *enfants sauvages, acquisition du langage, langage d'action, éducation spécialisée, communication entre chimpanzés.*

Abstract: From the 18th century up to the present day, numerous studies have been carried out into the origin of language, which is considered to be an essential component of the natural make-up of human beings. Researchers frequently evoke the case of wild children, raised in forests and/or in conditions of isolation from normal human contact, as an appropriate model for the very moment of the genesis of language. Based on the philosophical debate surrounding the ideas of Rousseau and Condillac, this article examines the first level of communication based on actions and gestures (action language). The story of the wild boy Victor in France, punctually documented by Dr Jean Marc Itard (1801-1806), marks the beginning of 'special pedagogy' and, at the same time, inspires criticism of a 'savage' conception of childhood that needs to be tamed, right down to language. This article also discusses the ability of wild children to produce and use the arbitrary signs that human language conventionally attributes to objects, as well as attempts to teach chimpanzees to use human language. The subject opens up fascinating scenarios at the frontier between psycholinguistics and biology, bringing the discussion back to the deeper meaning of terms such as human 'language' and 'communication'.

Keywords: *wild children, language acquisition, action language, special education, communication between chimpanzees.*