Maria Montessori and the Mystery of Language Acquisition

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Abstract: Maria Montessori's work remains popular and influential around the world. She provided fascinating descriptions of her observations of children's learning. Yet at the heart of her work is a lacuna: the issue of how children learn their first language. For Montessori, it was a marvel, a miracle—but a mystery. We argue that the later philosophy of Ludwig Wittgenstein offers a way forward. With the clearer view offered by Wittgenstein's reminders, we propose that Montessori's work can be reevaluated to better understand Montessori's contribution, child development and, in particular, how children acquire a first language.

Maria Montessori's work remains popular around the world. She provided fascinating descriptions and a wealth of commentary (with, in some cases, diagrams and photographs) of her observations of children's learning. So vivid is her writing that one can almost be transported back into the environments with which she was familiar. The focus of this paper is what Montessori termed in one chapter heading "The Mystery of Language" (Montessori, 1946/2019, p. 44). We will draw chiefly on the work of Montessori and of the philosopher Ludwig Wittgenstein to explore this aspect of Montessori's thinking further and to suggest new insights. The approach we will take is that of a descriptive literature review where, through a detailed examination of a comprehensive selection of Montessori's work, we identify and highlight the key issues that form the focus of this paper. We then turn to consider the later work of Wittgenstein. Although we are not the first to make a connection between Wittgenstein and Montessori (see, for example, Consalvo & Tomazzolli, 2019; Montessori Europe, n.d.), our purpose in so doing is to offer a new perspective on Montessori's contribution. As such, our approach can be seen as offering a hermeneutic interpretation (Guignon, 1990; Shotter, 1978, 2008; Trede & Loftus, 2010). Wittgenstein is relevant as a frame of reference because his later thinking, and particularly that in the *Philosophical Investigations* (Wittgenstein, 1967) can be viewed as an inquiry into the mystery of language acquisition; in other words, how we learn our first language. As we will show, Wittgenstein starts to address this issue in the very first remark of the *Philosophical Investigations*.

Some Preliminaries: Montessori and Wittgenstein

Montessori and Wittgenstein were contemporaries, their lives overlapping for 62 years, as Montessori was born in 1870 and died in 1952, aged 81, and Wittgenstein was born in 1889 and died in 1951, aged 62. Both led far from conventional lives. Montessori, who trained as a medical doctor, had at one time an interest in mathematics (Kramer, 1988, p. 28), and briefly considered becoming an engineer at one stage of her life (Kramer, 1988, p. 33). Her work in medicine then led to her developing an interest in education (Kramer, 1988, pp. 72–75). During her life, Montessori traveled around the world, from Italy to, for example, Spain, the Netherlands, the United Kingdom, India, Austria, Ireland, Germany, France, Argentina, Denmark, Ceylon (now Sri Lanka), and Pakistan (Kramer, 1988). The influences on her work have been documented by others, as pointed out and detailed by Campanelli (2021, pp. 12–16).

Wittgenstein's life and work have also been documented extensively (for example, Malcolm, 1958/1984; McGuinness, 1988; Monk, 1990). Born in Austria-Hungary, he later became a British citizen. He too traveled widely, including to Norway, Germany, Ireland, the then Soviet Union, the United States, Iceland, and Italy, as well as to other places where he was posted in his time in the military.

Wittgenstein came to philosophy by way of engineering and mathematics. After completing his early work, eventually published as the *Tractatus Logico-Philosophicus* (Wittgenstein, 1921), Wittgenstein became, among other things, a primary school teacher in different locations between 1920 and 1926 (Monk, 1990; Standish, 2021). His training and his work as a teacher were influenced by the principles of the School Reform Movement under the influence of Otto Glöckel (Danto, 2018, p.143), but Monk has argued that Wittgenstein had misgivings about the School Reform Movement (Monk, 1990, p. 194) and that his reaction to it was, at best, ambivalent (Monk, 1990, p. 189). However, Danto considered that Wittgenstein's teaching of children shared some of the basic principles of the Reform Movement, the most important of which was that a child should not be taught simply to repeat what it has been told (Danto, 2018, pp. 142–143). Tentative links between Glöckel (1874–1935) and Montessori have also been suggested (Ebenberger, 2015, p. 14). Those tentative suggestions notwithstanding, there is, as far as we are aware, no evidence that Montessori had heard of Wittgenstein, or vice versa. Like Montessori, Wittgenstein seems to have promoted the importance of practical experience for children in his teaching (Monk, 1990, pp. 193–223). He compiled a vocabulary book (Wittgenstein, 1926) for the children of the Otterthal school, detailing simple and important words for the children in his class (Consalvo & Tomazzolli, 2019, p. 144; Monk, 1990, pp. 225–228). To what extent these activities marked a consistent approach in his teaching is contested, as too is whether his time as a schoolteacher had any bearing on his later philosophy (Consalvo & Tomazzolli, 2019; Hargrove, 1980).

Between 1926 and 1928, Wittgenstein was an architect for his sister's house (Last, 2008). He then returned to philosophy and to Cambridge where he developed what is now usually known as his later philosophy, most of this work being published posthumously.

Both Montessori and Wittgenstein, each in their own way, broke boundaries, both intellectual and social (Consalvo & Tomazzolli, 2019, p. 138). Here we suggest that, looking back at their work from the perspective of the 21st century, Wittgenstein's insights, and those of some more recent research, give us a valuable way to better understand Montessori's contribution. We concentrate here on issues concerning accounts of the child's acquisition of their first language.

A few caveats would seem to be in order. The first of these is to note that the reader of both Montessori's work and that of Wittgenstein is often reading them in translation. As far as Montessori's work is concerned, the repeated translations into and out of different languages can cause real difficulties (Kramer, 1988, pp. 357–359). In addition, as Kramer points out, "much of what appeared under her name late in her life consists of expressions of her ideas . . . surviving only in secondhand form in translations of lecture notes taken down by her students" (Kramer, 1988, p. 356). A not dissimilar caveat can be noted in relation to some of Wittgenstein's work, as *The Blue and Brown Books* (Wittgenstein, 1969a) are based on notes dictated by Wittgenstein to his students (Malcolm, 1958/1984, p. 48). Another work, *Vermischte Bemerkungen* (Wittgenstein, 1978), consists of "a selection from the posthumous remains" of Wittgenstein's writing, this being the subtitle given to a later translation into English under the title *Culture and Value* (Wittgenstein, 1998). However, Wittgenstein's works, even in translation, have a beauty and elegance to them that is worthy of note (O'Grady, 2001). That said, translations differ, and some changes, not all of them popular, are made, possibly to update the texts (Cartwright, 2011).

Wittgenstein's philosophy is customarily divided into two parts: his early philosophy and his later philosophy. Some also recognize a transitional or middle phase (Gilroy, 1996; Luckhardt, 1979; Monk, 1990), and there has been a more recent suggestion that Wittgenstein's later work can itself be subdivided to recognize a *third* Wittgenstein (Moyal-Sharrock, 2004, p. 1). Here, we take the generally agreed-upon view that *Philosophical Investigations* (Wittgenstein, 1967), and *On Certainty* (Wittgenstein, 1969b) are two works that consist of remarks written after approximately 1945 and so belong to the later Wittgenstein philosophy. We confine our attention to them. There is evidence that Wittgenstein was reasonably satisfied with the arrangement of the material for the *Philosophical Investigations* (Monk, 1990, pp. 363–364).

In passing, we note that in some quotations from Montessori's writing, gendered language of the time is used, such as the pronouns *he*, *him*, or *it* being used to refer to the child. In common with Feez (2007, p. xix), we have retained this usage when quoting. As will become clear, when we use the term *child*, we mean infants or preverbal children unless otherwise specified.

Montessori and the Mystery of Language Acquisition

The issue of the child's acquisition of their first language was a theme in Montessori's work to which she returned time and time again. One aspect that Montessori noted is that "generally, by the time it's two and a half, the child can speak its mother-tongue grammatically" (Montessori, 1950/1989b, p. 10). For Montessori, the acquisition of a first language is a "marvellous phenomenon" (Montessori, 1950/1989b, p. 10). The child is directed by a "grand mysterious power" (Montessori, 1949/2009b, p. 23). "The learning of language is a great intellectual acquisition" (Montessori, 1949/2009b, p. 5); "a tremendous achievement!" (Montessori, 1949/2009b, p. 20). There is a "mysterious inner development" (Montessori, 1946/2019, p. 46) akin to a miracle (Montessori, 1949/2009b, p. 24); "It is like a mental chemistry that takes place in the child" (Montessori, 1949/2009b, p. 22). For Montessori, the small child "is really a living miracle! . . . In two years he has learnt everything! This is a deep mysterious fact" (Montessori, 1949/2009b, p. 103). Interpreters of Montessori often take a similar approach—see for example, P. P. Lillard, who considered the development of language to be a "mysterious phenomenon" (P. P. Lillard, 1996, p. 18).

How does the child achieve this remarkable transformation? "How is it that the child acquires language?" (Montessori, 1949/2009b, p. 21). Montessori's answer to this question is provided in her accounts of language development in, for example, *The Montessori Method* (Montessori, 1912/1964), *The Discovery of the Child* (Montessori, 1950/1967) and in *The Absorbent Mind* (Montessori, 1949, 1949/2009b).

Montessori considers that in early infancy up to the age of two or three (Montessori, 1946/2019, p. 20), the language of a child is primordial (Montessori, 1912/1964, p. 45). In her view, the child is not able to ask for things in a language that is clear and easily understood. Nevertheless, she suggests, "Observation proves that small children are endowed with special psychic powers" (Montessori, 1946/2019, p. 8); "the child has a type of mind that absorbs knowledge, and thus instructs himself" (Montessori, 1946/2019, p. 8). Elsewhere, Montessori wrote that "This construction [of the mechanism of language] is not the result of conscious work, but takes place in the deepest layers of the sub-conscious of the child" (Montessori, 1949/2009b, p. 95). It is a "mysterious feature of the deep subconscious" (Montessori, 1949/2009b, p. 96). This is the first of two periods in the development of language, which she calls the "lower one" (Montessori, 1912/1964, p. 312). It is this lower period "which prepares the nervous channel and the central mechanisms which are to put the sensory channels in relation with the motor channels" (Montessori, 1912/1964, pp. 312–313). This lower period is followed by a "higher one determined by the higher psychic activities which are *exteriorized* by means of the preformed mechanisms of language" (Montessori, 1912/1964, p. 312):

> *In this period of life by the mysterious bond between the auditory channel and the motor channel of the spoken language it would seem that the auditory perceptions have the direct power of* provoking *the complicated movements of articulate speech which develop instinctively after such stimuli as if awaking from the slumber of heredity.* (Montessori, 1912/1964, p. 315)

We will come shortly to examine these two trajectories.

What did Montessori mean by saying it is mysterious? Having placed her faith in observational science, presumably she was referring to the fact that although observations were able to show that language had been acquired, the details of this mysterious and miraculous

phenomenon seemed to be inexplicable. In fact, it seems paradoxical: the child learns when no one can teach him or her. We see this when Montessori considers how the child absorbs the constructions of the language. Montessori wrote:

> *It is said "he remembers these things," but in order to remember, he has to have memory and he had no memory; he has still to construct it. He would have to have the power of reasoning in order to realize that the construction of a sentence is necessary in order to understand it. But he has no reasoning power. He has to construct it.* (Montessori, 1949/2009b, p. 22)

> *The only language that man learns perfectly is acquired at this period of childhood when no one can teach him.* (Montessori, 1949, p. 5)

> *The greatness of the human personality begins from the birth of man. This is an affirmation full of reality and strikingly mystic at the same time. But, practically speaking, how can one give lessons to a child that is just born, or even to children in the first or second year of life? How can we imagine giving lessons to a babe? He does not understand when we speak, he does not even know how to move; so how can he learn?* (Montessori, 1949, p. 2)

As an account of first language acquisition, it leaves a lot of questions unanswered. Mysterious and marvelous, even miraculous, it may seem. But, as we will argue, how first language acquisition occurs is not explained, merely that it does. At this point, it seems justifiable for us to argue that, in considering how children acquire their first language, Montessori met something of an impasse in her reasoning.

It has been suggested that Montessori's view of language development emerged from her 19th century medical training and by her early experience teaching children with learning disabilities (Irby et al., 2013; Trabalzini, 2023). These influences are evident in, for example, Montessori's book *Pedagogical Anthropology* (Montessori, 1913). Campanelli (2021, p. 12) suggested that Montessori's medical training emphasized the importance of observation to determine a diagnosis and suggest treatments. In these respects, Montessori can be thought of as at the forefront of much empirical and scientific research as it stood at the time of her writing and its application to education.

Montessori's approach was also in keeping with her wish to see pedagogy based on observational science, which means that it was entirely natural for her to draw attention to the observation that children living in poverty often seemed to have been adversely affected physically and mentally, and in their social and linguistic development, by their poor environment (Montessori, 1913, p. 19). This was part and parcel for her, of the development of a "scientific pedagogy" (Montessori, 1913, p. 32) in which she drew on the work of, among others, Séguin. Séguin was a proponent of the physiological method of treating those who, a century ago, were sometimes termed the "feeble-minded" (Myers, 1913, p. 538). This method has been summarized as involving, first, training the muscular system, then training the nervous system, then educating the senses, then acquiring general ideas, and then developing thinking in abstract terms (Minnesota Governor's Council on Developmental Disabilities, 2023). Séguin himself studied under Itard, who wrote about a boy who came to be referred to as Victor, the Wild Boy of Aveyron (Itard, 1801/2009). At this distance of time (and even at that time), it is impossible to ascertain the exact details of the life of the Wild Boy. In particular, for our purpose, it is not clear at what age the boy became isolated from social interaction with other humans or, indeed, whether he had any particular unidentified learning needs. It is speculated that he had been abandoned in the woods of Aveyron in France since approximately the age of 5 years (Newton, 1996, p. 179) until possibly his early teens (Minnesota Governor's Council on Developmental Disabilities, 2023).

We can see the influence of both Séguin's physiological method, and of Itard's work, on Montessori. In the case of Séguin's physiological method, to which Montessori herself referred (Montessori, 1912/1964, p. 34, p. 42), we see it in Montessori's approach to the development of language described previously, with a lower period "which prepares the nervous channel and the central mechanisms which are to put the sensory channels in relation with the motor channels" (Montessori, 1912/1964, pp. 312–313), followed by a "higher one determined by the higher psychic activities which are *exteriorized* by means of the preformed mechanisms of language" (Montessori, 1912/1964, p. 313). This also seems to have been influenced by de Saussure's notions of *langue* and *parole* where "*langue* denotes a system of

internalized, shared rules governing a national language's vocabulary, grammar, and sound system . . . [and] *parole* designates actual oral and written communication by a member or members of a particular speech community" (Mambrol, 2020).

The influence of Itard's work on Montessori is taken by some to lead to practical implications. Isaacs (n.d.), for example, considered that the example of the Wild Boy inspired Montessori to include nature in education. For Kramer (1988, p. 211), the influence of Itard's work can be seen in the Montessori materials and other games and toys sold around the world. These influences continue to have importance "because the materials and individual approach were designed to reach all children of *all* abilities . . . [which is] a key component of quality Montessori education" (Lopez-Brooks, 2022, online).

The relevance of the example of the Wild Boy on language acquisition also needs to be considered. Here Montessori is less explicit. However, the case of the Wild Boy of Aveyron seems to at least suggest that language itself is not innate and does not automatically emerge fully formed, as it were, without a social context and interactions. Montessori expresses this point in *The Secret of Childhood* when she explicitly states that the newborn child does not have within itself a fully formed language (Montessori, 1936/2009a, p. 27).

Wittgenstein and the Mystery of Language Acquisition

Wittgenstein addressed the issue of first language acquisition in the very first remark of the *Philosophical Investigations*, presenting St. Augustine's account of how St. Augustine considered he learned his first language (*PI*, §1, p. 2e[1]). Wittgenstein wrote:

> *These words, it seems to me, give us a particular picture of the essence of human language. It is this: the individual words in language name objects—sentences are combinations of such names.—In this picture of language we find the roots of the following idea: Every word has a meaning. This meaning is correlated with the word. It is the object for which the word stands.* (*PI*, §1, p. 2e)

This is a picture that Wittgenstein regarded as misleading. In criticism of St. Augustine's account, Wittgenstein wrote:

> *Augustine describes the learning of human language as if the child came into a strange country and did not understand the language of the country; that is, as if it already had a language, only not this one. Or again: as if the child could already* think*, only not yet speak. And "think" would here mean something like "talk to itself."* (*PI*, §32, pp. 15e–16e)

How the child moves from having no language to developing their first language thus comes to the fore. There are three interrelated aspects to which it is worth drawing attention in this context of considering how an infant child acquires its first language, noting that, by using the term *language* here, we do not mean to suggest that the child already has a public language of the sort which our ordinary uses of that term would suggest. Indeed, as already noted, Montessori explicitly rejected the idea that such a language is innate (Montessori, 1936/2009a, p. 27). The first of these interrelated aspects concerns the difficulties involved in arguing that, to learn a first language, a child must already have a language that is innate, inner, and private, in which he or she can test and formulate his or her ideas. Of significance here is that we cannot posit what Wittgenstein described as a private language. Wittgenstein discussed this issue in connection with coming to understand the meaning of the word *pain* (*PI*, §§257–263, pp. 92e–93e). He forwarded the notion that one learns the meaning of the word *pain* by concentrating "attention on the sensation—and so, as it were, point to it inwardly" (*PI*, §258, p. 92e). In this way, he considered the proposition that: "I impress on myself the connexion between the sign and the sensation" (*PI*, §258, p. 92e). He countered this suggestion in the following remarks:

> *But "I impress it on myself" can only mean: this process brings it about that I remember the connexion* right *in the future. But in the present case I have no criterion of correctness. One would like to say: whatever is going to seem right to me is right. And that only means that here we can't talk about "right."* (*PI*, §258, p. 92e)

> *And hence also "obeying a rule" is a practice. And to* think *one is obeying a rule is not to obey a rule. Hence it is not possible to obey a rule "privately:" otherwise thinking one was obeying a rule would be the same thing as obeying it.* (*PI*, §202, p. 81e)

By definition, a language must have meaning to be a language. It must be the case that terms can be used correctly or incorrectly, and incorrect uses be capable of correction. Now, for a supposed private language, this is not the case. There is, therefore, as Malcolm (1981, p. 11) pointed out (in relation to the work of Chomsky), no check on the use of any such words in such a supposed language. Therefore they cannot have meaning and cannot be understood, and so "are not items of a language or of a system of representation" (Malcolm, 1981, p. 11).

This brings us to the second theme, which emerges from the view that, for Montessori, "the child's acquisition of a language [is] . . . a great intellectual feat" (Montessori, 1946/2019, pp. 8–9). Such a view is implicit in many of Montessori's works as when, for example, she wrote of the child who can "make their speech and reconstruct in their mind what they have been told" (Montessori, 1946/1989a, p. 45). Exactly what this means is unclear. For Montessori, the "construction [of the mechanism of language] is not the result of conscious work, but takes place in the deepest layers of the sub-conscious of the child" (Montessori, 1949/2009b, p. 95). Thus, for Montessori, being subconscious, the presence of any such mechanism cannot be determined by introspection. This is, presumably, one aspect of why this was, for Montessori, mysterious.

For the third point deserving recognition, let us suppose for a moment that all the above was possible; that an infant child could have "a type of mind that absorbs knowledge, and thus instructs himself" (Montessori, 1946/2019, p. 8). Montessori asserted that the fact children acquire language proves her account to be true. She wrote: "Observation proves that small children are endowed with special psychic powers and points to new ways of drawing them out . . . by cooperating with nature" (Montessori, 1946/2019, p. 8). However, what these "special psychic powers" are remains mysterious. These assertions were, despite appearances, not based on empirical observations. How do we know that only children who have these "special psychic powers" learn a language? Suppose that there were children who did not have these "special psychic powers" but who, nevertheless, acquired a language. Presumably, given the remark about how observation proves that small children are endowed with special psychic powers, Montessori would deny that this could be so, but this conclusion is not based on any tests to establish that only a child who "instructs himself," as Montessori described, acquires a first language. The observations themselves, that children each appear to have "a type of mind that absorbs knowledge" (Montessori, 1946/2019, p. 8) from encountering and engaging with the environment, may be a good description of an empirical observation, but it is not evidence of any such type of inner processes or powers. The empirical observations present us (and Montessori) with a picture of a child's supposed mental processes, but it is a picture which causes confusion.

Wittgenstein's Alternative Perspective

In his later work, Wittgenstein came up with what might appear to be an astonishing contention, namely that language does not emerge from reasoning (*OC*, §475, p. 62e), that language does not have to rest on belief or on knowledge. Here we can refer to Wittgenstein's view that "A *picture* held us captive" (*PI*, §115, p. 48e). Although it might seem as if first language is acquired through some internal mental processes, that impression is misleading, indeed nonsensical. Instead, Wittgenstein proposed that it is "our *acting*, which lies at the bottom of the language-game" (*OC*, §204, p. 28e), and that language emerges because we have immediate instinctive reactions to certain events in our relationships with others. He wrote:

> *Try not to think of understanding as a "mental process" at all.— For* that *is the expression which confuses you. But ask yourself: in what sort of case, in what kind of circumstances, do we say, "Now I know how to go on."* (*PI*, §154, p. 61e)

This is an important aspect of Wittgenstein's later work (Malcolm, 1981, p. 1; Monk, 1990, p. 579). What did he mean by it?

In brief, the suggestion is that the child instinctively reacts in such and such a way (*OC*, §538, p. 71e). Wittgenstein (in *On Certainty*) and Malcolm (1981, 1989) gave many examples of these reactions: A child recoiling as a dog rushes at it; responding to an injured person; natural human responses to heat and cold; the immediate reaction if a child gets knocked down by another; brushing away an insect that is tickling the skin; crying out when in pain; following instructions; a child reaching for its milk or the mother's breast. Wittgenstein asked: "Does a child believe that milk exists? Or does it know that milk exists? Does a cat know that a mouse exists?" (*OC*, §478, p. 63e). In such situations there is an instinctive reaction to the cause but it is "a certainty in behaviour, not in prop-

ositional thought" (Malcolm, 1981, p. 5).

We can see aspects of this approach in the work of Halliday (1975) and of Painter (1984/2015). Here the focus on first language acquisition has moved to the social context (Halliday, 1975, p. 5) where "early language development may be interpreted as the child's progressive mastery of a functional potential" (Halliday, 1975, p. 5). Both Halliday and Painter concentrated their attention on the study of an individual child (Nigel in the case of Halliday, and Hal in Painter's work) from the age of 9 months to 18 months (Halliday, 1975, p. 11), and 9 months to 2 years (Painter, 2015, p. 1), and both concentrated on verbal utterances (Halliday, 1975, p. 5; Painter, 2015, p. 47). Although both said little about the period before 9 months, Halliday considered the possibility that "the child already has a linguistic system before he has any words or structures at all" (Halliday, 1975, p. 6). The reference here to a "linguistic system" is perhaps a reflection of Halliday's transitional position between the work of Chomsky and of others (Gilroy, 1996, p. 149) but significant here is his remark that:

> *We are setting up meanings in terms of certain generalized contexts of language use. The child is learning to be and to do, to act and interact in meaningful ways . . . . But none of it takes place in isolation; it is always within some social context.* (Halliday, 1975, p. 15)

This argument opens up the perspective that, in such social contexts, the adults around the child infer the meaning not only from the child's utterances but also from what the child does:

> *In other words, proceeding solely from observation, and using just the amount of commonsense the researcher ought to possess if he did not suspend it while on duty, we could reach generalizations such as "this child says <u>nananana</u> when he wants to get something handed to him." And we could arrive at this on a purely inductive basis—or as nearly inductive as one ever gets: the educated adult cannot proceed very far without imposing some kind of theory as he goes along.* (Halliday, 1975, p. 15)

Similarly, Painter (2015, p. 49) referred to work by Sylvester-Bradley and Trevarthen (1978) that showed how a "mother 'mirrors' her baby's vocal and gestural behaviours" in the first few months of the baby's life. Painter drew on Newson (1978), who argued that

> *whenever he is the presence of another human being, the actions of a baby . . . are being processed through a . . . filter of human interpretation, according to which some,* but only some*, of his actions are judged to have coherence and relevance in human terms—either as movements born of intentions, or as communications (or potential communications) addressed to another socially aware individual.* (Newson, 1978, p. 37)

Here is evidence that the speakers of a language may say that the infant knows or believes something but those are terms used by speakers of the language to note some particular behavior in particular circumstances. Importantly, the adults do not need to ascribe some inner process to the child; rather, "the adults producing communicative behaviour directed towards the child take the child's behaviour as *being* communication, even though it may not be" (Gilroy, 1996, p. 155). It is the whole context that provides the frame of reference for deciding on the meaning to be given to a particular behavior (Gilroy, 1996, p. 160), where "the infant, *qua* potential communicator, has certain of its functional (that is, primitive means/ends), non-verbal behaviours treated as verbal communicative behaviours through the shared medium of the non-verbal" (Gilroy, 1996, p. 161). As Kaye (1982) put it:

> *The kind of exchanges with adults that facilitate sensorimotor and later linguistic development require little from the infant at first except regularities in behavior and expressive reactions that parents tend to interpret* as if *they were meaningful gestures.* (p. 3)

We see this suggested by Shotter who, in describing mother-infant interactions, wrote that the mother "acts to *motivate* certain types of activity in her child . . . [and], having motivated some characteristically human activity, she now acts to interpret it as having a *meaning*" (Shotter, 1978, p. 57). In this respect, from the outset, mothers treat their babies as persons (Shotter, 1978, p. 57), and it is the interpretation (i.e., the meaning) that she gives to the situation, including the infant's responses (Shotter, 1978, p. 67) that is crucial.

Further examples come to mind: a child's interactions with its mother (Kaye, 1982); a child smiling, grasping, crawling, or walking (A. S. Lillard & McHugh, 2019, pp. 25–26); a child looking at someone or something, and possibly making prolonged eye contact (Shotter, 1978, p. 64). Here we can take Montessori's description of a baby,

only a month old, when his father and uncle suddenly appeared together (Montessori, 1936/2009a, p. 36). Montessori wrote that "the baby made a start of intense surprise and almost of fear" (1936/2009a, p. 36), then, as the two men separated, the baby turned to gaze at one, and then the other, with looks alternating between anxiety and fear, interspersed with some smiles (1936/2009a, p. 37). Keeping in mind that this is a description of a month-old baby, and with the new clarity offered by Wittgenstein's reminders and those of, for example Kaye, Halliday, Painter, and Shotter, we can see that it is the adults in this example who ascribe to the situation the meaning that

> *light [had] dawned in his little brain . . . [and] he had understood the fact that there was a different kind of being from the many women who surrounded him. He had understood that the world held a different kind of human being from his mother, his nurse, and the various women he had had occasion to notice, but never having seen the two men together he had evidently formed the idea that there was only* one *man.* (Montessori, 1936/2009a, p. 37)

Although it might be tempting to believe that the month-old baby has understood all the rules of meaning implicit in the above interpretation and then applied them (with all the difficulties that follow from that view), the reinterpretation allows us to see that it is the baby's behaviors that are taken by others to have a particular meaning (Gilroy, 1996, p. 113).

How, then, does the child learn the meaning of words? Wittgenstein answered this question thus:

> *But if a person has not yet got the* concepts*, I shall teach him to use the words by means of* examples *and by* practice.*—And when I do this I do not communicate less to him than I know myself . . . . I influence him by expressions of agreement, rejection, expectation, encouragement. I let him go his way, or hold him back; and so on.* (*PI*, §208, pp. 82e–83e)

This alternative view removes the initial assumption (that the preverbal child must mean something), and so avoids the difficulties inherent in that view as outlined earlier. Instead, there is a recognition that the instinctive behaviors of the preverbal child are taken by the speakers of language as meaning something. Bit by bit, by means of persuasion, imitation, and so on, the infant develops meaningful communication. This view dissolves any supposed paradoxes of learning (such as those suggested by Montessori and the "complex-first paradox" to which Gärdenfors [2019, p. 459] refers) because it does not require the preverbal infant to mean anything by its instinctive reactions and behaviors; by "his biological predisposition to attend and respond to communicative behaviour addressed to him" (Painter, 2015, p. 49).

Conclusion

With these issues considered, we can read afresh Montessori's work. Montessori has given us a view of the child and of teaching that has endured for more than a century. She drew attention to many fascinating aspects of children's development, not least their acquisition of a first language. When we see infants beginning to develop their first language, it may indeed appear to be some kind of miracle. It certainly appears to be a marvelous phenomenon. How does an infant so quickly come to acquire their first language? It is remarkable, yet the fact that it happens is commonplace and it is, in that sense, often overlooked and unremarkable, as Montessori herself noted in her remark that it had not been "sufficiently considered" (Montessori, 1949/2009b, p. 93). Montessori observed that a child "normally achieves with facility the speech of his environment" (Montessori, 1946/2019, p. 20). It is usually only when the child does not achieve this that it strikes us as something unusual and worthy of note. In this context, we can take Montessori's description of the "psychic life" of the child (Montessori, 1949/2009b, p. 63) and emphasize Montessori's use of the term *psyche* as a way of expressing the importance she attached to recognizing and respecting the infant child as fully human. We can see this when she wrote:

> *If we envisage the baby with a psychic life, with the need to develop its consciousness by putting itself into active relation to the world about it, the image that appears to us is impressive. We see a soul, imprisoned in darkness, striving to come to the light, to come to birth.* (Montessori, 1936/2009a, p. 23)

> *If there is an individual incarnation directing the psychic development of the child, the child must possess a psychic life antecedent to its life of motion, existing before and apart from any outward expression. Hesitant and delicate, it appears at the threshold of consciousness, setting the senses in rela-*

> *tion to their environment, and immediately acting through the muscles in the effort to find expression.* (Montessori, 1936/2009a, p. 26)

The relevance for Montessori practitioners is clear. The term *psyche* is thus expressing an attitude toward the child, and Montessori's work brings forward examples, and is itself an example, of how adults attribute communicative intent to infants, where (as we have argued) certain of their instinctive primitive means-end behaviors are treated as meaningful (Gilroy, 1996, p. 161). We do this even for unicellular beings: "they move away from danger, towards food, etc." (Montessori, 1949/2009b, p. 63); even more so are those descriptions we use about animals and about humans (Montessori, 1949/2009b, p. 69).

Here we may turn again to the case of the Wild Boy of Aveyron to which Montessori referred in her work (Montessori, 1912/1964, p. 150), and to the later work of Wittgenstein. The relevance of this example for our consideration of language acquisition is that it gives us an indication that language is part of our natural history as humans:

> *But we could no more exist without language games than we could without food. The very distinction between nature and culture is irretrievably blurred in the case of human beings. We are naturally cultural beings. Children deprived of any human culture do not become natural human beings—the natural human being* is *the socialized human being. This is Wittgenstein's point in saying that speaking is as much a part of our natural history as walking and eating.* (Williams, 2010, p. 370)

In this regard, Montessori highlighted the natural instinctive reactions or tendencies (A. S. Lillard & McHugh, 2019, pp. 27–28) of children in different contexts, including their drive to interact with others. For example, sometimes she drew attention to the child's instinct to look at the faces of others as in the case

> *of a child of four months, who likes to watch the mouth of a speaker and expresses himself with vague, soundless movement of his lips, but above all by the look of keen attention on his face, that shows him wholly absorbed by the interesting phenomenon before him.* (Montessori, 1936/2009a, p. 35)

As the child develops, experienced speakers of a language can, through the "expressions of agreement, rejection, expectation, encouragement" mentioned by Wittgenstein (*PI*, §208, pp. 82e–83e), "train the child's attention to follow sounds and noises . . . to recognise them and to discriminate between them" (Montessori, 1914/2005, p. 79) in order "to prepare his attention to follow more accurately the sounds of articulate language" (Montessori, 1914/2005, p. 80). Taking into account the importance Montessori attached to our view of the child, with Wittgenstein's reminders, and the work of some more recent writers on language acquisition, we have a clearer view of how children acquire their first language. The mystery of language acquisition has been dissolved.

Note

1. In accordance with customary practice, Wittgenstein's works *Philosophical Investigations* and *On Certainty* are referenced by initials, with paragraph numbers indicated thus: §, and page numbers having the suffix e indicating a translation into English.

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