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The Victorian Question of the Relation between Language and Thought

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This essay considers the reception of Müller's axiom, first stated in 1861, regarding the interdependence of language and thought. The response and engagement with this notion by individuals working within the nascent fields of psychology, neurology, paediatrics, education and the law are examined over a period of four decades. Müller was relatively unique in successfully transmitting linguistic ideas to the medical and scientific research communities. Evidence is presented that traces how Müller's theoretical arguments were seen to resonate with new research questions early on, but later became challenged by empirical observations towards the end of the century.

Introduction

The scholarly contributions of the Oxford Professor Friedrich Max Müller (1823-1900) were wide ranging, dealing with religions and mythology from Asia and the East, and the classical languages of such cultures. One strand of this work was a research programme for what he termed 'The Science of Language.' Alongside his considerations of etymology and grammar, Müller developed views that more broadly dealt with the functions and form of human language. One of Müller's notable ideas regarded the inter-relation between language and thought. This was initially framed in the context of debates over Darwin's conception of evolution following his publication of *On the Origin of Species* in 1859.¹

By the time Darwin more fully discussed his own position regarding the evolution of human cognitive and linguistic capacities in the 1870s, Müller had become a recognized public intellectual in his own right. To some extent his career in this regard was launched with his lecture series at the Royal Institution and elsewhere. These attracted huge popular interest, and his influence spread far beyond academic circles. Even in fields remote from

¹ This paper will concentrate on the contributions of Darwin to this issue. Herbert Spencer (1820-1903) also considered this subject. Spencer defined language as 'an apparatus of symbols for the conveyance of thought [...] How truly language must be regarded as a hindrance to thought, though the necessary instrument of it'. Herbert Spencer, 'The Philosophy of Style', *Westminster Review*, 58 (1852), p. 437. Moreover, other contributions to the debate such as those of August Schleicher (1821-1868) might also be fruitfully considered, but will not be addressed here.

those in which he was an acknowledged expert, Müller's claims were referenced and discussed. In this chapter, we will demonstrate how Müller's views on language and thought were considered sufficiently noteworthy to warrant responses from those working in remote scientific, medical and legal disciplines over a sustained period.

In Britain, at the time that Müller was active in academic circles studying Oriental religions and languages, there was increased interest, particularly in the nascent field of psychology, in typical child development. This was to a great extent stimulated by the many political reforms of the 1870s with regard to the education and social care of children. There was also an increasing need for clinicians and educationalists to determine whether a child was intellectually unimpaired in light of limited language development. Concurrently, medical research led to increasing understanding as to how language is organized in the brain. Much of the evidence came from patients who had suffered language impairment (aphasia) as a result of brain disease or injury. There was also an increased understanding of the organic basis of mental disorders, and of the abnormal thought processes and disturbed language that might occur in patients suffering from such conditions. Physicians subsequently found themselves concerned with the legal aspects of the behaviour of such individuals, offering practical advice to lawyers and judges who were called upon to evaluate evidence from someone deemed impaired in thought, language or both.

While others have considered Müller's contributions to the study of religion, myth and classical languages, this chapter focuses on his impact on Victorian considerations of child language acquisition, language impairment and the medical-legal aspects of testamentary capacity. These intellectual spheres are not typically associated with him. Here, the widespread penetration of Müller's ideas is highlighted, and it is argued that this is all the more significant given that there typically tended to be little cross-referencing among those working in disparate fields of humanities and sciences. The following pages document the persistence of Müller's idea on the inter-relation of language and thought until at least the beginning of the twentieth century.

Müller's ideas on language and thought

Müller developed his theme about the relation between language and thought in his *Lectures on the Science of Language*² delivered at the Royal Institution of Great Britain in April, May, and June 1861. In his first lecture he begins by offering a metaphor: 'Language has been called sacred ground, because it is the deposit of thought' (p. 3). Later on he states his objective: 'We do not want to know languages, we want to know language; what language is, how it can form a vehicle or an organ of thought [...]' (p. 23). He goes on to consider the stabilizing role of written language on the communication of thoughts, and the contribution of developing dialects to represent new thoughts. Müller also makes statements about the growth of language and how this can be traced to 'higher laws' that govern the organs of both thought and voice. In his lecture on formal grammar, he states 'We know certain forms of language which correspond to certain forms of thought' (p. 108). Finally at the end of his last lecture in this series, Müller makes a series of axiomatic statements: 'No animal thinks, and no animal speaks, except man. Language and thought are inseparable. Words without thought are dead sounds; thoughts without words are nothing. To think is to speak low; to speak is to think aloud. The word is the thought incarnate' (p. 369).

In these lectures delivered in spring 1861, Müller also made clear his opposition to the Darwinian view of a continuum between animals and humans.³ Müller asserted: 'Now, however much the frontiers of the animal kingdom have been pushed forward [...] there is *one* barrier which no one has yet ventured to touch—the barrier of language' (p. 23). Moreover, he rejected the idea that language or human reasoning could have developed gradually from animal intelligence. He went on to argue this point, acknowledging that while animals did have communicative abilities and birds had substantial imitative vocal skills, vocalisation *per se* did not mean they possessed language:

² Friedrich Max Müller, *Lectures on the Science of Language: Delivered at the Royal Institution of Great Britain in April, May, and June 1861* (London: Longman, Green, Longman, and Roberts, 1861).

³ This was a direct response to the central premise of *On the Origin of Species*. Although Darwin did not address the issue of human language directly, he ended the book with the suggestion that evolutionary theory might be extended to human psychology in the future. In fact, as will be discussed below, Darwin had developed ideas regarding language and thought in the 1830s but did not publish them until the 1870s.

the fact, therefore, that the parrot is without a language of his own, must be explained by a difference between the *mental*, not between the *physical*, faculties of the animal and man; and it is by a comparison of the mental faculties alone, such as we find them in man and brutes, that we may hope to discover what constitutes the indispensable qualification for language, a qualification to be found in man alone, and in no other creature on earth (p. 349).

Darwin did eventually offer a more detailed picture of his ideas with regard to the evolution of humans in his 1871 book *The Descent of Man*. In contrast to Müller's view, Darwin hypothesized that as language must have evolved in speechless human beings, as an extension of emotional communication, it could not be a necessary condition for thought.⁴ As evidence, Darwin used his observation that: 'a long succession of vivid and connected ideas, may pass through the mind without the aid of any form of language, as we may infer from the prolonged dreams of dogs'.⁵ He suggested that language and cognitive abilities may have co-evolved; Man's instinctive cries and vocal imitation of animal sounds strengthened the vocal organs; and the continued use of this 'language' directly stimulated the evolution of the human brain.

Immediately after Darwin had published these more explicit views, Müller directly addressed the subject again in another series of lectures he presented at the Royal Institution in 1871. Müller reiterated his axiom regarding the inseparable nature of language and thought: 'Without speech no reason, without reason no speech [...] It would follow that our conceptions, which are now always clothed in the garment of language, could never have existed in a naked state'.⁶ For Müller, the building blocks of language were the conceptual roots of words and these abstract concepts must have arisen fully formed in some distant past. He continued to strengthen his statements on this issue in other publications as well. In his lecture *On the Philosophy of Mythology* delivered in the same year, he makes the same point with even greater fervour insisting that:

⁴ Leopold points out that Darwin's position in this regard was in contrast to those of Edward Burnett Tylor (1832-1917) and William Dwight Whitney (1827-1894) who emphasized that language was primarily a tool for social communication and acquired in a social context. See 'Darwin on Expression and the Origin of Language', in: *History and Historiography of Linguistics* ed. by Hans-Josef Niederehe and E.F.K. Koerner (Amsterdam: John Benjamins, 1990), pp. 633-45.

⁵ Charles Darwin, *The Descent of Man and Selection in Relation to Sex*. 2 vols (London: John Murray, 1871), Vol 1, p. 58.

⁶ Müller, *Lectures on the Science of Language* (London: Longman, Green, 1871), p. 22.

all who have seriously grappled with the highest problems of the Science of Language have come to the conviction that thought and language are inseparable, that language is as impossible without thought as thought is without language; that they stand to each other somewhat like soul and body, like power and function, like substance and form.⁷

Müller provided another restatement of this idea in his Royal Institution lectures two years later: ‘If the Science of Language has proved anything, it has proved that conceptual or discursive thought can be carried on in words only. There is no thought without words, as little as there are words without thought’.⁸ The disagreement between Müller and Darwin regarding the inseparability of language and thought continued. In his copy of Müller’s lectures from 1873, Darwin wrote the comment ‘monstrous’ in the margin alongside Müller’s statement regarding no thought without words.⁹

Darwin’s son, George Howard (1845-1912), published a review of the work of the American linguist, William Dwight Whitney (1827-1894) whose ideas were in sympathy with the views of his father.¹⁰ George used this opportunity to answer directly, on behalf of his father, the contentious point Müller had asserted in his 1873 Lectures. This series of rebuttals between Müller and Darwin continued in the press. In *My Reply to Mr Darwin*, Müller stated that:

I do not think there would be anything offensive in stating that Mr Darwin, sen., knows the results of the Science of Language at second hand only, and that his opinion on the subject, however interesting as coming from him, cannot be accepted or quoted as authoritative.¹¹

⁷ Müller, ‘On the Philosophy of Mythology’, in: *The Essential Max Müller : On Language, Mythology and Religion*, ed. Jon R. Stone (New York: Palgrave Macmillan, [1871] 2002), p. 151

⁸ Müller, ‘Lectures on Mr Darwin's Philosophy of Language’, *Fraser's Magazine*, 7 and 8 (1873), 525–41, 659–78; 1-24, here: p. 677

⁹ Stephen G. Alter, ‘Darwin and the Linguists: The Coevolution of Mind and Language, Part 2. The Language–Thought Relationship’, *Studies in History and Philosophy of Science Part C*, 39 (2008), 38-50.

¹⁰ George Howard Darwin, ‘Professor Whitney on the Origin of Language’, *Contemporary Review*, 24 (1874), 894-904.

¹¹ Müller, ‘My Reply to Mr. Darwin’, *Contemporary Review*, 25 (1874-1875), 305-26, p. 306.

Müller was no doubt on safe ground with this comment. In a letter from Darwin to Müller previously, Darwin was modest about his knowledge and understanding of language:

As far as language is concerned, I am not worthy to be your adversary, as I know extremely little about it and that little learnt from very few books. I should have been glad to have avoided the whole subject but was compelled to take it up as well as I could. He who is fully convinced, as I am, that man is descended from, some lower animal, is almost forced to believe a priori that articulate language has been developed from inarticulate cries.¹²

Müller also used his *Reply* to refute Whitney's recent arguments on the topic,¹³ and to explain why he only points to language as the division between man and animals:

I represented language as the specific difference between man and animals, without mentioning the other differences which others believe to be specific. It would seem to show moderation rather than the absence of it, if I confined myself to language, to the study of which I have devoted the whole of my life¹⁴

Another of the Darwin family who also contributed to this continuing exchange was the psychologist and statistician Francis Galton (1822-1911)¹⁵ who had recently published a major monograph on individual differences in the mental faculties.¹⁶ Galton commented on Müller's work in a letter to the Editor of *Nature* that reflected his interest in psychological types. Galton suggested Müller was mistaken to suppose everyone thinks in language simply because he (i.e. Müller) does. He suggested that Müller's linguistic aptitudes and pursuits were the cause for him to be peculiarly dependent on words in comparison to others.¹⁷ Galton asserted that he himself could think without words, and that Müller should not assume all

¹² 'Letter 413. Letter to Müller from Darwin. Down, July 3rd 1873', in: *More Letters of Charles Darwin: A Record of His Work in a Series of Hitherto Unpublished Letters*, ed. by Francis Darwin and Albert Charles Seward (London: John Murray, [1873] 1903), p. 26.

¹³ William Dwight Whitney, 'On Darwinism and Language', *North American Review*, 119 (1874), 61-88.

¹⁴ Whitney, 'My Reply to Mr. Darwin', *Contemporary Review*, 25 (1874-1875), 305-26, p. 318.

¹⁵ Francis Galton and Charles Darwin shared a grandfather, Erasmus Darwin (1731-1802).

¹⁶ Francis Galton, *Inquiries into Human Faculties and Its Development* (London: Macmillan, 1883).

¹⁷ Francis Galton, 'Thought without Words', *Nature*, 36 (1887), 28-9.

minds were the same. In his response to Galton's criticisms, Müller argued that as a matter of psychological principle it was necessary to assume human minds are fundamentally the same, otherwise how could anyone investigate a property of the human mind.¹⁸ Müller appears not to accept the assumption underlying Galton's empirical research programme on psychological differences.

Galton was not the only one to suggest that Müller accorded words a special status owing to the nature of his life's work. The same point was made by the Duke of Argyll¹⁹ in his review of Müller's 'My Predecessors':

[P]rofessor Max Müller's idea of internal thought being nothing but talking to ourselves in words is a delusion [...] nor is it difficult to see how perfectly natural this illusion is in the case of a philologist. All the powers of his mind have been trained and expended in tracing the historical connection between particular sounds and certain corresponding concepts.²⁰

Thus, Müller's belief in the inter-relationship between language and thought was rejected as a universal property of the human mind by those such as Galton and Argyll. Rather, such a possibility was ascribed to an individual skill, and in Müller's case, due to his special linguistic abilities.

Indeed, Müller's ideas about the qualities of human thought were very much framed in linguistic terms. Words were seen as the fundamental material of intellectual activity. He stressed this point in an article written about Indian language and culture the same year:

'there is one thing which [...] will follow by necessity from the admission of the inseparableness of language and thought, and that is that all thoughts which ever

¹⁸ Müller, 'Can We Think without Words?', *The Nineteenth Century*, 145 (1889), 347-408.

¹⁹ The 8th Duke of Argyll (1823–1900) was John Douglas Sutherland Campbell. The 9th Duke of Argyll (1845-1915) had the same name.

²⁰ Argyll, 'The Identity of Thought and Language', *The Contemporary Review*, 54 (1888), 806-25, p. 817.

passed through the mind of men must have found their first embodiment [...] in words'.²¹

Müller takes a different linguistic tack in 'My Predecessors':

We can distinguish between the sound and the meaning of a word, just as we can distinguish between the pitch and timbre of our voice. But though we can distinguish, we cannot separate the two. We cannot have timbre without pitch, nor pitch without timbre; neither can we have words without thought, or thought without words (p 481).

Argyll found difficulties with this analogy of Müller's that linked language and thought to a difference between pitch and timbre. He argued that language and thought, that is, the sense and the sound of a word, are separated in a great variety of ways. Like many other critics, the American physician Shobal Vail Clevenger (1843-1920) pointed out that Müller, 'seems to base everything upon the derivation of a word'.²²

Ideas on language and thought as regards child language development

Alongside the debate on the relation of language and thought in man, there was consideration of the emergence of the two faculties in childhood. Darwin began to publish his ideas on the evolution of human cognitive abilities in the 1870s. In his books *The Descent of Man* and *The Expression of Emotions in Man and Animals*²³ he discussed the evolution of human language from animal communication systems. An early and unpublished formulation of his later stated position is recorded in his notebooks from the 1830s:

The distinction 'as often said' of language in man is very great from all animals—but do not overrate—animals communicate to each other—they likewise must understand each other's expressions, sounds, & signal movements.—some say dogs understand

²¹ Müller, *Biographies of Words and the Home of the Aryas* (London: Longmans, Green and Co., 1888), p. ix.

²² Shobal Vail Clevenger, 'Language and Max Müller', *The American Naturalist*, 25 (1891), 951-58, p. 952.

²³ Darwin, *The Expression of the Emotions in Man and Animals*. (London: John Murray, 1872).

expression of man's face.—How far they communicate is not easy to know,—but this capability of understanding language is considerable (p. 97)²⁴

As mentioned earlier, alongside the debate on the relation of language and thought in man, there was consideration of the emergence of the two faculties in childhood. Darwin addressed this issue directly in his lesser-known work 'The biographical sketch of an infant',²⁵ which sparked enormous interest in the scientific world at the time of publication.²⁶ The article drew on observations Darwin had made of his first-born child.²⁷ He details how mental abilities initially develop in a child, when the emergence of communication with elaboration of linguistic forms is gradually mastered over a long period. Darwin published these observations four decades after their initial recording in response to an article by the French philosopher Hippolyte Taine (1828-1893) that had appeared a few months earlier.²⁸ Taine's observations on his daughter's language development were put forward to illustrate theoretical points on development, language and the distinction between Man and animals: 'Delicacy of impressions and delicacy of expressions are in fact the distinctive characteristic of man among animals and, as I have shown (*De l'Intelligence*), are the source in him of language and of general ideas' (p. 253). This formulation by Taine makes the relation between language and thought ambiguous.

In 'My Predecessors', Müller references Taine's work on child language acquisition, linking this observational study of a single child to his own ideas on the origin of language in Man. Taine's depiction of his daughter's developing understanding of word concepts could, in Müller's opinion, be said to be true not only of the individual but of the species. Müller

²⁴ He had given much consideration to the development of language and reasoning ability in humans as a young man in the 1830s. This line of thought is documented in his 'M' and 'N' notebooks, which explore 'metaphysics on morals and speculations on expression'. 'Notebook M: [Metaphysics on morals and speculations on expression (1838)]. ', Accessed March 12, 2009. <http://darwin-online.org.uk/content/frameset?itemID=CUL-DAR125.-&viewtype=image&pageseq=1>

²⁵ Charles Darwin, 'Biographical Sketch of an Infant', *Mind*, 2 (1877), 285-94.

²⁶ For more on this point see Marjorie Perlman Lorch, and Paula Hellal, 'Darwin's "Natural Science of Babies"', *Journal of the History of the Neurosciences*, 19 (2010), 140-57.

²⁷ Darwin, 'Notebook of Observations on the Darwin Children, 1839-1856', <<http://darwin-online.org.uk/content/frameset?itemID=CUL-DAR210.11.37&viewtype=text&pageseq=1>> [Accessed 12 February 2009].

²⁸ Hippolyte Taine, 'M. Taine on the Acquisition of Language by Children', *Mind*, 2 (1877), 252-9.

insisted that Taine could have extended the point ‘far beyond the narrow walls of our modern nurseries. The Science of Language has clearly shown that every word coincides from the very beginning with a general concept’ (p. 487).

In providing his detailed scientific consideration of child language development, Darwin had instigated British research on child language development.²⁹ Others made use of evidence from case studies of infant language to join the debate regarding the relation between language and thought. William Thierry Preyer (1841-1897), Professor of Physiology at the University of Jena,³⁰ argued that research suggested infants could think before they could use words and concluded that ‘primitive thinking’ is distinct from verbal language. Preyer, like Darwin, linked the evolution of the intellect to the development of language.³¹

In contrast, Müller saw these as separate problems. He returned to his theme on the inter-relation of language and thought again in 1891 and directly addressed what he believed was an erroneous conflation of ontogeny and phylogeny with respect to issues regarding the relation between language and thought. Müller states:

Observations, for instance, on the language of children, or on what I call Nursery psychology, are very interesting and may be useful for other purposes. But what have they to do with the problem of the origin of language? The two problems, how a child learns to speak English, and how language was elaborated for the first time, are as remote from each other as the two poles. The one is perfectly clear, though it may vary in different children. No child makes its language, it simply accepts what has been made. What we are concerned with is, how each word was originally made, how the first impulse to speech was given, what were the rough materials out of which words were shaped, how words assumed different meanings by becoming specialised or generalised, or by being used metaphorically? How, in the end, some words became purely formal, and served as the grammatical articulations of human speech. What has that to do with a child learning to say Bread or Milk, or with a parrot

²⁹ For more on this point see Paula Hellal, and Marjorie Perlman Lorch, ‘Darwin’s Contribution to the Study of Child Development and Language Acquisition’, *Language and History*, 53 (2010), 1-14.

³⁰ Preyer was actually English, and a friend and correspondent of Darwin’s.

³¹ See William Preyer, *Die Seele Des Kindes* (Leipzig: Th. Grieben, 1882).

learning to say Poor Polly? We might as well try to study the geological stratification of the earth from watching the layers of a wedding-cake. I know quite well that every philosopher, when he becomes a father thinks that he may discover the origin of language in his nursery. The books which owe their origin to these paternal experiments are endless. But they have thrown hardly one ray of pure light on the dark problem of the origin and evolution of human speech. That problem, if it can be solved at all, can only be solved by a careful analysis of language, such as it exists in the immense varieties of spoken languages all over the globe.³²

The idea that child language development could reveal the historical origin of human language had been proposed by many over the centuries including the eighteenth-century philosopher Giambattista Vico (1668-1744).³³ However, within the domain of Victorian natural science, Ernst Haeckel (1834-1919) formulated the notion that ontology recapitulates phylogeny, incorporating Darwinian ideas.³⁴ This ‘biogenetic law’ had great influence on psychology and educational thinking in the second half of the nineteenth century. In this passage, quoted above, Müller is contributing to this topic of active debate, and asserts that for him there are two distinct problems—the origin of language in humans, and how children learn to talk. Moreover, he makes clear that he sees the study of language development in infants to be entirely irrelevant to his own interests.

The relation of language and thought as regards developmental disorders

In light of such statements, it is all the more significant that Müller’s ideas on the interrelation between language and thought were also considered with respect to how they applied to children who had developmental difficulties. Clevenger was interested in

³² Müller, 'On Thought and Language. A Lecture Delivered before the Philosophical Society of Glasgow, on Jan. 21, 1891', *The Monist*, 1 (1891), 572-89, p. 589.

³³ See, for example Marcel Danesi, *Vico, Metaphor, and the Origin of Language* (Indiana University Press, 1993).

³⁴ See Ernst Heinrich Philipp August Haeckel, *The History of Creation : Or the Development of the Earth and Its Inhabitants by the Action of Natural Causes: A Popular Exposition of the Doctrine of Evolution in General and of That of Darwin, Goethe and Lamarck in Particular, translation revised by E. Ray Lankester* (London: Henry S. King, 1876).

neurological and psychiatric disorders as well as being a supporter of Darwinian theory.³⁵ He wrote several papers on language and cognitive impairments in children that presented arguments against Müller's position. Clevenger considered the human language ability to be no different from 'any other set of complex motions performed by any animal to subserve rational purposes'.³⁶

This issue continued to be discussed by clinicians who specialized in the neurological aspects of such disorders. For example, the British expert on mental diseases Sir Thomas Smith Clouston (1840-1915) argued that 'co-equal retardation and non-development of two functions dependent on and directly related to each other, like speech and mentalization does not always occur'.³⁷ Clouston described language as a 'lesser function', which could develop normally in a mind otherwise retarded that remained 'in a permanent condition of very imperfect development' (Clouston, p. 609).

Clevenger also continued to take issue with Müller's claims, this time drawing on clinical evidence to refute the notion that language and thought are interdependent. He used the dissociation of language and cognitive abilities sometimes seen in those with 'idiocy' (what might now be referred to as learning disabilities) to support his arguments: 'Müller is unequivocal in making thought inseparable from language and considering them identical. "We think in names, and names only," he says. Do we? What did Kaspar Hauser³⁸ name his guardian?'.³⁹ In a later passage, he offers an opposing example: 'If language and thought develop together and symmetrically then the voluble Blind Tom⁴⁰ should be a pundit instead

³⁵ See Shobal Vail Clevenger, *Comparative Physiology and Psychology a Discussion of the Evolution and Relation of the Mind and Body of Man and Animals* (Chicago: Jansen, McClurg and Co, 1885).

³⁶ Clevenger, 'Contributions to Comparative Psychology', *Science*, 2 (1881), 342-44, p. 343.

³⁷ Thomas Clouston, 'The Neurosis of Development', *Edinburgh Medical Journal*, 1 (1891), 594-602, 689-706, 785-801, 930-938, 977-986, 1101-1119, p. 690

³⁸ The case of Kaspar Hauser (1812?-1833) was of interest to those exploring the relation between language and thought because it was believed that he had grown up completely isolated from human contact. He was subjected to various educational experiments. See Paul Johann Anselm Feuerbach, *Caspar Hauser: An Account of an Individual Kept in a Dungeon, Separated from All Communication with the World, from Early Childhood to About the Age of Seventeen, Drawn up from Legal Documents*, (Boston: Allen and Ticknor, 1832).

³⁹ Clevenger, 'Language and Max Muller', *The American Naturalist*, 25 (1891), 951-58, p. 954.

⁴⁰ The Blind Tom referred to here is probably Blind Tom Wiggins (1845-1908) an African American music prodigy whose behaviour in all other respects was considered idiotic. J. H. H., 'Savagery in Boyhood', *Science*, (1887).

of the idiot which he is' (p. 956). He made the observation that 'Müller has missed availing himself of what had been worked out by other thinkers' (p. 952).

The syndrome of aphasia with regard to language and thought

These early paediatricians were not the only people interested in how humans learn to speak. This question was also becoming more important to physicians concerned with adults who had language disorders due to neurological disease from the advent of the clinical investigation of aphasia in the 1860s. As such, this represented a new programme of research. These impairments were thought to offer direct evidence of how language was instantiated in the human brain. Müller had supported his theoretical position on the relation of language and thought from his earliest statements on the topic with reference to these advances in neurology:

[Language is] the answer to those who speak of development, who think they discover the rudiments at least of all human faculties in apes [...] Language is something more palpable than a fold of the brain, or an angle of the skull [...] and no process of natural selection will ever distil significant words out of the notes of birds or the cries of beasts (*Lectures on the Science of Language*, p. 354).

Müller's ideas on the special status of language as a mental faculty had originally appeared in the same year as a seminal paper by the French surgeon and anthropologist Paul Broca (1824-1880).⁴¹ In a number of papers on 'loss of speech' published from 1861 to 1865, Broca described the autopsy findings of a series of patients who had all presented with a similar selective impairment in their speech, and who had all suffered damage to a particular area of the brain: the second and third frontal convolutions. Broca's assertions regarding the correlation between a type of language disorder and a localized area of brain damage were a source of great interest and immediately sparked a huge growth in investigations of such patients both on the Continent and in Britain.⁴²

⁴¹ Paul Broca, 'Perte De La Parole; Ramollissement Chronique et Destruction Partielle du Lobe Antérieure Gauche du Cerveau,' *Bulletin de la Société d'Anthropologie de Paris*, 2 (1861), 235-38.

⁴² Samuel H. Greenblatt, 'Hughlings Jackson's First Encounter with the Work of Paul Broca : The Physiological and Philosophical Background', *Bulletin of the History of Medicine*, 44 (1970), 555-70.

One point of contention was Broca's original observation that 'the patient had maintained his intelligence, having lost nothing other than speech'.⁴³ Other clinicians insisted to the contrary that if speech were impaired then intellectual faculties would also be compromised. A more nuanced view was proposed by the London physician John Hughlings Jackson (1835-1911). In 1864, he had published a large case series of patients with hemiplegia and loss of speech in the *London Hospital Reports*. However, Jackson differed from Broca in the interpretation of the observed symptoms. Jackson believed 'the so-called "faculty" of language has no existence, and that disease near the corpus striatum produces defect of expression (by words, writing, signs, etc.) to a great extent, because this is the way out from the hemisphere to the organs which the will can set in motion'.⁴⁴ He drew a distinction between certain types of automatic vocalizations that aphasic individuals could still make and their impaired ability to make propositions. This approach was framed from an evolutionary perspective derived from the work of Herbert Spencer and drew on the linguistic philosophy of John Stuart Mill. Jackson pointed out, as indeed had Broca, that aphasic individuals are not mute but are able to vocalize emotional cries and automatic utterances. This could be seen as the preservation of a 'lower' form of communication. In contrast, the selective impairment of propositional speech in aphasic individuals was seen to represent the dissolution of a 'higher' evolutionary function.⁴⁵ For Jackson, the challenge was to provide an account of how one could lose the ability to turn inner propositional language into an outer expression of speech.

Another London physician, Henry Maudsley (1835–1918) also considered this question. He directly referenced Müller's formulation of the interdependence of language and thought in his book on the *Physiology and Pathology of Mind*.⁴⁶ Maudsley argued against Müller's contention that thought was impossible without language. In this, Maudsley judged

⁴³ For the English translation, see Paul Broca, 'Loss of Speech, Chronic Softening and Partial Destruction of the Anterior Left Lobe of the Brain.' First Published in *Bulletin De La Société Anthropologique* 2 (1861), 235-238; reprinted in English in: *Classics in the History of Psychology* (Toronto, Ontario: York University, 2003).

⁴⁴ John Hughlings Jackson, 'Remarks on Those Cases of Diseases of the Nervous System, in which Defect of Expression is the Most Striking Symptom', *The Medical Times and Gazette*, 1 (1866), 659-662, p. 660

⁴⁵ For a fuller exposition of his ideas on this, see Jackson's 'The Croonian Lectures on Evolution and Dissolution of the Nervous System', *British Medical Journal*, 1 (1884), 591-3: 660-3; 703-7.

⁴⁶ Henry Maudsley, *The Physiology and Pathology of Mind* (London: Macmillan, 1868).

Müller was ‘too absolute’. As evidence, he pointed to the counterexample of Laura Bridgman (1829-1889), an American deaf, dumb, and blind woman who had achieved academic attainments without being able to speak. This formulation again conflates the abilities of language, speech, and voice, however, the distinction between these would continue to be confused for several decades.

Meanwhile, other clinicians did subscribe to Müller’s conceptualization of the linguistic foundation of cognition. In Henry Charlton Bastian’s (1837-1915) comprehensive monograph *On the Various Forms of Loss of Speech in Cerebral Disease*,⁴⁷ he also equated language and thought but conceptualized the relation in psychological and physiological terms: ‘We think in words, in fact, and these words are revived as sound impressions in the auditory receptive centres of the cerebral hemispheres’ (p. 216). Bastian also noted how difficult it was to accurately determine an aphasic person’s degree of understanding. He claimed that the complex and undetermined relation between language and thought resulted in ‘no small amount’ of confusion and contradiction.

Interestingly, Müller supported the arguments he made in his 1873 lecture delivered at the Royal Institution ‘On Mr. Darwin’s Philosophy of Language’ with evidence from the growing research into the aphasic syndrome, citing the work of John Hughlings Jackson and Frederick Bateman (1824-1904).⁴⁸ While at the same time as acknowledging the importance of knowledge gained by such research, Müller added a cautionary note: ‘in referring to these experiments and observations, I hope I shall not be suspected of admitting that the brain, or any part of the brain secretes rational language, as the liver secretes bile’ (‘Lectures on Mr Darwin’s Philosophy of Language’, p. 676).

When the revised edition of *Descent of Man* was published the following year, Darwin likewise drew on insights from the neurologists:

The intimate connection between the brain, as it is now developed in us, and the faculty of speech, is well shewn by those curious cases of brain-disease in which speech is specially affected, as when the power to remember substantives is lost,

⁴⁷ Henry Charlton Bastian, ‘On the Various Forms of Loss of Speech in Cerebral Disease’, *British and Foreign Medical-Chirurgical Review*, 43 (1869), 209-36, 470-92.

⁴⁸ Frederic Bateman, *On Aphasia, or Loss of Speech, and the Localisation of the Faculty of Articulate Language* (London: J. Churchill & Sons; Norwich: Jarrold & Sons; Norwich, 1870).

whilst other words can be correctly used, or where substantives of a certain class, or all except the initial letters of substantives and proper names are forgotten.⁴⁹

At this time, the aphasic condition under investigation was generally conceived of as a difficulty in speech production, as initially described by Broca. However, in 1874, a young German physician, Carl Wernicke (1848-1905), published an important work that resulted in the description of a new type of aphasia subsequently named after its discoverer. In such individuals, speech is produced fluently although without clear meaning. Moreover, they have difficulties understanding the meaning of what is said to them. The growing recognition of a new subgroup of aphasic individuals who had difficulty with language comprehension arising from Wernicke's work⁵⁰ led to novel questions regarding the relation between language impairment and intellectual defects.

When Darwin died in 1882, his disciple George Romanes (1848-1894) continued the debate through an exchange of letters in *Nature*. In one, he used evidence from aphasia to refute Müller's position: 'when a man is suddenly afflicted with aphasia he does not forthwith become as the thoughtless brute; he has lost all trace of words, but his reason may remain unimpaired'.⁵¹ Interestingly, when Müller rebutted this, his reply revealed that he had maintained a conception of aphasia as merely an impairment of verbal expression (i.e., speech) without any damage to the language faculty itself. His evidence is that one can be silent when writing or reading.⁵² This suggests that Müller may not have kept abreast of developments in the understanding of aphasia subsequent to the 1860s.

Argyll also resorted to the neurological descriptions of language disorder to support his own argument: '(Language and thought) are separated in disease, when the patient is afflicted with 'aphasia' and when he struggles in vain to convey his meaning or to intimate

⁴⁹ Darwin, *The Descent of Man*. 2nd edition (London: John Murray, 1874), Vol 1, p. 134.

⁵⁰ Although Bastian had stated this point five years earlier, as mentioned above, he was not given recognition for this insight outside of his immediate circle of London colleagues.

⁵¹ Letter to the Editor of *Nature* by George Romanes in Friedrich Max Müller, 'Appendix: Thought without Words', in: *Three Introductory Lectures on the Science of Thought, Delivered at the Royal Institution, During the Month of March, 1887* (London: Kegan, Paul, Trench, Trübner & co., [1887]1909), pp. 1-28, p. 15.

⁵² Letter to the Editor of *Nature* by Müller in the 'Appendix: Thought without Words', in: *Three Introductory Lectures on the Science of Thought, Delivered at the Royal Institution, During the Month of March, 1887* (London: Kegan, Paul, Trench, Trübner & co., [1887]1909), pp. 1-28, p. 26.

his wishes [...] any accurate definition of language must fix on the complete separability of sense and sound as not only possible but as one of its most essential characteristics'.⁵³

More practical considerations also arose with respect to the intellectual capacities of aphasic individuals. Once it became recognized that understanding and expression of language could be selectively impaired as a consequence of acute brain damage, questions were raised with regard to how to measure comprehension. Bastian had sounded an early warning of the inherent difficulties in accurately determining the extent of the language disturbance and mental impairment in any given patient. He pointed out that even in cases where the patient's intellectual abilities did not seem to be impaired, they might still have considerable difficulty in making their wishes known if their expressive abilities of speech, gesture, reading, and writing were all compromised. This problem was due in no small degree to the lack of assessment procedures or classification systems throughout the second half of the century.⁵⁴ The issue of determining intact intellect in individuals with impaired spoken (and written) language expression was to have important implications in one domain in particular, that of testamentary capacity.⁵⁵

The determination of testamentary capacity in aphasic individuals with regard to language and thought

From the mid-century onwards, notions of mental capacity and the complex relations between impairment of expression, understanding of language, and other mental faculties were being revised with respect to both criminal and civil law. Medical evidence was becoming more frequently used in cases of civil competence and interest in the inherent difficulties these cases raised is apparent as early as the 1860s. For example, J. P. Bramwell (dates unknown) described a case in which an aphasic man required the aid of 'an interpreter'

⁵³ Argyll, 'The Identity of Thought and Language', *The Contemporary Review*, 54 (1888), 806-25, p. 810.

⁵⁴ Marjorie Perlman Lorch, 'Examining Language Functions: A Reassessment of Henry Charlton Bastian's Contribution to Aphasia Assessment', *Brain*, 136 (2013), 2629-37.

⁵⁵ For a more detailed treatment of this topic see Marjorie Perlman Lorch, 'Speaking for Yourself: The Medico-Legal Aspects of Aphasia in Nineteenth-Century Britain', in: *The Neurological Patient in History*, ed. by L. S. Jacyna and Stephen Casper (Rochester: University of Rochester Press, 2012), pp. 63-80.

in order to testify as a witness at a criminal trial.⁵⁶ The judge had to consider whether the man's testimony was admissible evidence. The patient's experience is given in his own words:

to my surprise and horror, I found I could only utter unintelligible sounds [...]. Notwithstanding all my efforts to speak, my recovery was so slow that I could converse with none but a man who had been in my employ previously and was my constant attendant after the accident, to whom I communicated my ideas and desires, partly by gestures and partly by my attempts at speech. So much was this the case that, at the trial of Wilson, which occurred nearly 3 months after my injury, he had to be sworn as my interpreter. My examination in court, on account of this, was so grotesque, and at the same time interesting to the members of the bar, that it was continued till I was quite exhausted; and it affected the audience as laughable or deplorable, according to their different bent of mind (p. 180-1).

Bramwell concludes that this case represents evidence supporting the view that:

Although cases of aphasia are often associated with impaired mental powers, simply because a pure case of this disorder is rarer than a complicated one, we believe that, in simple aphasia the reasoning powers are quite intact, and that in cases where it is otherwise, the brain has sustained a complex lesion (p. 181).

Although similar reports appeared in the literature, the cases brought to court in order to assess the validity of wills provided the greatest insight into several developing concerns regarding the distinction between language and thought, and the refinement of diagnostic categories and assessment techniques. Medical debates and developments began to be reflected in a growing body of Victorian case law. Maudsley directly discussed the difficulty of determining testamentary capacity in aphasic individuals in legal cases, raising the concern that 'having lost the usual means by which intelligence is manifested, there will necessarily be a difficulty in gauging the measure of it'.⁵⁷

⁵⁶ J. P. Bramwell, 'Case of Traumatic Aphasia', *Br Med J*, 2 (1867), 180-1.

⁵⁷ Henry Maudsley, *Responsibility in Mental Disease*, 2nd ed., *The International Scientific Series* (London: Henry S. King & Co., 1874), p. 265.

Many other physicians commented on the complexities involved in such instances. For example, in a case published in 1877, a 55-year-old hemiplegic and aphasic patient at Lincoln Lunatic hospital ‘seemed to be quite rational and to understand everything that was said to him and of him. He attempted to answer questions [...] but intelligent speech failed him and he gave utterance to an unintelligible jargon [...]’.⁵⁸ O’Neill goes on to state that ‘had he been called upon to make a will at the time I saw him, I believe he would not have been competent to do so; for although his intelligence might have been adequate to the task, he had not power to explain himself so that his wishes might be understood’ (p. 476).

By the 1880s, work on aphasia had led to a sub-classification of differential impairments of speech production and comprehension, reading, and writing. It was becoming increasingly apparent that the particular type of aphasia the person would have a bearing on their testamentary capacity. The neurologist William Gowers (1845-1915) pointed out that in some aphasic individuals there would be compromise of the two necessary requirements for will-making: clear understanding, and the expression of assent and dissent.⁵⁹ In this respect Gowers suggested that individuals whose language impairment was limited to verbal expression would have the ability to make a valid will, whereas those who had impaired auditory comprehension of language would not be likely to have testamentary capacity except in the rare cases where the ability to understand and produce written language was unimpaired.

Clevenger also turned to the aphasic cases and in particular those concerned with testamentary capacity to support his position with regard to the vexed question of language and thought:

speech function may be wholly and totally obliterated by disease, and yet the individual may be capable of transacting business, buying, selling, and directing his affairs generally and intelligently. He may make a will disposing of his property, he may think deeply and correctly and yet be unable to express himself by speech; and on the other hand thought may be badly deranged and the speech faculty may remain intact (‘Language and Max Müller,’ p. 955).

⁵⁸ William O’Neill, ‘A Case of Aphasia’, *British Medical Journal* 2 (1877), 475-76, p. 476.

⁵⁹ William Richard Gowers, *Lectures on the Diagnosis of Diseases of the Brain, Delivered at University College Hospital* (London: Churchill, 1885).

He considered examples provided by aphasic cases as strong evidence against Müller's stance: 'The ability to write may be taken away from us by disease and the faculty for speaking be left unimpaired; and per contra aphasia, or speech interference, may exist without agraphia, or the loss of the ability to write. These facts alone tend to disprove Max Müller's dicta' (p. 956). Thus, such clinical observations were seen as empirical evidence that could be used to argue against the theoretical proposition of the inseparability of language and thought. Meanwhile, Müller persisted in his formulation of the interdependence of language and thought throughout his career that extended to the end of the century.

Conclusion

In sum, Müller's ideas regarding the relation between language and thought had a significant impact far from his own field of enquiry in the emerging domains of psychology and neurology. His early Royal Institution lectures encompassed larger themes and proved extremely popular. They were reported in the press and published in book form. From their first publication, they were reprinted fifteen times before the end of the century. These lectures brought him critical acclaim and a level of recognition among educated Victorians as a scholar of note. As a signal of his eminence as a Victorian public thinker, Müller was referenced at least until the turn of the century with regard to his ideas on this topic. The arguments he put forward in his lectures and books from the 1860s onwards were brought into play in discussions of the language and cognitive development of children, in cases of impairment in neurological disease, and more specifically with regard to considerations of civil capacity in individuals with such limitations. Müller's ideas were considered by psychologists, clinicians, and the legal profession for over four decades both in Britain and in the United States of America. In his obituary of Müller at the turn of the new century, Bendall acknowledged that: 'in the realms of thought and mind, most specialists consider that he overrated the influence of language'.⁶⁰

Through the evidence presented here, we argue that Müller's ideas played a substantial role in the debate on these issues being investigated in remote disciplines. As such, it is an indication of his high profile as a public intellectual. He was relatively unique as a linguist whose ideas were taken up and actively responded to in the psychological,

⁶⁰ Cecil Bendall, 'The Right Hon. F. Max Muller', *The Athenaeum* (1900), 580.

medical, and legal domains of the Victorian period. Nevertheless, we have also documented how his role shifted from one who raised important philosophical issues in the 1860s, to that of an easily defeated ‘straw man’ for those empirically investigating aspects of the human mind through the function of language by the end of the nineteenth century.

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