

SPECIAL SECTION

BILINGUALISM AND MEMORY: EARLY 19TH CENTURY IDEAS ABOUT THE SIGNIFICANCE OF POLYGLOT APHASIA

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ABSTRACT

In the second half of the 19th century, there was very little attention given to bilingual speakers within the growing clinical literature on aphasia. The first major publication on this topic (Pitres, 1895), appeared three decades after Broca's seminal work. Previously, Ribot (1881) had discussed the phenomenon of bilingual aphasia in the context of diseases of memory. Although interest in the neurological basis of the language faculty was in fact present throughout the century, the theoretical implications of the knowledge of more than one language did not appear to be linked to this issue. A number of British authors writing in the first half of the 19th century have been identified who did consider the significance of these cases. Importantly, these writers speculated on the implication of bilingual aphasia specifically with regard to ideas about memory rather than language. Consideration of these writings helps to illuminate the history of ideas about the organization of language in the brain.

Key words: bilingual aphasia, memory, Pitres, Ribot, history of neuroscience

INTRODUCTION

With the publication of Paul Broca's (1861, 1863) seminal papers on "perte de la parole" (loss of speech) with lesions in the left frontal lobe of the brain there was an explosion of interest throughout Europe and North America in the newly termed syndrome of aphasia (Trousseau, 1864) and the localization of the "language faculty" in the brain. Surprisingly, the publication of the first "modern" case of bilingual aphasia did not appear until Albert Pitres wrote "Etude sur l'aphasie chez les polyglottes" in 1895. The interest in bilingual aphasia appears to wax and wane throughout the 19th century. Although there was great interest in the representation of language in the brain, the special possibilities inherent in bilingual people was viewed to be relevant to considerations of the organization of memory rather than language.

This paper reviews cases presented by a number of British authors writing in the first half of the 19th century. These writers categorize cases of what would now be called bilingual aphasia as being instances of selective memory disorder rather than language defect. Consideration of these writings helps to illuminate the history of ideas about the organization of language in the brain and concepts of lexical storage and access. Comparison of these 19th century works to late 20th and early 21st century writings shows how localization of function in the bilingual brain, which was not considered as a general question of interest then, has now become a core research issue in current cognitive neuroscience.

The "classical" division of the higher mental faculties makes distinctions between memory, imagination, intellect, and will, and contrasts this with the lower functions of expression and perception (Eling, 2002). With the work of Gall and Spurzheim (1810/1819), an interest in the anatomical localization of specific faculties in the brain was initiated. Throughout the next 50 years, the relation between the language faculty and the anterior lobes of the brain was debated in the French Imperial Academy of Medicine, and later, the Society of Anthropology in Paris. The evidence from autopsied cases that Broca presented, first in 1861 and subsequently, was considered by many to be definitive (though still debated on and off up to the present day, e.g. Marie, 1906; Goldstein, 1948; Mohr, 1976; Grodzinsky, 2000).

The localization of specific functions in the brain, focussing primarily on the faculty of language, was one of the major research enterprises in clinical medicine and physiology in the second half of the 19th century. The first detailed British model of language organization was put forward by Bastian in 1869. In it he drew a clear distinction between defects of memory – verbal amnesia, and disorders of speech and writing – aphasia, and provides an anatomically based diagram for these faculties. This marks a shift from viewing language as part of the intellect, to that linked to more directly to motor and sensory modalities. The culmination of this can be seen in the *Bibliography of Philosophy, Psychology and Cognate Subjects* (Rand 1905) which includes references on aphasia under the category heading "Motor functions and

defects” along with articles on sensation of motion and reflexes, rather than under the category for “Memory and Association”.

Hundreds of papers were published on aphasia as reflected in the bibliographic database the *Index Catalogue of the Library of Surgeon General's Office, U.S. Army* (1880-1932) (see Bujosa, 1980). Given that there was intensive research carried out on a wide range issues surrounding aphasia – reading and writing, numbers, gestures, etc., it is notable that the first modern description of bilingual aphasia was not published until three decades after Broca's first paper. This paper, written by Albert Pitres in 1895, ascribes the fractionation of languages in bilingual aphasics to partial memory impairment (Lorch and Barrière, 2002).

EARLY CONCEPTUALISATIONS OF THE RELATION BETWEEN LANGUAGE AND MEMORY

In the first half of the 19th century, there are reports of bilinguals suffering from acquired impairments in their language due to illness. It is significant that these published cases do not appear in the context of reports on “loss of speech” (as aphasia was typically described in English prior to 1864). Unexpectedly, the instances of what would now be considered bilingual aphasia were seen as prototypical examples of memory impairment. Numerous reports in the medical literature on memory disorders actually begin with descriptions of selective language loss in bilinguals. These were presented as illustrative cases to demonstrate that memory was not an indivisible faculty but could be affected in such a way that only selected aspects of memory were impaired.

For example, in the published clinical lectures of Sir Astley Cooper (at St. Bartholomew's Hospital London) on the *Principles and Practice of Surgery* (1824) there is a significant discussion of bilingual aphasia that is presented as the first case in Lecture 10 “On injuries of the head”:

“The mind is variously affected, according to the degree of injury which the patient has sustained. In some cases, there is a total loss of mental power; in others, the patient is capable, though with difficulty, of being roused to make a rational answer, but again sinks immediately into coma. Sometimes memory is lost, at others only partially impaired. A case is generally known to surgeons, of a man who, in St Thomas's Hospital, was found talking in a language which was not understood, until a Welsh woman entering the ward, heard this man talking Welsh, but the blow on his head had occasioned the loss of his recollection of English. I once witnessed a very similar circumstance. I attended a German sugar baker, with disease in his brain; and when I first saw him he could speak to me in English; but as

his disease increased he lost his English, and I was obliged to have an interpreter, for he could answer only in his native tongue” (Cooper, 1824, p. 255)

In John Abercrombie's consideration of theoretical psychology *Inquiries Concerning Intellectual Powers* (1831), there is a discussion of selective memory impairment:

“It is chiefly in attacks of an apoplectic nature that we meet with singular examples of loss of memory on particular topics, or extending only to a particular period; one of the most common is loss of the memory of words, or of names, while the patient retains a correct idea of persons or things” (Abercrombie, 1831, p. 156)

This is followed by the review of a number of cases of selective bilingual language impairment that had been recorded by a variety of notable authors. It is significant that Abercrombie (1831) chooses bilingual aphasics as illustrative examples for demonstrating selective memory impairment, rather than a loss of names of people or things in monolinguals, which is the common result of a variety of disorders including aphasia, dementia, fatigue, intoxication, etc., which were an everyday commonplace in the clinic.

A very detailed and quite sophisticated case report of a bilingual aphasic was given by the Irish physician Jonathan Osborne in 1833 in a paper entitled “On the loss of the faculty of speech depending on forgetfulness of the art of using the vocal organs”:

“A gentleman of about 26 years of age, of very considerable literary attainments. He was a scholar of Trinity College, and has been a proficient in the French, Italian, and German languages... One morning after bathing, he was sitting at breakfast, when he suddenly fell in an apoplectic fit. A physician was immediately sent for; he was bled, and after being subjected to the appropriate treatment, he became sensible in about a fortnight. But although restored to his intellects, he had the mortification of finding himself deprived of the gift of speech” (Osborne, 1833, p. 163)

Unusually, samples of the patient's speech and his performance on reading aloud and repetition are transcribed in the paper. While most cases of language impairment recorded until the latter part of the 19th century involve instances of nonfluent aphasia, this early case is unusual in documenting someone with fluent paraphasic production. An example of the jargon he produced is:

“An the be what in the temother of the trothotodoo to majorum or that emidrate ein einkrastrai mestreit to ketra totombreidei to ra fromtreido asthat kekritest” (Osborne, 1833, p. 166)

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