APHASIA IN ATYPICAL POPULATIONS.
By Patrick Coppens, Yvan Lebrun and Anna Basso.

Was Leborgne—the first Broca’s patient—a member of a typical population? As far as we can learn from Broca’s writings (Broca, 1861) he was a patternmaker until the age of 30 when he became aphasic. The only statement concerning his background is that ‘he could not write because his right hand was paralysed’. Maybe we can assume that he was right handed, a French speaker, not bilingual and had a good hearing because he understood some questions which he answered with gestures that were often apraxic.

The nature of the lesion is uncertain (Castaigne et al., 1980) but yet this case represents the major first step in more than 100 years of research on aphasia. Throughout history our attention was first focused on the heart (Gross, 1995), then on the ventricles and on the skull (Finger, 1994), and, presently, on the brain. Many models can orientate modern research. We can look at the question of aphasia in terms of a software program (language) and a hardware device (brain), although all of us agree that this is a very artificial and reductionist way of approaching the problem. For the sake of clarity in presenting the general content of this important book we will use this approach.

We can consider that there are different software programs (tone languages, signed languages), some more complete (two or more languages), some with different accessories (orthographic or ideographic written expression) and some incomplete (without the written expression). On the other hand, the hardware devices can have different potentialities. Besides the standard model, we can consider a developing stage (when the lesion occurs in childhood), or fully developed in adulthood (when the lesion occurs). In this latter case we
can have a gradient of functional balance between each of the cerebral hemispheres. This is the way this book is organized: confronting each of these particular situations with a theoretical standard situation.

Some of the questions, however, are (i) is there a standard brain/language relationship? (ii) how standard was Leborgne? and (iii) can we discuss aphasia without submitting our models to the natural variants?

In the words of Lecours, one of the authors quoted at the beginning of the Preface, ‘the anatomo-clinical correlation includes adults or . . . adolescents, right-handed, mono-linguals, speaking a non-tonal and alphabetic or syllabic language . . . In relative numbers, this represents a little more than a quarter of the world population’. Therefore, the remaining three-quarters considered as atypical are codified, in this book, in nine comprehensive reviews and a conclusion: Aphasia in Left-Handers (Basso and Rusconi); Aphasia in Bilinguals: How Atypical is it? (Paradis); Is Acquired Childhood Aphasia Atypical? (Paquier and van Dongen); Aphasia in Tone Languages (Gandour); Aphasia in Ideograph Readers: the Case of Japanese (Yamadori); Aphasia in Illiterate Individuals (Coppens, Parente and Lecours); Crossed Aphasia (Coppens and Hungerford); Aphasia in Users of Signed Languages (Corina); and the concluding chapter, How Atypical are the Atypical Aphasics? (Coppens, Lebrun and Basso).

In all chapters an extensive and quite complete review of the literature was carried out. This results in an extremely good reference book.

Before going through some of the individual chapters, a note of disagreement can be set down concerning the general tone of the concluding chapter. The authors first state ‘Although the reason why a specific population is atypical is idiosyncratic, in each case the ultimate rationale involves the notion that somehow these individuals are at risk for developing unusual language lateralization or organisation patterns’ and later ‘most authors conclude that the population they investigate does not evidence a different language lateralization or representation as compared to the ‘typical’ aphasia population’. The authors conclude that ‘we argue that language organisation is essentially universal, but . . . there are differences in strategies between and within language users’. Incidentally, Gandour expresses the same conclusion in terms of ‘surface’ difference using the same ‘underlying brain mechanisms’. Personally, I do not accept that this conclusion reflects the richness of information included in the eight previous chapters. The important point is the way we organize the questions and the method used to find the answers. For each of the topics reviewed there are relevant questions that can be raised, not only in terms of hemispheric lateralization, but in terms of subtle mechanisms whose comprehension contribute to our understanding of brain function. It is still important to mention that these topics are not isolated islands of knowledge, comparable to different adventures of a hero called aphasia in different contexts. Instead they are a tangle that require effort to understand

Let us analyse, briefly, some of the content of the different chapters. First, I would like to call the attention to the way Paradis discusses the difficult topic of bilingual individuals. This is a good example of the way the problem can be approached. Indeed there is a vast literature on this field, not always showing convergent evidence. The comprehensive way the author puts together all the information is per se a reason to consult this book. It reflects the existence of a heuristic model in the way language is discussed, separating the implicit processes from the explicit ones, linguistic and metalinguistic knowledge, pragmatic and grammatical aspects. The conclusion is that there are no major differences concerning hemispheric lateralization or aphasia type, which was certainly unexpected. However, subtle differences were found in accordance with the model, which were good enough to reinforce it. The reinforced model becomes an important tool for future analysis of other problems related to brain/language interactions.

All the other chapters are important reference texts for those interested in the field of aphasia. Because they have been an area of my interest I feel obliged to make a special comment on two particular aspects: crossed aphasia and illiteracy.

Let us go back to the question of the orienting models: in the first case I would like to stress the seminal work of Alexander and colleagues (Alexander et al., 1989), which is well quoted in the text. The authors call our attention to two groups of subjects that can be found among crossed aphasics: some can be pathological and some can be genetically determined. Cases with early acquired lesions of the left hemisphere run the risk of being interpreted as ‘regular’ crossed aphasics if, later in life, they become aphasic after suffering a lesion on the right side of the brain (Guerreiro et al., 1995). Functional image studies are most welcome in children who recovered from early acquired aphasia to enlighten this topic. This makes the connection with Chapter Three, in which Paquier and van Dongen discuss acquired childhood aphasia. They elegantly emphasized the recent evidence that shows subtle, or more evident, linguistic deficits persisting in long term evolution of early acquired aphasia. These findings contradict the previous concept of an equipotentiality of the cerebral hemispheres to fulfill the deficit. If these cases are potential pathological crossed-aphasics, their novel brain/language relationship has to be understood in more detail. More functional image studies with carefully selected paradigms should be carried out in this population.

If we look at the genetic aspect, we must think about potential differences at the morphological level. Indeed, Henderson (Henderson et al., 1984) failed to correlate crossed aphasia with a reverse pattern of brain asymmetry assessed by CT scan. However, these morphological differences between the hemispheres seemed to correlate better with the presence or absence of left sided neglect (Castro-Caldas et al., 1995). Still, in this chapter the authors discuss well the cultural factors that have been called to the field to
explain crossed aphasia. Again, we have a good bridge to the topics of other chapters. In my opinion the number of crossed aphasics is much higher than what we can estimate from the reported cases. There is often a tendency to look for a cause/effect relationship in the reported cases in the literature. As the authors claim, illiteracy and tone languages were wrongly used as explanatory arguments for crossed aphasia.

This sends us to the chapter on illiteracy, which can be considered, as far as I know, the best review on this topic. I agree with the authors that the isolation of the question of literacy from the cultural problem is often difficult. Again the importance of a good orienting model and the adequate selection of methodology must be stressed. Some recent evidence allows us to emphasize the findings of poor manipulation skills at the phoneme level in those who have no knowledge of orthography. This was revealed through functional imaging techniques that showed different patterns of brain activation, between carefully selected literate and illiterate subjects, while repeating pseudowords. Similar patterns of activation were found in both groups while repeating real words (Castro-Caldas et al., 1998a). Furthermore, it was not only this finding at the phonological level that was interesting, it was also possible to show that literacy increases the cross-talk (both ways) between the hemispheres (Castro-Caldas et al., 1998b) and that this can have an important role in the development of the corpus callosum (Castro-Caldas et al., 1999).

This brings us back to the general comment at the end of the book. We can try to minimize the findings or, the other way around, we can maximize them, isolate them and include them in the vast general theory of the brain/behaviour relationship. There are many bridges between the different topics focused in the book that deserve to be explored. The evidence is there and well reported. A general discussion following a comprehensive model is missing at the end.

The final question is this: is this an exotic book for exotic neurologists interested in the exotic field of aphasia? Being one of the exotic neurologists interested in aphasia my opinion is naturally biased. However, this book brings ammunition enough to stimulate our thoughts about aphasia. The book will interest neurologists, neuropsychologists and speech therapists, and I think it deserves a place on the shelf of all those who wish to understand the brain or, as MacDonald Critchely elegantly put it in his writings, those who were called for the divine banquet of the brain.

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References
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