

DALGARNO AND REHABILITATION

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Over 300 years ago, George Dalgarno wrote "The Deaf and Dumb Man's Tutor" (1680). His paper is well known and widely recognized as an important contribution in the history of rehabilitation. I hope to show that his ideas are still important today and that he outlined important principles which could be further developed and used in rehabilitation today.

Dalgarno's 17th Century was the last century to be unclouded by the controversies about educational methods, which have so dominated later ones including our own.

In Dalgarno's time, of course, there were no schools for hearing impaired children, but a few deaf and partially hearing children were taught at home by private tutors. Several outstanding contemporaries of Dalgarno were fascinated, as he was, by the problems of educating these children, including John Bulwer, John Wallis, and William Holder (Porter, 1848; Pritchard, 1963).

The following century was to see the first opening of schools for the deaf by de L'Epee in 1760 and Samuel Heinicke in Prussia in 1778 (Pritchard, 1963). This great development was accompanied by the beginnings of the controversy between L'Epee's use of manual 'methadological (sic) signs' and Heinicke's pure oralism. The next century saw profound developments in deaf education. The number of deaf children increased considerably and methods were refined in later decades of the 19th Century. This time the oral view was presented by Alexander Graham Bell and that of the rival combined method, or total communication as we would call it now, by Edward Miner Gallaudet. Our own century has also been a controversial one.

Back in the 17th Century, Dalgarno approached many of the persistent problems with a directness and clarity, which makes his works of value even today.

I have selected several ideas from Dalgarno's paper to consider their relevance for us. Dalgarno discussed the nature of the human senses and their contribution in deafness; the

difference between speech and writing; the need for robust methods of education; diligence; the role of grammar in teaching the deaf; and the importance of verbs of action.

THE HUMAN SENSES AND DEAFNESS

Dalgarno compares the predicament of the deaf and the blind, and in this context comments on the nature of the human senses. It is clear that he saw the senses as active and not passive systems; all of them were "intelligencers of the soul, less or more." He distinguishes between the various senses and writes that they "have their distinct limits and proper objects assigned to them by nature." He saw *hearing* and *seeing* as superior to *tasting* and *smelling*, which are "more gross and material", with *touching* in an intermediate state between these two groups. His views on the active nature of the senses have perhaps more in common with modern psychologists such as Schachtel (1963) and Gibson (1966).

The material from the senses has to be interpreted and Dalgarno saw what he calls the "rational soul", perhaps corresponding to consciousness, as interpreting signs which he says are essentially arbitrary. For Dalgarno, "Interpretation then, in its largest sense, is an act of cognitive power, expressing the inward motions, by outward and sensible signs". This idea led him to the notion of a sensory equivalence of the eye and the ear. He writes, "the eye and ear seem to act out of their own sphere, and to exchange their stations and powers; for the blind man learns to write by the ear, and the deaf man speak by the eye". The eye, then, can potentially take over the task of the ear. This perspective requires research along the lines reviewed by Friedes (1974) on human information processing and sensory modality. Its perspective is also similar to the analysis of vision and audition made by Tervoort (1971).

Dalgarno also sees differences between the eye and the ear. The ear, he tells us, "does more work in less time" than the eye. However the deaf man's eye can make up this deficit, it

can be "remedied by skill and care". Finally "the deaf man has this great advantage above the blind . . . he is able to write down his notions and to reflect on them as he will".

DIFFERENCE BETWEEN SPEAKING AND WRITING

It is difficult to teach deaf children to speak and to write. This has obscured the fact that writing syntactically correct English is more difficult than speaking with the correct syntax. Dalgarno emphasizes both the similarities between speaking and writing and their differences. "Speaking", he wrote, "being before writing, has more of nature and less of art in it". This insight has been ignored in the deaf world until recently, at least explicitly. Vygotsky (1934) wrote:

The changing motives of the conversationalists determine at every moment the turn oral speech will take. It does not have to be consciously directed – the dynamic situation takes care of that. The motives for writing are more abstract, more intellectualized, further removed from immediate needs. In written speech, we are obliged to create the situation, to represent it to ourselves. This demands detachment from the actual situation.

Recently, Arnold, Crossley and Exley (1982) have shown that deaf children have difficulty in writing syntactically correct sentences that they can say correctly.

His hint and recent research reemphasizes the importance of bringing together the spoken and the written form, in the deaf child's production and reception of language.

THE NEED FOR ROBUST METHODS TO TEACH THE DEAF

Dalgarno had an important insight into the kind of teaching methods that are required. He wrote:

I will begin with a secret, containing the whole mystery of the art of instructing deaf persons. That is, I will describe such a powerful engine, as may be able to fill his head as full of the imagery of the world of words of man's making, as it is of the things of this visible world created by Almighty God; which engine shall have one property more, that it shall not fail of success, even supposing both master and scholar to be the next degree to dunces.

No doubt those who teach deaf children for many years do acquire a mass of complex skills, some of the intuitive and unformalised. What is required is explicit knowledge and well defined techniques which a native teacher could use and which work even in the absence of long experience or great skill. The evidence presented by Conrad (1979) suggests that a superficial oralism, with its belief that the deaf child is just the same as a hearing child, and that the blackboard with its disembodied language will in the end change the deaf child into a child very like a hearing child, is not a sufficiently 'powerful engine.' Perhaps, in the way Dalgarno suggests, in our deaf schools the 'powerful engine' should be robust in the way that military equipment is. Techniques and methods should be developed which are effective even when used by a trainee teacher.

For Dalgarno the basis of his powerful engine is the deliberate use of the visual system. The art of education is "how to make an application to your deaf scholar by the same distinction of letters and words to his eye which appear to the ears of others from words spoken; that is, to know his letters and to write them readily".

All of this requires diligence and lots of it. Yet, compared to the general visual principle, diligence is "yet as a handmaiden".

It is his stress on the eyes which leads him to advocate his version of fingerspelling and to his conviction that reading and writing will be for deafness "both the more certain and perfect cure".

THE ROLE OF GRAMMAR IN TEACHING LANGUAGE

Our century has seen a dispute, which has never been fully resolved, between those who advocate 'grammatical' and 'analytical' methods to teach English and those who support 'natural' methods. This dispute is well described by Moores (1978).

Dalgarno sees himself primarily as a *grammarian*, who can potentially "cure the better part of the man". Yet he does not favor teaching grammar to the deaf person. As he puts it "the present address is more to the master than the scholar". He is quite clear that "You must not be too grammatical in teaching, till you find his capacity will bear it". His recommendation is that "the way of teaching must be something mixed, and it were the middle between the grammatical way . . . and the more rude discipline of the nursery".

He recommends that language be taught in a certain order. First letters, "written, or printed or on the fingers", followed by nouns and adjectives. He qualifies this by stating that the teacher must contrive their own methods appropriate for the child. He wants to show the child the relationships between words and sentences. As he puts it, "To treat syntax then, in English, is to show the use of *particles* in forming words into sentences. For to explain these notions separately were to build castles in the air; and to form sentences without them were to make ropes of sand".

Most adults have an implicit and intuitive knowledge of English grammar. Some superficial oralists feel that their intuitive knowledge of English grammar is sufficient. The Dalgarno perspective requires teachers of the deaf to have an explicit and conscious knowledge of grammar, not in order to turn deaf students into little grammarians, but to exert a subtle and persistent development towards more correct grammatical forms.

VERBS OF ACTION

Verb processes are difficult for deaf children to acquire (Quigley, Montanelli and Wilbur, 1976). Dalgarno recommends that the deaf student should "practice upon verbs of bodily action". He gives as an example the verb *to cut*. This should be taught with the pronouns I cut, we cut, etc., and the action should be demon-

strated at the same time. The written form is then presented with a visible demonstration of then action.

Today with the development of the micro-computer we could follow Dalgarno's advice in a much more ambitious and effective way. The written form of the verb and a 'movie' of the action could be presented simultaneously. We could, and indeed should, add the spoken form. The written verb, the visual representation, and the spoken form could be presented together to the child.

CONCLUSION

Dalgarno presented his ideas before the two great controversies of deaf education, the oral manual debate and the analytic-synthetic argument appeared. He starts from clearly stated principles and derives practical methods. Most would feel that Dalgarno neglects speech relative to reading and writing, but this does detract fundamentally from his main aims. He discusses issues which are still very much alive today and he has valuable things to say.

The solution to the educational problems of the deaf are unlikely to be solved by medicine or technological aids, but rather from remedial education. Dalgarno has the outlines of principles which can be developed and made more effective in some cases by the use of micro-computers.

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