

A DEAF-MUTE AND A "HEARING-MUTE" UNIOVULAR TWIN

by

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Among the residential pupils of the Royal Institute for Deaf-Mutes at Groningen are two pairs of twins who, from a genetical point of view, are very interesting.

The first pair is *Albert* and *Jan D.*, born 13-1-1942 (normal delivery) and admitted in the Institute 6-1-1947 (Fig. 1). They are both congenitally deaf and suffered at the same time from measles, whooping cough and chicken pox. Their character is the same, they are a little surly, conduct and diligence are proper, they do their work neatly at school. Both the boys have the habit of making grimaces. The intelligence is moderate, being that of Jan somewhat lesser than of Albert. The sizes of their bodies (measured 29-3-1952) are: circumference of the chest of both 65 cm, length 1.37 M, circumference of the abdomen 61 cm, maximum circumference of the head 59 cm, horizontal circumference of the head 50 cm, weight of Jan 31.5 KG, of Albert 32 KG. Both show clinodactyly of the little fingers and forefingers. Their teeth and tongues are similar. The hair of the boys is dark brown and lank. The eyes are brown, both show a slight strabismus convergens of the left eye, they are strongly astigmatic and slightly hypermetropic. Visus with spectacles 6/6 (Ophthalmologic Clinic University Hospital). Above the nasal bone both show — in the same configuration — a small-speckled acne. The bloodgroups of both are O anti A anti B, MN, Rh + (C + D + E —) (Estimation Prof. Dr A. B. F. A. Pondman). Both partners are lefthanded, Albert more pronounced than Jan.

The audiograms (Dr H. C. Huizing, Audiologic Department of the Throat-Nose-Ear Clinic of the University) are those indicating a perceptive deafness. The impairment of hearing of the left and the right ear is not quite symmetrical, there is some difference between Jan and Albert (Fig. 2). Since 1952 they wear an electric hearing apparatus, the individual ear moulds are not quite equal. It was impossible to estimate bone conduction.

In the family no other deaf-mutes occur, the pedigree (Fig. 3) however shows many twins, both monozygous and dizygous, besides this there occur atheromata on the head, inherited dominantly. The parents are not related. For investigating an eventual connection between getting identical and non-identical twins this pedigree is of importance. Besides the described twin there occur in the family two twins, most probably monozygous (they bear a striking resemblance to each other and were in their youth taken the one for the other by their relatives) and four dizygous ones of whom three are

sex-unlied twins, of one twin the nature was not known. It is remarkable that from the side of both parents of the mother of the deaf-mute twin identical twins occur. It seems to me of importance that such pedigrees are collected and published as much as possible.

Twins suffering from congenital deafness are little found in literature. Luchsinger and Hanhart describe three M T of whom one partner was fully deaf, whereas the other



Fig. 1

one was only suffering from hardness of hearing. Mauerhofer examined one M T, the impairment of hearing of both partners was not the same, moreover one of them was a kretin, and two D T, as good as concordant, of one of those pairs however one partner was feeble-minded. Probably these twins mentioned were “sporadic-recessive” deaf-mute. Rosa Hafner examined a concordant twin who was “probably” monozygous, Lindenov mentions a recessive-sporadic deaf twin, unknown if uni-or diovular, and still two discordant deaf-mute twins, not examined exhaustively. Finally he mentions a concordant twin who certainly was non-identical, being a sex-unlied one.

In the pedigrees of Louise Hopkins I could find three discordant dizygous twins, one concordant twin of unknown origin and one concordant twin of whom the mother was suffering from rubella during pregnancy. The three discordant twins were probably sporadically deaf, in their families more congenitally deaf relatives occurs. Gedda mentions one discordant and one concordant twin (MT or DT?), moreover he gives a co-

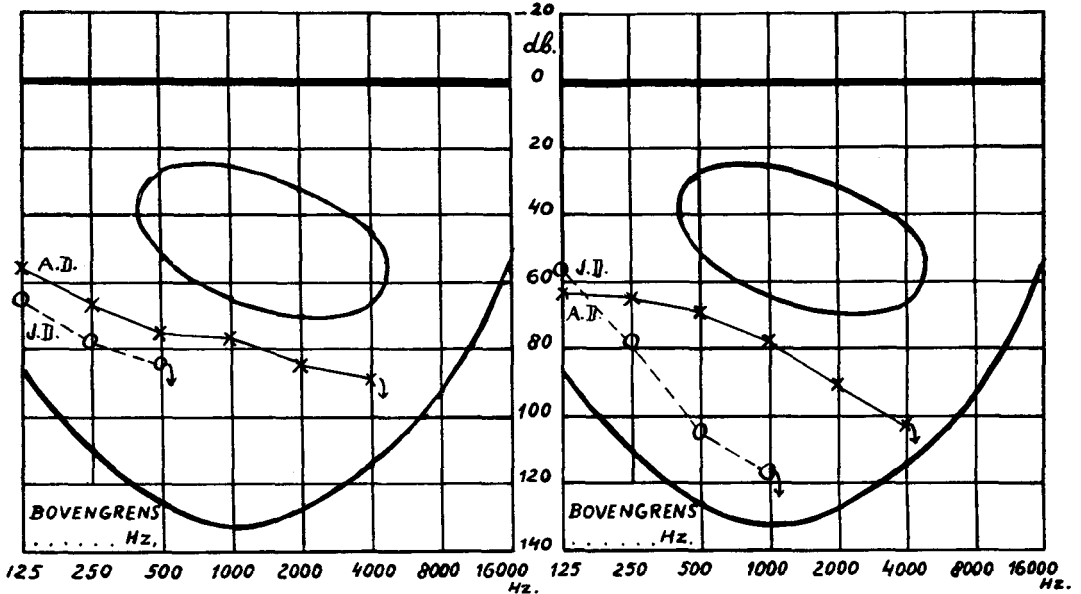


Fig. 2 - On the abscissa the frequency (left: bass, right: descant), on the ordinate the loss of hearing in decibels. The oval includes the speech zone, the curve below "total loss of serviceable hearing".

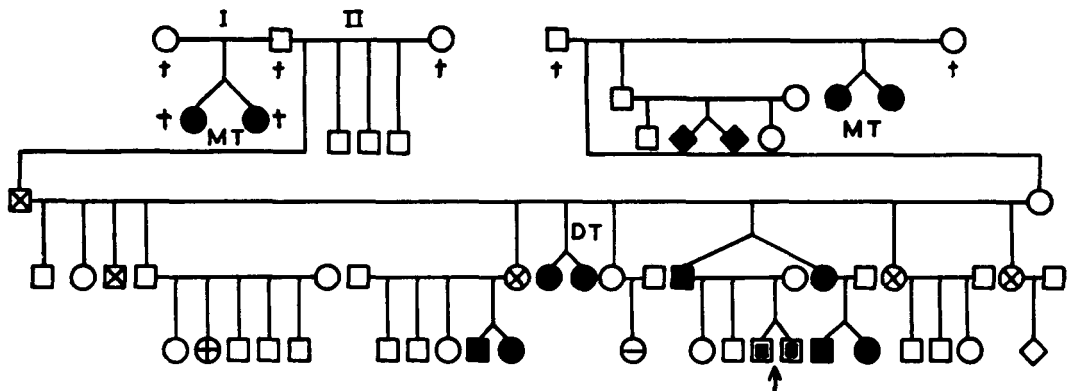


Fig. 3 - The black squares with white margin represent the deaf-mute twin. MT = monozygous twin, DT = dizygous twin. Cross = atheromata.



Fig. 4 - a and b

loured print, a photograph of a concordant pair of girls he publishes some years later.¹⁻²

In the literature moreover some twins have been described, probably suffering from otosclerosis.

The second pair is *Maris* and *Jacob E.*, born 5-3-1935 (normal delivery) (Fig. 4).

They visited during two years the first class of the ordinary school, they were howe-

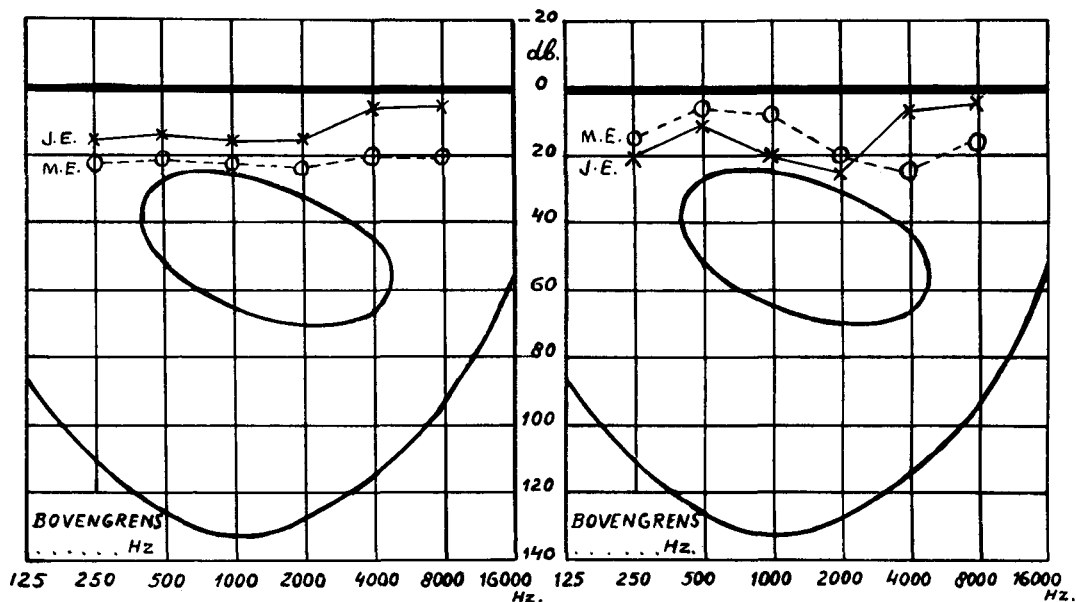


Fig. 5

ver unable to speak and then entered into the Institute for Deaf-Mutes (10-9-1943). They played normally with the other boys, they were able to understand common things but could not express anything in words. Their memory was bad. In the school for deaf-mutes they learned to speak pretty well, but ciphering and language went badly, the subject matter of teaching had to be kept very easy, they are not very independent, but most gentle and kind. As the shoemaker of the Institute, who teaches a part of the pupils this job, told me, the boys are "at the end of their capacities". According to the teachers there is only very little difference between Maris and Jacob. We may call them

¹ Van der Hoeve mentioned as early as 1916 a female MT, deaf-mute, combined with dystopia canthi medialis laterovera, pupils of the Groningen Institute. Waardenburg described a man, 63 years old, with the same syndrome, his - well hearing - twinbrother was dead.

² There just appeared a publication by Gedda e. o. in which they give a survey of seven pairs of deaf-mute twins of which five are MT and concordant, one DT and discordant, of the last twin it was not possible to say if they were MT or DT.

mentally retarded, so was already the opinion when the boys were tested at their entrance into the school.

The twin is most certainly uniovular though Maris is somewhat more robust than Jacob. The circumference of the chest of J. is 88 cm, of M. 92 cm, length of J. 1.75 M. of M. 1.78 M, circumference of the abdomen of J. 77.9 cm, of M. 80 cm, maximum circum-

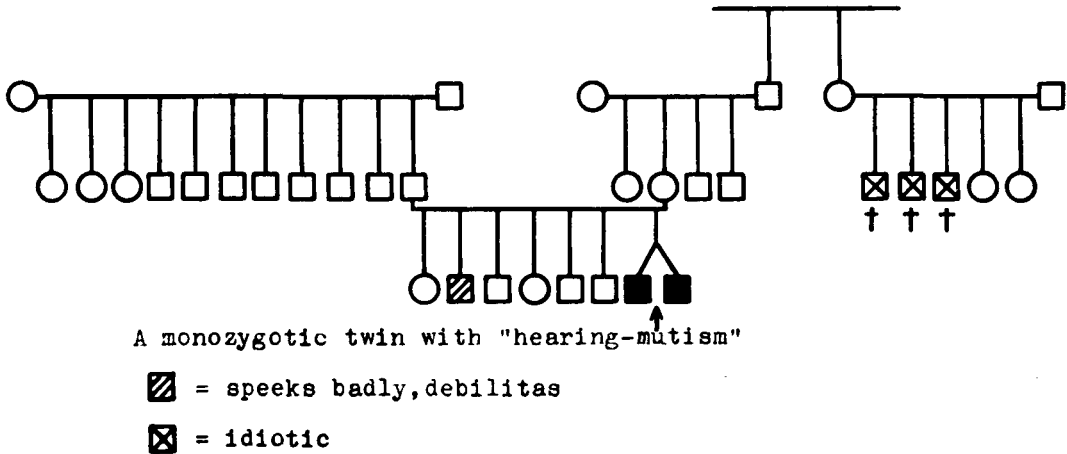


Fig. 6

ference of the head of J. 68 cm, of M. 70 cm, horizontal circumference of the head of J. 57 cm, of M. 58 cm. The weight of J. is 73 KG, of M. 75 KG. Teeth and tongues are equal, both have dark brown, lank hair, in the neck they have both right and left a little whirl of hair, being this at the left side more obvious than at the right side. The eyes are grey, both are 3.5 D hypermetropic. The bloodgroups of both are B anti A, M, Rh+(C+D—E—). Maris is lefthanded, Jacob righthanded, this is often seen in uniovular twins.

Their *audiograms* are practically the same (Fig. 5).

It is true that there is some loss of hearing, but this is not uncommon in hearing-mutes.

If we look at their pedigree (Fig. 6), we see that an elder brother speaks badly and is feeble-minded and that three cousins of their mother were idiots! The parents are no relatives.

I am not acquainted with publications on obvious hearing mutism in twins, Seemann and Luchsinger it is true, published a great number of M T and D T with *retarded speech* of which the hereditary character was evident, but that is not the same. Ley examined a monozygous twin eight years old, suffering from what he calls "audi-mutité idiopathique", but those boys were able to talk indeed, be it in a very childish manner and with bad articulation, they walked also badly. The intelligence was normal. In their family there were psychical aberrations, both from the side of the father and of the mo-

ther. This certainly is not the same kind of "hearing mutism" as in "my" boys. Ley and Tordeur described an identical twin with "alexie et agraphie d'évolution". They were only able to read and write very primitively, and were slightly mentally retarded. Two cousins from the side of the father showed the same. There was much debilitas mentis and criminality in the family. This twin too shows an other anomaly as the Groningen boys.

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Summary

1. Description of an identical, concordant, deaf mute twin suffering from a perceptive deafness. In the family there occurs no more deafness, on the other hand there are many twins, both M T and D T among their relatives.

2. Description of an identical, concordant, "hearing mute" twin. Up to their eighth year they did not talk at all, they learned speaking when they made their entrance into the Institute for deaf-mutes. They are feebleminded. A brother speaks badly and is slow in intellect too, three cousins of their mother were idiotic.

RÉSUMÉ

1) Description d'un couple gémellaire atteint de *surdi-mutité perceptive*, monozygotique et concordant. Dans la famille il n'y a plus de personnes sourdes, par contre il y a beaucoup de jumeaux, uniovulaires de même que diovulaires.

2) Description d'un couple gémellaire atteint d'*audi-mutité*, monozygotique et concordant. Ils ne pouvaient pas parler jusqu'à leur huitième an, ils l'apprenaient dans l'Institut des sourds-muets. Les garçons sont débiles. Un frère parle très mauvais et est débile aussi, trois cousins de leur mère étaient idiots.

ZUSAMMENFASSUNG

1) Beschreibung eines identischen, konkordanten, *taubstummen* Zwillingspaars, die Taubheit ist perzeptiver Art. In der Familie gibt es weiter keine Taubstummen, dagegen findet man sehr viele Zwillinge und zwar Ein- und Zweieiige.

2) Beschreibung eines identischen, konkordanten, *hörstummen* Zwillingspaars. Bis zum achten Lebensjahre konnten die Jungens nicht sprechen, lernten dies aber im Institut. Sie sind schwachsinnig. Ein Bruder spricht sehr schlecht und ist ebenso schwachsinnig, drei Vetter Muttererseits waren idiot.

RIASSUNTO

1) Descrizione d'una coppia di gemelli MZ concordemente affetti di sordomutismo di natura percettiva. Nella famiglia non si riscontrano altri casi di sordomutismo, ma invece molti casi di gemellarità, sia MZ che DZ.

2) Descrizione d'una coppia di gemelli MZ concordemente affetti da sordità. Fino all'ottavo anno di vita entrambi non riuscivano a parlare, finchè non lo appresero in apposito Istituto. Intellettualmente sono entrambi deboli. Un loro fratello parla anche male ed è debole di mente, mentre tre cugini per parte materna risultano affetti da idiozia.