THE NOTATION OF SIGN LANGUAGES: BÉBIAN'S *MIMOGRAPHIE*[1]

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The notation of sign languages is, in general, immediately and automatically associated with the name of William Stokoe, and indeed the beginning of sign language research is generally identified with the publication of his notation system (Stokoe 1960). In this article, I would like to discuss the notation system for sign languages developed by August Bébian in the early 19th century, and, by doing so, illuminate a part of the too-little-known history of sign language research.

(Roch-Ambroise) Auguste Bébian was born in 1789 in a former French colony in the Caribbean. As an adolescent, he came from Guadeloupe to Paris to proceed with his education at a highly-renowned *lycée*. His godfather, Roch-Ambroise-Cucurron Sicard, who was at that time director of the Paris school for the deaf, introduced him to the institute. Bébian's first contact with deaf people was thus in private; he and Laurent Clerc became good friends, and it was in this atmosphere that he learned sign language (see Bébian 1817, Dedication).

He began to write about sign language theory, and later about teaching the "deaf-and-dumb." These very insightful and fascinating studies show that he certainly was the most competent teacher in the Paris school at that time. After he had taught for several years he was dismissed. For years he strove in many ways to stave off those tendencies in deaf education in France (increasingly oralist) which he considered misguided, indeed incompetent – without success. His removal from the school was

1. An earlier version of this article was published in Das Zeichen (Fischer 1993b). I am grateful to Amanda Lee for her help in translating the present paper.

nevertheless, as Karacostas (1993) shows, one of the determining factors in the emergence of the world's first deaf movement toward the end of the 1820s in France. "Son nom, après son départ, couvrit, comme par enchantement, tous les murs de l'Institution, suivi d'expressions touchantes ou énergiques de regrets", reports Berthier (1839, 23-24) about the sorrow and the resistance of the deaf pupils after Bébian's dismissal. Bébian returned in 1834 to Guadeloupe and there founded the first non-ecclesiastical school at which many of the pupils were children of freed slaves. He died shortly thereafter in 1839, after heavy and this time also personal blows of fate. Of Bébian's many fascinating and committed studies, I have chosen those in which he introduced his sign language notation, called "mimographie": one more theoretically oriented publication from 1817 and especially another from 1825 which includes three tables, two for the set of characters and one for examples of notation.

Since the early Middle Ages, dictionaries and collections of signs (e.g. monastic signs) had existed. Thus the problems involved with committing signs to paper had, in Bébian's era, of course been known for centuries, and had been handled, in one way or another, more or less satisfactorily. With the development of mimography, Bébian expressly wanted to create, for the first time ever, the possibility for deaf pupils to write in their "langue habituelle" (Bébian 1825, 5). This achievement by Bébian is in direct correlation with his efforts to bring the sign language of the deaf to recognition.

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In earlier centuries, pictures (murals, etc.) were used for biblical or other instruction, in private or at public gatherings like fairs because of the wide-spread illiteracy. It is generally assumed that deaf people also profited from this communication device – be it only minimally. Almost nothing is known about how illiterate deaf people in earlier times could receive information on paper or communicate with each other in writing if they were forced to do so. Truffaut (1989) shows excerpts from a confessional from 1733 "destiné à un sourd-muet de la région de Bergues (Nord)". About forty-three sins are illustrated, some of which are supplemented with additional information: How often (hourly, daily, weekly...) one had committed the sin of hating his or her neighbor ("odi proximum"), for example, could be introspectively contemplated or ascertained by looking at the corresponding graphic and written reference (picture of an hour-glass with the word "(h)ora", and similar illustrations), and if need be, could be confessed by pointing to the illustration.

Ill. 1 (from: Truffaut 1989)

Valade (1846) describes how deaf brothers from Marseille agreed upon a series of pictographic symbols, in order to exchange at least the most necessary pieces of information while still indulging in their wanderlust: For this purpose they "conventionalized" among themselves new meanings for existing forms (e.g. a drawing of a duck). However, they

remained dependent on the help of others for certain parts of their letters (parts of the return address, for example), and it was only possible to communicate in this way about topics which had been agreed upon previously.

An example for communication on paper in our days is given by Emmanuelle Laborit in her autobiography (Laborit 1994). She describes how she was unable, as a child (there is no exact indication of her age), to get out of the bathroom in a strange house and how she became afraid and panicked:

"Finalement je vois un papier glisser sous la porte. Maman a fait un dessin, puisque je ne sais pas lire. Il y a l'image d'un enfant qui pleure, qu'elle a rayé. A côté, l'image d'un enfant qui rit. Je comprends qu'elle est derrière la porte et qu'elle me dit de sourire, que tout va bien. Mais elle n'a pas dessiné qu'elle ouvrait cette porte. Elle a dit que je dois rire, et ne pas pleurer. Et je suis toujours paniquée. Je sens que je crie. Je sens les vibrations des cordes vocales. (...) J'ai vibré à en perdre le souffle." (Laborit 1994, 37)

Even though illiteracy among deaf people is avoidable by widespread schooling (and the greater part of the proposals (by hearing people) about how deaf people could write has been made in connection with schooling; indeed they have almost all been made exclusively within the frame of spoken language education), even today virtually no sign language writing system is used for this purpose. The supposed "unwritability" of signs and sign languages, limited knowledge of existing systems for writing sign languages for everyday purposes, and most importantly the dominance of oralist educational methods have facilitated the proposing of a universal writing system (independent of the phonetic structure of any particular spoken language and pictographically oriented), highly touted as giving deaf people all over the world the possibility to communicate with each other and avoiding the isolation of a "signing ghetto" (see Yraga 1988), rather than the establishment of a sign language writing system. Most of the studies concerning writing and reading possibilities for deaf people today are still centered around the command of the written form of the respective national spoken language. For some educators, written and thus constantly visualized spoken language seemed better suited for the deaf than (auditive-)orally determined language[2]. The different levels of priority that the written form of a spoken language took in the various methods of educating "the deaf-and-dumb"[3] are, at least roughly, known (for an introduction see Günther 1990). Following are two lesser-known educational proposals:

Recoing, the father of a deaf child, developed a special shorthand

French for deaf children, which he hoped would diminish the tedium and dullness of communication conducted in the written form of a spoken language (Recoing 1829). Lambert (1865, 395ff) called for educators of deaf children, especially those in rural areas where lesson-time was limited, to concentrate on teaching nouns in written French, and for the tolerance of a sign language-influenced syntax in deaf people's written French[4].

Bébian's mimography, as far as its objective and design are concerned, was diametrically opposed to these sorts of proposals.

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The mimography's set of characters is composed of around 200 single characters (including derivations from main characters as well as supplementary characters), which are at times combined simultaneously (one written over/under another), but generally sequentially with each other (as a comparison: HamNoSys 2.0 has around 150 characters, see Prillwitz et al. 1989). With this set of characters, one-handed signs as well as symmetrical and non-symmetrical two-handed signs, and moreover signs involving the body can be written ("sign", according to usage at that time, not being limited to the manual component). The notation is one-lined; main

2. Values attributed to written language in general derive from the primary importance attached to spoken language, throughout the history of ideas, and were a distinct component in the denigration of illiterate deaf people (see Codex Justinianus) and sign languages, into which I cannot go deeper at this time. For the relating aspects of "linguistic status" and "cognitive function" see as an example the correspondence between Epée and Heinicke around 1781, and also the standpoint taken by the Academic College in Zurich as well as the "Bemerkungen über meines Denkens Form" by the deaf teacher Carl Teuscher from 1828.
3. Among these methods is also included the attempt of having deaf children learn the written form of a spoken language as their first language (see Steinberg/Harper 1983). Along with Stempel (1984), one wonders whether, all things considered, written communication as the only means of every-day communication should be rejected, since it is not capable of fulfilling essential functions of spoken or signed communication, for example the "Inszenierung eines sozialen Geltungsanspruchs" (Stempel 1984, 159).
4. I will not go further into one writing-related influence of spoken languages on sign languages: the reference is to the various finger alphabets as they are used among deaf people (see Carmel 1982) and special gesture systems for particular educational purposes (such as PMS, GMS (= Phoneme-/Grapheme determined Manual System), Pereire's dactylologie, etc.).

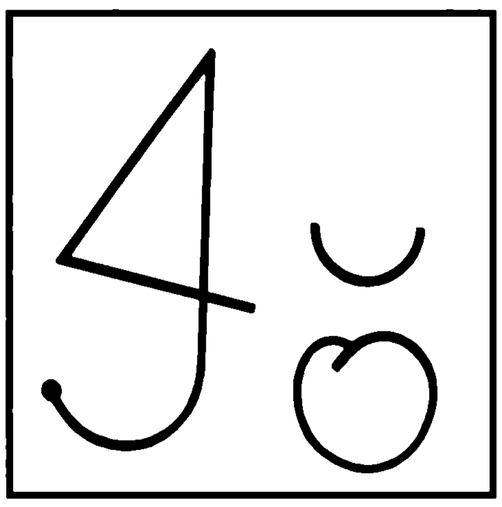
characters can be combined with diacritical marks, but no main characters are written over/under another.

If it is permissable to use Bébian's somewhat more pithy subdivision from Bébian, 1817, his mimography is based on three, what today are called cherological parameters: the movement, the "instruments du geste" (principally the hand, but also the head and the rest of the body), and the "points physionomiques" which especially apply to aspects of facial expression, and which are not always noted. As a comparison, in modern sign language transcription systems it is generally differentiated between movement, hand configuration, orientation, location (and rarely non-manual components).

Here are two examples of notation given by Bébian:

a) "Si dans le signe qui exprime l'oeil qui se ferme, nous ajoutons, sur le caractère du mouvement, l'accent *diminutif*, nour aurons écrit le signe de cligner (...); et si nous y joignons l'accent *fréquentatif*, en lieu de *cligner*, nous aurons exprimé *clignoter*." (Bébian 1825, 22; italics by the author)

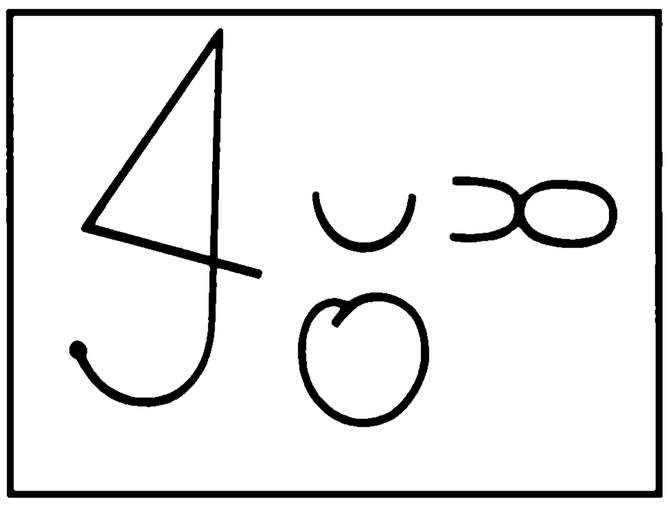
CLIGNER:



drawings by Peter Schick

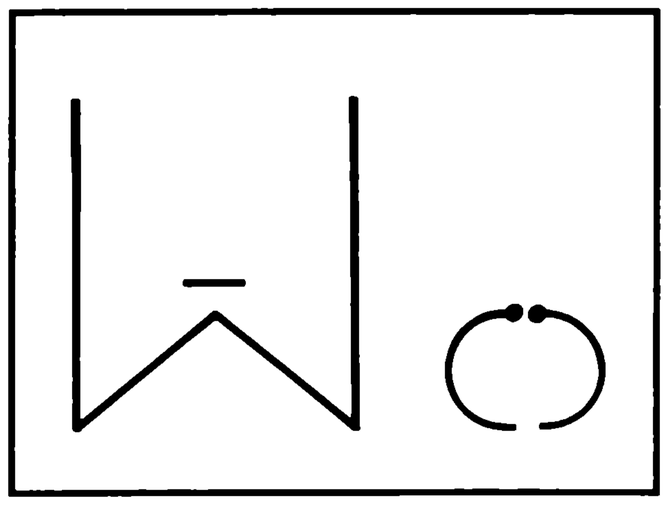
Based on Bébian's notation for CLIGNER, and in analogy to other examples, the mimographic notation for CLIGNOTER would be

CLIGNOTER:



b) "Les deux mains jointes éprouvant un mouvement de rotation (la gauche de droite à gauche, la droite de gauche à droite) représentent un livre que l'on ouvre: signe de *livre*." (Bébian 1825, 25; italics by the author)

LIVRE:



The basic character for the movement aspect is a kind of semi-circle. The alignment of the opening of the semi-circle combined with a line indicates the direction of movement. In addition there are possible modifications for the type of movement; first the three main groups arch, circle, and diagonal (in addition to the "zero form" of straight movement). These can be further specified with respect to the type of movement: opening/closing, rotation, etc. Further specifications are noted using a sort of diacritical mark: whether the movement is executed slowly, shortly, ... Various types of repetition can be noted. Multiple specifications can be noted for one main character.

In the area of the "instruments", i.e. means of sign articulation, the hand is the most important. If I understand correctly, the hand form aspect within the set of characters is reduced to a B-hand form with extended thumb as well as to a small group of finger combinations. The various characters reflect possible types of hand orientation, with respect to palm- and fingertip-orientation. A series of notations are given for the body, from head to foot, which evidently signify each body part as a means of articulation, not as a location. The general principle is to give the "comprehensive" parts of the body (the face or the arm, for example) a type of macro-character; their single parts, which can function as an independent means of articulation, like the eye-lid, are noted with specific marks on the corresponding macro-character.

The "points physionomiques", according to Bébian, are necessarily rough, due to the plethora of nuances to be noted – they function as a kind of punctuation. Their status is different from that of other characters in several ways, e.g. they are applied to groups of characters rather than being independent (parts of) single characters. They are besides determined by pragma-semantic aspects of an utterance ("surprise") and not primarily by (articulatory) characteristics of individual signs. They form a special group in mimography and cannot be compared to what are called today non-manual components (facial expression, for one), since in mimo-

graphy movements (of parts) of the face can be written, as has been said, as independent movements of the respective means of articulation.

An elementary mimographical character sequence would consist of (in this order): a character for the means of articulation plus another for the movement. The syntagmatical order is significant: If a movement is noted before the means of articulation, this indicates that the basic form of the means of articulation (e.g. the B-hand) must have been changed at the beginning of the sign, for example to a fist if the character at the beginning of the sequence denotes a closing movement. The reference to individual fingers is possible by using raised numbers (1 for the thumb, ...). Thus Bébian's system also has the parameter (hand) configuration, if only as a derivation. On the whole it can be concluded that the aspect of movement and not that of (hand) configuration is central for Bébian's mimography (for further details see Fischer, to appear). It is similar for two-handed signs: a special set of characters applies to the relative position of the non-dominant as opposed to the dominant hand. A further group of characters, which is derived from movement symbols, signifies places or parts of the means of articulation (upper, lower, front, ... part).

Bébian apparently does not consider the question of a special set of characters for location; in some cases location might result from the movement notation and/or the means of articulation, in others it remains open. It does not seem to be the case that Bébian made the mistake of confusing the aspects location and means of articulation when referring to the body as a means of articulation – although it is not necessarily easy to imagine the armpits or the waist as means of articulation. It is possible that Bébian considered every body part which was a (dynamic or static) part of the sign just as the hand to be a means of articulation and not as a location– like the heart or the heart region, on which one puts the hand for the sign IN LOVE. I consider this possibility not irrelevant, even though from today's viewpoint one might tend to assume an error or oversight. The few attempts to describe the history and development of sign languages (see Frishberg 1975 or Woodward/Erting 1975) have led to the hypothesis that the signing space has diminished through the decades, and that the concentration on the hands as means of articulation has increased – both of which tendencies have been to the detriment of the use of other parts of the body or the whole body and of the pantomimic impression made by utterances in sign languages. For example, Bébian's notation for the sign LOUCHER is: means of articulation, eyes; their movement being a mirrored symmetrical straight line. Such descriptions of signs are very similar to those which Desloges gave in the late 18th century for the Parisian deaf commu-

nity (Desloges 1779). Thus the classification in mimography may possibly correspond to another stage of sign language development than that which we are accustomed to seeing from accomplished signers today.

On the whole, mimography appears to have (in today's terminology) a phonetic alignment. Bébian's main intention is to write down the signs as they are executed "à nos yeux" (Bébian 1825, 20). In light of the theory of language and epistomology of some Idéologues, for example, as well as his own references to these philosophies, it is significant that Bébian expressly rejects an ideographical writing system (1825, 8) – his immediate goal being rather to record the signs by a simple means, which was manageable for even the youngest pupils and similar to the principle of alphabetic writing systems.

Like modern transcription systems, Bébian's writing system is oriented on the form, the signifiant of linguistic signs; yet the separation of form and meaning does not occur throughout. Using a way of analyzing terms and concepts similar to that of Condillac or some of the Idéologues, he seemed to see that subdivisions in form often coincided with subdivisions in meaning (see Bébian 1825, 25ff). It should be determined if and how the contemporary conception of language and sign language characteristics (such as morphonology) combine with each other in Bébian's mimography.

Other aspects of meaning which can be found in transcriptions by segmentation, for one, (spaces between "words", commas, etc.), occur sporadically in Bébian's system, especially since he intentionally drew single lexical items into consideration. According to Bébian's views on language and education of the deaf, the first purpose of a sign language writing system must be to enable deaf pupils to write single signs. Bébian clearly states that the notation of longer passages or whole texts cannot yet be accomplished satisfactorily using his system (see Bébian 1825, 8ff).

The prevailing iconicity or transparence of the characters (see Bébian 1825, 20), which are analogous to the form of the means or other aspects of sign articulation, was meant to help achieve the goal of simplicity of learning and memorizing. There is no use whatsoever of finger alphabet gestures or of letters of the alphabet. In light of the macro-characters mentioned above and of the internal derivational structure, the system can be judged to be open and economical.

Even though the practical details of mimography seem comparable to a modern system of transcription (e.g. HamNoSys), which impression is strengthened by my use of modern terminology in describing mimography, it should not be forgotten that the context of its origin is completely differ-

ent. A complete description requires, in my opinion, details of Bébian's view of language theory, and of his evaluation of the sign language of the deaf and the practical problems related to it. I have attempted to sketch those views on sign language in Fischer (1993a). At this point I would like to highlight some of the aspects which are most closely related to mimography.

Bébian's intent, on the whole, extends beyond the mere notation of signs. This intent can be seen in the sub-title: he terms mimography "propre à régulariser le langage des sourds-muets" (Bébian 1825). He deemed standardization necessary for at least two reasons, both of which had to do with the cognitive and intellectual (as well as emotional) development of the deaf child: a standardization would allow for more effective teaching in sign language than when each teacher used idiosyncratic signs or when diverse varieties hindered communication among the deaf community at school. In light of epistemological conceptions, moreover, Bébian saw in the standardization and recording of signs the possibility of doing sign language research and of further developing sign language. In accordance with his views of language and cognition, which were greatly influenced by Condillac and some Idéologues, Bébian's primary goal was to align (single) words to (single) signs (1825, 6) and to create a glossary or dictionary with a macro-structure dictated by the "ordre naturel" (see Bébian 1825, 7), so that pupils, especially when working independently, would be able to look up and retain "la valeur des mots", using familiar signs as their starting point. Bébian considered the "analytical" character of mimography to be beneficial to the stimulation of the intellectual development (see Bébian 1825, 25ff; for the importance of "analyse" see Fischer 1993a). The possibility of preserving the fugitive signs with this new writing system represented for him the prerequisite for the satisfactory intellectual development of deaf pupils, since without this "hold", they could never learn without remaining dependent on people who were able to read and write (see the poignant account in Bébian 1825, 36ff). A second goal corresponds to this one of improved or indeed good cognitive development, in Bébian's view: the goal to study the sign language of the deaf (see Bébian 1825, 4) and more importantly to standardize it, in order to finally secure a lasting place for it – and not only in the education of the deaf. Thus the writing system appears as the guarantor that a falsely disparaged or neglected language can fulfill its (cognitive) role for a language community with no impediment[5].

Why Bébian's mimography did not gain acceptance cannot be answered in detail at this time. Like others of his works, it was internation-

ally known. The "discours mimiques" which were held publicly on certain festive occasions by the "stars" of the Parisian deaf community of the 19th century were, as far as I know, all printed in French. Possible or actually cited reasons are motives and constellations that still today prevent any of the proposed sign writing systems, especially for everyday purposes, from being widely used. Generally it is claimed that writing sign language is too complicated. Out of this assertion came, in many cases, the declaration that writing down signs at all is impossible – for example by Reich more than a decade after the publication of Bébian's mimography (Reich 1834, vf). One of the main reasons for the lack of acceptance of mimography more than likely lies, however, in the linguistic and educational tendency present in Bébian's works, which was unacceptable to oralist tendencies (see also: Berthier 1839).

4.

Bébian's system is based on the principle of assuming two (respectively three) basic aspects (the means of executing the sign, movement, and the "points physionomiques") and then subdividing them further – similarly to the way today's parameters "hand configuration" and "movement" are further subdivided into various classes of forms (fist, ...) and aspects of movement (direction, ...). In the 20th century, this principle was probably used first by Stokoe, upon whose notation system most of the sign language transcription systems used today are based. In light of their similarities, perhaps we should look closer to a relationship between Bébian's mimography and the systems which are common today; there may be more to it than simply the fact that at least Stokoe knew about mimography (see Stokoe 1960, 15).

It seems to me worthwhile also to compare Bébian's system to other historical writing systems which propose other solutions. It is possible that the "Zeichensprache für die Gesticulation", developed by Austin in 1806 as a writing system for the "Kunst der rednerischen und theatralischen Declamation" (Austin 1818, 72; title), is the first writing system for gestures (including the position of the feet, voice modulation, etc.) that goes beyond simply noting single aspects.

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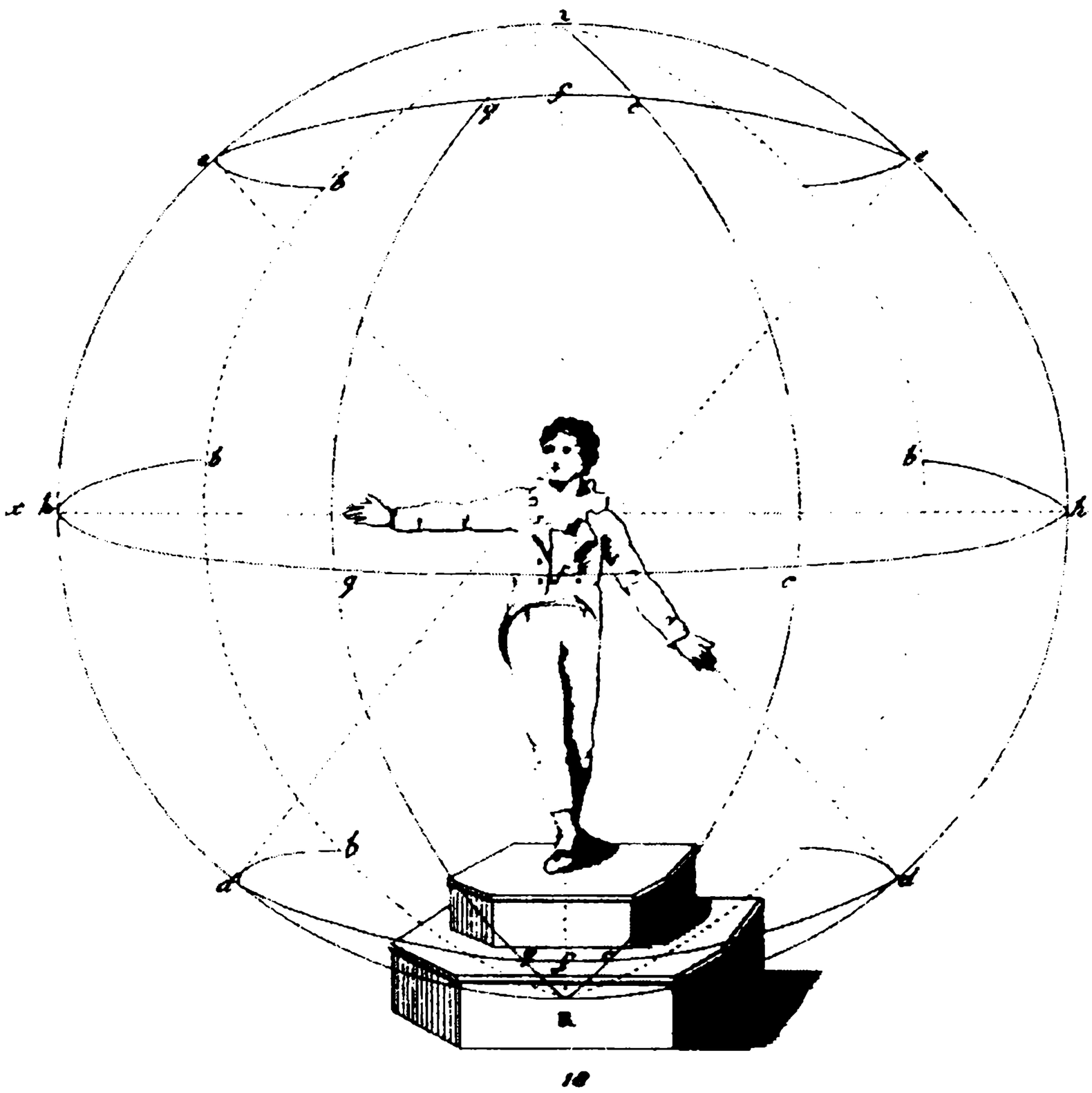
5. Serving such different purposes with one and the same notation system could possibly have proven to be fraught with conflict; modern notation systems (with variations), however, also claim to be multifunctional, see for example for SignFont (SignFont Preliminary Handbook 1987, also Hutchins et al. 1990).



Ill. 2 (from: Austin 1818)

Austin's set of characters is composed for the most part of (upper and lower case) letters of the Latin alphabet, which apparently (there are no precise specifications) represent the first letter or letters of the Latin word for the aspect under consideration. The same letter can stand for different words (F for "forehead" and also for "the foreward movement of the head", see Austin 1818, 111, 118) – the meaning is made clear by the syntagmatic order as well as by placing the notation with respect to the written version of the text to be "declaimed." Today there are also proposals for everyday writing systems or transcription systems for sign languages which use the Latin alphabet (as a rule, however, their use of letters is not motivated by spoken language expressions written in alphabetic form; see Companys/Séro-Guillaume 1984 or Papaspyrou 1990).

The historical relationship to theater, rhetoric, and dance can also

be documented today: One of the best developed and wide-spread systems that does not follow the "Stokoe line", Sign Writing by Valerie Sutton (see Sutton 1981, as well as the periodical The Sign Writer), is based on the Sutton Movement Writing & Shorthand, which, inspired by choreography, allows all types of movement to be written down. This Sign Writing is mainly intended as a (computer) writing system for everyday purposes , but can be adapted for others.

A research project which compared all known "old" and "new" gesture and sign language writing systems and which offered a basis for a synopsis of the different intentions and the means used would be desirable. An evaluative discussion of, for example, the efficiency of each system (in light of mnemotechnic, practicability, the role of writing with computers as opposed to by hand, and much more) could come out of this project. It could be directly applied, by an international team of sign language linguists, to the question of standardizing one transcription system as opposed to the common practice of using competing systems.

Another question worth of being studied is, in my opinion, to what extent sign language writing systems must or can differ from the notation of gestures. In the case of an orthographical sign language writing system, there naturally is a difference due to normalization. What is the case in other situations? As is known, there is discussion about whether modern sign language notation systems should be or are phonetically or phonologically oriented (Prillwitz et al. 1989 advocate a different view than Nève de Mévergnies 1990, for example). The new, as yet unpublished HamNoSys-Version 3.0, which strongly considers the parameter of movement, is planned to be equally suited for the writing of both sign languages and all gesticulation (of the hands), more so than is the phonetically oriented version 2.0. But whether it be in HamNoSys 2.0, in Bébian's or Austin's system, it seems to me that segmentation is the systematically critical aspect: does segmentation occur (are the characters combined into complexes and set apart from others), and if so, are these complexes related to aspects of meaning – can a graphic *signifiant* and a *signifié* be put in relation to each other. The "setting-apart" is achieved by two main means: 1) the fixed syntagmatical order of the individual characters, from which it can be determined, for example, that a "point physionomique" functions as a boundary marker; 2) the placing of spaces or other overtly dividing marks. In mimography, this means is the word-sign association (because of the express use of the characters for the purpose of compiling a glossary/dictionary): "Je suppose qu'à côté de chaque mot l'on puisse écrire le signe mimique correspondant" (Bébian 1825, 6). Spaces and commas are used in HamNoSys

2.0; the syncWriter programm allows a connection of lines of sign writing, spoken-language translation, and glosses.

It should be emphasized that these remarks apply to systematic aspects of a possible difference between (phonetically oriented) sign language writing and transcription of gestures; in a broader linguistic sense the already-mentioned question of standardization (orthography) and the existence of a semiotic relation[6]. And the differences are substantial, considering the possible repercussion of only sign language writing on the language system and its use, not to mention the sociolinguistic and sociocultural influence sign language writing could have on educational policy, furthermore on the deaf community and the development of a written tradition, of a standard (written) language, and of ideas about linguistic norms (I am not aware of any studies on the influence writing might have on sign languages; for spoken languages see Goody et al. (1986) or Mühlhäusler 1990).

In Fischer (1992) I attempted to trace the beginnings of sign language lexicography. The various proposals for writing down signs, which touched on central lexicographical questions (such as: can there be, in the traditional book format, a monolingual dictionary without the existence of a sign language writing system?) formed a central problem area. The topics of sign language lexicography and sign language writing are tied closely to one another, not only for Bébian, but also for Hutton (1869), for example, who developed a "mimography" independently of Bébian, as he claims. It would be interesting to examine the development of this constellation, as well as the various solutions to the problem, using sign collections from the 19th century up to the most recent sign language dictionaries.

Studying the historical dimension of sign language notation also implies looking at historical aspects of the discipline as a whole, and thus on the problematic category of progress. Schmitter (1982, 28ff) points out the central and yet undefined role of progress in the (historiography of) linguistics. Historiographical studies on sign language linguistics, even within the framework of the new discipline Deaf History, are still rare. For this reason sign language linguistics of today generally shows little familiarity with the relatively numerous relevant works of the 19th century, or treats them seldom as a topic for reflection. The "disappearance" of these

6. See however Austin's classification of gestures, which discerns between "einfache/zusammengesetzte bedeutsame Gesten, conventionelle Gesten" (Austin 1818, 168ff).

earlier linguistic studies on sign language is surely a result of the dominating oralism, and therefore a facet of the repression of the deaf communities and their sign languages. The study of earlier research of sign languages promises to expand the understanding of it and of that which we undertake today. Historiography as a metalevel of sign language linguistics has until now been a lacuna in the discipline – a void which I hope to have shown is not due to the lack or the fugitive character of historical sources.

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