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Journal general de l'instruction publique et des cours scientifiques et littéraires
8 no. 7 (23 janvier 1839): 45-47.

PUBLICATIONS.

Essai sur l'analyse physique des langues, ou Alphabet méthodique,

[Essay on the Physical Analysis of Languages, or Methodical Alphabet]

By Paul Ackermann;

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Is a universal alphabet possible?

If it is possible, is it practicable in the study and common usage of language?

Yes, a universal alphabet is possible, and I believe that possibility is demonstrated by the work that I am about to analyze.

No, that universal alphabet is not practicable and never will be, outside of some phonological comparisons and some literal connections. As the last proposition is a sort of negation of the preceding one, I must engage in some clarifications on the subject, before passing to the appreciation of the *Methodical Alphabet* proposed by M. Ackermann.

Doubtless it is materially simple to adopt a unique character for every letter whose sign varies and whose value remains the same in the languages: but it is not enough to carry out a transcription so desirable and outwardly so easy; we also need, before making use of it, to examine what its consequences would be, and see if it would not be subject to some drawback. Now, it appeared certain that the immediate effect of an operation of that sort would be to produce a universal upheaval in grammar, to throw the science of language and its monuments into an inextricable chaos, and to bring language back to the times of ancient Babel.

Let us suppose that the blowing consonant that makes itself heard in the first syllable of the word *charité*, and which is expressed in French by two letters, *ch*, should be represented by an invariable and constant character, serving from now on for all languages; the writing would be faithful to the pronunciation, but I say that it will lie to the mind. Whatever the sign adopted, whether we give preference to the French *ch*, to the German trigram *sch*, to the ancient *schin* of the Hebrews, or whether we create a new letter, it matters little; under the pretext of uniformity we would nonetheless confound things that are essentially different. The Hebrew *schin* belongs to the category of hissing and whistling consonants, and is frequently interchanged with *sùmech*,

thau, tsade; moreover, whenever it has had to switch to another language, it has never failed to become an ordinary *s*. Thus from *schesch*, is made *sex*; from *schebâ*, *septem*; from *schasaph*, by metathesis *sphazó* from *schophetim*, *suffète*, etc. On the contrary, the French *ch* is often only a deviation of *k* or *c*: *carus*, *cher*; *cattus*, *cat*; *cantus*, *chant*; *calamus*, *chaume*, etc. Is it not true that in all these words taken from Hebrew and French, the sound *ch* or *sch*, perfectly identical for pronunciation, is not the same for meaning?

I could make analogous remarks on our *f* and the Greek *phi*, whose sounds have been confused since ancient times, *phaô*, *fari*, but which are nonetheless very different in terms of their original value. The first comes from the aspirated *h*, with which it changes and merges, *huios*, *filius*, *hijo*; *hoïnos*, *Foïnos*, *vinum*; the second frequently loses its aspiration and becomes *p* again: *sophos*, *sapio*; *tropœum*, *trophée*; *triumpus*, and *triumphus*. I would say the same about *j* and *g*, in *régime*, *ange* et *Jérôme*, *jeter*, *déjà*.

But it is especially in the transcription of Semitic languages that the application of a universal alphabet appears in all its absurdity. In Hebrew, for example, *aleph* must be read alternately *a*, *e*, *i*, *o*; *waw*, is sometimes *ou*, sometimes *ô*, sometimes *u*, sometimes *v*; *ain*, losing its guttural pronunciation, is also equivalent to all the vowels; and it is the same for most of the consonants. In addition, there are rules of aspiration, reduplication, contraction, transmutation of letters, according to whether the gender, the number, the regime, the active or the passive, the people and the times, require it; for none of this is irregular or arbitrary. However, these innumerable modifications of the same letters cannot be indicated otherwise than by accessory orthographic signs, and in no way be written in the body of the words, under penalty of making the text unintelligible and indecipherable. For the structure of these idioms is such, and their alphabetical system, however imperfect it may be, is so well adapted to it, that the addition or removal of a single letter is often enough to deceive or confuse the reader.

Fortunately M. Ackermann did not waste his time pursuing a chimerical object; he does not present himself as having finally found this philosopher's stone, and we must congratulate him for it. Understanding the insufficiency of the work that had been done before him, and by the importance of a rational theory of spoken sounds, he in turn entered the arena, and after patient research, he came to the end of to lay down certain principles, which, if they were once admitted and sufficiently justified, would advance the science of phonics at a rapid pace. Here is the idea and plan of his work.

Distinguishing first in their elements the various species of sounds that enter into articulated language, and neglecting the individual tics of pronunciation as well as the cry and the song to focus only on the simple oral sound, M. Ackermann asks himself if from a thorough analysis of the play of the organs producing the voice we could not deduce a rational, methodical alphabet, suitable for noting the pronunciation of languages and for comparing all graphic systems with each other, an alphabet finally which would be for phonography what scale is for music. And immediately proceeding to verify his idea by an experiment applied to the French alphabet, he demonstrates that the thing is practicable and even easy. Let us follow him in his ingenious analyses.

The operation begins with the vowels.

On what principle, scientific or natural, is the order of classification of vowels adopted hitherto by all grammarians based? On none: these gentlemen do not even seem to have suspected that such an order must not have anything arbitrary about it, and even less that it could be determined by a principle. They counted the vowels, one after the other, as they came to mind, or rather as they found them arranged in the alphabet: *a, e, i, o, u*.

Mr. Ackermann having convinced himself, through a long-repeated exercise, that all the difference between the vowels came from the greater or lesser opening of the vocal tract during their emission, he said to himself: "Here is our principle of classification discovered; it is only a matter of finding the primordial vowel." Now, the author had made this important investigation, implicitly, since the comparison of the vowels that had revealed to him the law of their prolation, had also revealed to him the relative position: this is how a true idea is barely noticed when it becomes fruitful for a consistent mind. This then is the order of classification of the vowels, proceeding gradually and in stages from back to front, from strong to faint; an order not imagined nor artificially established, but based solely on the laws of the laryngeal mechanism; an order at once simple and marvelous, which we must without hesitation proclaim as the only true and natural one:

ou, a deep, thick, bellowing letter.

o, a more advanced letter, strong, resounding.

eu, a letter more advanced than the previous one, less strong, fluid.

a, a flourishing, dominant letter.

é, a letter thrown heavily forward.

è, a sharper, thinner letter.

i, a letter even more acute, sensitive to the ear more than any other.

u, a letter of the extremity, tenuous, dull, in a manner less dense and weaker than the *o* of which it is the octave.

These are the eight *full* vowels, which are in some way fundamental, forming a progression that derives from our very phonal organization.

Mr. Ackermann then notes, by reasoning and by examples taken from different languages, that between each of the full vowels we can insert an intermediate vowel, taking equally from the one that precedes it and the one that follows it, as in music we noticed that between most of the notes forming the scale there was a middling sound appreciable to the least trained ear. In this way, certain doubtful vowels, which at first glance seemed to be exceptions, enter into the general system, so that what seemed irreconcilable becomes a confirmation of the law.

But it is especially in the appraisal of the consonants that we will see the full scope of the new phonetic principle; and if I had to demonstrate by a preliminary or *a priori* reason, independent of any examination, the correctness of the alphabetical theory whose analysis I am trying to present, I would say: All false science cannot be one, identical, consistent; any true science is necessarily, in its most ulterior problems and in its most varied applications, the development of a fundamental axiom: now, this is the case of the work that we are examining.

Until now, the work of philologists on consonants has only led to the recognition of certain series or families, in which all the homophone consonants are grouped by themselves, and parallel to each other. These families received names that recall the organ on which they depend more specifically, *labial, dental, guttural, palatal*, etc.; and the different letters that compose them have been classified in turn according to their respective qualities of *soft, strong, aspirated*, etc. This will become clearer from the following table, which we borrow from Greek grammar:

	Soft.	Strong.	Aspirated.	Nasal.
Labials.	B	Π	Φ	M
Dentals.	A	T	Θ	N
Gutturals.	Γ	K	X	

We add two liquids, A, P, and a sibilant X. In this arrangement, the slightest inconvenience is to have left outside the families the three letters, *l, r, s*, with which we could not find any correlatives. In this regard, the Sanskrit alphabet itself, the most perfect of all those that exist, is not immune from the reproach of arbitrariness, and testifies to the embarrassment of its authors.

But the occult relationship, the secret link that must unite, in the same harmonic law, all these families together and these liquids *l, r*, which we place sometimes in one order, sometimes in another, and this sibilant *s*, isolated and without companions in the middle of the alphabet, the principle of existence, in short, common to all the consonants, what is it? Which grammarian has indicated it, or even suspected it?

The buccals (this is the name given to the consonants by M. Ackermann) have their point of production above the larynx, always advancing: this is why, before treating them, I spoke of the vowels,

K, c, or q is the first of the buccals; it resonates approximately at the starting point of the aspirated, and approximately at the height of the *a*;

Next come *r, l, t, ch, s, f, p*.

Here then is the problem solved for the consonants as it was for the vowels; and what guarantees the correctness of the two solutions is, as I have observed, that they are based on one and the same principle, deduced from one and the same phenomenon. "The principle of classification of these letters is the same as that of the vowels; their sound scale extends from the bottom of the organ to the orifice, from the birth of the tongue to the lips." Let us try, in order to convince ourselves of the reality of the fact and the rigorous accuracy of the observation, to repeat the consonants in the order established by M. Ackermann: *ka, ra, la, ta, cha, sa, fa, pa*. Starting from the back of the throat, the buccal series gradually advances outwards, and expires at the edge of the lips.

And as it was previously noted that between the fundamental vowels a series of oblique vowels can be interposed, M. Ackermann shows us that the same number of adjacent buccals can also be interposed in the series of primitive buccals.

But there are a large number of sounds that do not yet appear either in the order of vowels or in that of buccals, to which it is a question of assigning a place without ceasing to be faithful to the established rule: this is what M. Ackerman executes with rare precision.

Every letter is susceptible to a certain number of modifications, variations in the proper sound that constitutes it, which occur without the special arrangement of the organ, without destroying the letter, swelling it or attenuating it, making it soft or strong, dry or wet, clear or nasal. *Pa* and *ba* are absolutely the same articulation, but rougher in the first case, more softened in the second; *ma* only differs from it by the addition of a nasality. Likewise the syllables *on*, *an*, *un*, in *maçon*, *chanteur*, *chacun*, are nothing other than nasalized vowels. This variable state of the letter is what our grammarian calls *timbre*.

On this occasion, we have to address a serious reproach to M. Ackermann, one all the more well-founded as he could easily have avoided it: it is that he has, contrary to his own principles, without being forced to do so by the nature of the thing, without any advantage for scientific accuracy, devoted a special chapter to the *h*, the sign of aspiration, and have treated it separately, when he should have brought it into the category of modifying timbres, and in this way destroyed the synthetic unity that he had had so much difficulty in formulating. Aspiration is not a letter, any more than the nasal twang, any more than emphasis, any more than that which distinguishes *pa* from *ba*; all this is only modification and accessory. The Sanskrit grammarians are knowledgeable in this respect, when they teach that every aspirated letter must be pronounced as strong or tenuous, plus an aspiration. This reserve or this respect for the aspirate rightly surprises us in an analyst as severe as M. Ackermann. Moreover, our criticism becomes a kind of praise, since it tends directly to justify the author's method, which we can only correct through him.

Here is the synoptic table of vowels and consonants, arranged according to the natural principle of prolation. Intermediaries are represented by dots; the nasal timbre is represented in vowels by *n* attached to the letter; the timbres, which are rarely encountered in French, have been neglected.

		VOWELS.													
Full.	<i>ou</i>	•	<i>o</i>	•	<i>eu</i>	•	<i>a</i>	•	<i>é</i>	•	<i>è</i>	•	<i>i</i>	•	<i>u</i>
Nasal.	oun		on		eun		an		ên (ian)		en		in		un
		CONSONANTS OR BUCCALS.													
Strong.	k	•	r	•	l	•	t	•	ch	•	s	•	f	•	p
Soft.	g						d		j		z		v		b
Nasal.	ng						n								m
Wet.					ll		gn								

With regard to the timbres, it is true that it is good to note some particularities, which are a bit finicky but which nevertheless deserved the attention of the author. 1. In the vowels, the nasal timbre becomes one with the letter and sounds with it; on the contrary, the aspirated and wet timbres are felt before or after the letter: *ha* or *ah*, *ai* or *ia*. 2. In the buccals, the soft, emphatic and wet timbres sound with the letter; the nasal precedes it, the aspirated follows it. 3. We can distinguish in the buccals, as well as in the vowels, double sounds or diphthongs; the Greek *Z*, the

dj and *tch* in almost all oriental languages are examples. Certain alphabetic combinations, such as Ψ and Ξ , should not be confused with these diphthong consonants. These are not letters, but abbreviations.

Thus we no longer divide consonants into four, five or six separate families, intransitives, inharmonics; we only recognize a single range of consecutive buccals, adjoining and forming a chain, capable of taking on the most varied timbres, soft timbre, nasal timbre, aspirated, wet, emphatic, mixed; unity is acquired in the alphabet.

Now one will perhaps ask: Admitting the superiority of the new method as incontestable, what use can science derive from it? Why attach so much importance to the reform of the alphabet? The reflection was natural; It therefore remains for me to prove that in dealing with the natural scale of sounds, we were not engaging in scientific nonsense, and that our criticism and our praise were in no way exaggerated.

What has always embarrassed the philologists is not the permutation of letters of the same family, a permutation which is fairly self-explanatory; it is the passage of a radical letter from one order to another. We know why *GRAPHÔ* makes the future *grAPsô*, and the perfect passive *gegrAMMâi*; why, instead of *GRAPHÔ*, Latin says *scriBo* and *scriPtura*: it is because all these letters *b*, *p*, *m*, *ps*, *ph*, are only different modifications of the same sign. But how, from *faCiam* (*faXiam*), have we forged *que je fasse*? From *since*, *Quisque*, *CHaque*, from *prudenTia*, *prudenCe*, from *manDUcare*, *manGer*, from *haBere*, *aVoir*, from *juDex*, *juGe*, from *penDere*, *penCHer*, from *finGere*, *feinDre*, from *Camelus*, *CHameau*, from *somNium*, *sonGe*, etc., etc., where we see, pell-mell, guttural, dental, nasal, hissing and whistling replacing each other in turn? To what phonetic law can we refer these singular derivations?

This problem is the same as that of the organization of the families: to say how the different orders of letters depend on each other, and to show the thread that unites them, is to explain how a radical can traverse the chain. We know that the buccals, like the vowels, form from back to front; from then on, the question proposed is no longer one, the transmutation of letters has its source in the principle of prolation. Just as the sung sound rises and falls, so the spoken sound sometimes advances and sometimes retreats, and the accidents it experiences are nothing other than elevation or depression. This is precisely what constitutes the melody of a language, and it is also the reason why literate peoples avoid consonants in speech with as much care as cacophonies. Let us imagine music running on only four notes, and we will have an idea of what an idiom would be in which the same articulations continually recur. Of this type are Chinese and several American languages, deprived of several of our consonants.

The graduation at approximately equal intervals of the vocal instrument is the physical principle of the succession of the different orders of letters; the need for melody is the occasional cause of their permutations. Finally, what are the general and particular circumstances that cause and determine these permutations? They are numerous, and their study still forms the least advanced and most difficult part of linguistics: delicacy of the organs more or less lively, more or less practiced, development of taste, state of youth or decrepitude of the language, influences climate, etc. etc. M. Ackermann believes he is justified in positing as an aphorism that in general

“the majority of sounds advance, and “the small number recede;” we do not have to contradict him, but, instead of a dozen examples that he offers as samples, we would have liked to see him make a large-scale application to languages derived from Latin, Italian, Spanish and French. How much our curiosity would have been excited if he had allowed us to observe the slow and insensitive work of each nation on the common fund, if we had been able to compare its progress with that of its neighbors, evaluate the influences to which it was subject, research the physiological laws that governed it, and finally deduce, from all these grammatical data, a judgment on its genius and its character! This would have been a proper treatment of ethnography through languages; but to undertake this study with any chance of success, it was first necessary to discover the *rational and methodical alphabet*, without which conclusive and precise comparisons could not be made. Let us therefore hope that the young philologist whose patient sagacity was able to discover such a means of analysis will also be willing to teach us how to use it.

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Working translation by Shawn P. Wilbur

Last revised March 27, 2024.