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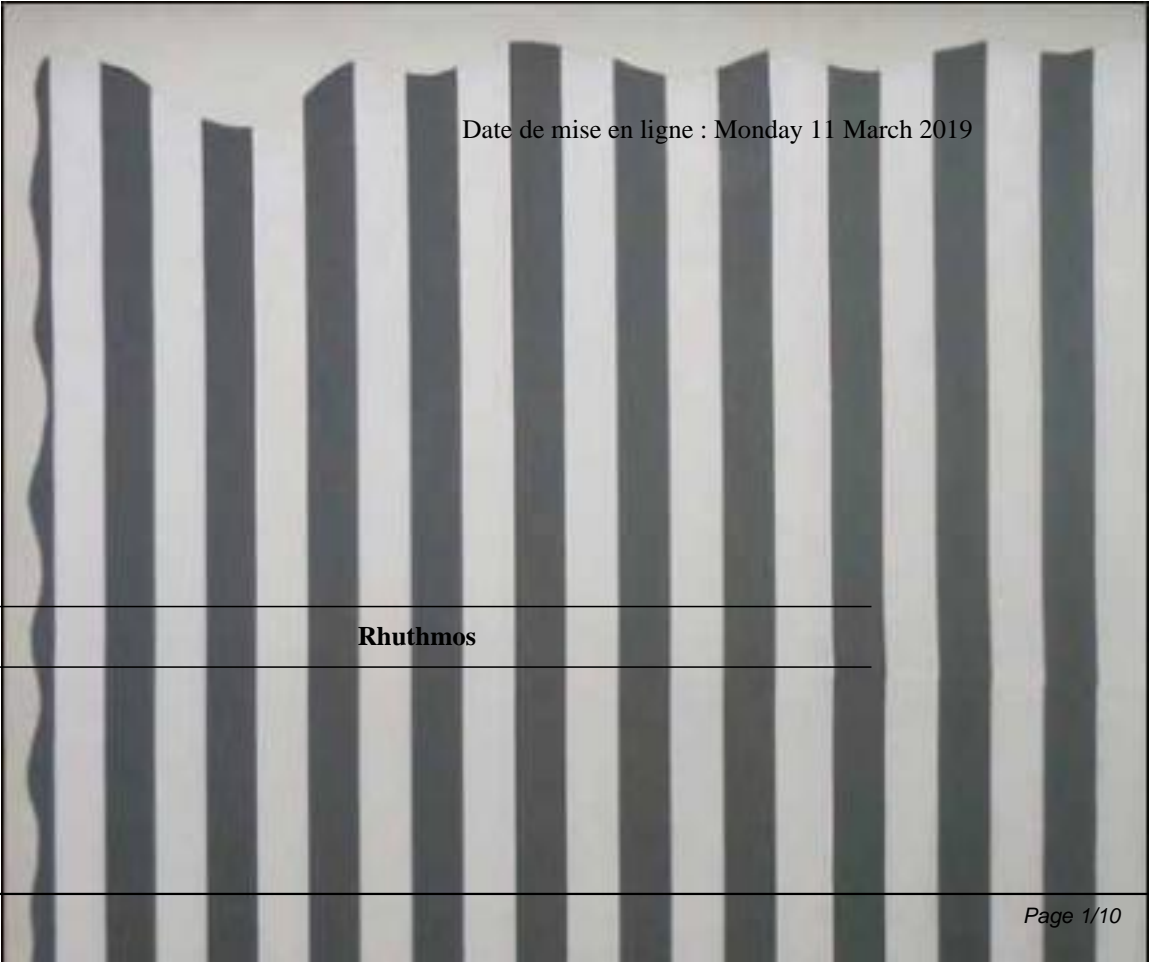
# Rhythm as Form of Working Process

- Recherches

- Le rythme dans les sciences et les arts contemporains

- Économie classique et marxiste

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**Rhuthmos**

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In 1896, Bücher published *Arbeit und Rhythmus - Labor and Rhythm*, a 130-page long essay. He expanded it in 1899 into a 411-page version which was reprinted four more times until 1924. The latter was translated into Russian in 1899 but not into English and French due most probably to the opposition of the Anglo-French school of economics which, as we shall see, rejected evolutionist and anthropological views and developed its own rhythm concept.

This time Bücher wanted to focus on the original relationship between labor and rhythm he had singled out in his previous study mainly acoustic rhythm, as a matter of fact, since painting or plastic rhythms were only marginally mentioned. Because of the bodily movements it involved and the sounds it produced, work induced rhythm and, conversely, thanks to its formal quality, rhythm helped to organize work.

Very few books had a similar impact on the spread of rhythm not only in social science, but also, as we shall see in another volume, in the arts. The book particularly fascinated a generation of gymnasts, dancers, and pedagogues.

## Work without Rhythm (Bücher - 1896)

Consistently with his evolutionist viewpoint, Bücher started again his essay by a description of "*Die Arbeitsweise der Naturvölker - The Way of Working in Primitive Peoples*" (chap. 1).

At first it was unclear if by "primitives" he meant the pre-economic near-animals he had imagined before or the humans in the first stage of the economic development. But, since he took exclusively his examples in ethnographic descriptions of existing peoples and not in the very few works on prehistory that started to be published in the 1900s, we must assume that "primitives" meant humans having already entered the economic life.

He first criticized the "*fable convenue*" that primitives hated labor the famous "*horror laboris*" and that they were used to push it onto the shoulders of women and slaves (p. 6-7). But he did not look at them in a very positive way either. Primitives did work indeed but they lacked something essential in the economic world: the self-discipline. They did not work "in a regulated way" [*nicht in regelmässiger Weise*] as modern men do. They labored, so to speak, "in a jumpy and moody way" [*sondern gewissermassen sprungweise und launenhaft*] (p. 7) and shied away from any "tense and regular labor [*die angespannte, regelmässige Arbeit*]" (p. 7).

This peculiar way to work could be partly attributed to inadequate technical means and complicated labor processes which made work extraordinarily toilsome (p. 10-13); partly to the conflation of "labor and play, useful activity and entertainment" (p. 8); partly to the fact that the primitive "does not know how to measure time correctly" (p. 8). As in his previous book, Bücher noticed that he used only present tense "the primitive eats as soon as he is hungry until

he has overfilled his stomachs, he sleeps as soon as he feels tired and sleepy, and he begins dancing as soon as he feels the urge to do so in his excited spirit" (p. 8).

But, maybe under the influence of the ethnographical field studies that were multiplying at the time, he tried to distance himself of his own simplistic evolutionism and to adopt a more sympathetic view toward the so-called "*Naturmensch* - primitives." His life is, he noticed, "by our standards, without plan and objectives; he knows nothing of actual care for life, of work- and meal-times, of regular alternation between activity and rest" (p. 8). Although he compared again the primitive to a "child" able to indulge in a game for hours (p. 15-16), he now remarked that "if such existence is not regulated, it is perfectly filled; the primitive would not trade it for anything else" (p. 8).

Bücher then described the amount of care and time the primitives devoted, by contrast, to producing ornaments (hair, body painting, tattooing) and jewels. In this case, labor was not equated with play but aimed at "artistic ornamentation" (p. 14). The latter was to the primitives what the work of the spirit is nowadays to "modern artists, poets, scholars": it brought fame and joy (p. 14-15). However, surprisingly, Bücher did not mention rhythm in this description.

As a matter of fact, although he did not consider the primitive man any longer as a near-animal, he aimed at catching him at the very moment of his entering into the first economic stage. The conclusion of the chapter thus contrasted the primitive and the civilized ways of working. The main difference was that the latter, thanks to an effort of the will and reflection, introduced regularity in it, that is rhythm, while the former, under direct pressure from his body muscles, kept it unregulated, that is still devoid of rhythm.

The main difference between the productive work of the civilized man and the activity of the primitive man is threefold. The former runs regularly and methodically, the latter irregularly and in snatches. The former, therefore, requires from the worker an effort of the will to overcome the aversion of his organism toward labor, the latter consists only in discharging the nervous power accumulated in his psychic centers. Thus, the execution of work by the civilized man always requires renewed reflection and renewed willpower, every single act must be deliberate; while dancing and the similar favorite pastimes of the savages are automatic. The dancer only needs an effort at the beginning of the dance to set his muscles in motion. (*Labor and Rhythm*, 1896, p. 16-17, my trans.)

Based on this dualistic anthropology, the question was therefore how rhythm, i.e. a beneficial metric regulation, had been introduced into work from this primitive stage, or how the effort of the will, the reflection, in brief the mind, had overcome the body and imposed its rule. It was exactly the way Plato envisaged rhythm. Bücher did not only borrow from the Platonic tradition the metric pattern of rhythm, he also shared its most ancient ethical concerns (see vol. 1, chap. 2).

## The Rhythmization of Work (Bücher - 1896)

The second chapter was entitled "*Rhythmische Gestaltung der Arbeit* - Rhythmic Configuration of Work." It aimed at showing how the rhythmization of work had progressively developed in domestic and town economies, until becoming something that modern Western man feels natural.

Bücher started this section by presenting a few scientific evidence borrowed from psychology he cited Wundt (p. 20,

n. 1) and physiology. The most recent science, he argued, has shown that our psychic effort is greater when we frequently change tools or methods. By contrast, it becomes much lighter when the movements, by means of their strict "regulation," become "automatic" and do not necessitate any longer the guidance of the "will."

This is possible when we accomplish automatic (purely mechanical) instead of will-guided movements. The former, however, occur only when we succeed in regulating the expenditure of labor in such a way that it remains steady and that the beginning and end of a movement always occur within the same spatial and temporal boundaries. (*Labor and Rhythm*, 1896, p. 20, my trans.)

Ease and pleasure in work are therefore reachable through "*Übung* - exercise or drill." In order to relieve the mind, it is necessary to subject movements to a repetitive rule that harmonizes "the moments of rest with those of activity."

The same movement of the same muscle, which takes place at the same intervals, produces what we call exercise [*Übung*]. The corporeal function, once put into action and working in definite temporal and dynamic proportions, continues mechanically, without requiring a new volition, until it is arrested, sometimes accelerated, or slowed down by the intervention of a new volitional decision. All exercise is adaptation; the muscle movements are subject to a rule; their strength does not vary [*wechselt nicht*] erratically; the moments of rest between the separate movements are harmonized with those of activity and their duration is determined as much as that of the movements themselves. (*Labor and Rhythm*, 1896, p. 20, my trans.)

In Bücher's mind, this rule was clearly meant as a metric rule on the model of Western classical music in the same way, as a matter of fact, we have many times documented in this book. The rhythmization of work was and had to be based, first, on the *division* of motion into the shortest possible sections; second, on the *alternation* of "two elements, a stronger and a weaker one" that provided "structure"; third, on the generation of a "rhythm" by means of the *repetition* of these elementary sections.

We have no immediate perception and no absolute measure of the duration of a movement, however we do know that the shorter the movement, the easier it will be to make it regular [*gleichmässig*]. The measuring [*die Messung*] is considerably facilitated by the fact that every work movement consists of at least two elements, a stronger and a weaker one: raising and lowering, pushing and pulling, stretching and contracting, and so on. As a result, [every movement] appears to be structured [*gegliedert*] so that the regular recurrence [*die regelmässige Wiederkehr*] of equally strong movements performed within the same time limits results in the emergence of a rhythm [*Rhythmus*]. (*Labor and Rhythm*, 1896, p. 20-21, my trans.)

As in his previous book, Bücher noticed that this tendency to form rhythm was facilitated in man's mind by the sounds produced by the various tools used in handicraft work. The rhythm was then principally composed of "blows" distributed in regular "measure" and "equal time intervals."

The blacksmith, the locksmith, the tinsmith, the boiler maker drop the hammer in regular measure [*in gleichem Takte*] on the metal; the carpenter makes blows with the planer, the saw, the rasp, the scraper follow at equal time intervals [*in gleichen Zeitabschnitten*], and who does not recognize the peculiar sound of the cobbler's hammer, the flax grinder, the weaver's shuttle, the carpenter's ax, the paving tamper, the mason's chisel! (*Labor and Rhythm*, 1896, p. 20-21, my trans.)

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Many movements resulted in simple rhythms composed of similar sounds, however, he noticed, they could sometimes be accompanied with much more complex "*Ton-Rhythmus* - tone-rhythm" forming some "kind of melody" when "the tones differ in strength, pitch, or duration."

The latter [the tone-rhythm] arises only when the tones differ in strength, pitch, or duration; then the work rhythm is accompanied by a corresponding tone-rhythm. Such rhythm comes with many kinds of work. When the maid scrub the floor, the alternate motion of her scrubbing brush causes tones of varying intensity. Likewise, the rise and fall of the scythe while mowing grass produces tones of varying degrees of intensity and duration. Similarly, the tossing back and forth of the shuttle, in which the different forces of the right and left hands or the intention of the worker produces different tones among which the treading of the heddle frame inserts its regular alternation [*in regelmässigen Wechseln*]. The cooper generates a kind of melody [*eine Art Melodie*] by forming the cask staves with hammer blows of varying intensity, and the butcher boy produces whole drum marches with his chopper. (*Labor and Rhythm*, 1896, p. 22, my trans.)

The rhythm clearly resulted from technical necessity but it also had, due to its "musical nature," an incentive effect on the workers whose productivity it patently increased.

Of course, the tone-rhythm in all these cases is not independent, but conditioned by the rhythm of the work. Nevertheless, there can be no doubt that the tone-rhythm also has some effect on the intensity of the work. It not only supports the regular timing of the movement, it exerts also an incentive effect through its inherent musical nature and subject the work itself to the control of all those who can hear its sound. Therefore, we may say that the tone-rhythm facilitates and boosts the work. (*Labor and Rhythm*, 1896, p. 22, my trans.)

Bücher then elaborated further the idea of "alternate work rhythm" already presented in his previous book. As the reader may recall, whereas "synchronized rhythm" referred to movements performed by several workers at the same time, as rowers propelling a boat by oars, or sailors heaving an anchor, the "alternate rhythm" resulted from movements of several workers staggered so that they form a regular series like in manual threshing or battering in of pavement stones.

He again insisted on the acceleration (p. 22, 23) and the regulation of the successive "moments of force discharge and rest" (p. 24). In a forge, for example, the intervention of a second or even a third worker acting slightly offbeat shortens the ups-and-downs of the hammers and their slightly different sounds produce a musical effect that helps the worker to coordinate their movements (p. 23). In addition, the rhythm had, he claimed, a "disciplinary" effect on the workers who strive to stay in time and, consequently, on their "productivity" (p. 24).

This mutual adaptation induces a regular rhythm [*einen gleichgemessenen rhythmus*] in the movements, and thus becomes a disciplining element of the utmost importance, especially for unqualified activities, as they prevail on primitive stages of the economy. The same is true of the training for the tactical movements of the army, where it always matters to drill a multitude of men into a perfect unity of power, and where any failure in the tempo [*des Tempo*] by an individual hinders the collective effect. (*Labor and Rhythm*, 1896, p. 24-25, my trans.)

Although his main reference was to music, Bücher ended this section by a few physiological clichés comparing, under the cloak of Aristotle mistakenly as matter of fact (see vol. 1, chap. 3 and 4), but on an obvious metric basis the acoustic "rhythms of work" with the "heart beat," the "movements of the legs and arms when walking," and even the muscular motion in the "breath."

We cannot here go deeper into the physiological side of our subject. But a thought, already pointed out by Aristotle, comes immediately to mind, even to the non-expert: the rhythm unfolds in accordance with our nature [*unserer Natur gemäss sei*]. The activity of the lungs and of the heart, the movement of the legs and arms when walking, are usually rhythmic or have a tendency to become so, and it is quite possible that the regulation of the respiration already involves a rhythmical sequencing of continued and similar muscular motions. (*Labor and Rhythm*, 1896, p. 25-26, my trans.)

After these psychological considerations, Bücher then switched to anthropological and ethnographical descriptions. Rhythm, he argued, was more common among primitives at least those having already reached the first economic stage than among civilized men for two reasons: first, due to the "greater inclination and ease with rhythmic body movement" of "the naked man" [sic]; second, because of the greater "number of tedious and repetitive tasks" to be performed due to the lack of technology.

Be that as it may, it is certain that the naked man has a greater inclination and ease with rhythmic body movement than the one wearing cloths, and that at lower stages of human development the number of tedious and repetitive tasks is far greater. Therefore, we have to assume *a priori* that the rhythm of work among the primitive peoples is more widespread than among the civilized peoples, even if we do not have numerous and reliable witnesses. (*Labor and Rhythm*, 1896, p. 26, my trans.)

To make his point, Bücher finally provided a great number of examples of rhythmic work taken from various peoples such as "Negroes," Arabs, Polynesians, Tongans, East-Africans, Malays, and even Germans (p. 26-29).

## The Rhythmization of Work Songs (Bücher - 1899)

The chapter 3 was devoted to "work songs." According to Bücher, there was originally no rhythm "neither in music nor in language." Rhythm resulted only and directly from "the movement of the body"; it was fully corporeal, that is based on human physiological and psychological substratum. That was, he argued, the reason why each particular activity needed a particular song and also why in some primitive peoples, each individual owned his own rhythms, his own songs, and his own dances.

The rhythmic element is inherent, originally, neither in music nor in language; it comes from outside and derives from the movement of the body, which the song is intended to accompany, and without which it does not occur at all. Therefore every work, every play, every dance has its own song, which is sung on no other occasion, and since the proportions of the body-movement are different in different individuals, then in some primitive peoples everyone owns his own song, whose possession he jealously watches over. (*Labor and Rhythm*, 1899, p. 44, my trans.)

True to its evolutionist method, Bücher then imagined the simplest and supposedly most original forms of song. First, when the work did not produce by itself any "*Taktschal* - rhythmic sound" (p. 41), simple cries were used, he claimed, to rhythmize work like "the *hopp* and *hopla* in load lifting, the *hohoi* of the sailors when hoisting the anchor, the counting: *one, two, three!*" (p. 41). Soon, instruments were introduced to "substitute the human voice" like the rowers following "*dem Schlage des Tamtam* - the beat of the tam-tam" in Malay countries, or "*dem Takt der Flöte* - the timing of the flute" in Ancient Greece (p. 41). The most common and most effective musical instrument for this purpose was "undoubtedly the drum that is found in primitive peoples everywhere and in the richest variety of forms" especially in Africa (p. 31). Lastly, full rhythmic songs were composed and commonly sung during work in primitive but also in civilized peoples. Rhythm thus became a universal feature of mankind.

These observations extend over such a large number of peoples and cultural levels that we may say that they apply to the whole of humanity [...]. Of many peoples, such as the Negroes and the Malays, it can be said that every bodily activity is accompanied by song, and even in civilized societies [*Kulturnationen*] we still find many remnants of this habit. (*Labor and Rhythm*, 1899, p. 43, my trans.)

In his review of *Arbeit und Rhythmus* published in 1901, the French linguist Antoine Meillet (1866-1936) strongly objected to the fundamental assumption which backed this evolutionist reconstruction. As far we go back into the past in the oldest "Indo-European languages," he noticed, we find word accents. Since "the word naturally tends to present a certain rhythm," it is clear enough that "poetic and musical rhythm is already in germ in the language," i.e. that if the body is certainly involved in the process, rhythm does certainly not *directly* derived from it. Language and body, body and language should not be opposed.

The author exaggerates the absence of rhythm in language; it is quite true that in no language sentences are subject to rhythm: rhythm appears only in *literature*, poetry or scholarly prose, but the same is not true of the essential unit of language, of the *word*: the word is very often subject to determined conditions of rhythm, and, for example, in the old Indo-European languages, which had a quantitative rhythm (and not an intensity rhythm like the modern languages of Europe), certain successions were avoided. Mr F. de Saussure noted that the Greek avoided, at an earlier date, the forms composed of a succession of three consecutive briefs, and it has since been recognized that Vedic Sanskrit presents the same peculiarity; near two shorts, these languages need a long syllable serving as a rhythmic peak. In languages that have an accent of intensity, the long words have one or more secondary accents. The word, which is the fixed and constant element of language, therefore has a rhythm, just like work. Sentences of ordinary language, destined to satisfy a transitory need, have no rhythm, but poetic and musical rhythm is already in germ in the language, by the mere fact that the word naturally tends to present a certain rhythm. (A. Meillet, juillet 1901, *Revue d'histoire et de critique musicale*, n° 7, p. 294, my trans.)

Meillet's arguments are still extremely valuable to us since they point to the weakest part of Bücher's conception of rhythm. As most of his contemporaries except in very few exceptions like Meumann Bücher based his views exclusively on music and life science, and lacked sufficient knowledge about linguistics and poetics. In Germany, the Romantic contribution to rhythmology (see vol. 2, chap. 4), which had culminated with Goethe (died in 1832) and Humboldt (died in 1835), had been completely marginalized at the end of the 19th century. This obliteration is one of the factors that explain the domination of the Platonic metric paradigm to the expense of the alternative views that had yet developed among artists in the second half of the 19th century (see vol. 2, chap. 8).



Despite his evolutionist prejudice and his ignorance of the latest developments in linguistics and poetics, Bücher was yet very careful in collecting the maximum number of musicological and ethnographic data. This must be emphasized if we are to understand his extraordinary success among musicians, artists, and even some poets, at the beginning of the 20th century. Most of the content of the second chapter concerned work songs collected in various societies around the globe or in Western ancient history, and the body movements they were associated with. And, as a matter of fact, this is the part of the book that underwent the largest changes in the second edition, being expanded from 43 to 257 pages.

It is not necessary here to go into detail, though. Most of the time, Bücher contrasted the poorness of the melodies and the steadfastness of the rhythms. In the Baedeker's guidebook for Egypt, he found this description.

These songs [at work or in daily life] are definitely lacking melody: they all are sung through the nose, according to a certain rhythm, [...] in such a way that after six to eight notes the singer arbitrarily changes it [the melody], just depending on his mood. The character of the resulting melody is very monotone and without euphony for a European ear. (Baedeker, Egypt, probably 1885, quoted in *Labor and Rhythm*, 1899, p. 46, my trans.)

He also insisted on the primacy of the body movement over the song rhythm. It was wrong to think, as Guillaume Villoteau (1759-1839), that the Egyptian water workers "performed, while drawing water, 'according to the beat [*nach dem Takte*] of their songs.' Rather, as the notes show, the time of the songs [*in ihrem Zeitmass*] is adapted to the movements of the workers" (p. 36). Similarly, an Ancient Greek mill song from Lesbos did not respect the metric rules "probably because it followed the movement of the millstone" (p. 38). This point was so important to him that he added in the 1899 edition a paragraph in which he extended his idea not only to music but also to speech.

These examples, and the many others alike, clearly show that in these primitive peoples singing requires a metric regulator [*eines metrischen Regulators*]. Such [regulator], however, is obviously not to be found in the sounds emanating from the drum, the pukuta, or the hand clapping, the feet stomping, but in the rhythmic movement of the body which produces those sounds. The rhythm of movement is thus the cause of the rhythmic course of the speech sounds, and we may provisionally assume that the latter is not possible without the former. (*Labor and Rhythm*, 1899, p. 55, my trans.)

He then listed and classified the songs related with the various kinds of work involving bodily rhythms, be they performed alone or in a group: grinding wheat; preparing, spinning, and weaving wool or flax; lace-making; braiding; blacksmithing; field farming; winegrowing; winemaking; hunting (1896, p. 37-54). The next two sections were devoted to differentiate, just as in his previous book, the "alternate" (1896, p. 54-60) from the "synchronized work rhythms" (1896, p. 60-73). Noticeably, he kept the same classification in the 1899 expanded edition in which it was exposed at length in new chapter 4, considerably enlarged (1899, p. 60-194).

In 1899, Bücher introduced, at this point, a lot of new materials in a new chapter numbered 5 entitled "*Die Anwendung des Arbeitsgesanges zum Zusammenhalten grösserer Menschenmassen* - The Use of the Work Song to Hold Together Larger Human Crowds." This new chapter aimed at accounting for songs used in occasions of gatherings larger than a mere team of workers on a field or in a forge. Bücher first listed and differentiated in his introduction marching-, war-, hunting-, caravan-, procession-, hiking- and neighborly help songs, then provided ethnographical material gathered from Africa, China and East-Asia, Georgia, South Slav countries, Russia, Estonia

and Latvia, and German speaking countries. In all those cases, rhythm was used to coordinate the actions of a large crowd.

Wherever a very large number of people gather together to do the same thing, the need for an orderly and regular [*geordnetem, gleichmässigen*] procedure becomes obvious, even if every individual is capable of achieving the goal which he has set for himself. The song proves to be an ordering power as well as a means of encouragement and refreshment. This is why, in an almost instinctive expression, it breaks forth, and the mass complies willingly to its rule. Everyone strives to move according to its beat [*nach seinem Takte*], and the unordered crowd thus becomes by itself a unitary body. (*Labor and Rhythm*, 1899, p. 195, my trans.)

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The first three chapters of the 1896 version of *Arbeit und Rhythmus* already paved the way for a grand evolutionist view that correlated the development of work and that of rhythm. Both found their physiological origin in the human body and both had begun, at a certain stage, to interact through the work song and the corresponding bodily movements. The next chapter was intended to develop the consequence of these premises: if work song and bodily movements constituted the very first bridge between rhythm and work, they had logically to be considered as the most original form of dance, music and poetry. However, since Bücher brought considerable improvement to his book, I will, from this section on, use the 1899 version which introduced new chapters in between (I used the Bibliothèque Nationale de France's version because some pages are missing in the one provided by archive.org).

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