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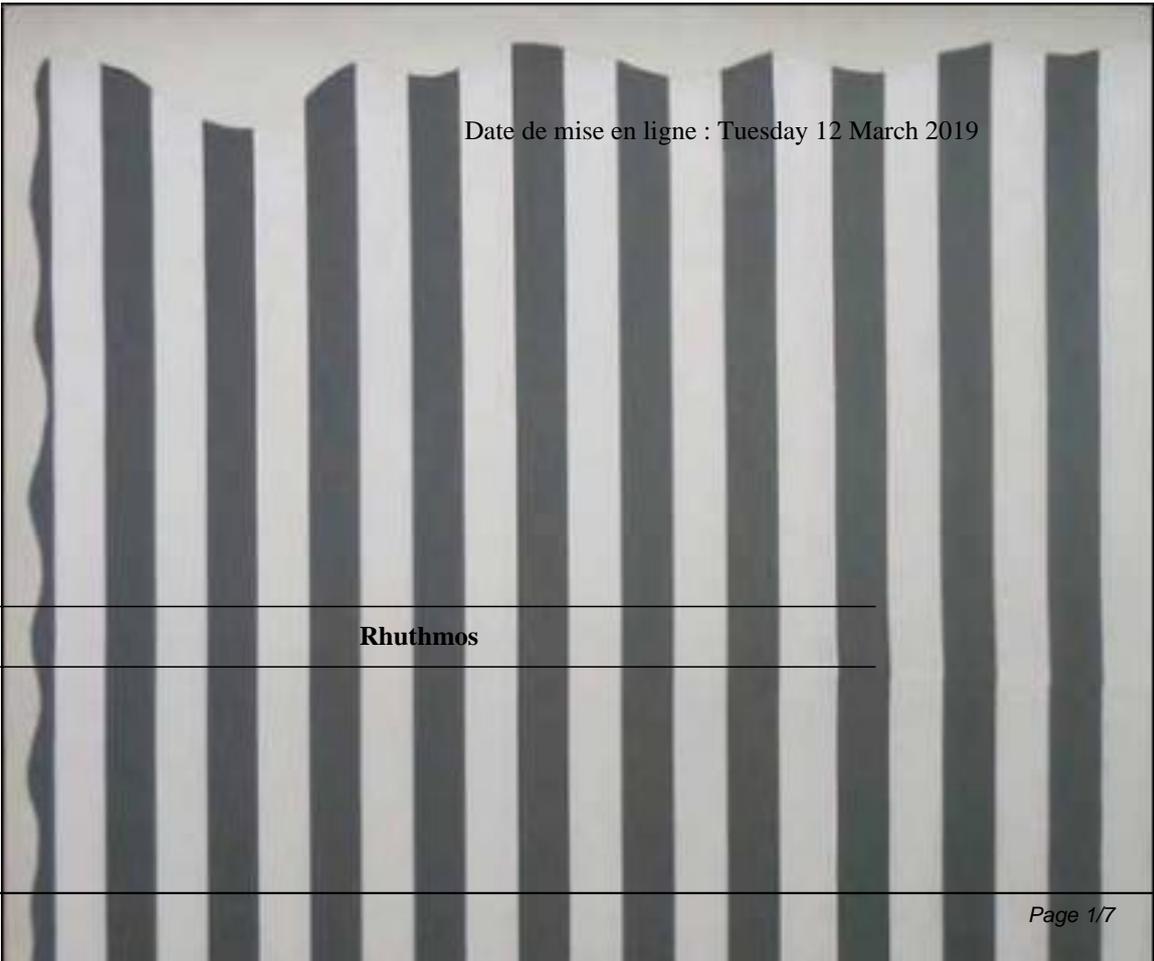
Rhythm as Key Principle of Human Evolution (part 2)

- Recherches

- Le rythme dans les sciences et les arts contemporains

- Économie classique et marxiste

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The Economic Man and the Rise of Rhythm (Bücher - 1893)

Bücher saw rhythm slowly emerge at the end of the pre-economic period with the first forms of "industrial activity," that is the progression of his argument is striking in "painting of the body, tattooing, piercing," plastic expression as "ornaments, masks, drawing on bark, petrograms, and similar play-products," then in "the construction of objects of daily use," and lastly, "in the dances of the primitive people." In other words, the production of bodily ornaments, religious expressions, objects of daily use, and even dances shared the same novel and regular form of process. All of them, by contrast with the loose and chaotic activity of the natural man, were organized in time by "rhythms" i.e. ordered on the Platonic metric model.

Industrial activity seems everywhere to start with the painting of the body, tattooing, piercing or otherwise disfiguring separate parts of the body, and gradually to advance to the production of ornaments, masks, drawing on bark, petrograms, and similar play-products. [...] Even when the advance is made to the construction of objects of daily use (pots, stools, etc.), the animal figure is retained with remarkable regularity; and lastly, in the dances of primitive peoples, the imitation of the motions and the cries of animals plays the principal part. All regularly sustained activity finally takes on a rhythmic form and becomes fused with music and song in an indivisible whole. (*The Rise of National Economy*, 1900, p. 27-28, trans. S. Morley Wickett)

A second powerful trend resulting from the growth of the population combined with this aesthetic and religious factors. With the development of agriculture (p. 45 sq.), and even in hunter-gatherer groups (p. 49 sq.), the latter necessitated to provide more food. Consequently those groups were forced to develop "a certain organization of work" based on "the principle of labor in common." Rhythm this time exclusively under its acoustic form imposed itself as a means to organize in time the productive activity of a group and became, by the same token, one of the origins of "primitive political communities."

The essential thing for us to note is that the part of the duties pertaining to the providing of food necessitates a certain organization of work conformable to the principle of labor in common a circumstance that has certainly been of the greatest importance for the birth of primitive political communities. (*The Rise of National Economy*, 1900, p. 49, trans. S. Morley Wickett)

At this point, Bücher introduced the concept of "*Bittarbeit* - neighborly help," which we better not translate as

"boon-work" as it is sometimes done, since, according to *The Oxford Reference Dictionary*, this medieval term referred to the "a manorial duty to do such seasonal work as ploughing and harvesting" which was meant originally as a "favour" but soon "became compulsory." This subject was to become a few years later an important argument in the discussion about the gift as an essential means of weaving strong community ties opposed to the weak ties generated by the market. But in 1893, he overlooked that aspect and just mentioned the neighborly help as an opportunity to perform productive tasks rhythmically.

For undertakings that surpass the strength of the single household, assistance must therefore be obtained: either the help of the neighbors is solicited or all such labors are performed at one time by the whole village community. The latter is the rule in Africa, for instance, with the breaking of stretches of forest land for cultivation, the laying of barricades and pits for trapping wild animals, and elephant hunting; in Polynesia, with the weaving of large fishing nets, the building of large houses, the baking of breadfruit in a common oven, and the like. (*The Rise of National Economy*, 1900, p. 55, trans. S. Morley Wickett)

After an intermediary period loosely described by Bücher, man finally parted from nature and entered into the first stage of the economic era dominated by the closed household, the *oikos* (p. 89 sq.). Some goods were now produced but only to meet domestic needs. They moved from producer to consumer without any intervening exchange and were consumed where they were produced. However, since the main means of production was now the land while the technology remained primitive, a lot of work had to be accomplished in common: "Labor in common still plays, therefore, at this stage, a more important role than division of labor" (p. 92). To tell the truth, Bücher did not specifically mention rhythm in this section nor in the next two but we may introduce it based on the chapter 7 of the book which, as we will see, was designed as a kind of key stone of the construction. The domestic economy allowed rhythm to develop plainly. Although there had been scattered rhythmic forms before, rhythm now really became a central aspect of human life.

During the Middle Ages a town economy developed based on a custom production of goods (p. 114 sq.). Craftsmen worked for the consumer either directly or indirectly by way of the local market. Although there was already long-distance trade, the largest quantity of goods went through limited exchange. Rhythm was still naturally present in agricultural labor accomplished in common but it now spread in the labor of town craftsmen as smiths, spinners, or weavers.

Modern Times finally witnessed the emergence of *die Volkswirtschaft - the national economy*, which was based on wholesale production and extensive exchange on national market (p. 134 sq.). In this modern economy, the goods must ordinarily pass through many hands before they reach the consumer. This last stage resulted from the modern centralized state rescinding the privileges of medieval towns, as well as those of local territorial rulers, thus clearing the way for an unlimited exchange economy on a national scale. Due to the development of both the mechanization and the division of labor, old forms of manual agriculture and handicrafts began to decline (p. 185 sq.). As a result, there was a rapid recess of the rhythms specific to their forms of labor and their replacement with new mechanized rhythms with their exhausting effects on workers.

Rhythm and Labor in Common (Bücher - 1893)

In the chapter 7 entitled "Union of Labor and Labor in Common," Bücher elaborated further the role of rhythm in the domestic and town economy stages by classifying the various kinds of collective labor. He differentiated between " *simple aggregation of labor*" in which the individual workmen remain independent and join "only for the more speedy

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disposition of the task" such as "several masons working on a new structure, a number of pavers on a road, a group of diggers or snow-shovellers, a row of mowers or turnip-hoers" (p. 273); the "intermediate form" of aggregation with workmen acting separately but continuously as in "a band of African carriers marching one after the other in single file, by beaters at a hunt, by several ploughers in a field" (p. 273); and the last form of aggregation with workmen following the same rhythm and acting "either simultaneously or with regular alternations" to achieve one same task together. In this case, the rhythm allowed the "concatenation of labor" and transformed independent workmen into "an automatically working organism."

In the [last] case the activities of the different workmen do not proceed independently of one another, but either simultaneously or with regular alternations [*abwechselnd in gleichen Zeitabstände*], that is, they always proceed rhythmically [*in taktmäßiger Weise*]. We will name this kind of labor agglomeration *concatenation of labor*, because it, so to speak, links each one taking part in the work to his neighbor through the succession of his movements, and combining all by means of the [rhythm] [*vermittelst des Taktes*] into unity of system [*zu einer gegliederten Einheit*], makes it, as it were, an automatically working organism [*Arbeitskörper*]. All tasks falling under this head must, if continued for some time, adopt a rhythmical course. (*The Rise of National Economy*, 1900, p. 273, trans. S. Morley Wickett, my mod.)

Bücher detailed this last form of collaborative labor. It could be organized in two ways: "with synchronized or alternate rhythm [*Takt*]" for which respectively he gave many examples.

The tasks of this class, which are performed rhythmically [*rhythmisch*], can be sub-divided according as the powers of the individual workers are exerted simultaneously or alternately into *labors with synchronized [rhythm]* [*Gleichtakt-Arbeiten*] and *labors with alternate [rhythm]* [*Wechseltakt-Arbeiten*].

Labors with synchronized [rhythm] [*Gleichtakt-Arbeiten*] are performed, for instance, by the two lines of rowers in propelling a boat by oars, by sailors in heaving an anchor, in hoisting sail, in towing a boat against the stream, by carpenters, who, in laying a foundation with a pile-driver, drive great posts into the earth, by those drawing up barrels, and generally by all groups of workmen who have to move a weight by pulling together on a rope, by the two, four, six, or eight people carrying a hand-barrow or a sedan-chair, and by soldiers on the march. Very frequently the keeping of time [*das Takthalten*] during the work is assisted by simple counting, by a chorus among the workers, or by the sound of a musical instrument, especially of the drum.

Examples of workmen laboring with *alternate [rhythm]* [*Wechseltakt-Arbeiten*] are: three stone-setters hammering in time the pavement stones with their paving-beetles; three or four threshers on the barn floor, two smiths hammering, two woodmen in the saw-pit or chopping a tree, two maids blueing linen or beating carpets. (*The Rise of National Economy*, 1900, p. 274, trans. S. Morley Wickett, my mod.)

The following description of the different effects of these two kinds of labor rhythm is striking if we think of the new concern for measuring and timing the movements of the workers that was spreading among industrial engineers and

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managers in the 1890s and that was to emerge into the sunlight with Frederick Taylor's (1856-1915) *The Principles of Scientific Management* (1911). The "synchronized rhythm" helped to accomplish "a task far surpassing the strength of one person, with the smallest number of laborers possible."

In tasks to be performed with synchronized [rhythm] [*im Gleichtakt*] the problem is to accomplish by combination a task far surpassing the strength of one person, with the smallest number of laborers possible, so that all taking part in the work shall be led to apply the utmost amount of energy at the same moment. (*The Rise of National Economy*, 1900, p. 274-275, trans. S. Morley Wickett, my mod.)

By contrast, the "alternate rhythm" allowed to perform task that could be achieved "by a single individual" but that are extremely strenuous. With the addition of a second or a third workman, "the motions will regulate themselves by the rhythmic sound that the instruments give forth in striking the material worked upon."

In tasks with alternate [rhythm] [*im Wechseltakt*] we meet as a rule with labors that in themselves could be performed by a single individual. Generally they are fatiguing tasks in which the various motions, such as raising and lowering the arms in striking with the threshing-flail, require more or less time. The individual worker here is always tempted to allow himself a brief pause for rest after each stroke or thrust, and thus loses the rhythm of the movements [*das Gleichmaß der Bewegungen*]. The strokes or blows then succeed one another with unequal force and at irregular intervals, whereby the work is much more tiring in its results. If now a second or third workman be added, the motions of each individual will regulate themselves by the rhythmic sound [*nach dem Taktschall*] that the instruments give forth in striking the material worked upon. (*The Rise of National Economy*, 1900, p. 275, trans. S. Morley Wickett, my mod.)

"Inasmuch as [this kind of labor concatenation] regulates equably for each the expenditure of force and the pauses for rest," the result was a "faster rhythm," less "fatigue," and even sometimes "rivalry." Since work was now regulated by the rhythm here clearly defined by Bücher as *Takt* - regular beat the productivity of the workmen increased, and the production was "heightened."

A [faster rhythm] [*ein kürzerer Takt*] is realized, which can be maintained with little difficulty. Each workman remains indeed independent, but he must adapt his movements to those of his comrades. The import of the matter is thus not that the magnitude of the task demands a doubling or tripling of forces, but that a single person working alone cannot maintain a definite rhythmical motion. To be sure, the sole consequence of calling in a second or third workman one would imagine to be the doubling or tripling of the effect of one workman's expenditure, yet this kind of labor concatenation results in a heightened production, inasmuch as it regulates equably for each the expenditure of force and the pauses for rest. The single workman lets his hands fall when he grows tired, or at least lengthens the tempo [*das Tempo*] of his movements. [Fast rhythm] [*der kurze Takt*] in work enlivens; the men working in common are stimulated to rivalry; none will fall behind the other in strength and endurance. (*The Rise of National Economy*, 1900, p. 275, trans. S. Morley Wickett)

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Bücher perfectly understood the "disciplinary" role that could be assigned to rhythm "especially for unskilled work." But he restricted the problem to "primitive stages of economic and technical development" or in the "slave labor" that had been abolished during the 19th century.

This mutual accommodation of workmen to each other, which is peculiar to all kinds of labor concatenation, thus becomes a disciplinary element of the greatest importance, especially for unskilled work, such as preponderated at primitive stages of economic and technical development. It can, indeed, be instituted also as a means of discipline to accelerate the work in those cases of labor aggregation that in themselves do not require such a linking of movements. For these there are artificial means of marking the tempo (counting, singing, accompaniment of music), by means of which simple labor aggregation is changed into labor concatenation. This is the case with slave labor, which, for obvious reasons, must always be carried on by gangs, and with the public labors of primitive people. (*The Rise of National Economy*, 1900, p. 276, trans. S. Morley Wickett)

In modern societies, according to him, this disciplinary aspect had disappeared except in the drill of military forces. Bücher had no idea, even in 1900, of the coming forced "concatenation of labor" on the assembly line, the first of which was put to work the very next year in the Olds Motor Vehicle Company factory.

In our [civilized] States [*In unseren Kulturstaaten*] we meet with this species of labor concatenation brought about by artificial means only in the measured cadence [*bei den taktischen Bewegungen*] of military forces, where the aim is always to train a number of men to complete unanimity in their exercise of strength, and where the breaking of the tempo [*jedes Verfehlen des Tempos*] by a single person detracts from the general effect. (*The Rise of National Economy*, 1900, p. 277, trans. S. Morley Wickett, my mod.)

Nostalgic of an ancient world, almost gone at the end of the 19th century due to booming industrialization and urbanization, Bücher concentrated on the virtue of the labor in common and of the rhythm that supported it. They had developed in periods with "little or no capital" and made a virtue out of necessity. They also had trained man "to methodical division and economy of time, to self-subordination to a general aim, and to regular and intensive labor." During this long period, rhythm had been internalized by the workforce which had been rendered more productive. This was, according to him, the "great evolutionary and historical importance" of this kind of labor.

In conclusion, it is again to be emphasized that the whole sphere of labor in common belongs, like that of union of labor, preeminently to the departments and the epochs of labor possessing little or no capital. They are the resource of the economically frail. As such, however, their great evolutionary and historical importance lies in their training of man to methodical division and economy of time, to self-subordination to a general aim, and to regular and intensive labor. These supplement each other in that the inherent weakness of union of labor, pervading the life of each man in primitive times, everywhere finds its counterpart in the temporary communities of labor that arise wherever the variously employed skill of the individual is inadequate to a given task. (*The Rise of National Economy*, 1900, p. 280, trans. S. Morley Wickett)

Bücher did not conceal that rhythmic work in common had sometimes been used to organize forced labor by slaves

or serfs. He also noticed that it "contributed little to the creation of permanent organizations." But he immediately balanced this limitations with a moving tribute to the great constructions of Antiquity which were the illuminating symbols of "what human beings are capable of performing [...] when united by one mighty mind in community of work."

Resting originally on custom alone, they lead in course of time to relationships capable of legal compulsion, such as slavery and serfdom. The principles of union of labor and labor in common have in other respects contributed little to the creation of permanent organizations, but they have left permanent works. The pyramids and stone monuments of Egypt, the ruins of the giant cities of Mesopotamia, the structures of the peoples of early American civilization must be observed if we would know what human beings are capable of performing, even without the knowledge of iron, without draught animals, and without such simple mechanical expedients as lever, screw, or pulley, when united by one mighty mind in community of work. (*The Rise of National Economy*, 1900, p. 280-281, trans. S. Morley Wickett)

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Thanks to Bücher's contribution, rhythm penetrated into social science at the very beginning of the 1890s. His specialty was economics but in Germany, due to a strong reaction against the Anglo-French school, the latter involved many other sciences such as physiology and psychology, but also history, ethnography and anthropology. As we will see in the next chapter, it could even legitimately indulge in art theory a move that would have been absolutely impossible in France as well as in England.

Bücher's use of the concept of rhythm was thus twofold. On the one hand, he considered it as a key principle of mankind evolution, a principle that should be therefore traced in human history from the most ancient times as well as in the so-called "primitive cultures" still existing at the time. This emphasis on empirical observation was a foundational opening that boosted its spread into social science and, as we will see, much beyond into educational and artistic practices.

But on the other hand, Bücher stuck to a concept of rhythm borrowed from the most traditional music theorists and specialists of poetic metrics. He completely ignored the latest contributions in musicology, even that of his would-be colleague at Leipzig Hugo Riemann, as well as the already older reflections by poets and artists which had developed during the second half of the century (see vol. 2, chap. 8). His perspective remained hopelessly within the Platonic metric frame.

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