The impact of revolutions on inequalities.

Reflecting the French Revolution – a political revolution –, the expression "Industrial Revolution" was adopted for the situation in England.¹ Today, historians cast serious doubts on the existence of such a thing. This did not prevent us talking about a second industrial revolution (1873-1914), a third (1970-1990), and even a fourth. And the term "revolution" has been applied to all fields: science, technology, industrial organisation, institutions, the social sphere, and morals. It is taken to mean a radical change; a series of innovations that change the world; a major transformation with a systemic effect. So a revolution is a change of paradigm. This does not mean that the phenomenon is violent, or that there is a sudden break. The change can take place over many years. Above all, it may involve a threshold effect, a "percolation" phenomenon after steady development. However, the idea of revolution embodies a "saltationist", not an "incrementalist" concept of history.² The old saying "natura non facit saltus" – the one promoted by the marginalists, the reformists, the liberals and Karl Popper – no longer holds good. On the other hand, the idea of change through mutation or revolution can be found in Marx and Schumpeter, with Thomas Kuhn (The Structure of Scientific Revolutions, 1962) and with Georges Duby (the concept of "feudal revolution"3).

Naturally, there is no reason to assert that revolutions and paradigmatic mutations automatically influence the development of inequalities. In fact, major technological innovations, and institutional, societal, cultural transformations change the social diagram, create new zones of conflict and introduce conditions for new social orders. New, diverse forms of inequality can then appear. Or, on the contrary, the result can be even more equality.

Political revolutions – England's in the mid-17th century, and those of France and the Communists – were egalitarian (kings' heads rolled and "Levellers" and "sans-culottes" dominated), even though they caused the emergence of new inequalities by abolishing the old ones. Conversely, the "revolution" caused by the collapse of Communism in Russia rapidly swelled the fortunes of a few profiteers, and this country is now the foremost of non-egalitarian States.

One of the most important societal changes in our world concerns the relationship between the sexes: this is egalitarian by definition. It began a long way back, carried along by waves of varying magnitude and frequency, but it is well and truly a revolution, where change is characterised by the effects of threshold, swings and "percolation". We have just seen one such shift with the "#metoo" movement.

But do major revolutions in science and technology promote inequality? Isn't that what emerges when we study the dramatic appearance of various major technological

¹ Engels was the first (*The Condition of the Working Class in England*, 1845), then, above all, Arnold Toynbee (*Lectures on the Industrial Revolution in England*, 1884), and finally Paul Mantoux (*La Révolution Industrielle au XVIII^e siècle*, 1905).

² In reference to the theory of evolution: "saltationist": proceeding by mutation, by jumps; "incrementalist": proceeding by marginal adjustments.

³ This expression is found for the first time with Georges Duby in *Les trois ordres ou l'imaginaire du féodalisme*, 1978, p. 183.

innovations? The creative destruction process that characterises them causes the disappearance of former incomes and thus the cause of former inequalities, only to introduce new and even greater disparities. Innovative entrepreneurs and all those who, with and behind them, benefit from the enormous changes brought about by innovation in technologies, products or processes, build up fortunes in a very short time, and then consolidate them with income. The same process destroys the jobs and protective systems set up in the former production order, casting whole swathes of society into a state of pauperism and precarity.

There have been times when the emergence of multiple innovations caused social inequalities to skyrocket. One example long ago was the development of enclosures in 16th century Britain, resulting from profound changes in the balance of power at the top of society. More classically, the UK's twofold agricultural and industrial revolution in the late 18th and early 19th centuries caused the downfall of the working classes, firstly in the countryside, then with the growth of an urban proletariat, while the upper classes (the landowning aristocracy, merchants and manufacturers) amassed fortunes and revenues. In France itself, profound changes in rural structures, following agricultural innovations based on a new balance of power, contributed to the "feudal reaction". The rapid rise of inequalities in favour of the aristocracy was linked with the tensions preceding the Revolution. The Second Industrial Revolution, between the last guarter of the 19th century and 1914, was basically a period of mass poverty and proletarian insecurity, while the upper echelons became spectacularly wealthy. This was the period of sugar, oil and steel magnates, electricity and chemicals tycoons and the so-called "robber barons". Finally, the late 1970s and early 1980s ushered in the digital revolution. Computers, the Internet, and more largely the NICT (New Information and Communication Technologies) and NBIC (Nanotechnology, Biotechnology, Information Technology, and Cognitive Science) have spawned an entire wave of innovative companies, including the GAFA, of course, and enabled new fortunes to flourish. Today's growing inequalities are not only a phenomenon of heritage exacerbated by the development of institutions; innovation plays a major role in them. We just have to look at the world's largest fortunes.

But are scientific and technological changes the main cause of growing inequalities in most countries throughout the world? They are only one aspect of an overall transformation: that of the economic system as a whole. During the last half-century, we have seen a new production order emerge and develop, characterised by a range of neocapitalist elements forming a system: deregulation, the central role assumed by the markets, the rising power of shareholders in companies, the orientation of these companies through shareholder value, the key importance of finance, the transnational nature of the flow of goods and capital, and the collapse of the balance of power where employees are concerned. It is true that scientific and technical innovations have played a major role in this transformation as a whole, but the crucial point is that a new production order has been established. A global, comprehensive revolution and the rise in social inequalities should be analysed in this light. Likewise, globalisation has been much criticised – and with good reason – as responsible for the development of inequalities. It is certain that it has played a major role here. It has benefited the qualified in developed countries to the detriment of the non-qualified, and mobile players/factors (senior managers, capital, knowledge) to the detriment of those less so, or not at all. It has weighed on the workers of developed countries through relocations; it has put them into competition with billions of workers in emerging countries. But this is just one aspect of an overall revolution that has changed the social diagram on a worldwide scale, overturned the balance of power and enabled the development of social inequalities. However, while there has been sometimes dizzying growth in inequalities within a country, and while a globalised social class has formed who absorb a substantial proportion of the gains from worldwide growth, there has also been a reduction of inequalities between countries, with the emergence of millions of people from extreme poverty, particularly in Asia.

We need to rethink the famous Kuznets curve: the bell curve showing the relationship between growth and development, with income per capita on the one hand, and inequalities on the other.⁴ This goes back to 1955, and the optimism of those times (when we still believed in progress, including social progress) has been proven to be misplaced by events. Growth after 1980 in both developed and emerging countries, far from confirming the descending part of the curve, the reduction of inequalities, has corresponded to – and generated – a major increase in these inequalities. However, it is possible to bring to light not a *single* upside-down-U-shaped Kuznets curve, but a *series* of curves, and an envelope curve.

Kuznets' curve was based on a particular period, the late 19th and early 20th centuries, for Germany and the United States. It thus reflected the establishment of a new production order with the second industrial revolution, and the introduction of "major industry monopoly capitalism": a phase involving the strong growth of inequalities. Then, when this production order reached its maturity, society introduced social protection and economic regulations; flows of goods and capital were regulated and a phase of reduced inequalities followed (after 1914⁵). In fact, each "revolution" introducing a new production order would see a specific Kuznets curve develop: a different curve for each successive system. For example, the period the world has been living through from the early 1980s till now is characteristic of the first ascending part of the curve, and in the next few decades, we can expect to see society's renewed control of a distribution that has become unbalanced. While "revolutions", whether technological or institutional, can foster the development of inequalities, this can result in corrective "revolutions".⁶

⁴ Simon Kuznets himself believed that causality did not go from growth towards inequalities, but from inequalities towards growth. In the first phase of development, when investment involves large infrastructures and the primary sector, massive investments are needed and inequalities make them possible by fostering a high level of savings. But later on, at a more advanced stage of development, when less massive physical investment is required but the development of human capital is crucial, the reduction of inequalities enables the general level of education to be raised.

⁵ War played a crucial role in this reduction of inequalities; Kuznets stressed this. But it was the entire period from 1914-1970 that saw inequalities decline.

⁶ An endogenous cycle that, in the long march of history, validates the Pareto principle or the stability of Cobb-Douglas production function coefficients? I'm not convinced!