"PERIODIC CRISES": CLÉMENT JUGLAR BETWEEN THEORIES OF CRISES AND THEORIES OF BUSINESS CYCLES

Daniele Besomi*

> Crises have been occurring for a long time at more or less distant intervals; yet none of the theories that have been advanced to explain them has been accepted. (Juglar, 1889, p. 166)[F1]

1. INTRODUCTION

Business cycle theory is normally described as having evolved out of a previous tradition of writers focusing exclusively on crises. In this account, the turning point is seen as residing in Clément Juglar's contribution on commercial crises and their periodicity. It is well known that the champion of this view is Schumpeter, who propagated it on several occasions. The same author, however, pointed to a number of other writers who, before and at the same time as Juglar, stressed one or another of the aspects for which Juglar is credited primacy, including the recognition of periodicity and the identification of endogenous elements enabling the recognition of crises as a self-generating phenomenon. There is indeed a vast literature, both primary and secondary, relating to the debates on crises and fluctuations around the

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middle of the nineteenth century, from which it is apparent that Juglar's book *Des Crises Commerciales et de leur Retour Périodique en France, en Angleterre et aux États-Unis* (originally published in 1862 and very much revised and enlarged in 1889) did not come out of the blue but was one of the products of an intellectual climate inducing the thinking of crises not as unrelated events but as part of a more complex phenomenon consisting of recurring crises related to the development of the commercial world – an interpretation corroborated by the almost regular occurrence of crises at about 10-year intervals.

The present chapter aims at examining Juglar's contribution in the context of the transition from the theories of crises to the theories of business cycles, focusing less on his specific theoretical contribution than on his, and his contemporaries', conceptions of cycles and crises. In the (scanty and sparse) literature on the history of economic thought on this topic, it is recognized that *some* of the ideas necessary to pass from crises to cycle theories were (or, at least, were becoming) common at the time, in particular, the notion that crises were recurring approximately in a regular way, following a common path and in stages systematically following one another. The truth of such statements, however, needs to be assessed, and it is necessary to examine whether other ingredients of what later became business cycle theories were already present. There are, moreover, some related and equally fundamental aspects of the same issue, the exploration of which has not so far been systematically pursued: what are the methodological premises for the examination of the "new" phenomenon of cycles? How are the alternative approaches – those interpreting crises as disconnected and accidental events – disposed of, methodologically and rhetorically? What role do crises and the cycle play in the working of the economic system? And how do they relate to the "normal" state of the system?

The more appropriate form I have found to deal with these problems is that of a (somehow Juglar-centered) partial thematic survey – unavoidably partial, because of the very nature of the materials at hand. Most writings were housed in pamphlets, ephemera, and articles in commercial, financial, or general-purpose journals, or even in newspapers, which today are not always easy to retrieve. Only very rarely those early contributions found place in books or articles in professional journals, in part because professional journals were not numerous at the time and in part because, as Schumpeter observed, "not much to their credit, the scientific leaders of the profession were not conspicuous" among the participants in the debates on crises (1954, p. 742). It will not, however, be a hunt for Juglar's

forerunners: ideas only make sense in their context, and seemingly similar ideas taken in isolation may not prove fecund of further illumination. What matters here is the context, consisting in writers of different sorts (from lawyers to merchants, politicians to financiers and bankers, laypeople of various extraction, and occasionally economists as well[1]) fiercely debating the causes of crises, and their possible remedies.[2] This will be more the story of a set of *problems* than an account of the *answers* – also because in some cases, the answers were formulated without full awareness of the generality of the problem. The picture that emerges is that Juglar was not alone in taking up some of the above-mentioned problems, while he left untackled other important issues his contemporaries were instead discussing.

The subject of this chapter, moreover, is not only Juglar and his contemporaries. It is also the very transition from the explanation of crises as disconnected events – the dominant view in the first half of the nineteenth century – to the emergence of the modern notion of cycles toward the end of the century. Although this was to a certain extent gradual, certain intermediate steps are clearly recognizable. In the second quarter of the century, a number of writers were concerned with the alternation of good and bad times, of high and low prices, and were concerned with the appropriate policies to prevent these natural fluctuations from amplifying and degenerating. Throughout the nineteenth century, several writers shared a view of crises as related events characterized by a common morphology and recurring with some regularity, but retained an emphasis on crises and stopped short of thinking in terms of self-generating and self-sustaining cycles. This suggests that a proper historical interpretation of this era should recognize and characterize at least four distinct approaches, partly overlapping in time, and fundamentally different in terms of their understanding of the role of crises and for their way of explaining them: the theories of ''crises,'' ''oscillations,'' ''recurring crises,'' and ''cycles.'' Juglar, it is argued in this chapter, was an eminent representative of the ''recurring crises'' approach.

The chapter is structured as follows. Section 2 singles out the main components of Juglar's view on recurrent crises, beginning from his early writings and concluding with his more mature work (in separate subsections, as the changes were, in places, rather drastic).[3] The timing is important, for in the almost three decades between Juglar's two editions, numerous contributions on the subject were published. In Section 3, these constituent parts of Juglar's approach to crises are contextualized and further examined in the light the state of the debate before and at Juglar's time, with particular respect to the recurrence and concatenation of phases,

the interpretation of causation, the relationship of growth and cycles, the use of statistics and of diagrams, the ingredients of Juglar's analytical construction, the implications of the usage of medical metaphors, and the relationship of crises to equilibrium and its stability. Section 4 investigates the different approaches to the problem of crises and cycles, in particular with respect to their interpretation of the relationship between normal and pathological states of the system. Section 5, the concluding section, evaluates Juglar's contribution and approach with respect to their context.

2. JUGLAR'S VIEWS ON PERIODIC CRISES

2.1. Laying Out the Premises

Juglar's argument was first developed at length in an article on "Des Crises Commerciales et Monétaires de 1800 à 1857" in the *Journal des Économistes* (Juglar, 1857) and elaborated in detail in the first edition of *Des Crises Commerciales et de leur Retour Périodique en France, en Angleterre et aux États-Unis* (1862), and later taken up in the entry on "Commercial crises" for Block's *Dictionnaire général de la politique* (1863).

2.1.1. Repetitious Facts and Recurring Crises

Juglar's explanation of crises is simple enough. Historically, commercial crises (*crises commerciales*) are always accompanied by monetary crises (*crises monétaires*). Juglar thus[4] analyzed long series of banking statistics (discounts, metallic reserves, circulation of banknotes, and deposits), at first only for France (1857) and later also for England, the Unites States, and to a lesser extent for Prussia and Hamburg (1862), which he compared with variations in population,[5] price of corn, import and exports, rents, and public revenue. He noted strict relationships in the movement of some variables (especially in the variations of discounts and reserves) and observed that changes systematically go through specific phases and are in concordance in the countries where commerce and industry are more developed. From this regularity, Juglar inferred[6] that the common premise to all crises lies in the excesses of speculation and in the inconsiderate expansion of industry and trade:

> Crises return with such consistency and regularity that one must take a stand and see them as the result of intemperate speculation and of a reckless development of industry and of large commercial enterprises. (1857, p. 36; 1862, pp. 6, 164)[F2]

The exuberance of speculation and enterprise is rooted in human nature (1857, p. 37, 1862, p. 7), which is liable to become overexcited (1857, p. 37) and to fall prey of the passion for gamble (1862, pp. 205–206) during the prosperous phase of activity when "everything seems to conspire to stimulate business like never before; all newly founded ventures find the capital they need. Securities are snatched and bought with unlimited confidence in the future" (1862, pp. 6–7, 1857, p. 36).[F3] Expenditure can, for a time, exceed receipts only thanks to credit (1862, p. 164). Excesses are thus nothing else than abuse of credit (1862, pp. 34, 38).[7] But this cannot last: a crisis will intervene, bad credits and other excesses will be liquidated, the system is brought back to its normal course of development, which it will be able to follow for a few years, before new abuses again shatter its foundations.

The theoretical apparatus is admittedly scanty: as Juglar himself pointed out in the second edition of his book, looking back at his original statement, the "law of crises and of their periodicity"[F4] was derived "without appealing to any theory or hypothesis,"[F5] but only by means of the observation of facts (1889, p. xv).[8,F6] Moreover, he was also wary of generalizations that could be drawn from his observations as to the cause of crises: "Although the examination of the statistical documents we shall present may lead to deduce and recognize an economic law, prudence suggests not to jump to conclusion" (1862, p. 6).[F7] Juglar's purpose, indeed, was not the development of an analysis of the causes of crises, but stressing that these follow a common path and are related to each other:

> The return and the succession of the same facts, in *special circumstances*, at all *epochs*, in all *countries* and under any *regimes*: this is what had to be brought to notice. (1862, p. xiii)[F8]

Juglar's book was an answer (indeed, the winning answer) to a competition launched by the Académie des Sciences Morales et Politiques in 1860,[9] challenging the entrants to

> Inquire into the causes, and indicate the effects, of commercial crises[10] that took place in Europe and North America during the nineteenth century. These crises have been frequent at any epoch; but, as commercial relations knew new developments, the perturbing action brought [crises] bring with them are also touching more and more regions. (Académie des Sciences Morales et Politiques, 1860)[F9]

Juglar's approach consisted in relying on a large collection of data referring to long periods rather than on disputable assertions.[11] It was a precise methodological choice, which he pursued at the price of producing a tedious book:

> The consistent repetition of the same facts gives our history a true monotony. We are always led through the same phases in the same order of succession, annoying the

> inquiring mind always eager for variety and novelty. But is this not the best evidence of what we wanted to prove? (1862, p. xii)[12,F10]

2.1.2. Causality and Rhetorics

Having laid this premise, in the next stage of his reasoning, Juglar moved to an epistemological ground. If crises are not to be taken as disconnected individual occurrences but share some features and tend to recur cyclically, there must be a common explanation of the phenomenon, in spite of the different circumstances affecting different economic systems at different times. In most of the literature of the time, however, crises were attributed to a number of different causes. Juglar was aware that he had to play two games at once if he wanted to win his case. On the one hand, he had to subsume all crises under the same scheme in spite of the objective differences between each special occurrence by reinterpreting the role of the special events and of the general premises of crises. On the other hand, he had to counter all his opponents' arguments at once and convince his readers of the rationality of his approach.

Juglar handled this challenge very effectively. The first edition of his book began with a discussion of the term "cause."[13] He elaborated upon a distinction routinely used by medical writers who divided the remote causes of disease into predisposing and exciting (or occasioning) causes, the former making the body liable to become ill, while the exciting cause immediately produces the disease in a body predisposed to it. This is ilustrated, for instance, in the entry on "causes" in the *Dictionnaire de Médecine Usuelle*, published only three years after Juglar completed his medical dissertation on the influence of heart diseases on the lungs:

> Let us then confine ourselves to the main distinction or classification of the causes of diseases. Some of them pave the way to diseases, most of which pertain to the organisation [of the organism]; they are called *predisposing* causes. Others, most of which are external, trigger the predisposition and produce the disease. They are called *determining* or *occasioning* causes. Let us consider as an example a man with a voluminous heart, abundant blood and a short neck; such a complexion is the predisposing cause of apoplexy. If, following an explosion of rage, this man undergoes an attack, his emotion is the occasioning cause. Without predisposition, the influences that could bring about a disease are powerless. But the indicators that would reveal the predisposition are often hidden. It would be difficult to diagnose *a priori* what would happen to the four unwise people who lie on humid ground while coated in sweat: one would catch a rheumatism, another would get catarrh in his lungs, a third diarrhea, and the fourth would get up perfectly healthy. A preliminary examination of the organization of each of them would surely help the diagnosis, but before the experiment is actually performed the result would often remain uncertain. (Lagasquie, 1849, p. 313)[F11]

In the medical literature up to the 1860s, diseases were understood as the result of individual combinations of remote causes: each case of a disease was ascribed to a different cause (or combination of causes), and the disease itself was defined in terms not of it etiology but its symptoms. Although there were earlier studies ascribing diseases to specific, universal, and necessary causes (fungi, parasites, etc.), only with the studies of Pasteur (late 1850s to 1870s) and Koch (1870s and 1880s), the nosological approach to diseases was substituted with an etiological understanding of them.

In the previous literature, neither predisposing nor occasioning causes were seen as necessary, sufficient, or universal; the literature abunds with provisos to this effect, such as the following (extracted from another dictionary):

> sometimes the predisponent cause, by continuing long, may arrive at such a height that it alone, without the addition of any exciting cause, may produce a real disease. The exciting cause also, though it should not be able immediately to bring on a disease: yet if it continues long, will by degree destroy the strongest constitution, and render it liable to various diseases; because it either produces a predisponent clause, or is converted into it, so that the same thing may sometimes be an exciting cause, sometimes a predisponent one, or rather a cause of predisposition; of which the inclemence of the weather, sloth, luxury, &c. are examples.[14] (Jamieson, 1829)

Juglar took up the distinction between "occasional cause" and "predisposition,"[15] but radically departed from the interpretation of his medical mentors[16] by explicitly claiming that the explanation of crises must rely on relevant causation nexuses both necessary and universal, thus capable of description in terms of scientific laws. Without at first mentioning crises (thus remaining at the level of general principles of explanation), Juglar pointed out that when we look for the deep cause of what surrounds us, we are "under siege by a crowd of occasional causes" that "impair our view and often induce us to mistake the accident for the very origin of the affliction" (Juglar, 1862, p. 1). The following passage is a rhetorical masterpiece, as it expounds the principle that will subvert the adversaries' approach while at the same time very subtly ridiculing them:

> Food shortages, wars, revolutions, tariff changes, loans, fashion variations, new trade openings, these are the main causes of crises that have in turn been put forward. However, the real test would be to see these causes reproduce, in similar circumstances, the same effects. Unfortunately, when we consider social phenomena and everything that concerns life, this relationship between causes and effects is rarely prominent. In this state of uncertainty, the most dissimilar causes are called upon to explain the same facts. We have good reason to be surprised by the lack of judgment of the human mind and the facility with which it accepts anything it is presented with; it is so hungry for an explanation that, when it finds nothing better, it is satisfied with words. Indeed, the multiplicity of the causes that are put forward is sufficient, in our opinion, to prove their

> little effectiveness, since, whereas a single one should suffice, a great number are accumulated; now, as they are not always simultaneously present, it is natural to think, as we eliminate them one by one, that none is a determining cause, since its intervention is not indispensable to produce the result ascribed to it. (Juglar, 1873, p. 587, translated by C. Dangel-Hagnauer in this volume, p. 118; 1862, p. 2)[F12]

Juglar concluded that one should study the "preceding state … in the absence of which even the seemingly more powerful causes fail to operate. It is what in medicine is called predisposition" (1862, p. 2).[17,F13] Accordingly, when we pass to crises (which in Juglar's argument only appears at this point), we have to identify "the conditions necessary to their existence among the phenomena that are constantly observed, beyond to the so many and various causes that are invoked, depending on the needs of the moment" (1862, p. 3).[18,F14] Juglar could thus successfully contrast his unifying perspective to his opponents' special views, and indeed, he took every chance to do so (e.g., 1862, pp. iii, ix–xi, 1–2, 5–6, and passim; he further insisted on this in the second edition of his book, 1889, pp. 5, 27–29, 36, 43, 165, 197).

2.1.3. Instability, Periodicity, and the Morphology of Crises

Juglar's emphasis on the predisposing causes has two consequences. One is that in the absence of predisposition, a cause that could bring havoc would instead be ineffective (1862, p. 2). During prosperity, when people are over-excited, even "a big war could not halt the progression" (1857, p. 57).[F15] The second is that the causes actually occasioning the crisis are not that relevant, as it would have happened anyway. When everything is predisposed for the crisis, any accidental cause would precipitate it, like the last drop overflowing a full glass of water (1862, p. v). "During their periodical returns to our country, bad crops, expensive wheat and famines frequently co-occurred with the gluts of bank portfolios, and have introduced further complications to an already bad situation. Yet their presence is not necessary to produce a commercial crisis" (1862, p. x).[19,F16] These causes are thus reinterpreted as explaining not the actual crisis but its specific character. The interpretation of crises as individual events, each with its own specific cause, is thus turned on its head: the occasional circumstance only determines the specificity of each crisis, the difference with other similar events, while the general pattern is determined by the way in which the predisposing cause determines the unstable state of the system at certain points.

Two aspects deserve to be stressed in this connection. The first regards the notion of "periodicity." If accidental circumstances affect the actual course of crises, they can make them more or less intense but also anticipate or

retard them. In Juglar's view, there is no room for strict periodicity.[20] The adjective "periodic" occurring in the title of Juglar's book thus refers to a different conception, which (not surprisingly) again happens to be more akin to the medical than to the astronomical one. The emphasis is not much on the duration of the period,[21] but on the return of the various phases that succeed one another in precisely the same order with similar characteristics.[22] The notion is thus related to the recurrence in general terms, to the idea that crises are not disconnected individual occurrences but part of a chain of events implying the return of disturbances after some conditions are fulfilled, rather than to the specific kind of cycles that repeat themselves with strict regularity.

Juglar identified three phases: prosperity, crisis, and liquidation (1862, p. 164) and discussed how they succeed each other.[23] The presentation, as well as the round of course through which they run, is asymmetric. The focus is on crises: their origin, their nature, their outbreak, and their liquidation. As anticipated early in this section, during prosperity, people become unduly optimistic (1862, pp. 202, 205–206) and start overspeculating. The keywords, recurring in a long string, are "imprudence," "abuses," and "excesses."[24] "It is characteristic of human nature never to remain within appropriate limits" (1862, p. 20)[F17] and become overexcited (p. 167). The result is excess of speculation (pp. 16, 20, 24, 88), "extravagant application of floating capital" (Juglar 1862, p. 25, reporting Wilson's opinion on the 1847 crisis), "speculative folly" (pp. 6, 164, 199), foolish or imprudent speculation (pp. 25, 142, 208) "beyond their means" (p. 142),[F18] exaggerated expansion of discounts (pp. 27, 31, 209), abuse of credit (pp. 29, 34, 38, 88), overtrading (p. 29), fictive (p. 34), doubtful (p. 172) and artificial credit (pp. 57, 163), exaggerated prices (p. 37), and inconsiderate development of industry (p. 164).[25,F19] Some of these exaggerations and excesses refer to the credit market and the stock exchange; others affect production and goods markets. In particular, expenditure exceeds receipts, and investment runs ahead of saving: often among the results of the excess of speculation, there is "also the use and immobilization of an amount of capital larger than what could be sustained by the ordinary resources of the country, that is, by its savings" (1862, p. 164; see also pp. 38, 154).[F20]

So far as it goes, such a situation remains in an increasingly insecure balance: "So long as the rise persists, products are exchanged and nobody is losing. But unlucky the last holder!" (1862, p. 14).[F21]As speculation is carried on, tension accumulates (1862, p. 176),[26,F22] and the credit and trade relationships become extremely unstable. Although in the early stage of prosperity, the system could remain unaffected even by a war (1857, p. 57),

toward the end it becomes like a basin about to overflow (1862, p. v) or like explosive ready to blast (1862, p. 176, 1863, p. 623), so that any occasional cause can set it off leading to "serious disturbances in consequence of small causes" (1862, p. iv).[F23] Juglar describes the failure of the system by means of the hydraulic metaphor of pipes becoming engorged: "all of a sudden, all channels seem glutted, there is no further vent, the circulation is halted and a crisis breaks out. All speculations stop. Money, which was so abundant a few months before, diminishes, becomes tight, or even disappears" (1857, p. 37).[F24]

How can these pipes be unblocked? The system must get rid of the unhealthy speculation, and here, the medical man emerges again. Commercial crises "are distressing accidents, but, as in diseases, they prepare a better condition by expelling all impurities" (1862, p. 14, 1863, p. 622).[F25] The diseased parts have to be suppressed (p. 208): during the liquidation, the less solid businesses[27] fail "and clear the market of a persistent cause of troubles and ruin" (1862, p. 14; see also p. 208).[F26] Eventually, the system is brought back to its healthy, normal state (1863, p. 623),[28] a stable (1862, p. 208) equilibrium (pp. v, 172): "a crisis is but a general liquidation from which business can resume its course on a solid footing" (1862, p. 176, 1863, p. 619).[F27]

2.1.4. Prosperity as the Normal State of the System

From these passages, Juglar's conception of the nature of capitalist accumulation emerges rather clearly. Prosperity is the normal state of the system and consists in the "regular development of the wealth of nations" (Juglar, quoted in Wolowsky, 1862; in Juglar, 1862, p. xiv).[F28] In its early stages, this is a self-sustaining state of moving equilibrium, where one's expenditure covers someone else's costs. Credit is a necessary premise to the increasing number of exchanges and therefore to accumulation. At this junction, credit does not create any problems, for everybody is confident that it can be liquidated easily. Yet, the instinct for gambling brings to overspeculation, which is by its nature cumulative: credits become more and more doubtful, and at some point, the system turns extremely unstable. The crisis explodes: excesses and abuses are wiped out, and the system is brought back to its normal track. In this view, periodical crises are a necessary inconvenience: they are "a disruption to the course of business" (1863, p. 615),[F29] but a disturbance intrinsic[29] to the accumulation process, and actually helpful, for economic advance contains and develops the germs of growing instability which have to be cleared. The resulting crisis is conceived

as the undesirable product of accumulation itself and the premise for its recovery:

> Crises, like illnesses, appear to be one of the conditions for the existence of societies where trade and industry dominate.[30] We can anticipate crises, alleviate their effects, partially protect ourselves from them, facilitate business recovery; but eliminating them is something, despite having resorted to the most diverse devices, no one has managed to achieve so far. To propose a remedy ourselves, having recognized the little effectiveness of those recommended by others, is impossible, even less since, as a result of a natural evolution, equilibrium reestablishes itself and prepares a firm ground on which one can fearlessly take foot and cover a new period. (1863, p. 627, 1862, p. vii)[F30]

Although the endogenous/exogenous distinction was conceptually well within Juglar's reach, for it is strongly implied in the distinction between occasional cause and prédisposition (as witnessed by Lagasquie's 1849 dictionary entry cited above), he did not make that step. This apparently curious situation is due to the poverty of his theoretical and analytical apparatus: the concepts of endogenous and exogenous refer to internal and external with respect of the theoretical system, but Juglar's line is so ill-defined that an analytical classification would not be possible. A first problem in this respect, which Juglar tackled in the second edition, is that the mechanism declenching the crisis is not clear. Intuitively, one grasps that instability increases as speculation proceeds, so that at some point anything can act as the occasional cause. But the specific mechanisms explaining how instability grows are absent: the explanation relies on the public's enthusiasm, furor (1862, p. 205), infatuation, and frenzy (pp. 201–202)[F31] in subscribing to any new enterprise.[31] At this point of Juglar's analysis, the society's disease is thus explained by individual madness.

The second problem is more troublesome. The ''normal state'' is not defined. Prosperity is said to be an equilibrium, a state of regular progression supporting itself, but it is not clear how this happens; its driving force is never specified, nor are its equilibrium conditions. A notion uniquely based on the *absence* of ''abuses'' and ''exaggerations'' is, of course, circular reasoning. The tendency to accumulate thus remains unexplained, and so is the lower turning point: it is not enough to say that bad credits are liquidated and excesses eliminated if what drives the recovery is not specified. This has obvious implications on the exogenous/endogenous distinction: if the endogenous forces driving growth are not specified, one cannot define by contrast what is exogenous.

But there is also an implication regarding the conception of the succession of phases. Some inklings in the book suggest that Juglar seems to think that phases do not simply follow one another in a regular fashion, but that each

one breeds the following: prosperity contains the germ of disorder (1862, p. 121; see also p. 172), the crisis is by necessity followed by a liquidation. ''Once the *movement has begun* in one direction or the other, *upwards or downwards*, it continues uninterruptedly until there is a complete turnabout'' (Juglar, 1863, p. 618).[F32] The point is precisely that one needs to explain the turnabout, but in Juglar's book, how prosperity gives rise to crisis is only intuitively clear, while it is fully unclear how and why liquidation gives place to prosperity.[32] A full explanation of the cycle is still wanting, but Juglar can offer a *description* (''we want to show here that we can follow *step by step the development* [from prosperous periods to crises and liquidations], almost month after month, or, at any rate and very clearly, *year after year*'' (1862, p. 164),[F33] and even a diagnostic (1862, pp. 197–198). But at any rate, he laid out the principle that an explanation of a cyclical process requires that phases are linked to one another.

2.2. Revising, Adding, and Deepening

The second edition of *Des Crises Commerciales* was published in 1889. It is almost three times as long as the first edition, obviously containing many new materials, in particular, further statistics (Juglar brought up to date his previous series, to confirm and give more strength to his results: 1889, p. xv) and some graphic elaboration, additional considerations on the lines already expounded in the first edition, and a shift of emphasis in the argument giving more weight to monetary issues[33] and to the role of prices in Juglar's mechanism.

2.2.1. The Causal Chaining of Phases

Juglar insisted more than he did before, and with much more clarity, on some significant points in the transition from crises to cycle theories.[34] The most interesting one concerns the linkage between phases. Whereas in the first edition, the emphasis was on the *succession* of phases in the same relative order, in the new version, Juglar stressed the *causal chaining* of phases; in the first edition, the approach was more descriptive, in the second Juglar more clearly aimed at developing a causal explanation. It is no longer enough to record that ''periods are linked to each other and follow each other with an ever surprising regularity'' (1889, pp. 9, 48, 164).[F34] One must move a further step: ''after these three periods had been identified, it has been necessary to look for their possible mutual relationships and for the causes under the influence of which they follow each other'' (pp. 21, 4);[F35]

one has to understand how each phase results from "the reaction following the action" (p. xvi).[F36] Although Juglar's solution still relied on some unexplained entrepreneurial spirit and therefore was not fully satisfactory, having laid the methodological principle that each phase should contain the germ of the succeeding one was an extremely important step toward trade cycle theorizing.

The basic idea as to how each phase is characterized remained the same as in the first edition, although the connection between phases now worked through changes in the price level.[35] Prosperity, at least in its early stages, is a stable equilibrium of advance;[36] it corresponds to the system's normal, healthy state. As opposed to crisis as a diseased condition,[37] "In common parlance, the prosperous period does not have a name. It is what is regarded as the normal state, it is not even talked about. As it is the case for health, nothing appear more natural than prosperity" (p. 16): "it is the normal state of the market, it is the prosperous period" (p. 33).[F37] It is characterized by an equilibrium in prices (p. xvi), which is only broken when credit gets out of hand (pp. 53–54).[38] Credit itself is necessary to permit growth and thus prosperity.[39] Yet, its "exaggerated extension" and "abuse" (pp. 5, 47, 56, 168)[40] to pay for "excessive expenses" (p. 4) is driven by the "gambling attitude" of the public (p. 4), fed by the price hikes generated by these same expenses, in a speculation spiral eventually destabilizing the system's mode of advance.[41] This happens when purchases are no longer in proportion with the available capital (p. 53); "the equilibrium of prices is broken" (pp. 54, 34, 35, 165).[42,F38] Juglar resorted again to the analogies of the loaded explosive charge (pp. 30, 43, 165; see also 1900b, p. 646) and the overfull water basin (pp. 48, 165), that can explode or, respectively, overflow, due to any occasional cause, to stress the methodological point that the "predisposition" to crises lies at a deeper level than the accidental causes (see also p. 197).

Although "the term 'crisis' indicates a state of illness or suffering" (p. 13),[F39] Juglar repeats (citing Overstone) that crises imply "some down sides," but are "in other respects extremely salutary and beneficial" (p. 6);[F40] they are useful, and indeed, a necessary premise to the beginning of the recovery (p. 6), for they eliminate the excesses and bring the system back to equilibrium.[43] Contrary to the first edition, now Juglar offers a mechanism triggering the recovery: during the liquidation phase, no investments are taking place. Some savings, however, are still coming forward seeking productive use and lowering the interest rate[44] until the enterprising spirit[F41] is awakened again (Juglar, 1889, pp. 30–31, 21, 126).[45] When there is request of capital, credit intervenes again, and the cycle can recommence. The explanation, however, still relies on the "esprit d'entreprise," on the

''natural'' (and unexplained) tendency to accumulate;[46] the accumulation of loanable funds only plays a subsidiary role.[47]

It should be noted that Juglar is more concerned with credit by traders, in the form of promises to pay (pp. 57, 69, 71, 73), rather than with banking credit. The *request* for such credit between traders grows with increasing prices, but also the traders' willingness to accept promises as a form of payment growth with rising prices, and both in turn further increase prices.[48] Having shifted the emphasis on prices, Juglar supplied a new definition of crisis: ''The crisis is then the *stoppage* of the *price rise*, that is, the period when no *new buyers are found*'' (p. 14).[F42,49]

2.2.2. Miscellaneous Observations

An interesting feature of the second edition consists in Juglar's continuous confrontation with the doctrines of other authors on crises. This inaugurates a tradition that continues today, with many treatises on cycles expounding, for critical or contextualization purposes, the competing or the similar approaches.

Commenting on the progress of Juglar's thought between the first and the second editions of his book, Niehans commented that ''the content was finally living up to the title,'' as the 1889 edition constituted a massive treatise on business cycles, whereas the previous version was just ''a detailed chronicle of crises as reflected in bank balance sheets, with a few fragmentary statistics from other sources and very little economic analysis'' (1992, pp. 549–550). The above dicussion suggests that this judgment does less than justice to the first edition. Already in the first version, there was a description (albeit intuitive only) of the mechanism of crises resulting from the gradually increasing tension due to the abuses of credit triggered by speculation. The crisis would be followed by a liquidation, setting the premises for a new recovery, thanks to the elimination of the previous excesses. On the contrary, Niehans perhaps credits too much to the second edition, where the mechanism of expansion is still dependent on an unexplained tendency to accumulate. At any rate, in the second edition, Juglar clearly stated the principle that phases should be causally chained to one another and did something toward filling the gap of the missing explanation of the lower turning point.

3. CRISES AND CYCLES AT JUGLAR'S TIME

Historical inquiries have already stressed that some of Juglar's proposition were not only anticipated by others but were also even commonplace. Other

aspects, however, have not yet been the subject of research. My aim is not to hunt for Juglar's forerunners but to gather enough evidence on the diffusion, at his time, of a number of the ingredients that characterize his approach. This cannot claim to be a complete reconstruction of the context in which Juglar was operating, because it strictly remains within the field of the construction of economic theories of cycles and crises, leaving out for instance the political component of the debate – which would deserve a dedicated study – and its social implications. Nevertheless, portraying the state of the art at around Juglar's time is useful not only for assessing the originality of his contribution but also for identifying some landmarks in the history of the transition from crises theories to cycle theories.

3.1. Statistical Tables and Diagrams

One of the most distinctive features of Juglar's approach is the extensive use of historical and statistical analysis in connection with the cycle.[50] Juglar proudly claimed that he based his observations on facts rather than on theories or hypotheses (1889, p. xv; see Section 2.1.1), vaguely bringing to mind Petty's methodological statement in the Preface of his *Political arithmetik* (1690) and more precisely the declarations of intent by Playfair and Morier Evans. The former maintained that "I have grounded all my calculations and arguments on *facts*; I have studiously avoided those theories which, though sometimes useful guides, do not infrequently lead to grave errors" (1821, p. iii). Evans echoed him, "Studiously avoiding attempts at dissertation and strictly eschewing theories, [the author] has endeavoured to confine himself to a description of 'Facts and Figures' which while they may prove serviceable to most parties connected with mercantile pursuit, can be looked upon as offensive by few" (Evans, 1848, p. v).[51]

Before Juglar, there have been a few attempts to anchor the discussion of crises to a factual basis. Brand (1800) argued that the price of wheat is lower in times of war than in times of peace by tabling the annual prices of the previous 106 years and grouping them in years of peace and war. Playfair (1821) was mostly concerned with agricultural distresses, but Tooke's chronicle of prices (1823, 1838–1857) aimed precisely at examining the extent of price fluctuations.[52] Malthus commented that in the pursuit of his

> inquiry into the causes of the fluctuations which have occurred during the last thirty years in the prices of corn and other commodities, [Tooke] adduces a large and interesting collection of facts. This mode of considering his subject we consider as peculiarly judicious. At all times an extensive collection of facts relative to the

> interchange of the various commodities of the commercial world, which is more within the reach of intelligent merchants than any other class of men, cannot but be of great importance to the science of political economy; but it is more particularly required at the present moment, when it must be acknowledged that some of our ablest writers in this science have been deficient in that constant reference to facts and experience, on which alone it can be safely founded, or further improved. (*Malthus, 1826, p. 214)

"Collections of facts" were indeed produced. Morier Evans published in 1848 an analysis of the commercial crisis of 1847–1848 and in 1859 a massive analysis of the 1857–1858 crisis, which he compared to those having occurred from 1825. His volumes (especially the latter) include plentiful of data of various kinds, especially balance sheets but also banking statistics, numbers of stores and of failures, prices, stocks, debts, production, and so on, enabling him to observe that "Each separate panic has had its own distinctive features, but all have resembled each other in occurring immediately after a period of apparent prosperity, the hollowness of which it has exposed," and even to stress that the uniformity is so striking that whenever fortunes can be rapidly accumulated "otherwise than by the road of plodding industry," one can safely predict that a panic is at hand (1859, p. 1).[53] Max Wirth also produced a voluminous body of historical analysis of crises,[54] beginning from the consequences of John Law' system in France. Although peppered with data, the nature of this work is historical, rather than statistical. On top of these volumes, a number of authors cited brief series of data or (more rarely) drew diagrams (e.g., Langton, 1857).

These contributions, however, were more illustrative than analytically significant. As Niehans stressed, Tooke's data were assembled more as a chronicle rather than with a theoretical purpose; Evans's data needed to be further distilled if anything was to be done with it.

In this context, Juglar's data marked some progress, as they were subject to some statistical analysis (rough as it was at times: Pellissier, 2000, pp. 274–276, 284) that could actually support some inductive process. His book contributed toward filling the scarcity of statistical analysis of economic fluctuations lamented by Jevons in a paper delivered before the British Association on the same year in which Juglar's first edition appeared.[55] But while Juglar's treatment of data did not go much beyond their listing in tabular form, Jevons and others were beginning to make extensive usage of diagrams.[56] Juglar only seems to have fully appreciated in the early 1880s that graphs enable "the eye to embrace at once a long series of yearly data and to perceive the recurrence of the same incidents" (Juglar, 1882, p. 5).[57] At the end of the 1870s, he started arranging his tables in a graphical way, listing maxima and minima of his series in separate columns, giving the

impression of a zigzag movement (Juglar, 1877, pp. 375–376).[58] The zigzag lines connecting them were eventually explicitly added in several tabular presentations in the second edition of *Crises Commerciales* (1889).[59] He started incorporating time series diagrams in 1882 and 1886 articles, and he attached a number of them to the second edition of *Crises Commerciales*, but rather than depicting the entire series, he only listed maxima and minima and connected them with straight lines. This only slightly improved on the zigzag lines by illustrating whether and how much the successive maxima and minima were higher or lower than the previous ones. Juglar's procedure thus clearly reveals that graphs were intended as a means to illustrate his point, rather than accurately depicting data. This is confirmed by the only diagram including, besides the usual medium-period maxima and minima, also the yearly maxima and minima, drawn in a thinner line (Fig. 1). Although at most times, his medium-period maxima and minima actually correspond to the local maxima and minima of yearly figures, on a few occasions he cherry-picked his dates as to fit them with the observed crises or phases of prosperity. For instance, he chose as the beginning of prosperity year 1895, while the actually maximum of the gold and silver reserves of the Bank of France was recorded in 1893. Similarly, he chose his minimum for gold and silver reserves (indicating a crisis) in 1873 while the actual minimum was recorded in 1871.[60] These manipulations illustrate that Juglar's graphs were constructed starting from his argument, rather than the argument being based on raw data, as Juglar claimed he had done, and as Jevons (1874, p. 492) suggested would be the correct procedure.

If Juglar's diagrams were latecomers and at first rather primitive, his important contribution lies in having based his discussion of crises on the systematic collection and rudimentary statistical elaboration of facts and figures, in particular, regarding banking data. In this, Juglar was soon followed by Jevons (who, being a far better statistician, was more influential than Juglar) and later Tugan (1901, 1913), Bouniatian (1922), Aftalion (1913), Lescure (1907), Robertson (1915), and finally Mitchell (1913, 1927),[61] to cite only the main contributors.

3.2. The Periodicity of Crises

Early recognitions of some regularity in the occurrence of crises, attempts to evaluate an average period, and the distinction of phases and their concatenation have been discussed in the literature. Bergman's history of the theories of crises (the first and still the most complete and detailed

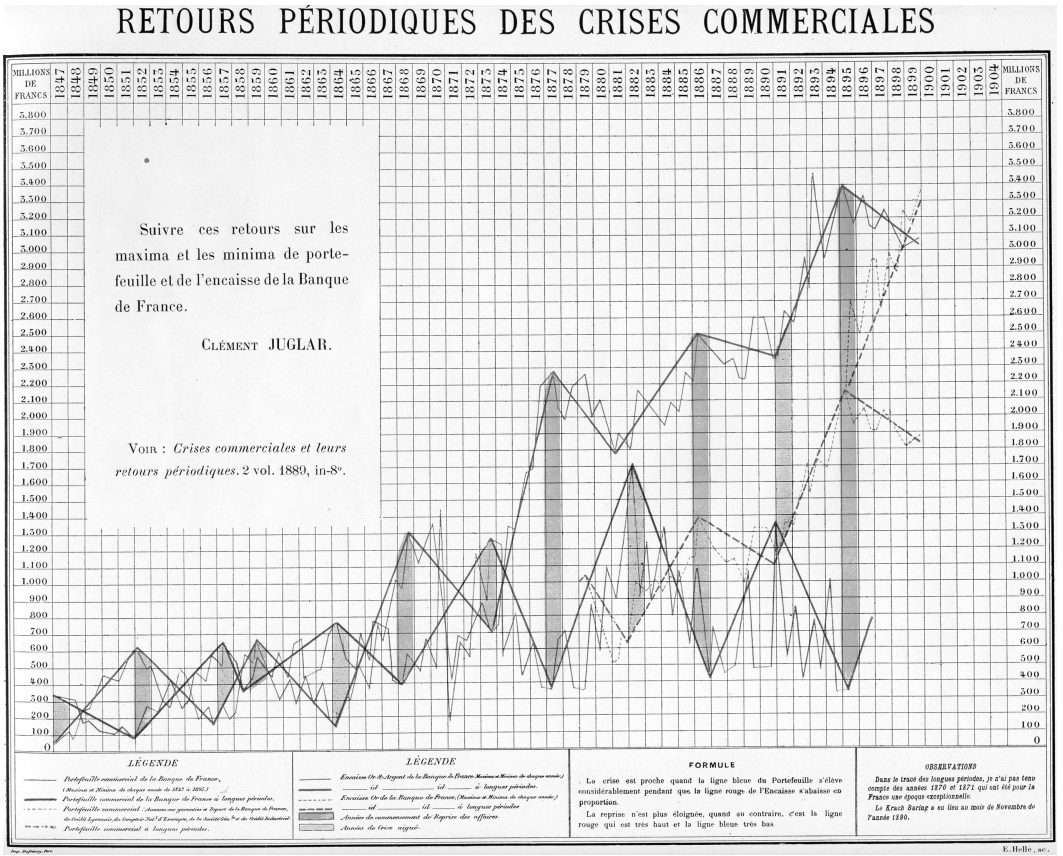


Fig. 1. Juglar's Periodic Commercial Crises Diagram (with yearly data). *Source:* Juglar (1900c).

account of the subject up to the end of the nineteenth century) indeed places the section on Juglar in the chapter on periodicity (von Bergmann, 1895, pp. 255–260). Nevertheless, this and other historical accounts of the early debates on the periodicity of crises (Miller, 1927; Schumpeter, 1954; Hutchison, 1953) only singled out a few milestones and a limited number of minor writers having observed that crises recur with some regularity, giving (especially Schumpeter) the false impression that Juglar was an outstanding pioneer. On most counts – as we shall see in the following sections – this is only partly true. And so far as the problem of periodicity is concerned, this idealization is completely false. Some writers had started moving in this direction at least seven decades before Juglar, and by the time he published his first writings, the idea that crises recur with some regularity was well rooted in a solid tradition of thought.

The first identification of an alternation of good and bad times in production (albeit agricultural) seems to be due to William Petty, exactly two centuries before the publication of Juglar's book:

> Suppose a man could with his own hands plant a certain scope of Land with Corn, that is, could Digg, or Plough, Harrow, Weed, Reap, carry home, Thresh, and Winnow so much as the Husbandry of this Land requires; and had withal Seed wherewith to sowe the same, I say, that when this man has subducted his seed out of the proceed of his Harvest, and also what himself hath both eaten and given to others in exchange for Clothes and other Natural necessaries; that the Remainder of Corn is the natural and true Rent of the Land for that year; and that the medium of seven years, or rather of so many years as makes up the Cycle,[62] within which Dearths and Plenties make their revolution, doth give the ordinary Rent of the Land in Corn. (Petty, [1662] 1899, p. 43)

Although this may not seem relevant in the context of industrial fluctuations, one must remember that a number of authors later took agricultural production as the starting point of their reflections (Briaune, 1840), for instance, but also numerous French scholars at the time of Juglar's writing).[63] Indeed, this passage is doubly scored in Jevons's copy of Petty's book (Foxwell, 1884, p. 361).

Observations regarding the recurring of commercial crises are scattered through the literature of the late eighteenth century, appeared with increasing frequency in the first decades of the nineteenth century, and by the 1850s were fairly common. Among the very early writers, one may cite Adam Anderson's reference to "fluctuations of commerce which happen frequently in the best of times" (1789, p. 243), William Anderson's opinion that "there is no doubt that, while this nefarious system [of trading on credit] is continued, as no bounds can be set to speculation, distresses and embarrassments will be felt at irregular periods" (1797, p. 39), and James

Currie's judgment that the distress caused by overtrading "is a disease which has a constant tendency to arise in seasons of great prosperity," "every sixth or seventh year of peace" (Currie, 1793, pp. 19, 16).

At the time of the Bullion debate, William Huskisson supplied a very detailed explanation of a credit-speculation crisis (see Besomi, 2010a); although he did not go as far as claiming periodicity for such events, he reminded his readers of "many recent occurrences" (1810, p. 137). His critic John Sinclair, instead, pointed out that if the medium of exchange fails to increase in proportion to the increase of commerce, commerce must experience frequent checks and the country undergoes "periodical returns of commercial distresses" (1810, pp. 57, 64).

After the approval of the corn laws, some writers worked out the first verbal models of economic fluctuations based on a cobweb-like mechanism. Malthus, among the first propounders of such a view (1815, pp. 25–27, 45–46), did not directly claim periodicity. But McCulloch went further and wrote of "ascending and descending progression" and of "a constant alternation of oppressively high and ruinously low prices" (1822, p. 454). Torrens was more explicit: in a *Letter to the Earl of Liverpool on the State of the Agriculture of the United Kingdom*, he explained that "the present distress is not the result of a casual glut, or of a temporary loss of confidence; but, on the contrary, is the consequence of an artificial and forced state of things, and that it must, under our existing laws, be of frequent and periodic recurrence" (1816, p. 11; see also p. 32), which will cause capital to "melt periodically" (pp. 16, 23, 31) and determine "periodical fluctuations in the value of produce" (p. 18).

Shortly later, John also resorted to a cobweb-like mechanism to explain price fluctuations, but extended it from the agricultural to the commercial world. He analyzed the crises of 1763, 1773, 1793, 1811, 1815–1816 and 1825–1826, which he described as "commercial vicissitudes, which, like a plague or a pestilence, visit the country at regular intervals of five, seven or nine years" (1826, p. 39). In 1833, he revised his estimate of the period arguing that "the commercial cycle is ordinarily completed in five or seven years, within which terms it will be found, by reference to our commercial history during the last seventy years, alternate periods of prosperity and depression have been experienced" (1833, p. 211; for a discussion, see Besomi, 2008c).

Meanwhile socialist writers also stressed the periodical character of crises. William Thompson pointed out that "as long as the present principle of action remains, *crisis* will succeed to *crisis*, at interval more or less distant" and insisted that "The *periodical* periods of crisis, recurring at irregular intervals, inseparable from the present principle of action, strike every

vulgar eye'' ([1827] 1971, p. v). Robert Owen argued that after 1810, an excess of production owing to machinery produced ''periodical distress among the industrial classes'' (Owen, 1836). In his comment on Owen's piece, Bray stressed that ''the productive power had latterly been so greatly in excess of the powers of demand, that gluts of merchandise in all foreign markets were of periodical recurrence … Wages had been reduced in consequence, which still more lessened the demand'' (Bray, 1836).

On another front, in 1823, Thomas Tooke discussed price fluctuations, which, however, he attributed mainly to exogenous events: bad seasons, by causing price increases, encourage the development of credit which in turn feeds back on prices.[64] Later, in his *History of Prices*, Tooke (1838–1857) also incorporated endogenous elements, describing some phases (crises, in particular) as a reaction to the previous development.[65] The idea, however, that depressions are somehow related to the previous phase of prosperity, had already circulated for some time. During the Parliamentary debate in December 1792, Mr. Sheridan ironically denied it, indicating that a suggestion to the contrary must have been already advanced. He said that ''to assert that the distress of commercial credit was owing to the greater prosperity of the country might make for a very sonorous period, but would not be much relished in the city. It would be considered as but a poor compliment to congratulate a man on his having proved himself one of the most industrious manufacturers, or enterprising merchants, by getting into the Gazette as a bankrupt.'' Mr. Rose, however, countered, ''That the time of the greatest prosperity of a country might be the time of greatest distress to commercial credit, appeared from what happened in this country in 1772'' (Great Britain, House of Commons, 1793, pp. 31, 33). Later, William Huskisson supplied an endogenous explanation of how an extraordinary incentive to commerce turns into excessive speculation, this being consistent with both the motives of the creditor and the debtor to expand credit beyond its boundaries, and of the reasons why such a condition is unstable and bound to collapse. This was not a fully endogenous explanation of the entire commercial cycle, as the starting point was an external impulse to trade, but it moved a good way toward it (Huskisson, 1810). Huskisson's view that prosperity contains the seeds of its own reversal gave rise to surprise and bewilderment not dissimilar from the one expressed by Sheridan two decades earlier. John Raithby, for one, could not believe that the very spirit of enterprise that guided the splendor of the British mercantile establishments could be productive of ''mercantile delusion, wild adventures, and abuse of credit,'' which he attributed instead to ''individual imbecility'' and ''individual calamities'' (Raithby, 1811, pp. 96–101).

The cobweb-like mechanisms cited above also supplied semiendogenous explanations of price fluctuations relying on corn laws as the threshold amplifying natural price fluctuations in agricultural products, or (as in the case of Wade) even fully endogenous mechanisms. Similarly, James Wilson (1839) propounded a semiendogenous explanation of the alternation of high and low prices of agricultural products, in terms of a cobweb-like concatenation of states: low prices of agricultural products discourage production; the less fertile fields are abandoned, and after some time, production actually diminishes. This determines a price rise, which induces to cultivate again the less fertile fields, and after a lag production increases.[66] The mechanism is not entirely endogenous as it is fed by the false expectations in prices created by changes in the Corn Laws. Later, Wilson also suggested that these fluctuations extend to the whole productive system (1840; see Link, 1959, pp. 103–126). Thomas Corbet also relied on a cobweb-like mechanism to explain oscillation in each single trade (1841, pp. 33–36). He maintained them to be relatively innocuous and compensating each other, except that when they happen to grow too much, they involve most other businesses and turn into a general cyclical movement (pp. 102–106).

In truth, such attempts to construct theoretical explanations of cyclical fluctuations or of the recurrence of crises were rather rare. This, however, did not prevent writers from observing the phenomenon. By the end of the 1820s, descriptions of the alternation of prosperities, with rising prices and speculation, and depressions accompanied by falling prices, were already commonplace (Miller, 1927, p. 193).[67] At this time, we find further attempts to estimate the period: an anonymous American reported in 1829 that "an opinion is entertained by many" that the average period of these "fluctuations" (the term is used several times) that "do take place, and … always will take place in countries, where paper money has been extensively introduced" is about 14 years (*Raguet, 1829a). In 1838, Hyde Clarke was under the impression that cycles – the term he used – in nature and society (without, however, specific reference to economic cycles) are subject to an elementary mathematical law (Clarke, 1838). Clarke considered not only 10-year cycles but also 54 years long waves, but he did not actually publish his reflections on the subject until 1847 (Clarke, [1847]1999; see Black, 1992; Henderson, 1992; and, for early appreciations, Jevons, 1878; von Bergmann, 1895, p. 239). Briaune, in an 1840 pamphlet on *Des crises commerciales. De leurs causes et de leurs remèdes* (note the word in the plural)[68] explicitly wrote about the "périodicité des crises commerciales" (p. 2), referring only to their return, without any reference to a more or less

strict period. In 1848, Coquelin wrote that "commercial perturbations" "have become in certain countries in some degree periodical" (Coquelin, 1848, cited from the 1850 translation, p. 219; Coquelin, 1852a, p. 528), and Lawson wrote that examining the English panics, "we shall find these periods of commercial distress regularly and periodically recurring in cycles of from five to seven years" (Lawson, 1848a, p. 2).[69] Within a couple of decades, most writers agreed on a period of about 7–11 years, culminating of course in Jevons' claim that the phenomenon is strictly periodical (see Section 3.4).[70]

"Crises,"[71] "panics," "revulsions," and "convulsions" began to appear, in the plural, in the titles of books, articles, and pamphlets,[72] witnessing that such incidents were becoming to be understood as instances of the same phenomenon rather than disconnected events. Moreover, still along the same line, the issue of crises was deemed ready to become the subject of historical books (Bell, 1850; Anonymous, 1857a; Wirth, 1858; Evans, 1859); a historical sketch of previous financial panics was even published by a newspaper (*New York Herald*, 1857).

3.3. The Phases of the Commercial Round of Course

As a certain frequency and regularity in the occurrence of crises was acknowledged, commentators started to recognize some common pattern.[73] In the early decades of the nineteenth century, it was common to counterpoise "prosperity" and "depression" or "distress," or similar expressions,[74] such as Currie's contrast between "our late unexampled prosperity" and "our present unparalleled distress" (1793, p. 3), Attwood's "advancing or declining prosperity of the country" (1817, p. 11), Dupont de Nemours's "disturbance or prosperity" and "times of inactivity and happy times" ([1806] 1811, pp. 65–66), Tooke's "spirit of speculation and over-trading on the one hand, and to stagnation and despondency on the other" (1823, p. 87), Carey's "comparison between the extraordinary prosperity of Great Britain, and the general depression in the United States" (1823), Western's alternation of "distress and prosperity, depression and speculation" (1826, p. 224), Huskisson's "alternation of extravagant excitement and fearful depression, which this country has so often experienced of late years" (1826, p. 784), Scott's "Proposed measures for the removal of national distress and establishment of permanent prosperity" (1827), or Wade's "alternate periods of prosperity and depression" (1833, p. 211).

By 1830, Huskisson supplied a fairly clear-cut description of the various phases through which trade passes, beginning from a state where ''supply and demand would continue in the same relation to each other,'' followed by ''speculative purchases'' causing an advance of prices at an accelerated rate, after which demand become languid and a pause ensues while goods continue to be offered for sale: in such conditions, ''a glut or super-abundance of goods is said to exist.'' This begins a time of distress, during which prices fall and the bills of exchange are reduced in amount, until the goods in excess of demand are eventually sold (*Huskisson, 1830, pp. 446–452). Whereas Huskisson did not stress the division in phases to focus on the overall movement, Overstone presented a well-known neat parceling of the ''cycle''[75] in 10 phases:

> The history of what we are in the habit of calling the 'state of trade' is an instructive lesson. We find it subject to various conditions which are periodically returning; it revolves apparently in an established cycle. First, we find it in a state of quiescence, – next improvement, – growing confidence, – prosperity, – excitement, – overtrading, – convulsion, – pressure, – stagnation, – distress, – ending again in quiescence. (Overstone, 1837, p. 31)

This account is quite illustrative of the ''circular course'' through which trade progresses, but Overstone did not elaborate further and these phases remained empty of analytical content. More suggestive is Longfield's representation in 10 phases of the ''fluctuations of trade'': a detailed description of the banks' discounts and their effects upon trade is illustrated with the 10 phases (caution, confidence, liveliness, overtrading, great apparent prosperity, sudden cessation, paralysis, distrust, panic, and bankruptcies) written in a circle, the period of which is said to be about five years. The account is not only descriptive: each stage of the process, although not easily linked to a specific phase in the list (thus witnessing the lack of analytical precision), is described in detail as following consequentially from the preceding one (Longfield, 1840, pp. 222–223). Briaune boiled down the number of phases to three (''crise,'' ''reprise des affaires,''[76] and ''développement commercial''), but like Overstone, he only used them in a descriptive way, without trying to specify an analytical content (1840, p. 13). Corbet discussed – also descriptively – a five-phases cycle: when ''over-production, or as it is generally called *over-trading*, takes place in the community, it is generally followed by exhaustion, relaxation, depression, and distress – which again, after a time, are succeeded by a period of unusual briskness and activity'' (1841, p. 105):

> that such alternations or periods of activity and relaxation, or prosperity and depression, must […] be at all times in operation or progress, so as to return periodically, independently of war or any other cause than the irregular or unequal exertion of human industry – the overdoing of things in particular class of the community, which again produces revulsion; – one excess, like the high and low or hot and cold fits of a fever, always giving birth to and generating another. (1841, pp. 105–106)

Seen in the context of these contributions, it is apparent that Juglar's emphasis on the succession of crises rather than on their singularity did not constitute a novelty but was rather the product of the atmosphere of his time. True, the writers cited above albeit numerous were still exceptions rather than the rule,[77] as most commentators, "in America as elsewhere, regarded a commercial crisis, not as a phase of a business cycle, but as the unhappy interruption of a normal trend of business that might have continued indefinitely had it not been for the unfortunate circumstances that brought on its collapse. Their observation of the cycle centered upon its most conspicuous phase – the crisis. Accordingly, the first attempts to explain crises sought the origin of each in some particular incident of the time. No general explanation common to all crises was offered; some writers explicitly denied that one could be formulated" (Miller, 1927, p. 187).[78] But commentators were not only increasingly aware that crises (or panics) come in "waves,"[79] but also identified some regularities, looked for common paths, and started to look for a unifying explanation, one that tells of a coherent story of phases succeeding one another in the same order and treated crises as members of a class of events (see Section 3.8 for more details). The 10-phase classifications were certainly too clumsy, and Juglar's three phases not only provided a welcome simplification and a morphological description closer to what was later found useful (Schumpeter 1954, p. 1124) but also gave (or, rather, attempted to give) an analytical specification to each phase. But by 1862, Juglar had only indicated that he *intended* to show how phases succeed one another; one of these causal linkages, however, was still left hanging in the air, and the other was only hinted at (see Section 2.1.4).

3.4. Again on the Periodicity of Crises: Recurrence versus Regularity

If at the time of Juglar's first edition a large number of commentators were aware that crises return with some regularity, as evidence accumulated the belief spread further. This is not to say that everybody accepted the idea of more or less periodical crises: some kept arguing (up to the 1930s, and with

renovated vigor in the 1960s and especially from the 1980s) that crises are essentially unrelated phenomena triggered by some external event. Juglar himself reported, in his second edition, that his claims on periodicity had been subject to criticism – without, however, specifying by whom (1889, p. 3). By the 1920s, however, most authors would have subscribed to the periodic character of capitalistic accumulation, with an emphasis on the return of phases in the same relative order and admitting that the period is not strictly respected and can be affected by various events.

Some writers, however, went further than Juglar and most of his contemporaries and successors and claimed that cycles are strictly periodical. The experience of the crises that occurred in Britain in 1815, 1825, 1836–1839, 1847, 1857, 1866, and 1878 (Jevons 1878b, p. 231) seemed to suggest a fairly precise decennial period, and to some authors, the problem of the recurring of crises presented the additional issue of explaining the causes of the regularity in the period. Among these writers, Jevons is of particular interest, as he was a contemporary of Juglar, as Juglar commented precisely on this aspect of Jevons's work, and as their opposite stands were for a while contrasted in the literature.[80]

Jevons accepted the psychological explanation of the cycle offered by John Mills. He stressed, however, that although Mills recognized the regularity of fluctuations, he did not explain their period. Jevons's well-known theory based on the recurrence of sunspots[81] was precisely an attempt to solve this problem:[82]

> It is a well-known principle of mechanics that the effects of a periodically varying cause are themselves periodic, and usually go through their phases in periods of time equal to those of their cause. (Jevons [1875], in 1884, p. 194)[83]

> When we know that there is a cause, the variation of the solar activity, which is just of the nature to affect the produce of agriculture, and which does vary in the same period, it becomes almost certain that the two series of phenomena, credit cycles and solar variations, are connected as effect and cause. (Jevons, 1878a, in 1884, p. 216)

> Taken altogether, the historical facts concerning the periodic recurrence of crises appear to me too strong to admit of doubt, and it is only the nature of the explanation of that recurrence which is a matter of speculation. (Jevons, 1878a, in 1884, p. 219)

Juglar contested Jevons's (and Cobden's[84]) excessive faith in strict periodicity:[85] "crises do not recur at fixed times" (Juglar, 1889, p. 163).[F43] He also implicitly rejected the methodological premise of the periodicity of causes: "this […] does not imply that there are regular cycles of abundance and scarcity. Joseph's prediction of seven years of prosperity and seven years of distress itself proves that such a fact was an exception"

(p. 162).[86,F44] Juglar took the occasion to stress again that the outbreak of a crisis is only possible when equilibrium has become unstable: before that, any famine or war would not excessively derange the economic system, while if equilibrium is unstable any event can trigger the explosion (p. 165). The issue at stake was the two writer's interpretation of the causal nexuses, with Juglar's medical notion of causality (see Section 2.1) opposed to Jevons's mechanical (or even astronomical) one. Both writers discussed them quite openly. Juglar had in mind a continuously operating cause, building up tension in the system until it becomes sufficiently sensitive to accidental events that trigger the crisis. Jevons thought instead of periodical impulses, admitting nevertheless that secondary causes could anticipate or delay the event. At first, Jevons thought that the periodical impulses would act on the system by resonance. He could not, however, find any internal rhythmical cause of fluctuations synchronous with the external cause, and eventually, his sunspots operated purely as external causes, transmitted through the system by internal forces.

The contrast between Jevons's and Juglar's positions illustrates well three issues opened by the periodicity of crises.[87] The first concerns the regularity in the timing *versus* the recurrence of the same pattern at irregular times. By the 1860s, several writers had estimated the frequency of crises to be about 10 years, and the actual timing suggested indeed some regularity. This was clearly important in terms of business forecasting, which would be very much facilitated by strictly periodic recurrence of crises. Nevertheless, the first attempts at devising business barometers in the late 1880s (Siegfried, 1886; Numann-Spallart, 1886; de Foville, 1888) moved from Juglar's line of research rather than from Jevons's approach, gaining Juglar the nickname of "prophet of crises" (Neymarck, in Société d'Économie Politique, 1893, p. 7; Passy, 1905, p. 421).[F45] Interestingly, the idea of strict periodicity of crises raised a logical objection precisely in connection with predictability: if crises were subject to an iron law of periodicity and could be forecasted, they would be discounted in advance and therefore would not occur at all (Courtois, in Société d'Économie Politique, 1893, p. 13; Targe, 1902, p. 203). Yet, the opposite opinion was advanced by another adversary of the thesis that crises recur periodically: "a belief in a decennial period tends not only to produce one at the period fixed through groundless alarm, but at other times through groundless confidence in the unconditional remoteness of danger" (*Leslie, 1864, p. 1578).

The second issue concerns the nature of the first cause of crises. Juglar's position reflects the tradition of the overtrading view of crises (see Section 3.5). An excess of credit needs time to build up. Once trade starts

accelerating, rises in prices, inducement to further speculation, and request for further credit are not instantaneous and must proceed for some time before the system is sufficiently unstable to be easily toppled. What matters here is the cumulation of effects over time, rather than the occurrence of a specific event. This was not the only tradition relying on continuously operating causes. Marx, for instance, saw crises as the temporary resolution of the contradictions intrinsic in capitalistic production, in particular (but not exclusively), the constant tendency to increase productivity by substituting capital for labor (in Marxian terminology, to increase the organic composition of capital), which negatively affects profit rates until eventually production is no longer profitable and requires to be interrupted, thereby suddenly interrupting the payment chain and bringing to a halt almost the entire productive system.

The idea that the rythmical nature of crises is determined by a periodically recurring cause can hardly rely on an *internal* antecedent, for otherwise, the primary phenomenon to be explained would be the periodicity of the antecedent itself. Indeed, the only attempt in this direction seems to have been the attribution of periodicity to the succession of entrepreneurial generations. Some writers argued that crises are allowed to return after the generation of entrepreneurs who has seen a crisis is substituted by a new generation, which has to learn the hard way how to resist the temptations offered by seemingly easy and profitable business opportunities. Consistently, one of these writers rejects as the ''most baseless of the many extravagances which have been committed in the attempt to induce arithmetical formularies on economic science'' the idea that ''panics are governed by some mysterious law of periodicity'' (Rogers, 1879, p. 224; see also Noyes, 1908; and a writer for *The Nation* in 1873, cited by Jones, 1900, p. 139).

The most suitable option for the holders of the thesis of periodical causes was then to resort to external antecedents, and the astronomical world was a natural choice (indeed after Jevons, we had Moore's (1908) phases of Venus). But – and this is the third issue relating to periodicity – this makes this approach a special case of the traditional way of explaining crises as the result of accidental, and essentially exogenous, events. This group of believers in periodicity and the larger party of nonbelievers shared a view of the economic system as self-adjusting, unless disturbed by some interference. The difference lied in the interpretation of economic data as showing a true periodicity, and in the recognition of a unique primary cause, so that Jevons would recognize a law of periodicity that was instead denied by the opposite faction. The debate focused indeed on the lawfulness of crises. The disparaging comment cited in the previous paragraph was not alone. The first

all-round attack was published as an anonymous letter dated November 15, 1864, to *The Economist* (the author was later identified as Cliffe Leslie by his friend de Laveleye, who endorsed his argument by translating it in full in his *Le Marché Monétaire et ses Crises*, 1865, pp. 290–301).[88] Its very title, *Alleged Commercial Decades or Cycles*,'' indicates that the idea that crises come in waves about 10 years apart was beginning to be widespread enough to need to be countered. Leslie seems to have been worried not only by its endorsement by Jevons (1863) but also by politicians who had started to plan their policy having in mind the decennial recurrence of panics and argued that ''besides the irregularity in our harvests, there are obviously many other uncertain vicissitudes which make it in the highest degree imprudent to reckon securely upon an easy money market and commercial prosperity throughout any year, and absolute madness to base trading speculations on the assumption of such a state of things for several years to come in succession'' (*Leslie 1864, p. 1428). Leslie contested that crises could be interpreted as having the same origin and argued that even if decades of alternate rises and falls of prices could be identified in the past, ''it would be altogether fallacious to infer that the same order of things would recur periodically for the future'' (*ibid*.).

A debate held at the Société d'Économie Politique, in Juglar's presence, on the subject ''Is there law or accident in the periodicity of crises?'' is interesting in this connection. After he illustrated his theory affirming that there is a law in the periodicity of crises, Alfred Neymark specified that one could equally well claim that ''there is casuality in the periodicity of crises,'' as crises are often the consequence of rumors or political accidents, amplified by the contagion of fear (Société d'Économie Politique, 1893, p. 8). Courtois pointed out that there is a huge difference between periodicity and recurrence of crises and that while Juglar could claim the latter, he could not claim periodicity which, in the definition given by the Littré dictionary, indicates a ''revolution in a *given* number of years.'' ''A period, then, implies a fixed timing, without uncertainty or probability. Periodicity is a specific feature of exact sciences. What depends on human acts cannot be bound by it. The duration of human life, for instance, is not a period, as it is subject to variation. Periodicity is the expression of a law, without periodicity there is no law. As Neymarck said, ''an accident is not necessarily periodic'' (Société d'Économie Politique, p. 12). Can crises be deemed to be periodic? Courtois denies it, summarizing Juglar's position as holding that crises must cease that year, unless they cease on that other year and must begin after so many years unless it is more or less than that. ''Therefore there is no

periodicity, and thus no law. All there is is probability, tempered by accidents'' (p. 13).

The issue at stake was not simply whether or not crises occur with chronometric precision but was the interpretation of the phenomenon and of the very working of the economic system. These writers were themselves aware of this. Ferrara argued that the emphasis on crises was misplaced, for what should be stressed is the underlying state of progress, regardless of the accidental interruptions. He even maintained that before the periodicity of crises is proved beyond doubt, bowing to it would be for political economy an act of cowardice ([1864] 1890, pp. 274–279). Similarly, Leslie argued that

> For cynics who deride all proof of human progress, the notion of cyclical movement of things and recurring disaster, has obvious attractions; but it commends itself also to a better order of minds, since it has its brighter side in the ascending period of prosperity. ([1864] 1890, p. 1578)

3.5. Credit, Speculation, Prices, and Overtrading

All the analytical ingredients used by Juglar to explain how prosperities build up the premises to crises had been extensively advocated before him, often in similar combinations. Although the explanations Juglar rejected, based on mismanagement of the currency or on specificities of the banking system, were quite popular at the time (as witnessed by the debate between currency and banking schools, which echoed well beyond England), credit was one of the favorite culprits for a number of writers (and an accomplice even in the view of most participants in the debates on currency and banking). As aptly summarized by Miller in his study on banking theories in the United States before 1860:

> Credit was believed to play a threefold part in producing crises. First, it enabled men to 'overtrade' in periods where mutual confidence was high. Secondly, it formed a network of interrelations through which the insolvency of a few merchants embarrassed a great many others. […] Finally, some emphasized the fact that the use of credit instruments in normal times furnishes a substitute for money, so that, when in troublous times cash payments are insisted upon in lieu of credit formerly extended, the financial stringency becomes all the more acute. (Miller, 1927, pp. 189–190)

Miller supplies a number of references from American writers, of which Gallatin (1831) is particularly notable, and to which Walker, in a discussion with Homer Stansfield (Walker & Stansfield, 1860), should be added, but it would be easy to list writers from other countries who held similar views. Among the publications fairly recent at the time of Juglar's writing, there

are, for instance, Garnier (1845), Coquelin (1852a, 1852b), Société d'Économie Politique (1854), Courcelle-Seneuil (1858), Rey (1862), and Bonnet (1865) for France; Tooke (1823, Pt I, section VII), Langton (1857), Williams (1858), and MacLeod (1863, p. 626) – with his emphasis on "misused credit [as] the cause of those terrible mercantile catastrophes which periodically sweep over the world" – for England; and Ferrara ([1864]1890) for Italy.

Strictly related to credit are speculation and the psychology of the public, which were also often (but not exclusively) advocated in connection with credit. Credit permits speculation beyond one's own means, and manias feed the process. Psychology was also called to play a part in the reversal of the movement, as indicated by the very word "panic" used to indicate (and also characterize) the financial aspect of crises. Here again, a few examples will suffice: Lawson (1848a, p. 3) cites a 1825 writer who described the causes of contemporary panic "in words which might be stereotyped as applicable to all similar occasions":

> In all these speculations, only a small instalment, seldom exceeding 5 per cent. was paid at first, so that a very moderate rise in the prices of the shares produced a large profit on the sum actually invested. This possibility of enormous profit, by risking a small sum, was a bait too tempting to be resisted; all the gambling propensities of human nature were constantly solicited into action; and crowds of individuals of every description – the credulous and the suspicious, the crafty and the bold, the raw and the experienced, the intelligent and the ignorant, princes, nobles, politicians, placemen, patriots, lawyers, physicians, divines, philosophers, poets, intermingled with women of all ranks and degrees, spinsters, wives, and widows, hastened to venture some of their property in schemes of which scarcely anything was known but the name. (Anonymous, 1825, p. 3)

Credit and speculation figured prominently as the causes of the depression identified by the House of Lords secret committee on the causes of distress: "those which are connected with the Extension of Commercial Speculation, encouraged or checked by the Facility, or the Difficulty, of obtaining Credit" (Secret Committee on Commercial Distress, 1848b, p. iii). Emphasis on psychological contagion is found, for instance, in Langton (1857), J. S. Mill ([1826]1967; cited and discussed by Link, 1959, p. 151), and Longfield (1840). Authors stressing the role of speculation are, for instance, Tooke (for a discussion, see Link, 1959, pp. 131, 133–135, 139–141, 145–147, 157), J. S. Mill (Link, 1959, pp. 53–69, 149, 166–169, 171, 175, 177–178), Wilson (Link, 1959, pp. 112, 114, 119–120, 124), Ganilh (1826), *Raguet (1829a), Coquelin (1852a), Wilson (1859), and *Courcelle-Seneuil (1860). Emphasis on speculation must have been quite popular at the time; Guthrie reports that "The favourite doctrine of the *Times* and its followers is, that the mania for

speculation is a disease to which human nature is subject, and which can be removed or alleviated only by moral appliances'' (Guthrie, 1864, p. 5).

Juglar's belated shift of emphasis on prices also was not a novelty (see Section 2.2.1).[89] In the last decades of the eighteenth century, the debates on the ''distress of the country'' were associated with the price of provisions, whether because of wars (Brand, 1800; Duthy, 1801), famines, or the operation of the poor laws (e.g., *Malthus, 1800) or – toward the turn of the century – to banking policy and practice (e.g., Anderson, 1797; Boyd, 1801; Baring, 1801; Frend, 1801; Surr, 1801). A few years later, the controversy on the price of bullion – which gave rise to some interesting contributions to the theory of crises, such as Huskisson's – implied as a counterpart that the determinants of the general price level were examined. The cobweb-like verbal models mentioned in Section 3.2 were formulated in terms of fluctuations of prices. Tooke's discussion of fluctuations was entirely in terms of prices, rather than quantities,[90] and the debates on banking policy also concerned their effects on prices. A number of writers characterized the state of distress as one of low or falling prices (e.g., Horsley Palmer's testimony before the Secret Committee on Commercial Distress, 1848a).

By the 1880s, when Juglar incorporated price fluctuations in his mechanism explaining how credit and speculation fuel each other into excess, we already had Jevons's statistical investigations and a number of writings explicitly inquiring into the relationship of prices and fluctuations: among the most recent at the time, we may quote Giffen's ''Trade depression and low prices'' (1885), an anonymous ''Depression of trade and prices of commodities'' (1886), Leroy-Beaulieu's ''La baisse des prix et la crise commerciale dans le monde'' (1886), Foxwell's *Irregularity of Employment and Fluctuations of Prices* (1886), Marshall's ''Remedies for fluctuations of general prices'' ([1887] 1925), and Wasserrab's (1889) *Preise und Krisen* (for a survey that takes Juglar as its starting point, see Williams, 1919). Although a number of reflections on prices took as a starting point their relationship to the quantity of money, suggestions as to the link between prices, credit, and speculation could easily be found in the literature: Cobden, for instance, prefacing Chevalier's argument, wrote that ''The tendency to a general rise of prices would lead to an expansion of credit, and an increase of speculation, which would be followed by panics and convulsions'' (Cobden, 1859, p. x; Juglar might have been aware of this passage: see note 84).

Most of these writings rely on a tradition with roots deep in the eighteenth century. A detailed account of overtrading is found, for instance, in Defoe's *Complete English Tradesman*, where a chapter is dedicated to the dangers of

a constant temptation to trade beyond one's credit (1726, letter VI, pp. 72–73). Smith could take the subject almost for granted, as he incorporated it without much discussion in the *Wealth of Nations* as the cause of the scarcity of money (Smith, [1776]1979, IV.i.16). Whereas the early treatments explored the moral side of the issue relating to traders not being able to face their commitments, by the end of the century, some writers had realized that overtrading contains a potential of instability capable of bringing the entire system of credit to the toppling point (see, e.g., Roscoe, 1793; *Anderson, 1797; Anonymous, 1796; also see Section 3.10). The credit – speculation – price-rise cumulative chain is eventually found in a fairly articulated way in Huskisson's pamphlet on the bullion report (1810, pp. 131–144). A measure of the success of this argument is given on the one hand by the taking up of the term in the daily press (see, e.g., *American Beacon and Commercial Diary*, 1816; *New-York Spectator*, 1826, 1840; *Daily Herald*, 1837; *Richmond Enquirer*, 1837; *The Atlas*, 1837) and on the other by the endorsement given by J. S. Mill in the discussion of commercial crises in the *Principles*. The passage is worth citing at length as it contains an admirably concise form of all what Juglar would have said four decades later:

> There is said to be a commercial crisis, when a great number of merchants and traders at once, either have, or apprehend that they shall have, a difficulty in meeting their engagements. The most usual cause of this general embarrassment, is the recoil of prices after they have been raised by a spirit of speculation, intense in degree, and extending to many commodities. Some accident which excites expectations of rising prices, such as the opening of a new foreign market, or simultaneous indications of a short supply of several great articles of commerce, sets speculation at work in several leading departments at once. The prices rise, and the holders realize, or appear to have the power of realizing, great gains. In certain states of the public mind, such examples of rapid increase of fortune call forth numerous imitators, and speculation not only goes much beyond what is justified by the original grounds for expecting rise of price, but extends itself to articles in which there never was any such ground: these, however, rise like the rest as soon as speculation sets in. At periods of this kind a great extension of credit takes place. Not only do all whom the contagion reaches employ their credit much more freely than usual; but they really have more credit, because they seem to be making unusual gains, and because a generally reckless and adventurous feeling prevails, which disposes people to give as well as take credit more largely than at other times, and give it to persons not entitled to it. In this manner, in the celebrated speculative year 1825, and at various other periods during the present century, the prices of many of the principal articles of commerce rose greatly, without any fall in others, so that general prices might, without incorrectness, be said to have risen. When, after such a rise, the reaction comes, and prices begin to fall, though at first perhaps only through the desire of the holders to realize, speculative purchases cease: but were this all, prices would only fall to the level from which they rose, or to that which is justified by the state of the consumption and of

> the supply. They fall, however, much lower; for as, when prices were rising, and everybody apparently making a fortune, it was easy to obtain almost any amount of credit, so now, when everybody seems to be losing, and many fail entirely, it is with difficulty that firms of known solidity can obtain even the credit to which they are accustomed, and which it is the greatest inconvenience to them to be without; because all dealers have engagements to fulfil, and nobody feeling sure that the portion of his means which he has entrusted to others will be available in time, no one likes to part with ready money, or to postpone his claim to it. To these rational considerations there is superadded, in extreme cases, a panic as unreasoning as the previous overconfidence; money is borrowed for short periods at almost any rate of interest, and sales of goods for immediate payment are made at almost any sacrifice. Thus general prices, during a commercial revulsion, fall as much below the usual level as during the previous period of speculation they have risen above it: the fall, as well as the rise, originating not in anything affecting money, but in the state of credit; an unusually extended employment of credit during the earlier period, followed by a great diminution, never amounting, however, to an entire cessation of it, in the later. (Mill, [1848] 1965, Book III, Ch. 12, § 3)

The upshot of this story is that the ingredients of Juglar's account of the cycle were far from new at the time of his writing and actually were rather commonplace; nor was Juglar's combination of these ingredients particularly original. His first version was actually rather primitive, as it did not incorporate the price mechanism as the fuel of the speculative movement, and only in 1889, we find a more compete formulation (Section 2.2.1). The novelty of Juglar's contribution, then, cannot certainly lie in his specific theory of crises, and indeed, it is not to this that he owes his fame.

3.6. The Medical Metaphor and the Mysterious Tendency to Self-Adjustment

The use of medical metaphors to describe crises was quite widespread before and after the time of Juglar's writings, and the citation of a few instances may suffice. The most common examples consist in unspecific references to one or another cause of crises as "a canker," "an internal ulcer" (Cory, 1842, p. 3), or to revulsions in commerce as "a sort of periodic epidemic in our times" (*Turner, 1844, p. 50) or as a "maladie" (Chevalier, before the Société d'Économie Politique, 1854, p. 430), or to the various occurrences of panics as a "melancholy list" (Evans, 1859, p. 1).[91] This kind of comparison of crises to a disease simply meant to emphasize that something wrong is going on in the economic system, preventing it from working normally. It thus reflects the view that a crisis is a disturbance to some "normal," "healthy" state of the system, but does not carry us much further.

Two more specific comparisons of crises and disease are more of interest. One related to the spreading and amplifying of disturbances. Longfield, for instance, wrote that the crisis "is like an epidemic … like the plague, or any other infectitious disease which may cease of itself" (1840, p. 222); similarly, Condy Raguet began an article "On the principles of banking" with the following words: "When a community is in the full enjoyment of health, few persons are to be found willing to listen to the warning of the cautious; and it is not until the destroying epidemics appears, and when relief would come almost too late, that the public mind is in a state capable of receiving the truths, a previous acquaintance with which might have saved them from disease. What is true of physical evils, is equally true of the moral evils" (Raguet, 1829b, p. 1). Similarly, we have Wade observing that "The spirit of speculation is often epidemic" (1833, p. 209); Dupin, writing of the "fever of speculation" (1846, p. 309); the anonymous writer of the short entry on commercial crisis in Meyers *Grosse Conversations-Lexicon* (1849a), who wrote of crises occasionally spreading like epidemics through the entire country; a Boston Cashier, observing that "speculative spirit is contagious" (Anonymous, 1850, p. 1); and Guthrie, stating that "Physicians seek, with more or less success, to explain the recurrence of epidemics; and shall economists despair of accounting for the periodicity of this widespread frenzy?" (1864, p. 6). In such a usage, the emphasis is on the contagious character of crises. Although Juglar did not use this specific analogy in the first edition, while there is only a passing remark in the second ("cette spéculation est contagieuse": 1889, p. 166), it is interesting to record such occurrences in the literature for they indicate a belief that crises are the result of some kind of instability (see Section 3.10). Other analogies, of course, could and did do equally well, such as the suggestive "down go prices like an avalanche" (Williams, 1858, p. 55).

The second connotation of the medical analogy is the comparison of crises to a disease, intended as an anomaly in the "normal" development of the economic system. We find it, for instance, in Say who, after listing "wars, embargoes, oppressive duties, the dangers and difficulties of transportation," social unrest, increasing uncertainty, arbitrary exactions, jobbing, and speculation as causes of obstruction to circulation, added, "No sooner is the cause of this political disease removed, than the means of production feel a natural impulse towards the vacant channels, the replenishment of which restores activity to all the others. One kind of production would seldom out-strip every other, and its products be disproportionately cheapened, were production left entirely free" (Say 1803, cited from the 1880 translation of the 4th edition, Book 1, Chs. 15 and 16).

Blanqui wrote of commercial crises as "truly periodical diseases" (1836, p. 258). Tocqueville referred to the return of industrial crises as "an endemic disease of contemporary democratic nations, which can be made less dangerous but cannot be cured, because it does not originate in an accident, but in the very temperament of these people" (1840, Part 2, Vol. 1, Ch. 11, p. 66).[F46] Briaune wrote that "the social body, like the human body, is subject to diseases, some of which originate from external accidents and only temporarily trouble the vital functions, while others are caused instead by organic defects and, on becoming chronic, affect the constitution and development of individuals and societies."[F47] Commercial crises belong to this second sort (Briaune, 1840, p. 1). Lawson wrote of commercial panics as "diseases to which the body politic is subject – not chronic diseases, but epidemics as regular in their recurrence as influenza itself, though only at longer intervals" and contrasted the regular natural function to the effects of "some interference either from the government or ourselves deranged the usual course of things" (1848a, p. 2). Roscher referred to crises as disturbances of equilibrium "belonging to the most dangerous shocks, diseases of the body of the economy, so to speak" (1849, p. 723) and as a "politico-economic disease" ([1877] 1882, p. 204). The Boston Board of Trade treated crises as "diseases which afflict the commercial system" (1858, p. 851). Boccardo discussed crises as "a disability of the modern social world; political economy is not only physiology, but also pathology and clinical practice" (1879, p. 126).[F48] These kinds of references to diseases clearly contrast the "natural" and "healthy" state of the system to the evil consequences of some disturbance, whether internal or external, the disease *is* the trouble.

The medical doctor in Juglar emerges again here: he – following his Paris mentors, as pointed out by Frobert and Hamouda (2008) – interpreted the disease not as a functional damage but rather as the *consequence* of such a damage.[92] An early commentator clearly understood that Juglar's argument reversed the perspective of the writers listed above: "Crises, according to Dr. Juglar, result from the abuse of high health, and not from a low state of the system" (McCulloch, 1867, p. 278). Whereas in the view of the these writers, the emphasis is on the *lack* of health, revealing a purely negative conception of crisis as a derangement of the natural state of the system, in Juglar, there is also a positive connotation: the crisis and the subsequent liquidation play a specific role in the elimination of the excesses and abuses that give rise to the disease. Their role, like crises in the critical stage of a disease, is to bring back to "health" and equilibrium. Driven by an unspecified self-rightening tendency (the consequence of the absence of specification is the lack of an

explanation of the trough of the cycle, especially in the first edition of Juglar's book), similar to the "healing power of nature," the crisis is

> a healthy reaction of the organism against the disease and a struggle against its evil results. This force, designated as the healing power of nature, can be compared to the antidote to a poison. It continuously tends to re-establish the calmness and equilibrium in the organisation. (Hardy, 1849, p. 389)[F49]

Here is the sense of de Foville's recollection, according to which Juglar "is the only person I have ever heard praise the benefits of fever, and he once did it with such poetic eloquence that the passers-by stood still to listen" (1905, p. 293).

In this field, Juglar was better equipped than most other users of medical metaphors.[93] Whereas other writers only had a generic understanding of the nature of diseases, Juglar's medical training enabled him to understand the function and role of diseases in the physiology of the human body. His metaphors could thus play a heuristic function, as pointed out by Frobert and Hamouda (2008). This is not an isolated case: sometimes, metaphors are only used to illustrate an argument, but often, they help in transferring a way of thinking from one domain to another. The history of the theories of economic fluctuations offers other examples, such as the waves of the ocean (suggesting gravitation around a "mean sun")[94] or the pendulum – the metaphor that eventually displaced references to the physiology of the system to emphasize its mechanics: the choice of the analog, whether for illustrative purposes or as a heuristic device, is never neutral. As we shall see in Section 4.2, the transition from the nineteenth-century notions of crises as anomalies to the early twentieth-century view of cycles as the normal form taken by capitalistic relationships was indeed accompanied by a shift from "disease" as a preferred metaphor for crises to mechanical analogies of oscillating systems.

3.7. Crises and Progress

Juglar's idea that crises as painful but inevitable and necessary to growth was also not new at the time he formulated it. Its far origin lies in the comparison of the merits of the diffusion of credit with the danger of overtrading stimulated (or at least permitted) by credit (see Section 3.5). Without climbing too far back in time, we find, in 1800, Charles Long arguing that although credit and fictitious capital may have been pushed too far and in some instance can have done harm, "it has done great good; that

a great part of the substantial wealth of this nation has been obtained by the credit of the British trader, enabling him to add fictitious capital to real capital; and to make profits, the result of the employment of both'' (p. 20). More interestingly, in a comment on the Bullion Report, a writer contrasted the *collective* benefit of speculation supported by credit to the *individual* ruin that this may involve. Samuel Cock argued on similar lines that while conservative merchants wait for trade to be commissioned to them, young adventurers engage in speculation and seek new channels of commerce, often with scarce capital. Although this may lead to their personal ''irretrievable embarrassment,'' ''the country at large has derived an important benefit from their exertions'' when the ''rage of speculation'' has ceased and new channels of commerce are opened up for everybody. This could not have happened without ''confidence and credit to support and give effect to the energies of these spirited merchants'' (Cock, 1810, p. 73).

An untitled leader in *The Times* argued that ''good may result from the present crisis, and that the commercial horizon may be purified for the future'' provided that creditors learn the lesson and show firmness and stern integrity:

> We have always asserted, that the present commercial embarrassments, severe as they may be, will have a beneficial result; and that it was well for the country that an impediment was thrown in the way of the existing method of conducting business: for if that system, which had already continued too long, had continued longer, the crash would have been more fatal. (*The Times*, 1826)

As we get closer to Juglar's times, the point of view that crises have a useful function to perform becomes better articulated, such as, in Garnier's entry on ''Commercial crises'' in the *Dictionnaire universel théorique et pratique du commerce et de la navigation*. He maintained that commercial crises are inescapable, they ''are part of the nature of things'' rather than being due to exogenous factors, but are temporary and necessary to permit growth, being the outcome of the ''overexcitement of entrepreneurial spirit'':

> They are inevitable. But the inconveniences are far from balancing the immense advantages that people gain from the vast development of their business. [Commercial crises] are crises of growth, and it is far better to have activity and wealth accompanied by commercial crises (were they necessary in the permanent nature of things) than idleness and poverty. Rich and prosperous countries are sometimes in a crisis; poor countries are permanently in a crisis.
>
> Moreover, commercial crises are in their nature temporary. The sudden drops in the value of goods attract buyers, facilitate consumption, unblock the glut and induce the liquidation of badly directed business. In these events, the producers or holders of goods undergo losses, but at the same time the buyers or holders of circulating capital gain

> from them. The wealth of some people is destroyed, but that of others increases. There are individual sufferings, but from the social point of view there is no such an impoverishment, and the inconvenience related to the crisis is made up by the disappearance of the rotten enterprises. This is why shortly after the crisis business is seen to recover with more vigor and briskness than ever. (Garnier 1859, p. 925)[F50]

R. Hare, in "an effort to refute the opinion, that no addition is made to the capital of a community by banking," admitted that "the facility of getting credit, by multiplying purchasers," may contribute toward "great elevations and depressions in the prices of real estate," making people "alternatively rich or poor, according as greater or less confidence exists with respect to our national prosperity, and the consequent prospective demand for farms, plantations, or building lots, increases or diminished." But maintained that

> Judging from experience, it may be a question whether the ultimate, or average accumulation of national wealth, is less in consequence of the fluctuations of prices to which I have alluded. Such fluctuations rouse men to extraordinary exertion, and by a reaction after each subsiding wave, cause business to revive with a renovated and accumulated force. It is in consequence of the stimulus and reaction which accompany or follow great catastrophes, such as are produced by floods or fires, that after a few years, communities which have been subjected to them, will appear to have made advance even greater than might have been anticipated, had no such deteriorating accident occurred. (Hare, 1852, pp. 705–706)[95]

John Francis (the author of *History of the Bank of England*) described how crises are the necessary "result of some previous and prosperous period" out of which also numerous improvements in the institutional structure of the country and in her capital equipment follow, thus concluding that in spite of the evils panics have created, they have also been "productive of much good in their ulterior result" (*Francis, 1853, p. 471):

> If, then, I be correct in the conclusions I have drawn, our commercial crises have, at all events, produced certain good effects. A brief digest of these will give mercantile introduction to new countries, exclusive commercial privileges, new ideas in banking, the Bank of England itself, the advance and development of the principle of life assurance, hospitals to receive the sick and suffering, canals, docks, bridges, railways, joint-stock banks, mechanics institutions – all owing to such eras. These were some of the special advantages derived by the public from financial excitements; but there are more general and collateral benefits which spring during these periods. It is then that if a man has a new idea he will produce it, that if he has a new machine he will patent it. It is then that the inventor can find capital to perfect the invention which may add to a people's comfort, or stimulate their greatness. Nor is it one of the least of these benefits, that the excitement which precedes a commercial crisis changes the proprietorship of the good things of this world. Were it not for such great epochs, England would have been yet more nation of millionaires than she is; we should have been yet more like old Rome

> when fallen on evil day, a people of extreme rich and extreme poor, instead of being, as I believe we are, a proof of the truth of Lord Bacon's wise aphorism, that money is like manure, and to do good requires to be spread. I believe that these crises are for good. They are the necessary consequences of a high productive power. We are eminently a nation of tradesmen, and that this is no reproach, let the republics of Italy in their palmiest days bear witness. But being good tradesmen, our capital is constantly increasing, and so long as this continues, we must find some mode of getting interest for it. (*Francis, 1853, p. 477)

Such views were not isolated. Critics of this opinion indeed felt that it was spread enough to deserve an explicit rebuttal. Thus in 1850, Ledru-Rollin, discussing "The periodical return of commercial crises which have occurred in England since the peace of 1815," indicated that "A theory has been invented … assuming that these interruptions are necessary to trade; and according to these theorists, crises are an advantageous means of liquidation, which enable the principal houses to rectify their accounts" and commented that "This is a truly strange remedy; it must finish by destroying the patient, under pretence of eradicating the disease" (p. 283). In 1864, Ferrara pointed out that the linkage between credit and crises induced many[96] "enamored with the industrial miracles credit permits to make real" to accept crises as the price of growth. Besides Garnier's entry, he also referred to Coquelin (without giving a precise reference) and explicitly interpreted Juglar's statement that the return of crises is a condition of progress in industry as belonging to this tradition (Ferrara, [1864]1890, p. 274).[97] Similarly, a few years later, Hoyle stated that "there is an opinion prevalent, and it has obtained somewhat general acceptance, that the panics and depressions in trade are the natural outcome, and, indeed, I may say an essential result of the operations of trade: that they are needed to restore the languid commerce of a country to healthy action again" (1877, p. 14). Juglar himself referred to Overstone in this respect (1889, p. 6; see Section 2.2),[98] and Langton (1857) also deserves a place in this connection (for a discussion, see Ashton [1934]1977, pp. 71–72).

3.8. Proximate Causes and Vera Causa of Crises

Juglar's break with the multicausal understanding of crises (Section 2.1.2) was not isolated. Albeit in different contexts and with different terminology, the distinction between "occasional" cause and "predisposition" was available on both sides of the channel,[99] and it is not surprising that some authors applied it to the return of crises precisely in the same way as Juglar did, that is, both for its methodological implications and as a rhetorical

device. Other writers, in fact, were looking for a unifying explanation of crises and accordingly sought a common cause for all instances and at the same time rejected the interpretations of crises as unique events, each having its own cause or set of causes.

3.8.1. Epistemology and Rhetoric

On the constructive side, these writers all introduced an epistemological break with respect to the (then mainstream) approach consisting in attributing a different cause to each crisis and argued that the observed similarity of such events implies the presence of a unique cause. They sometimes differed among one another as to the nature of such cause, but all tackled the problem of the existence of different circumstances at the time of each crisis by introducing the distinction between "occasional" (or secondary, determining or proximate) causes and a "true" (or remote, or primary) cause of crises, the former being specific to each event whereas the latter is common to the entire series.

At the same time, however, these writers had to gain acceptance for their own interpretation and reject the opposite thesis. The constructive side of their argument was thus accompanied by a rhetorical apparatus counterposing the rationality and logical consistency of their own argument and disparaging at the same time the competing approach by stressing its epistemic inadequacy. Some simply argued that their hypothesis of a unique cause is more reasonable; others referred to the principles of science suggesting that the opponents failed to comply with them, and others ridiculed the adversaries. It is remarkable that their rhetorics focused precisely on what these writers thought to be the correct way of thinking about these problems rather than on some specific fallacy of the opponents. The issue at stake was not much this or that cause of the crisis (and the corresponding policy to remedy it), but the general way of approaching the problem of the recurrence of crises. They explicitly chose as battlefield the possibility of understanding the laws of crises, as opposed to the writers who emphasized instead their unsystematic nature. This epistemological revolution is thus the counterpart of the coming of age of a different way of interpreting the working of the capitalist system.

3.8.2. Robert Cockburn

The first two instances of the new approach of which I am aware date from 1840. Opening a pamphlet (published anonymously) titled *Remarks on trade and credit*, Robert Cockburn pointed out that whatever the proximate cause

of crisis, it could only operate provided that the system was predisposed for a crisis. His terminology, like Juglar's, is explicitly medical:

> In former times, we heard the exclamations – "a dull trade;" "trade flat;" "business not brisk;" &c. Since the year 1824, the trading-world has altered its tone, beginning, at stated periods, with a cry of loud complaint, but ending with one which indicates little less than the agony of mind at approaching ruin. It matters not from what cause, whether from a deficiency in the harvest, excitement in domestic politics, dangers of wars threatening us from abroad, the speech of an American President against the Banking system of the United States, or the revulsion of monetary difficulties from those States, – each is productive of a serious effect throughout Great Britain, varying alone in intensity, according to the morbid degree of mercantile activity by which one of these occurrences may have been preceded. A very slight reflection must convince us that the causes enumerated could not produce the effect upon a sound system of trade. Infection is not easily communicated, where the body is not pre-disposed by weakness or ill-health. (*Cockburn, 1840, pp. 1–2)

Cockburn attributed the "primary cause [of] these periodical panics" "to the overtrading of all classes, – whether traders of property, or persons who possess nothing: to the principle and facility of credit; and last, though not least, to that vile system which gives currency to credits, and creates a feverish circulation, upon a rotten foundation" (p. 3). Although the distinction between proximate and primary causes is quite explicit, the criticism to the theories elevating the proximate causes of crises to a full explanation remained implicit. His contemporary economist-agriculturalist Briaune focused instead precisely on the epistemic implications of such a distinction.

3.8.3. Jean-Edmond Briaune

In his discussion of the "periodicity of commercial crises" (p. 2), Briaune suggested that crises are not to be discussed as disconnected individual events but are better understood as a succession of related occurrences. He therefore had to face the problem of rejecting the predominant individual explanation of crises emphasizing in their stead a common explanation. He did so by mocking the adversaries and bringing home an epistemological point at once. One of the points of view to be rejected was the "popular preconceptions" ("préjugés populaires" – shared, in reality, by renowned economists) ascribing crises to "political causes." In Briaune's view, the political and institutional setting can only be a secondary cause,[100] making things worse or better,[101] while the fundamental cause must be sought elsewhere, on the ground of the "general principle that seeks the same cause for a series of similar effects." The destructive part of Briaune's argument consists of a long list of political causes that should be expected to have

produced precisely the opposite effect as the one actually observed: for instance, ''one should profess that the prosperity from 1820 to 1827 was due to the changed electoral law, to the suspension of the freedom of the press and of individual freedom; to the riots in the schools, to the Paris, Saumur, Bedford and La Rochelle conspiracies that were its consequences; to the Spanish war, to the compensation laws, to the primogeniture rights, and to sacrilege, which were its continuation and complement.''[F51,102] The other point of view to be rejected was the ascription of the last crisis to an excess of production, or to credit, or to stock market speculation. Criticizing these views, Briaune expounds the positive principle that should guide the reflection on the causes of crises:

> If these were the true causes, they would have had impact on the crises of 1811, 1817 and 1827, for the periodical return of the same affliction necessarily implies the existence of identical and permanent causes. However, nobody would assign to past crises the supposed origin of the present crisis; it is indeed rather illogical that similar effects, obviously linked to each other, are always attributed to different accidents. Against the general principle that for a series of like effects the same cause must be sought, one should bring irrefutable evidence; but such a proof is still missing. (Briaune, 1840, pp. 3–4)[F52]

The common premise Briaune identified was a sudden halt in consumption, the cause of which he thought to be the periodical increase in the price of cereals, which hits workers first, diminishing their consumption of other goods; successively, ''the illness grows in geometrical proportion''[F53] by spreading to other branches of trade because of the solidarity of commerce (pp. 5–13).

3.8.4. Isaac Preston Cory

A similar view on causality is outlined in the opening passages of a pamphlet by Cory (a barrister and Lecturer of Hebrew at the University of Cambridge, 1801/2–1842):

> A variety of causes has been assigned to account for this depression, and as many remedies have been proposed to obviate it. The national debt, taxation, the currency, the unlimited power of the Bank of England over its issue, the excess of population, the corn laws, the oppressions of the millowners, have each their advocates, who would fain persuade us, that an alteration of some one or more of these would give relief and restore prosperity.
>
> It is not my intention to deny, that each and every one of them have their effect, and may, in some degree, influence the state of trade: but in the following pages I propose to avoid, as much as possible, the discussion of any of these subjects which have been worn threadbare, and upon which every one has made up his mind; while I would direct attention to what I humbly conceive to be a preliminary evil, much more extensive than

> all of them put together – a canker in the very heart of our trading prosperity, which is ever and anon producing the same recurrences of distress – temporary they may seem, but which, I fear, are rather of a periodical nature, like the returns of the shivering fits which precede the dissolution of the body by an internal ulcer. (Cory, 1842, p. 3)

Cory is thus advocating a common premise to all crises, more fundamental than the various circumstances that may intervene and are capable of altering the course of the panic but cannot be deemed to be ultimately responsible for them.

3.8.5. James Anthony Lawson

A terminologically more accurate exposition is found in a paper "On Commercial Panics" read by James Anthony Lawson before the Dublin Statistical Society (of which he was the Secretary at the time), printed as a pamphlet by the Society (Lawson, 1848a), and partly reprinted in the *Bankers' Magazine* (1848b) and in *Hunt's Merchants' Magazine* (1848c)[103] – this magazine, interestingly enough, is one of the few sources cited by Juglar in his 1863 Dictionary entry.[104] Lawson was stuck by the fact that the alleged causes of a number of the panics (of which, as cited above, he recognized the periodicity and interconnectedness) could not have been large enough to explain the havoc wrought by the panic themselves: "for instance, the breaking out of the war in 1793, that alone never could have occasioned commercial embarrassment if commercial affairs had been in a sound state up to that time – it might have limited the future operations of trade, or checked its advance, but it could not entail the universal ruin which ensued." He concluded,

> We must therefore look beyond the proximate cause or the occasion of the panic to find its true cause; and I think from the details I have given you, you will be prepared to anticipate the conclusion to which I have arrived, namely, that it is not attributed to a sudden check *given to an extensive and long continued trade upon credit* – this check may proceed from the various causes which we have seen gave occasion to the panic, or by any other circumstances which cause a revulsion in the public mind, or cause a disinclination to continue to give credit; and it will be found that when the system of trading on credit has been extensively pursued, a very slight obstacle is sufficient to overturn the entire system. (Lawson, 1848c, p. 284, 1848a, p. 4)

Lawson's distinction between "proximate cause" and "true cause" is thus used to distinguish between a cause common to all events and the occasional circumstances that actually give rise to the panic; this, however – as was the case for Juglar – is prepared by the vera causa having generated enough instability in the system so that a small event can give rise to disproportionate effects. Lawson also argues (the passage, however, does not

appear in 1848b and 1848c) that "If we have any faith in the truth or certainty of science, we must feel fully persuaded that the truths are of universal application; that they cannot be true at one moment and false at the next; that they are not to be taken up in smooth seasons, and laid aside in rough ones," to reject the "fallacy of [the] reasoning" involved in all the explanations of panics advocating the extraordinary nature of the case and thus blaming some exception to the ordinary rules (1848a, p. 1).[105]

3.8.6. Charles Coquelin

Another instance is found in the writings of Charles Coquelin. He starts from the observation that in the first half of the nineteenth century, crises have become "almost periodical"[106] and have acquired a character of suddenness they did not have before. Whereas in the past, crises were always due to famines, wars, or revolutions, and it was therefore easy to understand their causes, modern crises can arise "spontaneously," so to speak (1852a, pp. 527, 528, 533), and therefore require a different kind of explanation: the cause of the disorder is "obviously not external, but inherent to the very operations of commerce or to the intimate nature of credit" (pp. 527, 528, 533). The development of credit, which in the most advanced countries supports most commercial operations, is indeed the common circumstance permitting the occurrence of these crises. It also explains the suddenness of crises, as it makes the system intrinsically unstable: credit, in fact, requires mutual confidence, and if "for any reason"[F54] doubt arises as to the future respect of obligations, the whole system of commerce suddenly collapses; "the evil spreads like wildfire"[107] and envelops in little time the whole commercial world. The notion of a "spontaneous" insurgence of crises, made necessary by the observation of their almost periodical return, calls for an endogenous explanation based on some mechanism giving rise to instability.[108]

Similarly to credit, speculation and misdirected production can also be the occasional causes of crises. Deeper down, however, crises and their shared features must have a "general and common cause," and it is this "first cause" (pp. 530–531), or "originating cause" (p. 533),[F55] that must be sought, as opposed to the "determining cause" (p. 530) commencing each crisis. Coquelin maintained that this ultimate cause is the existence of privileged banks and their way of operating: this cause operates constantly, so that its effects (a glut of capitals) slowly but regularly cumulate so that after a time the effect produced (the crisis) is the same, whether the determining cause is an excess of speculation or an abuse of credit (p. 533).

Coquelin uses this argument to reject two alternative explanations of crises, Say's and Wilson's, who both blamed the 1825 crisis on speculation. To Say, he objected, "this explanation is obviously not sufficient, for one still has to ask what was the primum mobile, the original cause of this abuse [an excessive emission of banknotes] and of the adventurous speculations that followed" (p. 529). Against Wilson's explanation based on different causes of speculative manias (exploitation of foreign mines, on land property at home, on various companies, etc.), Coquelin argued,

> It will be agreed that it is hardly possible that the same disposition became manifest in so many different directions at once, if it was not aroused by a general and common cause. It is therefore this prime cause that has to be specified, and [Wilson's argument] fails to do this. There is no doubt that abuses of credit became apparent at the approaching of each of the crises broken out since the beginning of the century, and that they are a determining cause. There is also no doubt that excessive speculations have characterized each of these epochs and played an important part in the disorders that have erupted. But where the abuse of credit comes from, and why the speculative mood at some point takes possession of all minds, still remains to be explained. To say these are erupting frenzies tells us nothing and is a mere use of words. It is not natural that this kind of disease breaks out without being provoked. And the existence of a hidden cause, operating constantly, is finally demonstrated here by the almost periodical return of these calamities. (p. 530)

3.8.7. John Mills

Juglar's masterful piece of rhetoric (Section 2.1) needed some complements to fully convince fellow economists that the appropriate way to look at crises is in their interconnection with one another and with the other phases of the system. The challenge was taken up in Britain, independently of Juglar, by John Mills, a Manchester banker. In a paper read in December 1867 before the Manchester Statistical Society – which published it in its *Transactions*: Mills (1868) – a few years after the publication of Juglar's first edition, Mills took up issues of both the universality of laws and the uniqueness of crises. Mills cites Langton, Jevons, Coquelin, J. S. Mill, and Tooke's *History of Prices*, but neither Cory, Juglar, or Lawson.[109] Mills begins his argument by discussing the variegated literature of pamphlets flourishing after each crisis and discussing their causes:

> One feature these productions have in common: they deal with proximate causes only, or with mere antecedents as causes; each crisis appearing to be the result of its own separate accident, – usually some event lying on the surface of commercial history. The highest attempt at generalization does not ascend beyond the fact – unquestionable in itself – that over-trading, in some form or other, is the common forerunner of Panic. Overtrading, however, is not an ultimate fact, and its regular recurrence claim explanations quite as importantly as the tragic events which follow it. (Mills, 1868, p. 11)

Mills explains that he intends to apply "the method by which modern science brings physical and even social phenomena within the region of causation and law," which requires to identify the "uniformities of sequence" from which to generalize (p. 12). The first of such uniformities is that crises are so "numerous, regular, and persistent" that "whatever we may at present think of its cause, of its practical importance, or of its probable continuance, the periodicity of commercial crisis is at any rate *a fact*" (Mills, 1868, p. 14). This enables Mills to exclude that the proximate causes can be at the origin of the "facts of a new order" (1868, p. 13):[110] panics recurred with regularity even if the institutional conditions under which trade takes place have considerably changed in the previous 60 years and in spite of the immediate antecedents being bewilderingly varied in nature (pp. 14–15). Although some of the antecedents "in a subordinate sense … may indeed have assigned to them the dignity of causes," "it is evident that these incidental causes do not account for the feature we have noted as *common to the whole series*, that of regularity of occurrence." Mills even noted that some events, grave in character, have occurred without culminating in a panic, or only slightly anticipating it with respect to the customary decennial rhythm, "showing how little the action of the normal causes of Panic could be accelerated by so vast an addition of external force" (p. 15). Not only does this argument echo Juglar's claim that even a war would not break a prosperity if no abuses of credit had previously predisposed the crisis, but goes one step further, by qualifying the proximate cause in question as an "external event" or "incidental disturbances" (p. 18), thus coming close to introducing the distinction between exogenous and endogenous causes.

Mills's argument is slightly different from Juglar's. While the latter was trying to identify the vera causa common to *each* crisis, Mills aimed at singling out the cause of the cycle *as a whole*. But the distinction between proximate and primary cause plays the same role in their criticisms to *individual* explanations of crises by appeal to general epistemic principles. Both authors linked this argument to the idea that if conditions are not fulfilled,[111] even grave events, that would otherwise determine a crisis, would be ineffective and, conversely, that at the right time, a small determining cause could trigger a panic (e.g., Mills, 1868, p. 38).

3.8.8. William Stanley Jevons

Jevons, who at Manchester had several occasions for discussion with Mills, felt the same urge. He immediately appreciated Mills's appeal to reject explanations based on proximate causes to inquire into the common causes

of all cycles: "Mr. Mills has proved that such fluctuations have a deeper cause which we can only describe as the *mental disposition* of the trading classes" (Jevons, 1869). Later, he ridiculed,

> the variety of the explanations offered by commercial writers concerning the cause of the present state of trade. Foreign competition, beer-drinking, overproduction, trade-unionism, war, peace, want of gold, superabundance of silver, Lord Beaconsfield, Sir Stafford Northcote, their extravagant expenditure, the Government policy, the Glasgow Bank directors, Mr. Edison and the electric light, are a few of the happy and consistent suggestions continually made to explain the present disastrous collapse of industry and credit. (Jevons, 1878b, in 1884, p. 221)

Jevons, like Juglar, coupled the rhetorical purpose with a methodological objection to the search of specific causes for each crisis. Although depressions are often "apparently due to exceptional and accidental events, such as wars, great commercial failures, unfounded panics, and so forth" (Jevons [1875], in 1884, p. 203), the mechanical principle that periodical effects must have periodical causes (see Section 3.4) forbids that these are the ultimate causes: "so long as these causes are various and disconnected, nothing emerges to explain the remarkable appearance of regularity and periodicity which characterises these events" (Jevons, 1878b, in 1884, p. 222).[112] Again like Juglar, Mills, Lawson, and Cory, Jevons turns the interpretation of these exceptional events on its head: from causes of the crises, they are downgraded to causes of the irregularities in the period. When commerce is disturbed by wars, tariffs, or similar extraneous events, "it can be no matter of wonder that the regular march of the decennial variation was somewhat broken"(Jevons, 1878a, in 1884, p. 208).[113]

These writers' recognition that crises have a common, fundamental cause, while possibly being generated by different specific occasional causes, was a cornerstone in the transition from the emphasis on crises to the stress on cycles. Most earlier commentators saw crises as individual events, each with its own cause and with no connection to the preceding or following crisis. In this perspective, crises could be seen as accidents, as disturbances to an economic order that would otherwise give rise to fairly regular economic progress. Juglar and the writers listed in this section were instead laying the premises for an altogether different interpretation of crises, no longer seen as *disconnected events* but as members of the same *class of events*. This, in turn, was the premise of the recognition of general *laws*, applicable to the entire series of events. Other writers before them or contemporary to them were, as a matter of fact, offering the same explanation for all crises. But the important contribution of the authors considered in this section is on the

epistemic level, as it highlights their awareness of working toward the construction of an explicitly unified explanation.

3.9. Equilibrium and the "Natural" State of the System

Not only the issues Juglar explicitly discussed must be examined but also at least one of his omissions. Among the problems Juglar was not aware of, the most important is the failure to discuss the equilibrium conditions. He clearly denoted prosperity as the normal, healthy, and equilibrium state of the economy, but never specified how such an equilibrium is characterized (Section 2.1.4). The relevance of this omission is twofold.

3.9.1. Crises and Equilibrium

Historically, one of the main theoretical problems to be solved in studies on crises and cycles has been the relationship of economic distress to equilibrium or normality. It was generally accepted, from the gluts debate at least to interwar years, that crises are disequilibrium situations, and one had to reconcile this fact with theoretical approaches describing economic systems as tending toward equilibrium. The mainstream approaches have tried to interpret cycles and crises as partial and temporary exceptions to the theoretical norm, due to frictions, exogenous events, miscalculations, mismanagement, or some other impediments or accidents. The critics, on the contrary, rejected the idea that the system is self-equilibrating and either introduced some form of systematic instability or suggested to switch altogether to a different theoretical setup (e.g., a dynamic one, see Besomi, 2006b).

The better known branch of this debate concerned Say's Law. On one side, there was the Say–Mill–Ricardo position, according to which production is undertaken with the purpose of consuming, and what is not immediately consumed is accumulated. In such conditions, general overproduction is logically impossible, although there may be temporary partial overproduction in some markets, caused by mismanagements, or political interferences or other disturbances, compensated by underproduction elsewhere. On the other side, the "heretics" (the qualifier is Keynes's[114]) stressed that due to various reasons (such as technological progress or the bad distribution of the product), part of the income generated in the production process may not be spent, therefore generating a general excess of production. In this view, crises are the outcome and the means for the resolution of such excesses, as they violently halt production bringing with them destruction and misery. The early champions of this view were

Malthus and Sismondi, who, however, lost their battle with the Ricardians. In France and England, the debate quickly petered out, although several "underground" writers kept thinking in terms of overproduction or underconsumption. In Germany, however, a number of writers kept discussing crises in terms of disturbances in the equilibrium of supply and demand and with explicit (sometimes critical) reference to Say's Law (see, e.g., Roscher, 1849, pp. 723–724; Schäffle, 1859, p. 638). The most important contribution in this line was Marx's, who carefully explored the various possibilities of crises opened by several specific aspects of the production process and especially, in most general terms, by the separation of the acts of buying and selling made possible by the use of money as an intermediary.[115] The latter point was anticipated by J. S. Mill, who at the same time also maintained that general gluts are logically impossible.[116] For all these writers, equilibrium, and the system's tendency to settle on such a state, was the focus of the debate. The culminating point in this tradition was Marx's precise statement of equilibrium conditions through his reproduction schemes,[117] which at once showed how the flux of exchanges could both satisfy the material needs of the productive process and generate a satisfactory profit, but also how these conditions could fail to be satisfied for various and intrinsic reasons making it necessary, from time to time, to interrupt the production process. The discussions on Marx's approach eventually gave rise to various theoretical views, including some that can be seen as the first true examples of business cycle theories in the modern sense – Tugan-Baranowsky (see Besomi, 2006a), Spiethoff, and Schumpeter.

The second approach to fluctuations in the early nineteenth century, based on cobweb-like mechanisms (see Section 3.2), implicitly took equilibrium as a reference point. These verbal models assumed a tendency of disequilibrium prices or quantities to ingenerate a set of economic forces tending to redress the situation. But the operation of these forces is delayed or hindered by slow reaction or institutional factors, so that the correction overshoots the mark, and the position is reversed. These models describe oscillatory motion, rather than dealing with crises and panics. In some sense, they anticipate some of the (proper) business cycle theories of the early twentieth century (the cobweb models, but also Aftalion's, Bouniatian's, Kalecki's, and Tinbergen's models), but they were not concerned with explaining the phenomena discussed by most of their contemporaries, namely, the violent and sudden upheaval caused by the total disruption of trade and finance.

The third line of approach, surely the most popular toward the middle of the century and at Juglar's time, focused on some form of the overtrading

mechanism, to which different causes could be attributed (Section 3.5). A feature common to almost all writers sharing this view was that the excess of trade or of credit or of emission of banknotes was rarely qualified. It was assumed that there was some "correct" amount of trade or credit or issue, respectively, corresponding, for example, to one's capital, one's capacity to repay debt, and the real value of titles, but this was rarely defined with precision, also due to circumstances varying as a consequence of trade, credit, or issue being extended; accordingly, the "excess" was not defined either, and if referred to the "correct" amount, the reasoning became circular (Laidler, 1987).

In the writings belonging to this group, the equilibrium in the credit market is thus an implicit reference. However, neither its conditions nor its stability properties are analytically characterized. The consequences of this are not too dramatic for the possibility of explaining crises. A number of these writers, including Juglar, maintained that once the economy starts growing, there is a constant temptation to push trade and credit faster and faster, until this becomes excessive and the system collapses (see Section 3.10). It is not clear "excessive" with respect to what, but the accelerated pace of growth guarantees that, wherever the limit is, it will be overtaken.

3.9.2. The Onset of Recovery

The other side of the coin is more troublesome. If equilibrium is not well defined, it is more problematic to explain how the recovery sets in. These writers interpreted crises as the liquidation of bad debts, or more generally as the elimination of the "excesses." This was seen (explicitly, in the case of Juglar) as a return to the equilibrium state. But neither its conditions nor its features (except for the vague assumption that it consists in a state of progress) or the path by which it is reached are specified by most of these writers. As a matter of fact, then, the transition from liquidation to recovery remains unexplained. It is assumed as a matter of course, but not really accounted for. The causal chain is interrupted, making a complete theory of the cycle, with all phases growing out of the previous one and generating the following, impossible to establish.

3.9.3. Some Early Attempts to Identify the Conditions for a Self-Sustained Advance

Juglar does not seem to have realized that this is a serious problem for his stated programme of chaining all phases to one another (Section 2.2.1). Other writers, however, were aware that this aspect was problematic and attempted to tackle it. The earliest endeavor along this line of which I am

aware was offered by John Sinclair in 1810. He listed three conditions for prosperity to remain uninterrupted: that labor and goods necessary for internal consumption or for exports increase; that the price of goods is sufficiently high to stimulate production, but not high enough to hinder consumption; that the medium of exchange increases in proportion to the increase of commerce, so as to secure a market and a rapid sale of the goods produced, but also as to increase their price (Sinclair, 1810, pp. 60, 57). The latter condition "is by far the most material" (p. 60). If it is not satisfied, commerce experiences, and must experience, frequent checks (p. 57), and the country undergoes "periodical returns of commercial distresses" (p. 64). The reason why distresses return periodically is not explicitly stated but seems to be due to the banking system failing to supply currency at the appropriate pace. In other words, distress is seen as the result of the failure to fulfill the conditions for what today we would call a "moving equilibrium."

A later attempt to state the problem was by James Wilson. In spite of not having been able to solve it, he clearly saw this was a necessary step to take:

> In order to go into the investigation proposed, it is obvious that we must discover, that we must condescend to some given sum which, could it be maintained steadily, would be the correct amount of the means of the country absorbed for this particular purpose annually, namely, the purchase of wheat. (Wilson 1840, p. 19)[118]

Wilson admitted he knew of no principle to determine this point, and as a first approximation, he took the average price of corn, in analogy with the symmetrical movement of a pendulum fluctuating around it middle point. He took, however, equilibrium as its starting point, by imagining a given distribution of the capital of the country among various sectors bearing "the exactly proper proportion to each other to supply the wants of the community" (p. 21) and examined the consequences of a shortage of wheat throughout the system.[119]

More elaborate is John Mills's argument. Whereas Juglar swiftly avoided discussing the relationship of cycles and equilibrium, Mills precisely saw that there lies the main theoretical problem. Mills, as well as Juglar, considered prosperity to be the "healthiest" phase of the cycle (Mills, 1868, p. 24) and attributed to credit a "normal tendency to grow" (p. 32) and a "normal rate of growth." Mills also left this tendency unexplained, assumed as a matter of fact, but specified that credit "can only grow under the stringent condition of paying a discount proportioned to the degree in which growth outruns the supply of loan capital" (p. 32). Credit has thus a price, and this price is subject to the "economic law of supply and demand," "tending to preserve the necessary equilibrium" between credit and capital.

"I say 'the necessary equilibrium' because, in fact, Credit cannot long exist without it. Belief is founded upon evidence, and must be kept in contact with it" (p. 31). The growth of credit is thus kept in check by the stabilizing forces acting upon the rate of interest; yet, it is also subject to the destabilizing effect of speculation fostered by excesses of confidence (p. 27 and passim). Instability is thus limited by the stabilizing force (which sums its effects[120] to, and "applies an effective break to[,] the dangerous velocity with which a too facile Credit would multiply transactions" and "tends to preserve the natural and … that vitally important equipoise between the growth of bill-making Credit, and the supply of Capital from accumulated profits and savings," p. 32). But in the speculative stage of the cycle, credit

> grows under such stimulating conditions, that any weighting of *that* side of the scale is quite out of question. The time comes too soon when our two laws, while they continue to be correlative, tend to become less and less *coefficient*. The adjusting principle is still at work, but under the influences now gathering, it becomes by degrees overborne, and at last overwhelmed. The Credit end of the beam is too far depressed to be raised again until lightened of its load by a violent process. As this, however, is owing to the relative default of Capital, it is clear that no amount of paper promises, *now* placed in the opposite scale, would redress the balance. (p. 35)

In such conditions, the set of psychological factors affecting credit "either neutralises the economic law of demand, or, reversing the poles of the magnet, it exerts a repellant instead of an attractive influence" (p. 34). After the panic, the law of supply and demand cannot immediately exert its effect for while gold and notes (after some caution on the part of lenders) flow back into the bank, borrowers do not find motive to invest, in spite of being "tempted by a low rate of interest," due to the restrictions in purchasing power (and therefore in demand) felt by most people as an effect of the crisis (pp. 20–22). But slowly confidence will return and will find good conditions in the "great accumulation of unused Capital and the ruling of an excessively low rate of interest" that established in the postpanic period and bring back to the normal time of revival, where credit continues to grow in an healthy fashion, kept in check by the law of supply and demand (pp. 22–24).

The contrast with Juglar is striking. Mills has clearly understood that the problem of crises cannot be severed from reflections on their relationship to equilibrium. In Juglar, by contrast, we only find the assumption that, by simple elimination of the excesses, the crisis will bring the system back to a state of stable (momentarily, at least) equilibrium. Juglar did not feel the need to discuss why such an equilibrium acts as an attractor to the system, while most of his contemporaries were discussing the aspects of this problem

in the context of Say's law, and later, the problem was clearly perceived to be at the heart of trade cycle theorizing.

3.10. Instability

In spite of the difficulties intrinsic to the relationship between crises and equilibrium (Section 3.9), some writers realized very soon that if equilibrium is stable, crises can only be conceived as the result of temporary disturbances external to the proper working of the economic system; accordingly, they started arguing that crises are related to the instability of the credit system. This was at first expressed in intuitive rather than analytical terms, but toward the middle of the nineteenth century, these reflections were beginning to be coupled with epistemic arguments on the nature of the explanation of crises, especially on the part of the writers who had been discussing the application to crises of the principle of causality (Section 3.8).

I have already anticipated (Section 3.5) that toward the end of the eighteenth century, some writers belonging to the "overtrading" tradition started to stress that credit and speculation may destabilize the entire system. William Roscoe had argued that the expansion of trade at the same time requires and permits the expansion of credit. But credit is based on trust, and if anything shakes confidence, progress becomes unsustainable (1793, p. 11). Roscoe resorted to vivid metaphors to stress the instability of such a state, qualifying prosperity as "undoubtedly of a very precarious and inflammable nature," so that a spark suffices to dissipate confidence in the air (p. 6). He also stressed that the wide extent of British trade makes the country more vulnerable than others to sudden loss of trust, increasing "the probability of the explosion," and rendering "the consequences of it, when it once [takes] place, more general" (p. 25). Although he saw the cause shaking confidence in an external event, namely, the outbreak of the war with France, his interpretation of the unfolding of events was endogenous: "our very prosperity becomes our misfortune" (p. 5). Also William Anderson, writing in 1797 under anonymity, and an "Old merchant" writing in 1796, stressed the instability of the credit system using the metaphor of a "baseless building … absolutely built upon quicksand" (Anonymous, 1796, p. 9; Anderson, 1797, pp. 45–46). Anderson maintained that when credit and speculation prevail, any serious shock to the credibility of credit would start a run on the banks, so that "the whole paper system will tumble to the ground; and all those concerned will inevitably lose their property" (1797,

pp. 45–46), and predicted that while the current monetary system was in force, "no bounds can be set to speculation, distresses and embarrassments will be felt at irregular periods" (p. 39). The old merchant emphasized that the "artificial credit" based on the emission of paper money under conditions of inconvertibility, together with the speculation it would permit, would cause "in times of even moderate distress, … a fatal depreciation of public credit" (Anonymous, 1796, pp. 8–15).

Better elaborated was Huskisson's argument, that the explosion of the credit-speculation system was entirely consistent with the interest of both creditors and debtors. He maintained, in fact, that,

> The business of a merchant is to buy cheap and sell dear. His general wish is to be able, for this purpose, to command as large a credit as possible. He must consequently, upon abstract principle, be favourable to any system which is likely to give facility to the discount of commercial securities. His interest, therefore, appears to be the same as that of the banker; whose profit increases with the extension of such discounts. (1810, pp. 141–142)

The nature of the cumulative movement is therefore not exogenous (although the original impulse is normally given by the opening of new channels of trade or some similar event) but is determined by the proper logic of the system itself. Yet, its result is not stable, for any change in the banker's policy or any systematic (due to overstocking) or accidental (due to misfortune, imprudence, or extravagance) interruption of the chain of payments would bring the whole scheme to collapse.

Huskisson's emphasis of the consistency of the occurrence of crises with the "abstract principles" of political economy by means of the instability of equilibrium anticipates the arguments of Lawson, Coquelin, Juglar, and, later, John Mills. These writers were not content with pointing at the cumulative and fragile character of the speculative phase. They placed this aspect at the heart of their theories of crises and brought it at the center of their reflection on how crises should be explained. As we have seen in Section 3.8 (and Section 2.1.2 for Juglar), these writers maintained that all crises have a common, primary cause in spite of being occasioned by specific accidental events. They distinguished themselves from the authors believing that crises are individual events, each caused by a specific circumstance, in maintaining that the causes evoked as individual generators of crises only play a secondary role. More specifically, they argued that these causes, alone, would not be able to generate a crisis, while when the stage is set for a crisis, any small perturbation would start it off.

Lawson expressed this point as follows. First, he argued that the antecedents invoked as causes by other writers could not have occasioned the havoc that followed them:

> Now what strikes one in looking at all these panics is this, that the circumstance which immediately gave rise to the pressure is always wholly inadequate to account for its long continuance, and for the loss sustained by it. For instance, the breaking out of the war in 1793 never could of itself have occasioned much commercial embarrassment, if commercial affairs had been in a sound state up to that time; it might have limited the future operations of trade, or checked its advance, but it could not have entailed the universal ruin which ensued. In like manner, the fall of the prices of leading articles, which immediately preceded the panic of 1809, never alone could have caused it: nor could the circumstance of a deficient harvest alone; that would generally only entail a loss of one or two millions: but where the panic takes place, failures to many times more than that amount ensue; for instance, the general deficiency of food in 1846 never could of itself have occasioned the panic which ensued. We must, therefore, look beyond the proximate cause or the occasion of the panic to find its true cause. (Lawson, 1848a, p. 4)

Then, he argued that *any* disturbance to the credit system occurring in a situation of extended overtrading and intense speculation would cause a panic (Lawson, 1848a; the passage is cited in Section 3.8). In Lawson's view, each of the specific but accidental events that release the panic, its proximate cause, is not essential to its actual outburst, although it can help explaining the specific feature of each crisis. Proximate causes are interchangeable. It does not matter whether a war, a revolution, or a famine occurs, *any* of these circumstances would overturn the entire system. The true cause of crises, common to all events, is the tendency of the credit system to overexpand. It acts by making the system unstable.

Coquelin also emphasized that the outbreak of the crisis can be determined by any occasion, when the operation of the credit and banking mechanism has been building up enough tension. The primary cause of the crisis is the factor generating this tension, while the occasioning event plays a subordinate part and is a secondary cause. Coquelin stopped short of reaching the conclusion to which similar arguments brought Lawson before him and Juglar later to argue that the system of credit relationships becomes unstable and that it is precisely this instability that makes for the endogenous generation of crises. The expression used by Coquelin, a "débordement quelconque" (1852a, p. 532), that is, "any overflow," anticipates the metaphor later used by Juglar, who compared the accumulation of tension to the overfilling of a glass of water, when a single drop of water (the secondary cause) would determine the spillage.

4. CYCLES OR RECURRING CRISES?

A few decades after Juglar's first edition, toward the turn of the century, business cycle theories became a mature and relatively autonomous field in the discipline. The existence of cyclical fluctuations was almost universally admitted, and correspondingly, there was a flowering of theories and models produced in the interwar years by almost anyone who counted for anything in economics. This contrasts with the understanding of the phenomenon a century earlier, when crises were interpreted as disconnected phenomena of local significance. In the previous sections of this article, I have shown, with special reference to Juglar's writings, how some important steps in the transition have taken place. In the present section, I attempt to draw the broad picture.

4.1. From Crises to Cycles

The passage from the theories of crises prevalent in the first half of the nineteenth century to the theories of cycles dominating the scene by the outbreak of World War I was gradual but not linear and cumulative. Some writers took some of the intermediate steps but not others, and only a few of them were fully aware of what they were doing. Yet, the cycle theorists at the turn of the century felt they could easily characterize the essential features of the transition they helped to complete. Aftalion, for one, liquidated the old approach as misplaced emphasis and prepared the ground for the complete dismissal not only of the theories of crises but also of the very notion of "crisis":

> The earlier inquirers into the phenomenon, impressed by the devastation following crises, focused only on crisis itself, on the violent break of equilibrium that is observed for a brief time only. They ignored what precedes it and what follows it. Today we know, especially thanks to Juglar, that crisis is but one of the moments – in truth, the most distressing one – of an entire cycle taking place periodically … Crisis is the point of intersection between prosperity and depression, the culmination of one phase and the beginning of the other … What happens during the crisis cannot be understood or explained without examining the whole of the cycle: the prosperity preparing the crisis, and the depression which ensues from it and which prepares the return of good times. When the subject will be better known, writers will use less the expression *overproduction crises* and will use instead *economic cycles*. In scientific writings, the latter expression will tend to substitute the former. (Aftalion, 1913, Vol. I, p. vi)[F56]

Similarly, Mitchell summarized very effectively the evolution from crises to cycle theories as follows:

> Wide divergences of opinion continue to exist among competent writers upon crises; but in recent years substantial agreement has been reached upon two points of fundamental importance.
>
> Crises are no longer treated as sudden catastrophes which interrupt the 'normal' course of business, as episodes which can be understood without investigation of the intervening years. On the contrary, the crisis is regarded as but the most dramatic and briefest of the three phases of a business cycle – prosperity, crisis, and depression.[121] Modern discussion endeavor to show why a crisis is followed by a depression, and depression by prosperity, quite as much as to show why prosperity is followed by a crisis. In a word, the theory of crises has grown into the theory of business cycles.
>
> The wider grasp of the problem has discredited the view that crises are due to abnormal conditions which tempt industry and trade to forsake their beaten paths and temporarily befog the judgment of business men and investors, or to misguided legislation, unsound business practices, imperfect banking organization, and the like. As business cycles have continued to run their round decade after decade in all nations of highly developed business organization, the idea that each crisis may be accounted for by some special cause has become less tenable. On the contrary, the explanations in favor today ascribe the recurrence of crises after periods of prosperity to some inherent characteristic of economic organization or activity. The complex processes which make up business life are analyzed to discover why they inevitably work out a change from good times to bad and from bad times to good. The influence of special conditions is admitted, of course, but rather as a factor which complicates the process than as the leading cause of crises. (Mitchell, [1913] 1941, pp. 5–6)

Aftalion and Mitchell are not only recording the main features of cycle theories as opposed to crises theories but are passing a judgment on their relationship, from a less advanced stage of theorizing to a more advanced one, from a less general understanding of the phenomenon to a more general one. Yet, things were not that simple, for the transition also brought with it a shift in the general approach to the problem that cannot be considered as a smooth and unconditional "progress," but is more like a switch to an altogether different understanding of the problem. The relationship of crises to "normal," which Mitchell correctly placed at the center of his characterization, was more articulate than the two extremes of the specter depicted by Mitchell.

It is true that the "crises" approach (as I shall call it for brevity) treated crises as anomalies with respect to the "normal" state of advance, caused by some external factor, and that the "cycles" approach considers instead the "normal" development of the system to be cyclical.[122] There were, however, two intermediate conceptions, sharing some features of both approaches

while remaining autonomous from both. One of them, which I shall call the "alternations" approach, included several writers sharing an interest in price fluctuations, in particular between the mid-1810s and the 1850s. This group includes, among others, those who developed cobweb-like mechanisms giving rise to alternations of high and low prices in response to agricultural fluctuations under the constraints of international exchanges due to the Corn Laws (for reference, see Section 3.2) and some of the writers taking part in the debates between the Banking and Currency schools, whose interests were focused on the relationship between prices and banking policy. These writers were essentially interested in the alternation of good and bad trade and in the policy to smooth out the effects of such fluctuations, rather than in crises or in the rhythm of the alternation.

The 'recurring crises' approach, also alternative to Mitchell's and Aftalion's extremes, is so denoted for the emphasis of its adherents to the recursiveness of these phenomena. It was coeval with both the crises and the cycles approaches, as it occupied most of the ground during the second half of the nineteenth century, with tail end on both sides. Its main feature is that these writers gave a special emphasis on crises, but insisted on their recurring character. Most of them considered crises as disturbances (or as the consequence of disturbances) of the production or exchange processes, as diseases with respect to the normally healthy state of the system, but at the same time, they thought that crises are periodically brought about by the very features of the accumulation process, to which they are therefore intrinsic. Among these writers, Clément Juglar occupied a preeminent position. Other writers – of which Marx is the most eminent representative – considered crises as the recurring outbreak of the contradictions of capitalist accumulation. Both groups maintained that crises are inevitable and necessary to temporarily reharmonize the accumulation process. But Juglar emphasized the positive character of accumulation in the long run, whereas Marx emphasized its constant tendency to grow in an increasingly conflictual way. The production process, in Marx's view, reproduces at ever higher levels the contradiction between the tendency to accumulate capital and its consequence on the profit rate as unemployment is absorbed and exerts increasing pressure on wages. Both Juglar and Marx thought that crises are a remedy to the excesses (or, respectively, the contradictions) of the economic system. But whereas for Juglar the temporary distress associated with crises was the price to pay for the system to continue progressing at ever higher levels, for Marx the temporary survival of the system brought with it a deepening of its inherent contradictions.

In spite of these very relevant differences, the writers of the ''recurring crises'' approach have in common the understanding of crises as related to some deep-seated disorder periodically bursting out, and in this, they differed from the ''crisis'' approach. They also differed from the ''alternations'' approach in considering crises as a phenomenon intrinsic to the accumulation process and focused on how such events are generated and run their course rather than on the amplification and generalization of some small and local fluctuations in prices and production. The ''recurring crises'' approach also differs from the ''cycles'' approach. The writers belonging to the first group were mostly interested in crises, not just as a matter of emphasis (as suggested by Aftalion's remark, cited above, that crises are the most dramatic phase of the cycle) but because they thought that crises were *the* phenomenon to be explained, whether as a deviation from the norm or as a culmination of the contradictions intrinsic in the accumulation process, in terms of both its causal relationships and the role they play in the capitalistic process.

These differences concerning the interpretation of crises and fluctuations manifest themselves in the way in which the writers of the ''crises,'' ''alternations,'' ''recurring crises,'' and ''cycles'' approaches identified, understood, and explained the phenomena they were examining. The ''crises'' writers were essentially interested in explaining crises away as temporary anomalies to an intrinsic tendency to a more or less smooth progress. They considered them as disconnected events, and their procedure accordingly consisted in looking for special incidents or circumstances capable of explaining each of them.

Instead of focusing on the ''normal'' state of the system, the ''alternations'' writers took for granted that prices are sometimes above and sometimes below their ''natural'' level, due to chance fluctuations in agricultural production or due to frictions and maladjustments that are intrinsic in any adjustment process. This was the starting point of their analysis, which consisted in examining whether the existing institutional arrangements would amplify and smooth out such ''waves.'' These writers were not much interested in describing the building up of a period of low or high prices but only in their alternation.

For the writers in the ''recurring crises'' tradition, crises were the primary facts and starting points for the analysis. They recognized crises as events belonging to the same class, thereby requiring a common explanation that could acquire the status of law. They examined how the conditions for their occurrence were set, how they exploded, and how they were liquidated. Their detailing of the phases preceding and following them was instrumental

in explaining their occurrence, and their uniformity was instrumental in explaining their recurrence. Not only the explanation, but also the description, was centered around the crisis. Yet, their story can repeat, after events have run their full course from prosperity to crisis and liquidation, thanks to the fact that prosperity is seen as the "normal" state of the system; the "automatic" resumption of business kick-starts a new building up, explosion, and liquidation, without needing a special explanation as it belongs to the nature of things.

Finally, the explanation offered by cycle theorists instead takes as starting point the rhythmical dance of economic life. In this view, crises do not have any special role to play and are treated either as phases of the cycle (none of which is privileged but is the necessary outcome of the preceding one and the cause of the following) or as anomalies to its smooth course. The problem to be explained, for the cycle theorists, is the circular succession of phases; what matters is the repetition of the process and the conditions for this to be possible.

The relationship between crises and fluctuations in the four approaches lies on the epistemic domain even before having analytical implications. "Crises" writers could not have conceived of a cycle; indeed, such a notion did not occur to them, and when it became the subject of debate in other circles, they tried to deny the existence of such a phenomenon, interpreting the apparent periodicity as the result of more or less accidental circumstances of no theoretical significance. The "alternations" writers also did not think in terms of cycles: they considered disconnected ups and downs, some of the latter possibly accompanied by panics, without anyway exploring possible causes of the recurrence of such events. In the "recurrent crises" approach, the explanation of the "cycle," in the sense of recurrence of events in similar patterns, is a by-product of their inquiry on crises, on the assumption that crises are instances of a same class of events. In the "cycles" approach, on the contrary, the explanation of crises is subsumed under the enquiry on the rhythmical repetition of the process.

While the contrast between "crises," "alternations," and "recurring crises" approaches is apparent, there are two aspects of the contrast between "recurring crises" and "cycles" approaches that deserve further discussion. The first consists in the different relationship between crises and theoretical norm, a problem clearly at the heart of the entire history of the attempts to explain these phenomena (Besomi, 2006b). The second concerns the different emphasis by "recurrent crises" and "cycle" theorists on the automatisms guiding the course of events. These will be discussed in Sections 4.2 and 4.3, respectively.[123]

4.2. The Normal and the Pathological

Juglar's view of the relationship between crises and the "normal" behavior of the economic system can conveniently be taken as the starting point for discussing the difference between the "recurrent crises" and the "cycles" approaches to the problem of crises. Some of the various aspects of this issue can be illustrated by examining his terminology, his choice of metaphors, and his morphological characterization of the succession of phases. He was adamant, in both the first and the second editions of his book (see Sections 2.1 and 2.2), that he understood prosperity to be the normal, healthy state of the system, whereas crises are unwelcome but unavoidable ways for bringing back the system to its healthy state by clearing the morbid excesses generated by the prosperous phase itself.

4.2.1. Prosperity as the "Normal" or "Healthy" State of the System

The "recurring crises" view shares with the "crises" approach the interpretation of growth as the normal state of the system.[124] But while the latter understood the anomalies as accidental and essentially extraneous to the working of the system, Juglar and those who shared his viewpoint admitted them as part and parcel with the very working of the system itself. Before the periodicity of crises became an undeniable fact, the idea that they could be independent events caused by unrelated antecedents was tenable.[125] But after the crisis of 1847, and even more so after the one occurred in 1857, harmonizing the view that progress is the natural state of the system with the fact of recurring crises required a switch in the perspective.[126] The disruption of the normal state of progress and its subsequent restoration were therefore placed at the center of the inquiry, which accordingly focused on the building up of the excesses bringing to the crisis and the subsequent liquidation. Crises, as the negation of prosperity, are therefore at the heart of a theorization aiming, however, to explain why the normal course of business may be temporarily disrupted and then restated. These interruptions of the ordinary progression of trade follow a common pattern, which repeats itself after having run its full course. At this point, the focus is on the characterization of the pattern, not on its repetition.[127] Indeed, most of the explanations offered for the phenomenon (in particular those belonging to the "overtrading" tradition, see Section 3.5) gave full accounts of the cumulation of tension during prosperity, its explosion, and eventually the liquidation of bad debts, but did not bother to explain how business resumes its usual course. Their view, in fact, was that this is the natural course that trade would resume if undisturbed, and as such, needs no specific

explanation. As soon as crises have performed their function of eliminating the excesses perturbing credit, exchanges, and production, the conditions for prosperity would be automatically reinstated, and the system would be able to restart, in virtue of either the "healing force of nature" (as assumed by Juglar) or of any kick received from outside, such as the opening of a new market. The liquidation does not itself cause or launch the prosperity, it only sets its conditions. It is therefore not surprising that the characterization of the morphology of the cycle included an odd number of phases (Juglar's and Briaune's three and Corbet's five), usually centered around the "crisis" (see Section 3.3).[128]

Crises are obviously the most notable events in this decennial pattern of trade. The first commentators focused on the suffering related to crises.[129] At a later point, some writers observed that crises perform the useful function of clearing up all excesses, unsound credits, and speculations. The description became somewhat paradoxical, as it found good in what was commonly perceived as an evil. It thus became necessary to convey the message by means of an appropriate analogy. We have seen (Section 3.6) that Juglar resorted to the medical metaphor. This was not, however, the only possible choice for expressing the idea (itself widespread in the "overtrading" tradition: see Section 3.5) that crises are the consequences of the cumulation of previous excesses. Another metaphor widely used at the time was that of the storm clearing the skies overcharged with electricity and creating the premises for a return of good weather.[130] Kinnear, for instance, wrote that the public has grown accustomed to seeing monetary storms, "passing away after a few months, and all things restored to their wonted order and regularity – that the public seem almost to have come to the conclusion that these periodical tradequakes are phenomena inherent in our commercial system – the storm by which an overcharged atmosphere is restored to its proper equilibrium and purity" (Kinnear, 1847, pp. i–ii). Another writer diagnosed that the ongoing "storm will gradually pass off, having purified the atmosphere of commercial credit during its disastrous passing through it" (Anonymous, 1875, p. 2).

The explanation of crises in terms of recurring disturbances gradually gave way – without, however, totally disappearing – to the encompassing of crises as a phase of the cycle. This shift implied a very different view as to the operation of the capitalistic system and took place through an overall change in the very conception of crises, in the relationship of normal and pathological, in the division of phases, and in the choice of metaphors. And, above all, it implied a reversal of the way of explaining crises and cycles in their relationship.

A good starting point for examining this transition is the movement of the line between what is physiological and what is pathological. As we have seen in Section 3.5, in the early decades of the nineteenth century, there was no doubt that crises were pathological phenomena disturbing the normal course of business. With Juglar, crises and the following liquidation were seen as the system's response to unhealthy exaggeration born from within the economic system as a consequence of people's tendency to exuberance and passion for gamble (see Section 2.1). Crises still belonged to the field of pathology, but the medical conception at the time reduced the pathological to a quantitative excess (or deficiency) with respect to the norm in the intensity of the stimulations (whether internal or external) to which an organism is subject. On the one hand, the adherence to such a notion implied that the pathological should be studied using the same methods applied to physiology, that is, to the normal behavior of the system.[131] The extension of this principle to the analysis of economic crises was clearly a big step from the old approach to the problem, which treated instead crises and progress on totally distinct grounds. The clearest statement to this effect is perhaps due to Lawson, who rejected the argument of those who maintained that the laws of political economy cannot be applied to times of commercial crises by referring to the universality of scientific laws.[132] On the other hand, however, this methodological unification of pathology and physiology (and, similarly, of the theorization of crises and of the "normal" state of an economic system) "would make sense only if, first, the normal could be defined in a purely objective way as a fact and second, all the differences between the normal state and the pathological state could be expressed in quantitative terms" (Canguilhem, [1966]1991, p. 57).[133] The first of these conditions is precisely where Juglar, and most of his contemporaries, failed, for they did not provide a theoretical definition of the "normal" state of the system and thus found themselves running in circles.[134] The situation only changed after the 1870s, when equilibrium was defined in rigorous terms and could substitute generic references to Say's law. Only at that point, deviations from the norm became calculable and could be expressed in analytical terms (De Vecchi, 1983, pp. 263–272), thereby satisfying the second of the above-mentioned conditions. This lay the ground for a new kind of understanding of the phenomenon.

4.2.2. The Normality of the Cycle and the Euthanasia of the Notion of Crises
Within a few decades, the "cycles" approach had reformulated the problem in completely different terms. The idea that progress is the normal state of the system was substituted with the idea that the cycle is the norm. Some

statements to this effect will suffice to illustrate the new conception. Hawtrey wrote that "Trade is never normal; in times of average prosperity it is always on either the upward or the downward path; when it ceases to improve it is on the verge of collapse, when it ceases to slacken it is beginning to recover" (Hawtrey, 1913, pp. 75–76); Veblen, ([1904]1958, pp. 88–89) maintained that "Crises, depressions, hard times, dull times, brisk times, periods of speculative advance, 'eras of prosperity', are primarily phenomena of business … The true, or what may be called the normal, crises, depressions and exaltations in the business world are not the results of accidents, such as the failure of crops. They come in the regular course of business." Mitchell wrote that "the 'normal state of trade' [is] a figment,"' for business annals show that "the only normal condition is a state of change" while "the theorist's 'normal state' … is not to be looked for in an historical record[, n]or can we take for granted the existence of a moving 'normal state of trade' of such a nature that departures from it tend to correct themselves" (Mitchell, 1927, p. 376). Similarly for Spiethoff, "The 'normal state' is neither the upswing, nor the downswing, nor, least of all, the crisis. What is normal in a free, highly capitalist market system based on money, is the business cycle" (Spiethoff, 1953, p. 166). Finally, Robertson (1915) formalized the notion of "normality" of the cycle by considering a fluctuating equilibrium. He pointed out that, besides errors of judgment and miscalculations, the conditions determining the optimum level of investment change in the course of the cycle, being subject to both unidirectional change (as a consequence of technological progress) and of fluctuations in the degree of productivity during the cycle. Equilibrium is thus not stationary, but itself oscillatory. This notion was further specified in *Banking Policy and the Price Level* (1926), where Robertson distinguished between "justified fluctuations," that is, the fluctuations due to changes in the equilibrium conditions, and ampler fluctuations attributed to errors and frictions and to mistaken banking policies. This paved the way for the interpretations that saw the cycle no longer in terms of a deviation from equilibrium (or an oscillation around equilibrium), but in terms of what we would today call an attractor, a state toward which the system tends.

In this new conceptual setting, the theoretical gap left by Juglar was filled in. As aptly summed up by Mitchell in the passage cited in Section 4.1, inquirers aimed at understanding not only how prosperity degenerates into a crisis and is followed by a depression, but also how this depression in turns gives rise to prosperity.[135] With this, causality became fully circular, with each phase causing the following one, thus breaking away from a conception based on the cause of periodic disruptions of a cumulative process to give

way to a new one encompassing the movement as a whole. The new phase so introduced deserved a name: "recovery,"[136] which was thus added to Juglar's three phases[137] to give rise to the now canonical division in four phases.[138] The asymmetry in the description of the phases of the cycle was to give way to a symmetrical theorization of the cycle. As Aftalion argued, "logics requires that prosperity, one of the phases of the cycle, is explained is the same way as crisis and depression, which constitute the other phase" (1913, Vol. I, p. 282). Strictly speaking, this only implies inverting the direction of the operation of the causal nexuses. But after a short time, the cyclical behavior itself was also described as symmetrical: the suddenness and violence of the crisis gave place to a gentle downturn, specular to the revival. The process was completed with the birth of the mathematical theories of the cycle, based on functional equations whose solution is a sine curve combined with an exponential term (Tinbergen, Kalecki, and Samuelson). In this formulation, the term "crisis" did not make any sense, and the stage was set for its disappearance. The first step was the downgrading of crisis from the center of the stage to a name for the cycle's peak. It was due to Lescure, who defined the crisis as "the point of intersection between a period of advance lasting three to five years and a period of depression of a similar length" (1932, pp. 2–3). Lescure was quickly followed by Aftalion (1913, Vol. I, p. 6) and Mitchell ([1913] 1941).[139] With this, crises quickly lost the main feature that was recognized by the writers of the "recurring crises" approach, namely, their suddenness and violence, and were reduced to a smooth transition.

At this point, the metaphors of the disease and of the tempest proved inadequate and were substituted by a mechanical analogy, the pendulum – which, like the disease for Juglar, was not only a nice descriptive devise but also played a heuristic role in guiding the foundation of cycle theorizing in terms of economic dynamics (for a brilliant discussion, see Louçã, 2001; for comment on the transition from one metaphor to the other, see Besomi, 2006b, and 2011).[140] This led to a description in terms of functional equations, resulting in sine waves where even the violence and the suddenness of the crisis were turned into a smooth and gently declining curve,[141] precisely symmetric with the phase of recovery. As, however, in the real world, crises stubbornly kept recurring, they were eventually again treated as anomalies: no longer with respect to a line of progress, but with respect to the cycle.[142] Accordingly, the cycle's upper turning point eventually had the name changed, and crises reappeared as aberrations. As stated by Baudin, "the cycle is a collective, physiological, vital phenomenon, extraneous to the monetary domain; the crisis is a

pathological phenomenon of dissociation of the economy, which is boosted by the violence of cyclical oscillations and is more or less strictly related to monetary phenomena'' (1936, p. 574).[F57] With this, the transition was completed.

4.3. The Necessity of Crises and the Automatism of Cycles

What are the implications of this shift in perspective on the understanding of the phenomenon? Although Aftalion and Mitchell claimed that the new view (the ''cycles'' approach) is just a generalization of the old ''recurring crises'' one, the differences are much deeper than they thought.

4.3.1. The Rhythm of Economic Life

Firstly, the cycles approach substitutes the idea of a rhythmical, continuous development to a notion based on repeatedly interrupted progress. These are different ways of conceiving the relationship between present, past, and future. In Juglar, the present is a continuation of the recent past[143] and is going to be projected in the future: every peak of development before a crisis has been, and will continue to be, higher than the previous one. True, crises will temporarily interrupt this progress, but they are also the means by which progress can continue. In the cycles approach, what matters is instead the repetition (which can be, but is not necessarily, coupled with a secular trend[144] and can be characterized by the coexistence of cycles of different frequencies). As radically put by Åkerman, ''the pendulum movement may be regarded as a universal law which, in greater or less degree, governs the mutability of economic life'' (Åkerman, 1932, p. 9). In such a view, time has a cyclical structure, thereby giving a different perspective to the interpretation of both history and economics (Pomian, 1977, and 1978; Wallerstein, 1991).

4.3.2. Economic Liberalism and the Automatism of Crises and Recovery

This leads to the second aspect. The cycles approach is accordingly more prone of falling into a mechanical understanding of the alternation of good times and bad times. This is particularly apparent in the dynamic approach of the early ''econometricians,'' as indicated by Frisch's definition of ''dynamics'' (which quickly became canonical) as ''a theory that explains,'' by means of functional equations, ''how one situation grows out of the foregoing'' (Frisch, 1933, p. 171; for acceptance of his definition, see Schumpeter, 1934 and Kalecki, 1935, p. 327). But, more generally, such an attitude is part of the deterministic spirit that pervaded economics (and

indeed almost the entire scientific community) at the turn of the century. Among the several comments on this aspect, Myrdal's is particularly interesting:

> the purely mechanistic attitude towards the business cycle […] emphasizes that prosperity is 'necessary' in order to stimulate economic life, and that the crisis and depression are 'necessary' for a liquidation of the investment errors that arise in prosperity. This mechanistic attitude has many nuances. On the whole it represents, in terms of business cycle and monetary theory, a rationalization of economic liberalism, which erects its own fatalistic, negative attitude towards planned economic control into a doctrine. This peculiar attitude has its psychological basis in the habit men have of thinking in terms of rhythms and cycles. We walk, they reflect, by first advancing one leg and then the other; after the flood comes the ebb, after the sunshine comes the rain, after the day comes the night; and in the same way good and bad time must naturally follow one another. Cassel, [1932, p. 76] once jestingly remarked that perhaps the whole attitude was ultimately based upon a primitive Puritanism;[145] happiness is somehow evil, something immoral, which should be accompanied by a purifying misery now and then in order that those who have experienced it may be redeemed; and so it is only proper, right and natural that after the upswing, with all its sad mistakes, bad times should follow. (Myrdal, 1939, pp. 201–202)

The reference to the cycle as rationalizing the viewpoint of economic liberalism is worth emphasizing. Interestingly, Juglar took part in the debate within the Parisian Liberal circles on the implications of crises, where two views where clashing. As summarized by Leroy-Beaulieu, some of the participants in the debate ''see [in the recent crisis] merely one of those periodical jerks, one of the diseases accompanying growth which are the companion and the ransom of all progress and which, brought by the natural course of things giving them an almost fatal character, eventually disappear on their own'' (Leroy-Beaulieu, 1886, p. 386).[F58] Other writers thought instead that this specific crisis was different from the previous ones and that it had a character not natural but artificial, which they attributed to government mismanagement (Leroy-Beaulieu, 1886, p. 386). While the more traditional approach wanted to convey the impression that all goes well, except for some evil external factors disturbing the harmony of the system, the effect was easily the opposite, for the disturbances were generally being perceived (as is apparent if one reads the comments in the press) to be too regular and systematic to be mere accidents. Their ad hoc explanations sounded more and more like excuses. The writer relying on the recurrence of crises could instead bring into accord the idea that the system has a normal tendency to progress while having to eliminate, from time to time, the exaggerations due to excessive frenzy. Crises, with the suffering

accompanying them, were a possibility, but were guaranteed to be temporary hindrances only and to launch progress again at a higher level.

Some of the mechanistic features described by Myrdal were thus already present in the "recurring crises" approach. The idea that after good times a reversal must necessarily occur (through exceedingly good times) characterized the writings of Juglar and his contemporaries. Indeed, adjectives such as "inevitable" or "necessary" were frequently used to qualify the occurrence of crises, even if their purpose was more often to stress the endogeneity of the causal nexuses than to project the recurrence of crises in the future.[146] Correspondingly, a number of criticisms to the view that crises are periodical precisely attacked the determinism implied in such a view.[147]

There is, nevertheless, a sharp difference between the "necessity" of crises as discussed by most writers in the recurring crises tradition, and the fully determined automatism intrinsic in the sine curves resulting from the systems of functional equations that dominated the scene from the early 1930s to the 1970s.[148] In the second half of the nineteenth century, writings on crises were full of provisos and qualifications. Although they pinned down the cause of crises to a primary cause, they never denied the counteracting (or aggravating) effect of secondary causes (see Section 3.8) and were accordingly rather circumspect in their statements. As we have recalled at the end of Section 3.4, there were not only skeptics criticizing the "recurring crises" writers for excesses of determinism, but there were also those criticizing them, so far as they denied that the periodicity of crises is strict, for lack of determinacy: "The crisis must terminate in that year, unless this happens in that other year, depending on what happens. A new crisis will come at that time, unless it will come at some other time; this depends on what the future has in stock" (Courtois, in Société d'Économie Politique 1893, p. 13).[F59]

4.3.3. Back to "Recurring Crises"

The determinism of the "periodical crises" school was moderated by the importance they attributed to the human factor. Political interference, or the outbreak of wars, were events whose importance could not be denied in the causation of crises: not at all times, perhaps, but surely when the economy was so predisposed (see Section 3.8). What prepares the crisis is, in the view of the "overtrading" current, the irrational spirit of speculation (see Sections 2.1 and 3.5). Some writers also blamed the institutions (e.g., Coquelin). While in later years, the human component, even in its irrational aspects, was rendered by most writers in the field in a mechanical way, a counterexample dating from the 1930s is illustrative not only in this specific

respect but also for emphasizing the epistemic character of the distinction between the ''cycles'' and the ''recurring crises'' approach.

Keynes treated crises not as the result of some logical necessity but of the psychological and conventional character of specific human actions. We normally live ''in an intermediate situation which is neither desperate nor satisfactory'' (Keynes, [1936]1973, p. 250), from which the system does not go too far, thanks to the stabilizing effect of the psychological law according to which the propensity to save increases as income increases and vice versa. The marginal efficiency of capital, on which investment depends, is instead liable to violent and sudden fluctuations. It depends, in fact, on the entrepreneurs' expectations, which are guided not by Bentamite calculus but by some arbitrary conventions driving them to abrupt losses of confidence whenever the prevalent state of opinion changes. The suddenness and violence of the crisis is a necessary feature of the intrinsically nondeterministic way in which expectations are formed (for a detailed discussion, see De Vecchi 1983, pp. 281–290).

The example of Keynes is helpful to stress that the main distinction between ''cycles'' and ''recurring crises'' approaches does not lie much in the usage of metaphors, or in the conception of time, or in the relationship between physiological and pathological, or again in the morphological characterization of the cycle. It concerns the order of priority, in the explanatory process, of crises and cycles. Although in the trade cycle chapter of the *General theory*, Keynes *writes* using cycle terminology, he *reasons* otherwise. This is not only because he stresses the asymmetry of the cycle and the suddenness and violence of the crisis,[149] and because he places it at the outset of his description of the cycle (Keynes, [1936]1973, p. 315), but also because the entire explanation of the cycle is constructed starting from the abrupt drop in the marginal efficiency of capital. Starting from the premise that investment is the driving force of economic systems, the engine of the cycle must lie with what determines investment, that is, interest rates and expectations. Keynes explicitly denies that fluctuations in interest rates are the main causes of crises (although they can ''play an aggravating and, occasionally perhaps, an initiating part''), while the ''sudden and even catastrophic'' ''collapse'' of the marginal efficiency of capital is ''of the nature of organised investment markets,'' where expectations are formed on the basis of fragile conventions. The abrupt crumbling of the marginal efficiency of capital is at the core of the trade cycle: the remainder of the movement is described as the recovery of the marginal efficiency from the changes the crisis brought in the stock of materials and working capital, taking into account the changes in the rate of interest on the one hand and

the reaction of the marginal propensity to consume on the other. Keynes's explanation of the cycle is thus based on his explanation of the crisis, a feature that he shares (in spite of the theoretical differences and the aims of the analysis) with writers such as Juglar and also Marx, making it a distinctive mark of the "recurring crises" approach.[150]

5. CONCLUSION

The history of the birth of business cycle theory is much more complicated than Mitchell and Aftalion thought, and also more intricate than illustrated by the few existing accounts supplied in the twentieth century. It is a history that has no linear unfolding, in which analytical, methodological, and epistemic shifts interacted with the historical course of events that induced commentators to recognize some features of crises and discard some others. The phenomenon of economic crises presents many facets, making it possible to have different perspectives depending on the angle chosen to examine it. Each crisis has its own peculiarities, takes place in a specific historical, political, economic, and financial context. It was perhaps natural that at first writers on the subject focused precisely on the specific features of the events they were witnessing. But crises also share some common traits, and as these events repeated with a certain regularity, an ever growing number of observers started to shift the emphasis from the individual character of each crisis to their common aspects.

Juglar's writings, from his first contribution on the subject in 1856 till the end of the century, came in this context. Almost all ingredients of his contribution had several antecedents in the writings of his contemporaries and forebearers. His characterization of the phenomenon came at a time when the periodicity of crises (intended not in terms of absolutely isochronous phenomenon but of a semiregularly recurrent one) was a widely recognized fact. Moreover, a number of writers had already pointed out that the course of events followed a regular pattern and had began to describe its morphology (Sections 3.2 and 3.3). Juglar's interpretation of the role of crises in the working of the economic system was shared by a number of writers who had come before him to the conclusion that crises are essential for the liquidation of the bad debts that hinder the accumulation process (Section 3.7). Juglar's explanation of the phenomenon belongs to a family of theories, which had started to thrive more than half a century earlier, based on the overtrading made possible by the existence of a credit system and degenerating into speculation (Section 3.5). A number of writers

belonging to this tradition also anticipated Juglar's specific mechanism based on the instability of credit (Section 3.10). His analogical frame of reference was shared with a number of writers, although Juglar's medical background gave him a better understanding of the analog than his contemporary had (Section 3.6).

Juglar's interesting reflections on causality were also not new: several writers anticipated him in recognizing that the common features of crises required, by the causal principle, that they be generated by the same cause. Similarly to Juglar, those writers also rejected as inadequate the previous approach to crises interpreted as individual and disconnected events, using a rhetorical argument very similar to Juglar's (Section 3.8). Juglar also shared the theoretical limits of most (but by no means all) of his contemporaries. Having taken for granted the progress of accumulation as the "natural" state of the system, they failed to adequately characterize it and often fell into the trap of defining it in a circular way in terms of the absence of perturbations and failed to supply a mechanism capable of explaining the recovery (Sections 3.5 and 3.9).

This is not to disparage Juglar's contribution. He was the first to elaborate on these arguments at length, while they were previously scattered in pamphlets and short articles (some of which, one must say, were very much to the point, while Juglar was rather verbose in his exposition), and has the undoubted merit of having amply corroborated his argument with data and some statistical analysis, primitive as it was (Section 3.1). His most important contribution was probably the explicit setting of some of the *problems* of business cycle theory: in particular, the necessity of identifying causal links between successive phases. The same problems were indeed discussed by others before him, and some had even provided better articulated and more complete answers than he did, but had not always expounded the problem as clearly as Juglar. He began his treatment with a discussion of the epistemic requisite for a good theory (see Section 2.1.2) and carefully laid the principle that the explanation of the recurrence of crises should be based on the chaining of the different phases of the cycle (Section 2.2.1). He was not himself capable of solving this problem, but he has the merit of having clearly posed it. This was a fundamental step for the development of the first theories of crises, concerned with the causes of each individual instance, into theories of *recurring* crises, concerned instead with crises as a *class* of related phenomena. Juglar thus gave an important contribution by channeling the efforts of a multitude of writers into a new and fruitful direction.

Schumpeter wrote that Juglar was the discoverer of the continent of business cycles, while some of the islands around had been discovered before

(1954, pp. 1123–1124). This characterization is surely hyperbolic. In most respects, Juglar came very late and did not add much new to what was already taken for granted (Sections 3.2, 3.3, 3.7, 3.8, and 3.10). Moreover, his explanation of the cycle was incomplete: it failed to account for the lower turning point, and even his description of the speculative phase relied (in the first edition of his book, 1862) on some "speculative furor" rather than on a precise mechanism stimulating the process (Sections 2.1.4, 2.2.1, and 3.9). If a prize for discovering the continent should be assigned at all, I would rather award it to John Mills for his characterization of crises in their recurrence as "facts of a new order" (Section 3.8.7).

Whereas Schumpeter (and many before and after him) thought of Juglar as the first of business cycle theorists and one of the greatest economists of all times, I see him in a different light (see Besomi, 2010c). He was not the first of a new era of "cycle" theorists but a representative of the current of thought that saw in economic crises the essential feature of the capitalist accumulation process. He placed crises at the center of their theoretical construction and understood the "cycle" through which trade passes in terms of the properties of crises, rather than seeing crises as one of the phases of the cycle (Section 4). Chronologically, such an approach may appear to be a stage in the passage from the theories of crises to the theories of cycles. Indeed, in some respects, it was. But this approach to the problem is not without merits. While the "cycles"' approach either disregards crises or treats them as anomalies with the respect to the normal and smooth oscillations through which business runs its course, the emphasis on crises enables one to interpret such recurring catastrophes in terms of a specific set of concepts. Those developed by Juglar are behind our times (and largely also behind his own), but the perspectives developed in this light by Marx and Keynes, if suitably elaborated, still have something to say in the face of the sudden and violent reversals that still affect our financial markets and productive system.

NOTES

* The Notes are divided into two parts. The first lists the author's notes; the second provides the original texts of translated quotations. In the main body of the text, notes that begin with the letter "F" refer to the second set of notes. All translations, unless otherwise indicated, are mine; Cécile Dangel-Hagnauer and Philippe Le Gall have helped with the translations from French. As Juglar's language is sometimes loose and not always consistent, I have chosen to pay more attention to the sense than to the precise wording.

1. Most of these are little known nowadays, and some wanted to remain unknown at their time by publishing anonymously. In this chapter, a number of these writings are cited, with the purpose of illustrating that most of the ideas to which Juglar resorted were already circulating, sometimes even widely. My emphasis is on the ideas rather than their authors, and I will thus refrain from supplying biographical information on these writers.

2. To some observers, it was already clear not only that crises were coming in waves but were also followed by surges of diagnoses of each event. Marx, for instance, wrote to Lassalle that the time of crises, in England, is also the time of theoretical research (letter of January 23, 1855, in Marx & Engels, 1967). Mills (1868, p. 11) noted that "It is scarcely a matter for surprise, and still less for regret, that every commercial crisis occurring in this country is promptly followed by a literature of pamphlets, discussing the phenomena and their supposed causes, while they are yet a matter of painful interest to the public mind."

3. It should be noted that Schumpeter's assessment of Juglar's status is based on the second edition of his book (1889), not on the first (1862), which Schumpeter does not seem to have read. Not only did he misdate it as having been published in 1860, a mistake suggested by Juglar's own misquoting of the publication date in his revised version (1889, p. xv) and only quoted verbatim from the second edition, but attributed to the first some ingredients that were only present in the second, such as the emphasis on prices.

4. "One could hesitate before choosing the starting point of the inquiry. But when one takes into account that the Bank of France is the main intermediary of commerce and that the movement of discounts represents rather well the movement of trade, it becomes natural to take it as the reference point" ("On pouvait hésiter sur le point de départ de ce travail; mais quand on réfléchit que la Banque de France est le grand intermédiaire du commerce, et que le mouvement des escomptes représente assez bien le mouvement commercial, il était naturel de s'en servir comme point de comparaison": Juglar, 1857, p. 37). This explanation is a bit flimsy; however, at the time of Juglar's first inquiries, examinations of the relationship of financial crises and the banking system were quite common and did not call for any special justification. Recent examples for France were H. Say (1847, 1855) and Coquelin (1848, 1852a).

5. In 1852, Juglar wrote an article on population in France from 1725 to 1849. In the introduction to his book on crises, Juglar (1862, pp. i–ii) indicates that after having recorded the influence of epidemics, wars, and famines, he wanted to examine how the state of trade affects population dynamics. A short chapter of the book is dedicated to this problem.

6. Rather unwarrantedly, see note 31.

7. At this point, however, Juglar's emphasis is fully on speculation (see, e.g., 1862, p. 199); credit will conquer the center of the stage in the second edition of Juglar's book, where the explanatory mechanism will be considerably amplified and centered on the relationship of credit, prices, and speculation. See Section 2.2.

8. Niehans (1992, p. 549) stresses that in Juglar "very little economic analysis" is to be found.

9. Gide later pointed out that such competitions, of which the Academy promoted 30 annually, were part of a self-perpetuating régime of academic power and of transmission of the Liberal ideological framework. There were only a few

competitors for each prize (about two or three), and the winner's *mémoire* was published with the indication "crowned by the Academy" (Gide, 1890, in particular, pp. 618–622; on the role of the Academy in the teaching of political economy, see Le Van-Lemesle, 2004, in particular Ch. 3).

10. The plural should be noted. As it will be argued below (Section 3.2), the idea that crises recur and are part and parcel of capitalistic development was already widely shared at the time of Juglar's first writings on the subject.

11. Juglar's original wording may suggest that he was referring to the law of large numbers in some statistically relevant sense: "En nous appuyant non seulement sur des relevés statistiques, mais sur des grands nombres, sur des longues périodes, et dans trois grand pays, nous pensons avoir rempli beaucoup mieux que par des assertions toujours discutables les principales conditions d'une démonstration scientifique" (Juglar, 1862, p. xiii). However, he meant that he relied not simply on data but on a large amount of data. His actual usage of statistical analysis did not go far beyond the simple listing of tables and picking maxima and minima from his series (with some occasional cheating). For a discussion, see Section 3.1. With such a statement, Juglar probably aimed at distinguishing himself from a number of other writers in the field who used to support their arguments with the occasional illustrative reference to historical data.

12. "A proof by boredom!" (Morgan, 1990, p. 41). We find a similar argument in Tugan-Baranowsky: "there is evident an extraordinary resemblance between [crises] in all their essential characteristics … This makes the history of crises very monotonous and serves as the best evidence of the uniformity of the phenomenon under investigation" (Tugan-Baranowsky, [1914] 1954, p. 745). Della Bona (1888, p. 76) also took up this argument; he left, however, the boring pieces to de Laveleye, Juglar and Max Wirth.

13. The passages cited in these paragraphs also appeared in the second edition, but as the second chapter (Juglar, 1889, pp. 27–29).

14. For a discussion of the medical literature on this issue and for further examples, see Carter (2003, Ch. 1).

15. Respectively "causes occasionelles" and "prédisposition" (Juglar, 1862, pp. 1–3).

16. The chronology is interesting. According to Carter, the first appearance in the literature of the etiological approach can be precisely pinned down to a lecture on puerperal fever delivered by Ignaz Semmelweis on May 15, 1850. Semmelweis's claim, however, do not seem to have been taken up by anyone before 1862 (Carter, 2003, pp. 44–47) – that is, the year of publication of Juglar's book. For a more detailed discussion of this point, see Besomi (2011).

17. Another definition of predisposing cause found in the same Medical dictionary runs as follows: "They are the causes whose action is often uncertain, always obscure. Sometimes they act by gradually affecting the constitution, at other times by gradually disrupting the equilibrium in which health consists. In a word, they prepare the body for such or such disease" ("ce sont les causes dont l'action est souvent incertaine, toujours obscure, qui agissent tantôt en modifiant peu-à-peu la constitution, tantôt en rompant par degrés l'équilibre qui constitue la santé, préparant en un mot le corps à telle ou telle affection": Beaude, 1849, p. xxxix). This wording describes very effectively (as will be seen in the sequel of this section) Juglar's view of the cause of crises for its reference to the gradual action and to the

idea of health as equilibrium and the crisis as a disease suddenly exploding as a consequence of the progressive distancing from equilibrium.

18. Groenewegen (2001, pp. 122–123) emphasized the medical origin of Juglar's notion of predisposition and caught well its meaning and implication without, however, noticing that the concept was counterpoised to the "occasional cause," which also plays a part in the methodology and the rhetoric of Juglar's construction. Frobert and Hamouda, in their essay on the medical metaphor in Juglar, altogether failed to take up the point (Frobert & Hamouda, 2008). It should be noted that the distinctions similar to Juglar's one between occasional and predisposing causes were also advanced by other writers starting from different backgrounds: see Section 3.8.

19. Juglar (1857, p. 38, 1889, p. xvii) went so far as claiming that wars and revolutions are actually a consequence, not a cause of crises.

20. In truth, he did not insist on this point in the first edition, but he specifically tackled it in the second: see Section 2.2. For a discussion of this aspect, see Section 3.4.

21. Juglar (1862, p. 202), however, indicates the approximate average length of the cycle: the crisis is sudden and short, liquidation takes one to two years, prosperity about six to seven years.

22. Beaude's *Dictionnaire de Médecine Usuelle* (1849, p. 621): "Period: refers to the different phases of a disease. A period implies a certain number of days during which one of the cycles of the diseases comes to a full circle" ("Période: se dit des différentes phases d'une maladie; une période suppose un certain nombre de jours pendant lequel s'est accomplie une des révolutions de la maladie"). See for instance, the *Dictionnaire de l'Académie Française*, sixth and seventh editions (1835 and 1878, respectively) for a comparison of the different connotations of the substantive.

23. Curiously, in his early writings, Juglar treated the liquidations as the cause of the crisis, then conceived on the crisis as consisting in the general liquidation, and only later, he thought of the liquidation as following the explosion of the crisis. In 1856 and 1857, in fact, he wrote that liquidations *produce* crises ("Ce sont ces liquidations qui produisent les crises": 1856, p. 560, 1857, p. 38). In the *mémoire* presented to the Académie des Sciences Morales et Politiques in 1860, he wrote that during crises, everything comes to a halt for some time: "it is a general liquidation" ("Dans les crises, tout s'arrête pour un temps, le corps social parait paralysé; mais ce n'est qu'une torpeur passagère, prélude de plus belles destinées. En un mot, c'est une liquidation générale." The original text does not seem to have survived; this passage is cited by de Molinari, the Rapporteur for the economic section of the Académie, incorporated in Juglar, 1862, p. xiv). In the 1862 book, Juglar repeats throughout that liquidation follows the outburst of the crisis (see, e.g., pp. xii, 7–9); on one occasion, however, the notion of crisis as general liquidation is cited again (p. 176).

24. Juglar's emphasis on abuses and exaggerations is likely to reflect the medical emphasis on excesses as the cause of most diseases, a view still prevalent at the time of Juglar's first writings (Carter, 2003, pp. 20–21). The discovery of pathogenic agents, in fact, was taking place in those years and was far from being a generally accepted theory; some specific instances were known, but a general perception of disease in these terms was still lacking. Pasteur's discovery of bacteria was more or less contemporary with Juglar's book. On the contrary, the idea that men are prone to excesses fits well with Juglar's Jansenism, which could therefore have played a role in the formation of Juglar's view on crises.

25. All citations are from the first edition of Juglar's (1862) book, but the list could easily be expanded with a number of similar citations from other of his writings, such as 1863, p. 623, english translation in this volume, p. 135 and passim; similar quotes from the second edition and other late writings are given in Section 2.2.

26. Niehans (1992, pp. 546–547) thus considers Juglar's conception as belonging to the family of relaxation oscillation theories of fluctuations.

27. "Solid houses seldom go bankrupt" ("Il est rare de voir de bonnes maisons succomber": 1862, p. 14). This view, however, was not universally shared: the editor of *The Bankers' Magazine* appended a note to Lawson (1848b) observing he overlooked the fact that a crisis, "ruins not only the speculator but the prudent man of business also; for the latter is invariably involved with the former. The large number of solvent houses who were forced to suspend payments last year is a melancholy proof of this fact" (*Bankers' Magazine*, 1848).

28. Health: "state in which all the functions [of the organism] are performed freely and easily; it is the normal state" ("État dans lequel toutes les fonctions s'exécutent librement et facilement: c'est l'état normal": Beaude's *Dictionnaire de Médecine Usuelle*, 1849, Vol. 2, p. 780).

29. Intrinsic; not, as stated by Frobert and Hamouda (2008), "normal." Juglar reserved the term "normal" to prosperity, the equilibrium state free of the exaggerations of credit and speculation (the passages relating to the first edition are given in the text, while the references to the later writings will be given in Section 2.2), and indeed, there is nothing normal in a diseased organism. The normality of the entire cycle is an issue that arose later, as seen in Section 4.2. Frobert and Hamouda, however, have rightly stressed that Juglar's analogy of crisis as illness was rooted in the medical conception of his time. Their argument that this metaphor has played a heuristic role in the development of Juglar's thought, rather than a purely illustrative one, is of interest. In the present contribution, further instances are supplied to this effect.

30. Juglar is adamant – it is also part of his rhetorical apparatus – that the periodicity of crises is a universal and synchronous phenomenon (1862, e.g., pp. 4, 13, 15, and passim), but only relative to countries where commerce, industry, and especially credit are developed (e.g., p. 5).

31. One may also note that the passage cited at the opening of this section, where Juglar "chose his side" and inferred from the regularity of the recurrence of crises that at its origin there must be excesses of speculation, was left unexplained. If he identified the culprit before starting his inquiry, his argument was bound to bring precisely that result!

32. There is an asymmetry here, which reflects in the asymmetry in the division in three phases: while what happens during the prosperity provides the "cause prédisposante" of the crisis, liquidation *prepares the way* for the prosperous phase (this appropriate wording is suggested by Hutchison, 1953, p. 371). In Juglar's view, however, prosperity does not seem to need a specific cause; prosperity is simply in the nature of things.

33. Juglar seems to have become aware of such issues while translating into French large excerpts of the British Parliamentary commissions on banks, money, and credit (Juglar & Cullet, 1865), and later writing his treatise on exchanges and freedom of issue (Juglar, 1868). This is apparent in the changes he introduced when

revising, in 1873, his entry on commercial crises for Block's *Dictionnaire général de la politique* (Juglar, 1863, 1873). Translations of these two dictionary entries are available in this volume, along with an introduction by the translator, Cécile Dangel-Hagnauer.

34. Although the book is still centered, also terminologically, on crises, the terms "circle" (p. 10) and "cycle" (p. 17, 97, 162, 166, 554 – the list is due to Niehans, 1992, p. 550) are occasionally used. It should be noted, however, that Juglar's use of the term refers either to a period of years or to a round of course of the three phases, not to the (causal) succession of such cycles (see, for details of the meanings of the word "cycle," note 122). The term has been in use long since: some instances are cited in Section 3.2.

35. In Niehans's view, Juglar's focus on prices – as well as that of most of the literature on cycles up to the interwar years, when prices were substituted by output – reflects the fact that statistics were more readily available (Niehans, 1992, p. 552). This explanation, however, fails to account for the shift of emphasis between the first and the second editions: some statistics on prices were available by 1862 (in particular those collected by Tooke), but Juglar chose instead to inquire into banking data, in spite of the difficulties in gathering some of them. The reference to prices as a link between credit and speculation enabled Juglar to give a better formulation of the cumulative process in the upswing and give some intuitive kind of characterization of the prosperity phase in terms of equilibrium in prices (not a static one, but an equilibrium of raising prices reflecting the joint acceleration of credit and production), which was entirely lacking in the first edition. One may thus conjecture (pending historical research into the development of Juglar's thought) that Juglar was aware that his first edition lacked an adequate theoretical basis and that his intuition needed a more precise analytical setup. He would have easily found the missing ingredient in the literature of the time: see Section 3.5.

36. Although Juglar used the term "equilibrium," he did not supply any precise definition of it. See Section 3.9.

37. The medical metaphor also reappears in other of Juglar's late writings: "La crise commerciale, comme dans les maladies, est un moment critique à passer" (1891, p. 641). Crises "are not accidents, a fortuitous disease that one cannot forecast; they are a true illness, perfectly determined, that takes place at almost fixed times always announcing its arrival" (les crises "ne sont pas des accidents, un malaise fortuit impossible à prévoir, mais bien une véritable maladie parfaitement déterminée, qui survient à époques presque fixes et qui annonce toujours son arrivée": Juglar & Des Essart, 1889, p. 1355).

38. This (as we already had in the first edition: see Section 2.1) is occasionally expressed in terms of a comparison of the public's habits as to savings and the use of capital, as mediated by credit (p. xix).

39. "It is the very nature of business to do forward operations in order to give the buyer enough time to sell the goods" ("Il est de l'essence même des affaires d'opérer à terme pour laisser à l'acheteur le temps de placer la marchandise," Juglar, 1889, p. 47). "The prosperity of a country depends on the development of business, and … there is no business without credit" ("la prospérité d'une nation dépend du développement des affaires, et … il n'y a pas d'affaires sans crédit," p. 48). As a consequence, the more a country is advanced the more credit is widespread, and crises

are therefore more intense: "One could even claim that the depth of crises is related to the development of a country's wealth" ("On peut même dire que la gravité des crises est en rapport avec le développement de la richesse du pays," p. 255).

40. On the abuses of credit as cause of crises, see also Juglar (1900a, p. 10).

41. Juglar used the expression "l'équilibre instable du marché" or "du crédit," with reference to the last phase of the prosperity when speculation prevails (1889, pp. 34, 165). Emphasis on instability recurs in several of Juglar's writings: crises "éclatent d'abord sur une place quand la situation est déjà très tendue, ébranlent et renversent cet équilibre instable, s'étendent sur tout le monde des affaires, puis se liquident dans les mêmes conditions pour reparaître après avoir parcouru le même cycle" (1882, p. 5). "Cette prospérité repose sur une base essentiellement fragile" (Juglar & Des Essart, 1889, p. 1349).

42. Juglar stresses that credit permits increasing demand and thereby leads to raising prices. It is clear, however, that he is not referring to consumers' credits but to credits for production. Yet, Juglar does not seem to account for the increase in production this should entail, which should to some extent compensate for the increase in demand. Tugan-Baranowsky (1913, pp. 243–244) actually criticizes Juglar for not having realized that if demand increases, so does supply: he inverts Juglar's perspective, asserting that it is not demand preceding supply, but the other way around.

43. "In spite of the distress they lead to, the losses and even the ruin they bring about, crises have their silver lining. They clear the market of all doubtful credits … Everything that had already lost its equilibrium has succumbed" ("Les crises, malgré le malaise qu'elles occasionnent, malgré les pertes, les ruines même qui en sont la conséquence, ont au moins cet avantage de débarrasser le marché de tous les crédits douteux … tout ce qui avait déjà perdu son équilibre a succombé," p. 46). Similarly, Juglar states that speculation develops "the unhealthy elements that have to be wiped out by the storm" ("les éléments malsains qui doivent être balayés par la tempête," p. 165) and that crises and liquidations "rid the market of all impure elements, enabling it to stand again on its feet" ("débarrassent le marché de tous ses éléments impurs, lui permettant de reprendre pied," p. 186).

In his later writings, he insisted even more on the healing character of crises. In the dictionary entry written with Des Essars, he described the crisis as a brake capable of channeling the frantic movement taking place in the prosperity (1889, p. 1349). In 1900, he wrote of "crises of progress in production" ("crises de progrès dans la production"), referring to the necessary adaptation to the "general progress of production" altering the customary proportions between supply and demand. He commented, "in fact, crises lead to a positive result. Humankind will be better capable, and with less effort, of getting hold of the multitude of things it needs. Neverhteless, this will happen via a painful phase of adaptation" ("Au fond, ces crises aboutissent à un résultat bienfaisant, l'humanité sera mieux pourvue et avec moins d'efforts de la généralité des objets dont elle a besoin; mais il y a une phase pénible d'adaptation à subir," Juglar (1900a, pp. 13–17). See also Juglar (1891, 1900b, pp. 648–649, translated in this volume, Chapter 6, Section 4).

44. Occasionally, Juglar seems to throw out, almost parenthetically, reflections on the interest and discount rates, whose importance lies in maintaining "in equilibrium the entire system of credit" ("en équilibre tout le système du crédit": p. 138; see also

pp. 126–127, 148, 170, 252, 271). These are not, however, really playing a part in his theory of crises except for the point discussed in the text and for a "golden break" deriving from foreign trade (Niehans, 1992, p. 556). The question of how, in spite of this equilibrating force, credit can go out of hand is not even asked. At any rate, Juglar admits that a rise in the discount rate before the situation degenerates could help prevent crises (1889, pp. 170–171), but this is all the more puzzling, as there is no discussion of how the equilibrating effect of interest interacts with the disequilibrating effect of credit (see, for some early reflections on this point by Mills (1868); Section 3.7 in this chapter; the point was taken up by Bagehot, 1873a). Nevertheless, Commons, McCracken and Zeuch (1922, p. 261) highly evaluated this part of Juglar's contribution: "For the first time in the theory of cycles, the volume of credit becomes a dependent variable, depending on the one hand, on the transactions and expectations of businessmen and, on the other hand, on the state of the bank reserves, with its connecting link, the rate of discount, or 'value of money.' Out of this relationship of time value to exchange value Juglar develops his recurring cycle of prosperity, crisis, and depression. It is the introduction of the definite use of the discount rate to contract credit expansion and its inherent effect upon the movement of the price level that gives us the cleancut contribution of Juglar."

45. It may be noted that this mechanism is similar to the one later propounded by Tugan-Baranowsky (see Besomi, 2006a), although Tugan himself found Juglar's discussion "très maladroit" (Tugan-Baranowsky, 1913, p. 243). A mechanism based on the cumulation of loanable funds during depression, however, was meanwhile expounded by Bagehot (1873b, pp. 149–150) (Bagehot was also probably the author of the anonymous piece in *The Economist* of January 4, 1873, purporting the same principle) and similarly by de Laveleye (1885).

46. The point is also stressed by Niehans (1992, pp. 553–555) and by von Bergmann (1895, pp. 256–257). Hutchison (1953, p. 425) listed Juglar among the workers in the field of crises and cycles "sceptical or ignorant" of the theoretical developments in the analysis of normal equilibrium of prices, value, production, and distribution.

47. It is an asymmetrical role: while Juglar (p. 138) mentions (without, in truth, insisting particularly on the point) the role of the accumulation of unused capital during liquidation, he explicitly denies that scarcity of capital at the end of prosperity may play a role in causing the crisis.

48. This account of Juglar's revised edition is far from complete. In particular, his description of the credit mechanism, including its international implication on specie and other transactions, is ignored here as not relevant for the topic of this chapter. For a summary see, for example, Niehans (1992, pp. 555–558).

49. After having stressed that prosperity is characterized by rising prices, that the crisis approaches when the increase slows down, and finally bursts out when the movement ceases altogether, in a dangerous passage, Juglar adds, "In a word, the main cause of crises – and one could even say the only one – is the cessation of the *price rise*" ("En un mot, la principale, on pourrait dire l'unique cause des crises, c'est l'arrêt de la *hausse des prix*," p. 33). Having defined crisis as the moment of stoppage of the raise of prices, Juglar is running in circles, thereby giving room to the criticisms of Tugan-Baranowsky (1913, pp. 241–244) and Minnie England (1913, p. 346), and is laying the premises for eliminating as altogether redundant the very

notion of crisis. He did not, however, take such a step (which came about two decades later at the hand of another Frenchman, Lescure: see Section 4.2, and in particular note 139.

50. Juglar was one of the founding members (and at some point was the President) of the Société de Statistique de Paris in 1860 and a member of the International Institute of Statistics and of the Royal Statistical Society.

51. Similar statements can surely be found elsewhere in the literature (e.g., in Briaune, 1857, p. 68, where it is argued that to ascertain whether the price of corn is limited by demand, one should start "not from hypotheses and abstractions, but from the facts as presented by history and the practice of life"), although at the time it was uncommon to see such a principle elevated to a methodological premise to a systematic study.

52. Similarly, a few years later, West also discussed fluctuations of the price of corn and wages of labor and produced a diagram with average price fluctuations from 1743 to 1821 (West [1826] 1993); see also note 56.

53. Evans's book counts over 200 pages of text and 250 pages of appendices, mainly consisting in balance sheets.

54. Wirth's book ran through over 470 pages, almost twice as many as Juglar's first edition.

55. Jevons (1862, p. 4) indicates only two articles attempting to separate periodic from occasional variations. Jevons's paper, offering a further contribution to this task, was published only in 1884, but the results were taken up in his 1863 tract on the fall of the value of gold. By 1879, Jevons had communicated to de Foville that he had a copy of Juglar's book for some time but had "not read the whole of it with the care which it deserves" (letter of February 1, 1879, in Jevons, 1977, letter 578).

56. The history of graphical representations of time series is discussed at length in Funkhouser, 1937, and more briefly in Beniger and Robyn (1978); with specific reference to economics, see Klein (1995, 1997, 2001) and Maas and Morgan (2002). To the writers cited in these essays of relevance to the early studies of economic change (in particular Playfair, Langton, and Jevons), the following should be added: West's fold-out chart of the yearly average price of wheat, 1774–1821 (curiously, the 1993 reprint by Routledge/Thoemmes mistakenly included the chart with another of the essays included in the collection); John and Charles Walker's (1840) "Mercantile Chart, exhibiting the fluctuations of the prices of Consols, Exchequer Bills, Foreign Exchanges, and the principal articles of commerce in London, during the last seven years"; Anonymous, (1862, 1863), Ellison (1862), Howard (1863), Stansfeld (1864); Meyer (1865), Duncan (1867), and Baker (1876). Mills's abstract charts illustrating the "general characteristics of a credit cycle," showing the ups and downs of several variables (bullion, bank reserves, bills, rate of discount, number of bankruptcies, general prices, prices of metals, savings of the working classes, expenses in railways, and pauperism) in the course of the four-phase cycle are particularly noteworthy (Mills, 1868). Finally, the publication date of Cooke's *Statistical Charts showing the Fluctuations in Quantity and Value of the Products of the Soil* should be moved back from 1844 to 1827 or 1828.

57. The extensive display of all types of graphic works held at the Exposition universelle in Paris in 1878 (see Funkhouser, 1937, p. 331; Cheysson, 1878, p. 324)

may have contributed to making Juglar aware of the potentialities of this kind of instrument.

58. Only the lines connecting these points were missing but were so obviously hinted at which de Foville (1879, p. 192) explicitly mentioned "the curves traced by the author" and their remarkable symmetry.

59. The intermediate passage without zigzag line supports the conclusion by Maas and Morgan (2002, p. 121n) according to whom Juglar's "tabular-graphs" of 1889 can be interpreted "as a 'natural' move to turn tables into graphs."

60. The diagram (Fig. 1) was printed as a stand-alone in 1900 (Juglar, 1900c); it is similar to the one appended to Juglar (1900a), which does not include the yearly maxima and minima.

61. It is worth noting that Mitchell's inductivist approach and specific statistical methodology to some extent resembles Juglar's. See Niehans (1992, pp. 552–553) and Pellissier (2000, p. 275).

62. On Petty's usage of the term "cycle," see note 122.

63. On Briaune, see Le Gall (2006) and Simonin (2006). On the 1847 crisis, among French authors, see, for example, de Molinari (1847, p. 274) and Horace Say – who pointed out that "everybody acknowledges" that crises had origin in the scarcity of crops (H. Say, 1847, p. 194). For a nice sample of authors attributing the main cause of the 1857 crisis to the agricultural factors (Lavergne, Bénard, and Hippolite Dussard), see the proceedings of the meeting of December 5, 1857 of the Société d'Économie Politique.

64. Tooke (1823, Part I, section VII): "Explanation of the causes of extension and contraction of private paper and credit." For a discussion, see Arnon (1991, pp. 74–77).

65. For a discussion, see Link (1959, pp. 127–147); for Schumpeter's appreciation of the endogenous character of Tooke's account, see his 1954 (pp. 744–745) study. Precisely for this reason, Spiethoff considered Tooke as Juglar's predecessor: in Persons's summary, "Juglar's forerunner, says Spiethoff, was not Sismondi, Malthus, J.-B. Say, or Marx, but Thomas Tooke (1774–1858). In support of this view, Spiethoff says that Tooke (1) used expressions for commercial expansion, crisis, and depression, (2) placed these phenomena in the nineteenth century, describing their features, and (3) pointed out their cyclical character" (Spiethoff, 1925, p. 61, quoted in Persons, 1926, p. 98).

66. A similar mechanism was suggested by J. R. McCulloch, to explain the fall of prices of corn for 1804 and 1812–1813: "high prices … attracted so much additional capital to the land, and occasioned such an extension of tillage, that we grew … an adequate supply of corn for our own consumption. And it is certain, that, under such circumstances, the price of corn must inevitably have fallen" (in 1814 as a consequence of an abundant crop, in 1804 simply as a consequence of the application of new capital). McCulloch brings as "uniform and striking" evidence the fluctuations in the number of enclosure acts (*J.R. McCulloch, 1826a, pp. 72–73).

67. On the theories of crises in France among socialist writers (including some maintaining that they recur periodically), see Marcy (1946).

68. This is not, of course, the first instance of the word "crises" in the plural in the title of writings on the subject: see a list in note 72.

69. Lawson added, anticipating Juglar, the observation that crises "are diseases which exhibit themselves only in a very civilized state of society, where trade and commerce flourish, where there is commercial enterprise and spirit; they occur in

England, France, Holland, and the United States of America; but I do not find any account of such in Spain or Portugal'' (Lawson, 1848a, p. 2). For a discussion, see Besomi (2008b).

70. Summaries of the main positions after the 1820s are given in Jevons ([1878] 1884, pp. 222–224) and Miller (1927, pp. 192–193). The most detailed account is Bergmann's (1895, pp. 235–260). For a survey of some less known contributions from the 1780s to the 1840s, see Besomi (2010b).

71. The word ''crises'' (in the plural) was more frequently used in French than in English, often in association with the attribute ''commercial.'' In English, it was often used in the singular since the late eighteenth century, while in the plural, only a few instances are recorded before the 1860s.

72. See for instance McCulloch (1819, 1826a, 1826b), Anonymous (1819a), Anonymous (1819b), Anonymous (1826), Guéroult (1831), Lemonnier (1835; the first dictionary entries on commercial crises), Millot (1837), Anonymous (1837), Chitti (1839), Briaune (1840), T. Joplin (1841), Duncan (1842), Cargill (1845), Engels (1847), Lawson (1848a), Coquelin (1848, 1849, 1850), Stansfeld (1849, 1854), Anonymous (1850), Francis (1853), W. Joplin (1854), Swiney (1855), Société d'Économie Politique (1857), Obert and Van Langenhove (1857), Anonymous (1858), Clément (1858), Sampson (1858), Van Hall (1858), Williams (1858), Bonnet (1859), and Garnier (1859). This list could be considerably lengthened if the appearance of ''crises'' and similar words in the text is considered.

73. During a session of the House of Lords in 1811, Lauderdale had already recognized that ''no country had ever experienced commercial distress without exhibiting the phenomena which had been witnessed in this country'' in 1809 (Anonymous, 1811).

74. Colquhoun (1793, p. 6) went so far as stating that ''there seems to be no medium between the two extremes of great prosperity and national utility, and that species of extended adversity, which deprives the country not only of the labour of the immense body of people, most beneficially employed; but adds to the calamity by subjecting the public to the expense of maintaining them.''

75. On the meaning of the term ''cycle'' as used in Overstone's passage, see sense (2) note 122.

76. Such a division, in contrast to Juglar's, stresses the revival rather than the liquidation. The ingredients for a four-phase synthesis were thus already present.

77. A nice example of disparate causes of crises advocated by Juglar's learned colleagues at the time he was beginning to write is the summary of a discussion having taken place in December 1857 at the Société d'Économie Politique (1857, p. 473): ''Mr. Ch. Renouard, adviser to the Court de Cassation, summarized as follows the main causes of the crise: the famine, first cause independent of people; – the war, which has occasioned direct and indirect losses and thrown the social economy in disarray; – the excessive development of public works; – the spirit of speculation, which always tends by its nature to go to extremes; – the moral state of the country, which has abandoned (it must be admitted) the noble concerns of art, science, politics, and broad ideas to focus almost exclusively on business, physical enjoyment and luxury'' (''M. Ch. Renouard, conseiller à la Cour de Cassation, résume les principales causes de la crise: dans la disette, première cause indépendante des hommes; – dans la guerre, qui a occasionné des pertes directes et indirectes et jeté

le trouble dans l'économie sociale; – dans le développement excessif des travaux publics; – dans l'esprit de spéculation qui, de sa nature, tend à aller toujours à l'extrême; – dans la situation morale du pays, qui abandonnant beaucoup trop, il faut le dire, les nobles préoccupations des arts, des sciences, de la politique, des grandes idées, enfin, s'est beaucoup trop exclusivement jeté dans les préoccupations d'affaires, de jouissance physiques et de luxe.''

78. As the leading example of the attitude of those who rejected the possibility of finding a unifying explanation, Miller cites Roscher. An anonymous ''political economist'' writing to the editor of the *Economist* against the ''Alleged commercial decades or cycles'' (*Leslie, 1864) indicates that such an interpretation was widespread. However, when the Commissioner of Labor inquired into the causes of depressions, his agents reported, along with some of the usual suspects, also a number of bizarre ones, such as the abolition of the apprentice system, the reckless legislation in Congress, depressions and mental diseases, and too much and indiscriminate education, immorality, and extravagant living (Wright, 1886). In his *Geschichte der Nationalökonomischen Krisentheorieen*, Bergmann (1895) collected and classified in eight categories 230 different opinions on the origin and nature of crises. These were counted by Lescure (1907, p. 13), who, however, in a later edition revised the total to 280 (Lescure, 1932; quoted by Robertson, 1915, p. 1). A further list of extravagant opinions is given by Wells (1899, pp. 20–26).

79. Later, some writers resorted to oceanic metaphors to describe the phenomenon. Langton (1857, p. 11) wrote that ''These disturbances [quarterly and seasonal fluctuations] are the accompaniment of another wave, which appears to have a decennial period, and in the generation of which, moral causes have no doubt an important share.'' Mills, who cites Langton approvingly, specifies, ''They are indeed 'waves', as distinguished from the current or tide'' (1868, p. 13). Other early occurrences of the oceanic metaphor are cited by Miller (1927, p. 192): a speaker in the Massachusetts House of Representatives attributed to ''periodical revulsions,'' occurring ''about every three years'' ''as much regularity as the billow from the ocean'' (Rantoul, 1836, p. 14 – as cited by Miller, 1826, p. 192), Balfour (1848, p. 477) commented on the ''apparently tidal regularity'' with which crises recur.

80. For some time at the turn of the century, these two contrasting views on periodicity were actually taken as representing the field. Later, as Jevons's view on cycles and sunspots was quickly relegated to the domain of theoretical curiosa, and his own view of exceptional events being capable of affecting the duration of the cycle was incorporated anyway in the subsequent theoretical approaches, the expediency of contrasting his views with Juglar's also disappeared. The only interwar reference I have found is in Kuznets (1930, pp. 383–384). The issue of periodicity, without comparison with Jevons, is discussed by Mitchell, who correctly stressed that Juglar did not identify any strict period but only aimed at pointing out the regularity in the alternation of phases (1927, pp. 453–454).

81. This theory was welcomed with a mix of ridicule and respect, as it was not unfounded in the contemporary literature on agricultural cycles (see Besomi, 2008a).

82. Jevons himself recognized that, in his collection and interpretation of data concerning the cycle phenomenon, he was at first guided by a theoretical bias in favor of a strict periodicity (Jevons, 1878b, in 1884, p. 228). Keynes ([1936] 1972, p. 126) remarked that Jevons had ''passed over with surprising levity'' the discrepancies with

strict periodicity he had himself pointed out and that "the details of the inductive argument are decidedly flimsy." On Jevons's quest for a time unit of a fluctuating economic activity, see Maas (2005, pp. 243–248).

83. This mechanical principle was also advocated by Danson (1848, p. 101): "The commercial distress which has so strongly marked the year just closed would appear to be, in the main, only a recurrence of a state of things which has become, in some degree, periodical. Effects occurring repeatedly, at intervals having some appearance of regularity, seem to indicate a corresponding regularity in the recurrence of their causes."

84. Juglar does not supply references; he may be referring to Cobden's introduction to the English translation of Chevalier's *Probable Fall in the Price of Gold*, who wrote of crises "visiting the commercial world once in each decade" (Cobden, 1859, p. x).

85. Jevons himself, of course, admitted that other events, besides fluctuations in agricultural production following sunspots, could also affect the period.

86. The biblical image had been previously evoked to reject not only the strict periodicity of crises but their recurrence tout court: an anonymous political Economist, in a letter to the *Economist* dated November 15, 1864, claimed that if the alternation of seven years of abundance and seven years of famine was not an extraordinary circumstance, Joseph's prediction would have been unnecessary (*Leslie, 1864, p. 1428). Interestingly, Briaune appealed to the biblical image to argue, in the name of the universality of the laws of nature, that the period of the agricultural cycle must be 14 years: "If such a periodicity existed in Egypt, it exists everywhere; for the very nature of the law is to be general, regardless of the initial conditions regarding the climate" (Briaune,1857, p. 122).

87. Later, a fourth issue became prominent in the debate on economic fluctuations, namely, the simultaneous presence of cycles of various lengths and their mutual relationships. We do not need to be concerned with this here.

88. Previously, Bastiat (1860, p. 55) had argued that crises were disappearing altogether, and an anonymous author of an article on "Credit and banking" had denied that crises are periodical, without, however, elaborating (Anonymous, 1860). Ferrara also "doubted that there is any principle in the science [of political economy] from which the periodicity of crises can be deduced as an economic dogma, and even less that it is a mathematical law." He admitted that Juglar's tables showed that they had recurred with some periodicity but claimed that his series were too short to deduce a theory or law (Ferrara, [1864] 1890, p. 278).

89. Niehans (1992, p. 552) conjectured that the relative ease of gathering statistics on prices rather than, for example, production, surely favored emphasizing this factor (see note 35). One, however, should also consider that a number of equilibrating mechanisms in classical economics (and, later, also neoclassical economics) were based on prices (whether of goods or of capital), and there was therefore also a theoretical interest in examining this factor.

90. Besides Tooke's writings already cited, the explicit reference to "The connection of the Currency with Prices" in Tooke (1844) also has to be mentioned.

91. Such generic usages of the medical metaphor are innocuous if only used to give some color to the argument but may become dangerous if any kind of conclusion is drawn from them. As correctly pointed out by Bernhard with reference

to the usage of medical and other metaphors to account for business cycles in the early decades of the twentieth century, "The objection to these metaphorical words and phrases is not that they are picturesque – that would be a point in their favor – but one must object when such words are used without an adequate conception of their meaning and connotation. Around such words has grown a mystic aura which seems to satisfy inquiry by suggesting something universally true and strangely profound, but what they suggest is totally inadequate either as a statement of an economic problem or as a causal explanation … [The] fact that there are tides in the ocean or seasons during the year gives no ground for arguing that there *must* be cycles, uncontrollable cycles, in economic activity, unless it is shown either that the same forces produce tides and economic cycles or that there are other forces which act in similar fashion on economic activity to those forces exerted on the ocean waters" (Bernhard, 1943, p. 57).

More specific analogies, however, can perform useful functions, in particular, as a heuristic device; accordingly, the study of the metaphorical transfers is illuminating both in terms of the general understanding of the object to which it is applied and in terms of some specific analytical mechanisms used in the explanatory process. Some examples are discussed in this section; for a more thorough analysis, see Besomi (2011).

92. Hardy (1849, p. 388): "The disease is not the lesion itself; it is its continuation, its repercussion on vitality" ("La maladie n'est pas la lésion elle-même, elle est plutôt la suite, le retentissement vital de cette lésion").

93. Yet, there are precedents of usage of the medical metaphor in the same sense as Juglar. Innes (1848, p. 380), for instance, wrote that "Scotland has been subject to the periodical revulsions which attend all commercial enterprise, where the very prosperity and success tempt to overtrading, and out of the superabundance of health comes the malady."

94. See note 91.

95. According to Schumpeter, Hare "was one of the earliest of the few writers who attributed to cycles the function of speeding up economic advance" (Schumpeter, 1954, p. 743n). Schumpeter's opinion on the scarcity of such writers contrasts with Ferrara's and Hoyle's, cited below in the text.

96. "This opinion is nowadays spread far and wide" ("Quest'ultima opinione è oggi assai divulgata," Ferrara, [1864] 1890, p. 274).

97. Ferrara ([1864] 1890) recognized the impact of Juglar's book but referred to him rather diminishingly as "a writer, author of a booklet that drew much attention from economists. It was written with the aim of demonstrating, with abundance of data, the periodicity of crises, which he denotes – using a language I find somewhat cynical – as simple *liquidations*. In his view, their return is 'one of the conditions on which the progress of industry depends'" ("uno scrittore, autore di un'operetta che molto eccitò l'attenzione degli Economisti e scritta di proposito per provare con ricca copia di cifre la periodicità delle crisi, le chiama soventi, in un linguaggio che mi permetterò di trovare un poco troppo cinico, semplici *liquidazioni*; ed il loro frequente ritorno sarebbe, secondo lui, 'una delle condizioni, a cui è vincolato il progresso della grande industria'"; Ferrara, [1864] 1890, p. 274).

98. A passage by Overstone was reported by Ernest Jones at a meeting in Halifax in January 1848 as follows: "Jones Loyd, the banker, has summed up our financial

policy in a few words, when he said: 'Perodical panics were necessary to keep our commercial system going.' What a system that must be that requires periodical ruin to make it live. What a clock, of which you must break the mainspring every time you wind it up'' (Anonymous, 1848).

99. This distinction is based on the separation of essential phenomena and accidents, which is at the heart of Galileo's epistemology. See, for example, Koertge (1977) or Ducheyne (2006).

100. ''Not an immediate one'' (''Pas immédiate'').

101. ''Protecting or aggravaring cause'' (''Cause preservatrice ou aggravante'').

102. Briaune thus went almost as far as Juglar in claiming that wars can be a consequence, rather than a cause, of crises (compare Section 2.1, note 19).

103. In these writings, Lawson directly tackles the problem of periodical panics. The foundations of this distinction, however, were laid a few years before in his *Lectures on Political Economy* (1844). For a more detailed discussion, see Besomi (2008c).

104. This, however, does not necessarily mean Juglar had read Lawson's article, as the magazine had published a number of pieces on crises and panics.

105. Lawson also stressed a few other elements later to be found in Juglar's writings: his emphasis on periodicity, credit, speculation, and psychological causes have already been pointed out in Sections 3.2 and 3.5; to this, it should be added that the mechanism that he envisaged – following Tooke – to explain the explosion of credit was based on price changes: the scarcity of most articles gives rise to speculation, which brings price rises, thereby inducing the creation of the most extravagant enterprises (Lawson, 1848c, p. 282); he also stressed that credit is not necessarily banking credit, but credit traders raise to one another, and even concluded with an analogy anticipating the passage from Juglar 1862, p. 14, cited in p. 177: ''when the prices begin to rise under its [the spirit of speculation's] influence, the early purchasers are sure to realize a profit, they sell to another who sells again, producing additional rise of price, and so the torch, passed from hand to hand, is sure to burn the last holder'' (1848b, p. 285). Finally, like Juglar (1862, p. iv), he rejected the theories blaming crises upon the banking system, observing that banks are victims of the crises, compelled to act as they do, not their originators (Lawson, 1848a, p. 7); incidentally, such statements could be found in France as well. Chevalier, for instance, is reported having said before a meeting of the Société d'Économie Politique in 1854 that ''the Banks do not cause the movement; they follow it'' (''ce ne sont pas les Banques qui provoquent le mouvement; elles le suivent'' – Société d'Économie Politique, 1854, p. 429).

106. The expression ''almost periodical'' recurs three times in the article on ''Crises commerciales'' (Coquelin, 1852a, pp. 526, 528, 530) and also occurs in previous writings (e.g., Coquelin, 1850, p. 219; in 1849, p. 374, Coquelin dropped the adverb).

107. The last two words of the French original, ''Le mal se propage rapidement comme une traînée de poudre,'' literally translate as ''line of gunpowder.'' The analogy is interesting, as it takes an explosive charge (implicitly at the end of the line) as a metaphor for instability in a similar way as Juglar and Jevons later did (see Section 3.10).

108. This part of Coquelin's argument was taken up and translated into Italian a few years later by Boccardo, who began his discussion of the causes of crises by

distinguishing between external and internal ones, the former being those susceptible of scientific inquiry. Boccardo also agreed with Coquelin's conclusion that the monopoly of central banks is the ultimate cause of crises and their periodical recurring (Boccardo, 1857).

109. Mills's paper had a follow-up, as it was taken up by Jevons (see below and Peart, 1996, pp. 46–49), was fully discussed by Bergmann and cited for instance by Pigou (1927), Hutchison (1953), and Schumpeter (1954), and recently reprinted in Hagemann (2002).

110. This expression is quite interesting, as it clearly defines the cycle as a new phenomenon, to be explained in itself (''dictating the search of cause at a deeper level,'' p. 13) and not as the result of a mere sequence of crises.

111. Such conditions are the same for both authors. In Mills's words, ''exaggeration of healthy functional action,'' ''diseased overgrowth of credit,'' intervening gradually but eventually inducing the ''degeneration'' of the stable ''healthy confidence'' of the prosperity ''into the disease of too facile a faith'' in the highly speculative and unstable time preceding the panic (Mills, 1868, pp. 27, 36).

112. See also Jevons (1878a, in 1884, p. 206), ''No accidental cause, however, is sufficient to explain so widespread and recurrent a state of trade.'' For a discussion of Jevons's reinterpretation of secondary causes as disturbing factors, see Peart (1995) and Maas (2005, Ch. 9). In the light of the present section, Maas's claim that Jevons was the first writer to take such a step (Maas, 2005, p. 220) is surely not accurate.

113. Besides the learned writers cited in this section, a similar argument was advanced in the press by an anonymous correspondent of *Reynold's Newspaper* on November 15, 1857. After noting that ''as for the causes of the panic, [the theories are] as various, incomprehensible, and contradictory as those on the cholera itself,'' he ridiculed the variety of explanations offered, ''whether it be owing to Canning or to crinoline, – to female extravagance or to Indian disasters, – to the recklessness of trader or the bounty of Providence, – the abundant harvest being (not for the first time) one of the alleged causes of the starvation of the people,'' and observed that the periodic recurrence of financial panics, the interval between which being of 10 years on average, suggests a unique cause common to all such events: ''when such regularity as this is observed, one cannot help suspecting that panics occur in obedience to some intelligent cause. The idea of these periodically-recurring events being the children of chance, is not for a moment to be entertained. There must be a fixed cause; but what that cause is, the 'wise men of Gotham' have not yet succeeded in deciding'' (Anonymous, 1857b). Although the argument is only outlined, a piece like this being submitted to the press indicates that similar approaches were in the air.

114. ''On the one side are those who believe that the existing economic system is, in the long-run, a self-adjusting system, though with creaks and groans and jerks, and interrupted by time lags, outside interference and mistakes … These authorities do not, of course, believe that the system is automatically or immediately self-adjusting. But they do believe that it has an inherent tendency towards self-adjustment, if it is not interfered with and if the action of change is not too rapid. On the other side of the gulf are those who reject the idea that the existing economic system is, in any significant sense, self-adjusting. They believe that the failure of effective demand to reach the full potentialities of supply, in spite of human psychological demand being

immensely far from satisfied for the vast majority of individuals, is due to much more fundamental causes'' (Keynes, [1934] 1973, pp. 486–487).

115. Marx's starting point, both logical and chronological, were the conditions that make the systematic recurrence of crises possible without reducing them to the result of mere accidents. This was first discussed, in its most abstract form, in *A Contribution to the Critique of Political Economy* and in the *Grundrisse* (Marx [1859] 1971, pp. 96–98; [1857–1858] 1973, pp. 148–149), then taken up again in increasingly concrete forms, first in the *Theories of Surplus Value*, where Marx explicitly attacked Ricardo's acceptance of Say's law of markets, which made it impossible for crises to occur and its rejection by Malthus and Sismondi (Marx, [1862–1863] 1969, Vol. 2, pp. 492–535), then in *Capital* (Marx, [1867–1894] 1974).

116. J. S. Mill, ''On the influence of consumption on production,'' in Mill ([1844] 1967). As it was immediately clear that Say's law presupposes a barter-like system, with money only acting as an intermediary in the exchanges, quite naturally a number of authors attributed violations of Say's Law to some or other peculiarity of the working of the monetary system – from the currency issues to the working of the banking system, from credit to the abolition of £1 notes (see, e.g., Glasner, 1989, pp. 219–221). This explains the emphasis of most early crisis theorists on this kind of issues, while focus on real causes remained in a minority – although, of course, there were approaches based, for instance, on underconsumption or on the provision of capital.

117. Auguste Ott also attempted to construct some reproduction schemes to establish the equilibrium conditions that would maintain consistency between consumption and production, but limited his analysis to a cooperative society (Ott, 1851, 1854, pp. 516–523). For a discussion, see Besomi and Colacchio (2010).

118. Precedents of the awareness of the relation of crises to a breach in equilibrium must not be rare. The following anonymous author, for instance, so described in 1816 the premises of the ''present embarrassments'': ''The ordinary channels through which the various produce of art and industry was formerly distributed, are completely obstructed; the natural communication between the producer and consumer is interrupted; the supply by the former is not adjusted either in kind or proportion to the demands of the latter; and the dissolution of a connexion, which the prosperity of the national trade and manufactures requires to be steadily maintained, carries with it, too surely, their decay'' (Anonymous, 1816, p. 373).

119. For a discussion of Wilson's work on fluctuations, see Link (1959) (on this issue, see in particular pp. 108–114).

120. ''We have, in fact, one of those cases to which the axiom of Mr. Mill is applicable, – 'the joint effect of causes is the sum of their separate effects''' (Mills, 1868, p. 32).

121. At this junction, Mitchell still accepted the division of the cycle in three phases; he later changed his mind – see note 137.

122. To avoid misunderstandings, a note on terminology is in place at this point. The term ''cycle'' has several meanings, of which three recur in the nineteenth-century literature on the issues we are discussing here. The most common usage, occurring fairly frequently at least from the 1820s to the end of the century is that of ''cycle'' as (1) ''an interval of time during which a characteristic, often regularly repeated event or sequence of events occurs'' (*American Heritage*: 1). For example, Petty's reference to the average duration of the ''Cycle within which Dearths and

Plenties make their revolution'' (Petty, 1662, p. 43; the full passage is cited in Section 3.2). More commonly, the word was loosely used to indicate an interval in time in expressions such as ''cycle of prosperity,'' or ''cycle of depression,'' as for instance in this passage: ''cycles of abundance which are supposed to alternate with cycles of dearth every five years'' (Anonymous, 1849b, p. 573). The other two notions of cycle both refer to recurring events following the same pattern. One of them, however, focuses on what happens within a *single* cycle, whereas the other refers to the *succession* of cycles. The former of these is defined as follows: (2) ''A single complete execution of a periodically repeated phenomenon'' (*American Heritage*: 2a; see also *Oxford English Dictionary*: 4 or *Grand Robert*: 2). This usage of the term ''cycle'' stresses the order in which events occur within each cycle; as an example, one may consider the cycle of a washing machine, which goes through a number of phases, from prewashing to spinning, following a constant order, but which stops after the last one, and only resumes when the button is pushed again. The other notion focuses more on the repetition of the sequence than on the sequence itself within a single course; this is somehow taken for granted. It is defined as follows: (3) ''A recurrent round or course (of successive events, phenomena, etc.); a regular order or succession in which things recur; a round or series which returns upon itself'' (*Oxford English Dictionary*: 3a; see also *American Heritage*: 2b or *Grand Robert*: 2). An example is the working of a piston in a combustion engine.

When I refer to the ''cycles'' approach, the word is used in the latter sense. It should be noted that the use of the word ''cycle'' by a writer does not immediately classify him in the ''cycles'' approach: when ''cycle'' is used in the first of the senses defined above, it has no intrinsic relation with the way of approaching the problem of crises or economic fluctuations. When used in the second sense, it is compatible with the ''recurring crises'' approach, but it is not sufficient to characterize the ''cycles'' approach. Only when used in the third sense, it is fully compatible with both the ''recurring crises'' and the ''cycles'' approaches.

123. Here, I focus on the recurring crises and cycles approaches to clarify the position of Juglar and other writers too lightly considered as forerunners of the ''cycles'' approach but really discussing crises in terms of recurring events. A full comparison of the four approaches shall therefore be postponed to another occasion.

124. As an example of the ''crises'' approach on this point consider for example Ferrara's ([1864] 1890, pp. 256–269) view: ''Crises originate, as we have seen, from abnormal production. If production constantly followed the line of its natural development, it would cut at the root all the ills lamented by mankind, and our world would offer the view of a continuous ascension, from the state of misery from which we began, to an unlimited and indefinable perfection.''

125. Marx noted that Ricardo, who ''did not actually know anything of crises, of general crises of the world market'' could indeed explain them in terms of the rise of the price of corn due to poor harvest and due to the transition from war to peace. But ''Later historical phenomena, especially the almost regular periodicity of crises on the world market, no longer permitted Ricardo's successors to deny the facts or to interpret them as accidental'' (Marx [1862–1863] 1969, Ch. 17, p. 7).

126. There naturally were some exceptions: de Laveleye (1865, p. 290), for instance, maintained that crises recur with increasing frequency because the specific cause of each of them tend to cluster more and more often.

127. The word "cycle" can be used in this connection, in the second meaning of the term described in note 122.

128. Juglar's phases reflect the disease-centered medical distinction between a period of growth of the disease, when the disease invades the body; its acme; and its decline, after which either the patient dies or is healed (Hardy, 1849, p. 389). If the patient survives, his normal functions resume their regular course; this does not need a specific explanation.

129. Accordingly, the prevalent terminology to the 1820s stresses the *consequences* of crises, rather than characterizing the events themselves by means of words like "distress" or "embarrassment."

130. As in the case of the medical metaphor, the atmospheric one was also used in general terms, with the storm indicating the trouble itself rather than the consequence of a previous condition. See for instance Tooke's (1823, p. 53) reference to "succession of hurricanes which swept away so many banking and mercantile establishments," or Blanqui's (1836, p. 257) reference to crises as "storms that disrupt momentarily the serenity of the industrial horizon, and after which, except some devastation, business resumes its accustomed course."

131. The principle has been misunderstood by Frobert and Hamouda (2008, Section 4), who argue instead that the pathological is one and the same as the physiological (for an extended criticism, see Besomi, 2011).

132. See the passage by Lawson (1848a, p. 1) cited on p. 123 above.

133. On the distinction of "normal" and "pathological" in medical thought, see Canguilhem ([1966] 1991).

134. Oppenheimer's reflections are relevant to this issue. He pointed out that crises have always been understood as a disturbance to the normal economic process and qualified as diseases, in contrast to the healthy state of the economy. Yet, this "normal" state has not been well defined, if not negatively as the lack of crises, so that economists did not really have a "normal" state with which to compare the abnormal ones. Oppenheimer reviews some preceding discussions of the relationship of normality and crisis, with special reference to W. Fischer (1911), Pinkus (1906), and Sombart (1904). His remarks on Sombart are particularly interesting. Sombart raised the issue but believed the problem not to be solvable: he maintained that the normal capitalistic process inevitably leads to crises, which are thus understood as its normal consequence precisely as a hangover is the ordinary aftereffect of alcohol poisoning. But this leaves the problem of whether alcohol intoxications are normal, revealing that Sombart mixes up two notions of "normal": the regular operational sequence and repetition of features of the same kind, and on the contrary, a "correct," ideal process. Fischer is also guilty of the same confusion, and his methodological conclusion that the determination of the "normal" can only be a result of a theory of crisis, but never its condition (Fischer, 1911, p. 12), is, in Oppenheimer's view, untenable. Oppenheimer argues that this would be analogous to the case of an isolated island, where everyone including the only physician suffers of malaria: the physician's determination of the "normal" state would reflect the island's condition. He thus concludes that inquiries on crises need an accurate picture of the normal, healthy state as a basis for comparison (Oppenheimer, 1911).

135. At the time he wrote the second edition of his book, Juglar was aware of the problem, although he was not able to solve it satisfactorily; see Section 2.2.

136. Interestingly, no particular term appears to have come into common usage between the 1820s and the 1870s to mirror, for business activity after a recovery, what the term ''re-action'' indicated about the change in business direction after the speculative phase.

137. The early divisions in three phases was criticized, for instance, by Mitchell (who, however, had accepted it up to 1913: see the quotation at the beginning of Section 4.1, p. 226): ''if the transition from prosperity to depression is recognized as a separate phase, it seems logical to give similar recognition to the transition from depression to prosperity'' (Mitchell, 1927, p. 378).

138. The first division in four phases may be due to Mills (not surprisingly, in the light of what was said in Section 3.7 on his discussion of the lower turning point). He did not actually list four phases, but three phases *plus* the panic, the departing and arriving point of the whole movement:

> Through the normal cycle of credit we have now worked our way again to a point corresponding to that where I started that Panic was 'the destruction of a bundle of beliefs.' The road we traversed was found clearly enough divided into three stages:
>
> 1. The Post-panic period, marked by plethora of reserve Capital, and dormancy of speculation.
> 2. The Middle, or Revival period, marked by increasing trade, moderate speculation, and a sound state of Credit.
> 3. The Speculative period, showing inflation of Credit, high range of prices, unproductive investment, and excessive commitments; and leading to Crisis and the end of the cycle.
>
> With each of these stages there appears to be a concurrent change in the mental mood of the trading public; and these changes are the same in each decade, and follow the same relative order. (Mills, 1868, p. 29)

139. For a discussion of this notion, as compared to the alternative interpretation held by other authors (e.g., Bouniatian and Tugan-Baranowsky), emphasizing the violence and the ruin caused by crises, see Mitchell (1927, pp. 378–381; [1927] 1969). It may be noted that Lescure's definition of crisis as the interruption of the period of prosperity is fully compatible with Juglar's 1889 definition of crisis as the time when prices cease to grow, thereby interrupting prosperity (p. 16; Guitton actually confuses them: 1951, p. 90n). Perhaps, Lescure did even develop his own definition elaborating upon Juglar's. Yet the implications are quite different: Lescure stresses the *transition* from prosperity to depression (''the general overproduction crisis is the point of intersection between a period of expansion … and a period of depression'' – ''la crise générale de surproduction est le point d'intersection d'une période d'essor … avec une période de dépression''), while Juglar is interested in stressing the crisis as a special state of the system, where equilibrium breaks down. Moreover, while for Lescure the crisis is a *point* of transition between phases, for Juglar it is a *period*, a phase (brief as it may be, pp. 16–17). Such a conception deprived the crisis of any function, thereby preparing its complete euthanasia, while for Juglar, the crisis was an all important phase in the capitalistic process.

140. Although mechanical metaphors largely substituted the reference to disease, the medical diagnostic approach kept competing with deterministic forecasting of cycles. Research in the history of the so-called business barometers has emphasized that economic forecast was guided by two paradigms originating in the late nineteenth century and dividing economic statistics up to the 1920s. On the one hand, there was a "semiological" approach derived from medicine, which based its diagnostic on the identification of a number of "symptoms" treated as indicators. It originated from Juglar's late writings and was adopted among others by Neumann-Spallart and de Foville and later formed the basis of Mitchell's descriptive method. The second approach, at the basis of, for example, the Harvard Barometer, privileged instead the recognition of causal chains, in a Newtonian fashion eventually leading to the application of correlation methods (Armatte, 1992, pp. 99–123; 2003). Deblock (2000, pp. 36–41) added that the opposition between mechnical and organicist conceptions guided not only the methodology of business forecasting but also the forecasters' general view on economic theory, its place is society, and the nature of society itself.

141. In 1913, Mitchell had written that "the strains relax as gradually as they gather and the crisis merges into a depression in the same unobtrusive fashion that it emerges from prosperity," so that "Expansion gives place to contraction, though without a violent wrench" and that "The very condition that make business profitable gradually evolve conditions that threaten a reduction of profits" (Mitchell, [1913] 1941, pp. 122, 158, 61 respectively). Mitchell, of course, recognized that sometimes crises are sudden and violent, but ascribed such facts to "unreasonable alarm" on the part of the public, degenerating into the unreasonable behavior characterizing panics.

142. Guitton, having defined crises as "discontinuous and catastrophic moments of a continuous cyclical evolution" (Guitton, 1956, p. 365), wondered whether after 1929 and World War II the idea of cycle would not be questioned and the idea of crisis (possibly in a revised form) would conquer the field again (Guitton, 1956, p. 350).

143. Not, however, of the distant past, as commercial crises are a feature of the advanced state of economies where exchanges and credit are highly developed.

144. In the (linear) dynamic approach, the unification of cycles and trend has been an analytical problem that deeply troubled most writers. In Kalecki's approach, in particular, the trend even needed a specific explanation to be superimposed from the outside onto the cyclical one (Kalecki, 1968; for a discussion, see Besomi, 2006c).

145. Interestingly, in an earlier part of his book, Cassel called for a "sharp distinction between the periods of normal development, including what is usually called Business Cycles, and the periods denoting essential interruptions of this normal development," with reference to the world slump and the crisis generated by the War (Cassel, 1932, p. 40).

146. It should be remembered that a large number of explanations of recurring crises pointed at some specific circumstances, normally some institutional factors such as the banking policy, the presence of trade regulations or tariffs, and so on, the elimination of which would have solved the problem and eliminated crises. Some writers, however, were shamelessly deterministic. An anonymous correspondent (calling himself "Pactolus") of the *Liverpool Mercury*, for instance, started from

Overstone's list of 10 phases of the overtrading cycle, identified the current state of trade within that list, and went as far as boldly predicting the timing of the next two stages (Anonymous, 1849c, 1949d). Another writer pushed so far as claiming that the seeming conclusion of the 1873 crisis in the United States authorized optimism for several years to come: ''Every ten years we have been taught by the past to expect some such financial convulsion. If the present storm has spent its force, and if it be really the periodical panic itself, and not a mere harbinger and forerunner of that decennial event, then we may look forward to eight or ten years of prosperous activity, industrial growth, and commercial success'' (Anonymous, 1875, p. 2). Similarly, another writer wrote, ''The hope of an ultimate improvement in the more solid evidence of the state of trade was … entertained; it was throughout the year remembered that trade is subject to cycles, that the depression of prices and languor of business could not last indefinitely, that the lane had been long, and a turning was every month approached more nearly'' (Anonymous, 1879a, p. 291).

147. Besides the writers cited at the end of Section 3.4, a statement by Sir William Harcourt before the Oxford Liberal Associations is illustrative of this attitude: ''I do not share the fatalism of those who attribute the recurrence of distress to some fortuitous cycle. These disturbances have their origin in one great cause, and that cause is war'' (Anonymous, 1879b). A comment in *The Economist*, presumably by Bagehot, is particularly interesing: he rubutted the idea that crises recur with determinate periodicity, but only to substitute it with the idea of a regular cycle in economic activity driven by fluctuations in the amount of loanable funds: ''We have often had to confute the common notion that by some fixed fate we must have a panic every ten years. If our commerce is well managed, as, on the whole, it generally is, and if an adequate cash reserve is kept against bank liabilities payable on demand, we may believe ourselves safe against such catastrophes. But there is nevertheless a great truth at the bottom of the common notion. Though there is no reason to fear periodical panics, there is every reason to expect periodical cycles – in one part of which the rate of interest is exceptionally low, and in another part of which it is exceptionally high'' (*Bagehot, 1874, p. 1).

148. This also applies to the semiexogenous approaches, such as Frisch's and Kalecki's, which consisted in superimposing random shocks onto deterministic systems. The nature of the resulting fluctuations is fully deterministic, also in its appearance. Firstly, the period of the fluctuations entirely depends on the structural part; secondly, the system's response to the shocks is fully defined by the system's structure. The situation changed in the 1980s, when chaotic dynamics appeared on the scene. The movement they describe is fully deterministic as to its structure but is so sensitive to initial conditions that any neighboring initial state gives rise to completely different results, thereby appearing nondeterministic.

149. The terms ''sudden,'' ''violence,'' and ''catastrophic'' recur several times in the opening pages of the chapter (Keynes, [1936] 1973, pp. 314–316).

150. Marx also stressed the human factor, as opposed to a mechanistic interpretation of crises. In his view, the *possibility of crises* depends on a number of features intrinsic in the capitalistic mode of production and exchange: money, by separating purchases from sales in distinct and independent acts, makes it possible to sell without immediately spending the money received in return, thereby opening the prospect of a shortening of demand; money, moreover, being a general representative

of wealth can be hoarded; and the credit system is always open to the possibility that some debtor defaults, interrupting the chain of payments. These possibilities eventually become a *necessity* not in virtue of some automatic iron law but only when social classes actively intervene in the production process. During prosperity, more and more workers are employed, reducing the reserve army of the unemployed. Workers can therefore obtain higher wages, thereby reducing profit rates. After some time, this becomes unsustainable, as capitalist will sooner or later be faced with difficulties in facing their debts, starting off a chain of insolvency which quickly and violently stalls the entire system. Halting production is the means for restoring profit rates; the crisis is therefore necessary for the capitalistic production process to go back on tracks and recommence. Although each capitalist perceives the crisis as an external event, it is the result of their collective behavior, coupled with the action of workers. (For a discussion along these lines, see De Vecchi, 1983, pp. 234–252.)

F1. ''Depuis longtemps, les crises apparaissent à des époques plus ou moins éloignées, sans qu'aucune des théories qui on été proposées pour les expliquer ait été acceptée.''

F2. ''Les crises se renouvellent avec un telle constance, une telle régularité, qu'il faut bien en prendre son parti et y voir le résultat des écarts de la spéculation et d'un développement inconsidéré de l'industrie et des grandes entreprises commerciales.''

F3. ''tout paraît conspirer pour donner un essor sans pareil aux affaires; toutes les entreprises qui se fondent trouvent les capitaux nécessaires; on s'arrache les titres, on les achète avec une confiance sans réserve dans l'avenir.''

F4. ''Loi des crises et de leur périodicité.''

F5. ''sans faire intervenir aucune théorie, aucune hypothèse.''

F6. ''l'observation seule des faits.''

F7. ''Quoique l'examen des documents statistiques qui vont suivre puisse engager à conclure et à reconnaître une loi économique, la prudence conseille de ne pas trop se hâter.''

F8. ''Le renouvellement et la succession des mêmes faits, dans des *circonstances spéciales*, dans tous les *temps*, dans tous les *pays* et sous tous les *régimes*, voilà ce qu'il fallait faire remarquer.''

F9. ''Rechercherles causes et signaler les effets des crises commerciales survenues en Europe et dans l'Amérique du Nord durant le cours du dix-neuvième siècle. Ces crises ont été fréquentes à toutes les époques; mais, à mesureque les relations commerciale sont acquis de nouveaux développements, leur action perturbatrice s'est étendue de proche en proche sur un plus grand nombre de points.''

F10. ''La répétition constante des mêmes accidents donne une monotonie réelle à notre histoire: nous sommes forcés de passer successivement et toujours par les mêmes phases, non sans causer un certain ennui à l'esprit qui aime la variété et toujours avide de nouveautés; n'est-ce pas cependant la meilleure confirmation de ce que nous voulions démontrer?''.

F11. ''Nous nous bornerons donc aux divisions principales ou à la classification des causes morbides. Il en est qui préparent les maladies; elles sont pour la plupart dans l'organisation elle même: on les nomme *prédisposantes*; d'autres, presque toutes extérieures, font éclater la prédisposition et produisent la maladie, et l'on appelle

celles-là *déterminantes* ou *occasionnelles*. Prenons un exemple: cet homme a le cœur volumineux, le sang abondant, le cou court, cette complexion est la cause prédisposante à l'apoplexie; que, maintenant, dans un accès de colère, il soit foudroyé, l'émotion sera la cause occasionnelle. Sans la prédisposition, les influences maladives sont impuissantes, mais les signes qui la révèlent sont souvent cachés. Ce ne serait pas une mince difficulté que d'annoncer *a priori* quelle serait la part de chacun de quatre imprudents qui, couchés en sueur sur de la terre humide, devraient se relever l'un avec un rhumatisme, l'autre avec un catarrhe pulmonaire, le troisième avec une diarrhée, le quatrième en santé parfaite. L'examen préalable de l'organisation de chacun aiderait sans doute à la solution du problème, mais avant l'épreuve le résultat resterait souvent incertain.''

F12. ''Les disettes, les guerres, les révolutions, les changements de tarif, les emprunts, les variations de la mode, de nouvelles voies ouvertes au commerce, voilà les principales causes invoquées tour à tour. Mais le véritable critérium des causes, c'est de les voir, dans des circonstances semblables, reproduire les mêmes effets, particularité malheureusement assez rare dans les phénomènes sociaux et dans tout ce qui touche à la vie. Dans cette incertitude, on invoque tour à tour les causes les plus contraires pour se rendre compte des mêmes effets. On est surpris de la légèreté, de la facilité avec laquelle l'esprit humain accepte tout ce qu'on lui propose; tellement il est avide de savoir, de se rendre compte, et, quand il ne trouve rien de mieux, combien facilement il se paye de mots. La multiplicité même des causes que l'on invoque le plus souvent suffit, il nous semble, pour prouver leur peu d'efficacité, puisque, alors qu'une seule devrait suffire, on en accumule un grand nombre, sorte que, comme elles ne sont pas toujours réunies pour produire le même effet, on peut aussi rigoureusement, conclure, en les éliminant une à une, qu'aucune n'est cause déterminante, pas même secondaire, puisque sa présence n'est pas indispensable pour produire le résultat attendu.'' [Translation by C. Dangel-Hagnauer in this volume, p. 118]

F13. ''État antérieur … en l'absence duquel les causes que l'on croirait les plus puissantes sont sans action. C'est ce qu'en médecine on appelle la prédisposition.''

F14. ''les conditions indispensables à leur existence, sur les phénomènes constants que l'on observe alors en dehors des causes si diverses, si variées, que l'on invoque selon le besoin du moment.''

F15. ''une grande guerre ne saurait arrêter le movement.''

F16. ''Les mauvaises récoltes, la cherté des céréales, les disettes, par leur retour périodique se rencontrent assez souvent dans notre pays avec l'engorgement du portefeuille des banques, et apportent une nouvelle complication à une situation déjà mauvaise: leur présence n'est cependant pas indispensable pour produire une crise commerciale.''

F17. ''Il est dans la nature humaine de ne se tenir jamais dans des justes limites.''

F18. ''extravagante application du capital flottant,'' ''écarts de la spéculation,'' ''spéculation insensée'' (p. 25) or ''imprudente,'' ''au delà de leurs moyens.''

F19. ''développement exagéré des escomptes,'' ''abus du crédit,'' ''overtrading,'' ''crédit fictif,'' ''douteux'' or ''artificial,'' ''prix exagéré,'' ''développement inconsidéré de l'industrie.''

F20. ''souvent aussi l'emploi et l'immobilisation d'un capital supérieur à celui qui pouvait fournir les ressources ordinaires du pays, autrement dit l'épargne.''

F21. "tant que la hausse persiste, on échange les produits, personne ne perd, mais malheur au dernier détenteur!"

F22. "Un crédit trop tendu que les charges accumulées finissent par rompre."

F23. "perturbations sérieuses pour des causes peu graves."

F24. "tout à coup tous les canaux paraissent remplis, il n'y a plus d'écoulement possible, toute circulation cesse et une crise éclate. Toutes les spéculations s'arrêtent; l'argent, si abondant quelque mois auparavent, diminue, se resserre, disparaît même."

F25. "comme dans les maladies [les crises] préparent un état meilleur en rejetant au dehors tout ce qui était impur." [Translation by C. Dangel-Hagnauer in this volume, p. 132]

F26. "et débarrassent le marché d'une cause incessante de trouble et de ruine."

F27. "une crise n'est qu'une liquidation générale pour permettre aux affaires de reprendre sur une base plus solide."

F28. "développement régulier de la richesse des nations."

F29. "un dérangement dans la marche des affaires." [Translation by C. Dangel-Hagnauer in this volume, p. 116]

F30. "Les crises, comme les maladies, paraissent une des conditions de l'existence des sociétés où le commerce et l'industrie dominent. On peut les prévoir, les adoucir, s'en préserver jusqu'à un certain point, faciliter la reprise des affaires; mais les supprimer, c'est ce qui jusqu'à ici, malgré les combinaisons les plus diverses, n'a été donné à personne. Proposer un remède à notre tour, quand nous reconnaissons le peu d'efficacité de ceux des autres, n'était pas possible, d'autant que leur évolution naturelle rétablit l'équilibre et prépare un sol ferme sur lequel on peut s'appuyer sans crainte pour parcourir une nouvelle période." [Translation by C. Dangel-Hagnauer in this volume, p. 143]

F31. "Fureur," "élan," "engouement, frénésie."

F32. "une fois le *mouvement commencé* dans un sens ou dans l'autre, *croissant* ou *décroissant*, il continue sans interruption jusqu'au moment où un revirement complet a lieu." [Translation by C. Dangel-Hagnauer in this volume, p. 122]

F33. "Nous voudrions montrer ici qu'on peut en suivre le *développement pas à pas*, presque mois par mois, au moins, d'une manière très claire, *année par année*."

F34. "les périodes s'enchaînent, se suivent avec une régularité qui étonne toujours."

F35. "ces trois périodes reconnues, il fallait chercher les rapports qu'elles pouvaient avoir entre elles et sous l'influence de quelles causes elles se succédaient."

F36. "la réaction qui se succède à l'action."

F37. "Dans le langage vulgaire, la période prospère n'a pas de nom; c'est ce que l'on regarde comme l'état normal, on n'en parle même pas; il en est de la prospérité comme la santé, rien ne paraît plus naturel": "c'est l'état normal du marché, la période prospère."

F38. "L'équilibre des prix est rompu."

F39. "le mot crise indique un état de malaise ou de souffrance."

F40. "des inconvénients sous quelques rapports," but are "à d'autres points de vue extrêmement salutaires et avantageuses."

F41. "Esprit d'entreprise."

F42. ''La crise serait donc l'*arrêt* de la *hausse* des *prix*, c'est-à-dire le moment ou l'on ne *trouve* plus de *nouveaux preneurs*.''

F43. ''les crises ne se reproduisent pas à des époques fixes.''

F44. ''cela ne veut pas dire … qu'il y a des cycles d'abondance et de disette réguliers; la prédiction de Joseph des sept ans de prospérité [et de sept ans] de misère prouve même que c'était un fait exceptionnel.''

F45. ''Prophète des crises.''

F46. ''Je crois que le retour des crises industrielles est une maladie endémique chez les nations démocratiques de nos jours. On peut la rendre moins dangereuse, mais non la guérir, parce qu'elle ne tient pas à un accident, mais au tempérament même de ces peuples.''

F47. ''Le corps social est, comme le corps humain, sujet à des maladies dont les unes tiennent à des accidents extérieurs et n'apportent qu'un trouble momentané dans les fonctions vitales, tandis que les autres, causés par des vices organiques et passant à l'état chronique, influent sur la constitution et sur le développement des individus et des societés.''

F48. ''infermità del mondo sociale moderno. Non è solo fisiologia, l'economia politica, ma è eziando patologia e clinica.''

F49. ''une réaction salutaire de l'économie opposée à la maladie et en lutte contre ses mauvais résultats. Cette puissance qu'on désigne sous le nom de force médicatrice de la nature, est, comme l'antidote, à côté du poison; elle tend sans cesse à rétablir le calme et l'équilibre dans l'organisation.'' The translation of this passage is a bit tricky. The term ''économie'' is translated as ''organism'' following the definition of ''économie animale'' given in the same dictionary: ''On désige sous ce nom l'ensemble des fonctions du corps humain. (v. Organisme.)'' (This name designates the whole of the functions of the human body. See ''Organism''). ''Force'' and ''puissance'' have been inverted in the translation, on the ground that the expression ''force médicatrice de la nature'' (the ''vis medicatrix naturae'') is normally translated into English as ''healing power of nature''; the author of the entry seem to treat ''force'' and ''power'' as equivalent in his sentence.

F50. ''Elles son inévitables; mais les inconvénients ne peuvent, à beaucoup près, balancer les immenses avantages que leur peuples retirent des développements immenses de leur affaires. Les crises de cette nature [les crises commerciales] sont des crises de croissance; et mieux vaut l'activité et la richesse avec les crises commerciales (celles-ci dussent-elle être dans la nature permanente des choses) que l'inaction et la pauvreté. Les pays riches et prospères sont quelque fois en crise; les pays pauvres y sont d'une manière permanente. Au surplus, les crises commerciales sont passagères de leur nature. Les baisses soudaines dans la valeur des choses amènent des acheteurs, facilitent la consommation, font cesser l'engorgement et provoquent la liquidation des affaires mal engagées. Dans ces évolutions, les producteurs ou les détenteurs de marchandises ont perdu; mais les acheteurs ou détenteurs de capitaux circulant ont gagné; certaines fortunes particulières ont été détruites, d'autres se sont élevées; il y a eu des souffrances individuelles, mais, au point de vue social, il n'y a pas le même appauvrissement, et l'inconvénient de la crise est racheté par la disparition des entreprises véreuses. C'est ainsi qu'après un temps assez limité on voit souvent, après la crise, les affaires reprendre avec plus de vigueur et plus d'activité que jamais.''

F51. "Il faudrait prétendre que la prospérité de 1820 à 1827 été due au changement de la loi des élections, à la suspension de la liberté de la presse, à celle de la liberté individuelle; aux émeutes des écoles, aux conspirations de Paris, de Saumur, de Bedfort, de la Rochelle, qui en on été la conséquence; à la guerre d'Espagne, aux lois de l'indemnité, du droit d'ainesse, du sacrilège, qui en ont été la suite et le complement."

F52. "Si ces causes sont les véritables, elles doivent avoir influé sur les crises de 1811, de 1817, de 1827: car ce retour périodique d'un même mal entraîne nécessairement l'existence de causes identiques et permanentes. Or personne n'oserait assigner à ces crises antérieures la prétendue origine de la crise actuelle; et c'est déjà quelque chose de peu logique que d'attribuer des effets pareils, et dont la liaison est évidente, à des accidents toujours différents. Contre le principe général qui recherche une même cause dans une série de mêmes effets, il faudrait apporter des preuves irrécusables, et ces preuves sont encore à donner."

F53. "Le mal s'augmente dans une proportion géométrique."

F54. "Une commotion quelconque."

F55. Respectively "cause première" and "cause originaire."

F56. "Les premiers investigateurs du phénomène, frappés des désastres qui accompagnent la crise, ne considéraient que la crise elle-même, la rupture violente de l'équilibre économique qui s'observe pendant un temps assez court. Ils négligeaient ce qui précède et ce qui suit. On sait aujourd'hui, grâce surtout à Juglar, que la crise est seulement un des moments d'un cycle entier qui se déroule périodiquement, le moment il est vrai le plus douloureux … La crise est le point d'intersection [entre] la prospérité [et] la dépression. Elle marque l'achèvement de l'une des phases et le début de l'autre … Aussi ne saurait-on comprendre et expliquer ce qui a lieu à la minute même de la crise sans avoir examiné l'ensemble du cycle: la prospérité qui prépare la crise, la dépression qui se traîne ensuite et qui achemine vers un retour des bonnes années. Quand la matière sera plus connue, on parlera moins des *crises de surproduction* et davantage des *cycles économiques*. Dans les travaux scientifiques, cette seconde expression tendra à se substituer à la première."

F57. "Le cycle est un phénomène collectif, physiologique, vital, situé hors de l'action monétaire; la crise est un phénomène pathologique de dissociation de l'économie, dissociation favorisée par la violence des oscillations cycliques et plus ou moins étroitement liée aux phénomènes monétaires."

F58. "N'y veulent voir qu'une de ces secousses périodiques, une des maladies de croissance qui sont comme l'accompagnement et la rançon de tous les progrès et qui, amenées par le cours naturel des choses, ayant un caractère en quelque sorte fatal, disparaissent d'elles-mêmes."

F59. "La crise doit se terminer en telle année à moins que ce ne soit en telle autre, cela dépend de ce qui va surgir. Une nouvelle crise reviendra à telle époque à moins que ce soit à telle autre; cela résultera de faits à venire."

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