

Economy of the germ.
Capital between accumulation and hybrid in Psychologie Economique

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La distinction du capital et du travail se ramène ainsi, au fond, à celle d'un modèle et d'une copie p.83-4

- Introduction

Tarde publishes *Psychologie Economique* in 1902. They are his 1900 College de France lectures transformed into a lengthy two volumes book touching economic issues. Economy as such does not make sense for Tarde who approaches economic phenomena from the perspective long developed in previous essays. Reality is seen through the lens of the repetition, opposition, adaptation paradigm that he draws from an innovative reading of Leibniz cosmology.

This general framework allows Tarde to divide the economy into three moments that reflect

(1) the endurance of economies – the fact that economies (and economic actors) need to persevere and survive –

(2) the conflictual nature of economies – the fact that appropriating scarce resources lead to oppositions of all kinds-

(3) the adaptative nature of economies – the fact that, for economies as for any other being (cell, virus, person, institution), to differ is the only solution to endure.

This division of the economy runs against a long standing tradition of production factors decomposition of economic output. This other division assigns a combination of production factors to economic forms – conceived most exclusively as human endeavors. To the traditional three (labor, capital, land) factors, Tarde adds up a fourth one that he names in various ways but that comes down to the factor invention. With this addition, Tarde reassesses labor and capital's contribution to the economy as both repetition and adaptation. The most clearly articulated insights of Tarde to economics are thus to be found in the crucial chapters closing volume 1 of *Psychologie Economique*, on labors, monies and capital. In this final stretch of the book, a criticism of capital theories is advanced along with a daring definition of **germ-capital**, as opposed to **cotyledon-capital**. Germ-capital, unlike cotyledon-capital is not exhausted through the notion of accumulation. The sheer accumulation of stock – to borrow Adam Smith wording of capital - does not account for the very specific working of capital in

economies. The new definition of capital put forth by Tarde gives way to a very different theory of labor than that articulated by most classical economists.

cette partie indispensable (i.e. la partie des produits anciens qui est absolument nécessaire à la production des produits nouveaux) consiste uniquement dans l'existence et la connaissance des secrets de métier, des méthodes de culture, des procédés employés pour l'extraction des matières premières et pour la fabrication des outils ou machines propres à fabriquer les produits nouveaux (...) la seule chose indispensable en toute rigueur à la production d'une locomotive nouvelle, c'est la connaissance détaillée des pièces d'une locomotive, de la manière de les fabriquer et d'abord d'extraire les matériaux dont elles sont faites. Ce faisceau d'idées, dont chacune est une invention grande ou petite, due à un inventeur connu ou inconnu, ce faisceau d'inventions rassemblé dans un cerveau voilà la seule portion des produits anciens — car c'est bien là un produit mental, le fruit d'un enseignement scolaire — qui soit requise de toute nécessité pour la construction d'une locomotive p.333-4

In this article, I start by reviewing the criticism that Tarde raises against the accumulation paradigm of capital. It entails spelling out the tardian theory of invention and the connection between the hybrid and the germ.

The theory of labor at work in *Psychologie Economique* explains much of the revised distinction between capital and labor. Tarde rids labor of all the virtues that classical political economy – in both its liberal and its Marxist versions - attached to this notion. Yet, in voiding it of any substance - apart from the servile repetition of the same – Tarde overlooks the productive and inventive encounters of the laborious activity and the materiality of cotyledon-capital. In the last part of this article, I question what the germ stands for.

1-Accumulation or hybridity

Tarde reassesses the relative importance of capital and labour in *Psychologie Economique*. In that respect, as in many other respects, he stands in stark contrast with a Marxist approach of capital and labor. Unlike Marx, Tarde insists that capitalism is not specific in as much as capital formation is involved. Accumulation does not start out with Marxian capitalism: on the contrary, the difference between the two forms of capital (germ and cotyledon) is given by what Tarde boldly calls a logical and universal set of conditions. If history has any role to play in the economy Tarde sketches out, it is only through the series of innovations that accumulate, add up to the pool of capital goods and feed the memory of engineers and inventors. Yet, the line between cotyledon capital and germ capital is a stable one.

In *Capital*, Marx is in search of a foundation for the dynamic of social formation, so it is a historico genetics approach in which history is a process without subject. History is the subject by which it means that the dynamics and sequence of changes affecting the economy has its own laws and its principles, not up to human discretion. The relative agency and autonomy granted to capital and its deployment is a common feature of Marx and Tarde. Yet, Tarde has a subject and he does not recognize any historical laws for capital's unfolding. This subject is the germ. The germ is an intersection of different unrelated series of causes. As such it is a contingent event, starkly opposed to the rigid fate of Marxian capital. It is a locus of concretion, a site where the unexpected take shape.

(...) des deux fractions du capital, la plus importante, et de beaucoup, est la plus minime, la partie subjective. P338¹

We want to take *subjective* seriously here. The germ takes shape in the mind of genius individuals. Yet, one should not be mistaken and assume that Tarde is an individualist, as Durkheim and his school hammered with success for generations. At least, he is not starting and ending, by default, with individuals as units of analysis. Geniuses are mentioned by Tarde because they are sites of innovative encounters. In geniuses, ideas so far unrelated are collocated and they produce effects. The common individual, as such, is also one of these collocations, a meeting point of ideas' flows: it is never a unit to begin with, it becomes a unit of action (economic or else) or a body of passion when it manages to connect to these waves.

Si nous nous laissons guider par l'analogie de la tendance à la progression géométrique des exemplaires de chaque espèce avec la tendance sociologique correspondante à la propagation croissante des exemples de chaque sorte, nous observerons que celle-ci elle-même a pour effet de produire d'innombrables croisements, des interférences de rayons imitatifs dans des cerveaux associés, et que c'est là vraiment, la condition indispensable de l'éclosion d'inventions nouvelles, mais que, au fond, l'opération même d'où naissent celles-ci se cache dans l'intimité du cerveau privilégié que nous nommons génial. N'y aurait-il pas au fond de chaque nouvelle espèce apparue — de même que, à vrai dire, au fond de toute variation individuelle d'une espèce — quelque chose de comparable à un trait de génie ou d'ingéniosité? p11

Si dissemblables, si variées que soient les découvertes ou les inventions, elles ont toutes ce trait commun de consister, au fond, en une rencontre mentale de

¹ All references to *Psychologie Economique* based on the BNF- Gallica digital version, available at <http://gallica.bnf.fr>. The two volumes are available, and when non otherwise mentioned, the references go to the first volume.

deux idées qui, regardées jusque-là comme étrangères et inutiles l'une à l'autre, viennent, en se croisant dans un esprit bien doué et bien disposé, à se montrer rattachées l'une à l'autre' intimement, soit par un lien de principe à conséquence, soit par un lien de moyen à fin, ou d'effet à cause'. Cette rencontre, cette jonction féconde, voilà l'événement, le plus souvent inaperçu à l'origine, l'événement caché dans la profondeur d'un cerveau, d'où dépend la révolution d'une industrie, la transformation économique de la planète. P.167

The locus of invention: the mind

The mind of the genius entrepreneur or inventor has thus little to do with the mind of the rational actor. First, it has no privilege because it is only one – among many others – site of germination. From cells to collective institutions, so many other entities in Nature gain and lose agency, following the flows of associations. A germ is a mind and a mind is a germ. Second, it is driven by many motives, only a few being accountable to a narrow rational actor description. Instead, if one were to look for another description of entrepreneurs fitting Tarde's economic man, it would rather be Schumpeter's of *Capitalism, Socialism and Democracy* (1942) or Keynes's chapter 12 and 17 of *The General Theory* (1936). These two economists have also cast light on the necessary passions driving entrepreneurs in their efforts to build economies. The genius of Henry Ford or Thomas Edison did not follow cold calculation avenues. It did not abide by the rules of maximization but took the risks of imagining new terrains for industries that were only in their infancies.

The case of Edison might help us give its full meaning to the notion of the brain of a genius as the site of encounters and interference of imitative rays as Tarde puts it. To convince even more the reader that the brain is one among many other sites of these encounters, it is useful to read the fascinating account that Hughes² (1983) and Cooper³ (1996) give of Edison discoveries and its subsequent success at creating a market. The brain as such is nothing but a connection of hundreds of streams of information meeting in the same point. Edison cannot be distinguished from Melo Park, from the bulb and the long tinkering process that led to his discoveries and inventions. When Tarde points to the brain as the very site of invention, he cuts within a complex fabric but he respects the point of highest intensity, so to speak. The germ is this intensity stabilized in a capital

² Hughes, Thomas Parke. *Networks of Power: Electrification in Western Society, 1880–1930*. Baltimore: The Johns Hopkins University Press, 1983.

³ Cooper, Jill E. "Intermediaries and Invention: Business Agents and the Edison Electric Pen and Duplicating Press". *Business and Economic History* 25 (1996): 130–42.

good principle. Within the flow of thoughts crossing Edison's mind, the germ stands as a unique solution to the multiple constraints bearing upon the genius. That is why Tarde so often⁴ associates mind and germ: it is as much a redefinition of what a mind is (intersection and interference of series of input meeting unexpectedly) as a description of the germ. The mind of the inventor in action differs from what the sheer repetition of the series of already available ideas would produce. Similarly, the capital good offering a new process for an industry is also differing from what is out there on the market.

Accumulation does not make full justice to what happens around the germ since it mobilizes a process that is only repetitive. Capital cannot be reduced to accumulation as such. If it is necessary, it is a substrate that needs to be here for capital to exercise its action but it is only a condition and it does not provide any insights on capital dynamics. Accumulation becomes a misleading entry. Commenting on Darwin's theory of evolution,

Son erreur (...) me semble avoir été d'appuyer beaucoup plus sur la concurrence vitale, forme biologique de l'opposition, que sur le croisement et l'hybridité, formes biologiques de l'adaptation et de l'harmonie. Une fonction aussi importante que la production d'une nouvelle espèce ne saurait être une fonction continue et quotidienne, alors que la simple production d'un individu nouveau, la génération, est une fonction intermittente. Un *phénomène exceptionnel*, et non pas un phénomène journalier, doit être à la base de cette nouveauté spécifique. Et (...) une hybridité féconde, par exception, est bien plus propre qu'une accumulation héréditaire de petites variations avantageuses, par concurrence et sélection, à expliquer la formation de nouveaux types vitaux. p10

Even if all labor is a series of small challenges solved, locally, in the middle of a mostly boring repetition, there is a difference – categorical difference – between invention and repetition. Accumulation sides with repetition: it is repetition at a material scale. In itself it does not let in the economy any change, it only add the same to the same.

Quand, au moment décisif, sur un champ de bataille, un coup d'oeil juste du général fait pencher d'un côté la victoire hésitante, c'est à cette idée subite qu'elle est due, non à l'accumulation des efforts antérieurs. Et quand, sur mille chercheurs, un seul, par une intuition soudaine, découvre le mot de l'énigme posée à tous, ce n'est pas aux longs et stériles efforts des autres, ce n'est pas même à la longueur et à l'intensité des siens propres — souvent moindres que les leurs — qu'il convient d'attribuer le mérite de la découverte. p224

The "coup d'oeil juste du general" cannot be related to the accumulation of preceding efforts. These efforts were necessary for this genius solution to come in the first place

⁴ Refs mind and germ xx

but there is no continuity between what came before and what is invented on the field. Not only is not there a continuity between the “work” accumulated and the genius move ; there is no continuity whatsoever. In other words, it is not possible to infer from the accumulation of work or from previous innovative moves the next one. It is not that accumulation is not enough, because it is all there is to it, only waves of accumulation, but the composition of these accumulations in a novel formula will only be assessed by its reshaping of the economy. The germ, as any other innovation, can only be pinpointed retrospectively. It is what gives preexisting conditions their distinctive quality – as the non-germ.

As such the notion of the germ is also misleading. It is a historiography term, in no way is it possible to assess the potentiality of a germ. Only a posteriori, does a germ become a germ, an organizing principle, a disruption and a discontinuity.

Accumulation's qualities. Faith and heritage

Against the reduction of capital to either labor or any other dimension, Tarde opens up the motives behind accumulation and germination of new capital ideas. The lure of capital per se, so to speak, that pervades Marx writing is substituted with an investigation of what drives capitalists in their search for new enterprises.

L'illusion est de croire que notre production agricole, industrielle ou autre, que notre richesse ou notre puissance en tout genre, est le fruit exclusif de notre travail. Notre travail n'y a été que pour une part, il n'a valu que par la collaboration séculaire de tous les ancêtres dont nous sommes les héritiers. Et cela même ne suffit pas, il faut pour que notre travail ait un effet grand et durable, que nous fassions collaborer à cette oeuvre contemporaine notre postérité même, ce qui arrive quand, préoccupés d'elle en vertu d'idées religieuses ou de sentiments domestiques, sa pensée amasse en nous des trésors de dévouement et d'abnégation qui doublent nos forces et le prix de nos efforts. Nous utilisons nos aïeux, même sans penser à eux; mais nous ne pouvons utiliser nos enfants et nos petits-enfants, pour ainsi parler, qu'à la condition d'avoir leur pensée présente, de les aimer, et d'être convaincus qu'ils sont notre raison d'être. p119

Interesting in this excerpt, apart from the dramatic tone that Tarde gives to any of his description of even the tiniest economic activities, is the double symmetry that he points to.

A first symmetry regards labor and all the other production factors. We will review it in the next section.

The other symmetry locates present economic efforts vis a vis the past (la collaboration séculaire) and the future (nous fassions collaborer à cette oeuvre contemporaine notre postérité même).

Marx primarily looks at the past and the « collaboration seculaire » of workers' labor. Austrian economists look at the future and the energy that could be saved then by sacrificing now one's own effort in return of greater returns later. But they both agree – although never explicitly – on the one metric that economists have to look at. Accumulation was immediately coded in terms of this abstract magnitude : value. In Marx, capitalists are often described as driven by this one abstract force that absorbs them and lead them to act. What lies behind this abstract capital is made irrelevant by the monetary form of capitalist societies transactions. Tarde, on the contrary, excavates the motives behind the drive. « Sentiments » and « croyances » are not entirely spoiled by the lure of gold. They are in many ways, but they survive and cannot be simply edited out of the capitalists' drive for accumulation.

One of the specificity of capital in Tarde's economy is the fact that it cannot be mapped exclusively onto its past. It is the least economic part of the final chapter of *Psychologie Economique* (vol.1) when he summarizes the previous three chapters and their technical discussions into the notion of heritage, faith and trust.

Je pourrais m'arrêter là; mais j'ai encore à faire remarquer, à propos du capital (*du capital-cotylédon* et non du capital-germe, pour employer notre expression habituelle), que sa véritable source, dès les plus anciens débuts de l'évolution économique, est un acte de foi et de confiance, premier embryon du crédit, qui est, manifestement, l'âme de la vie productrice des sociétés civilisées. On n'a dit que la moitié de la vérité quand on a vu dans le contrat d'échange le fait économique essentiel et initial. L'échange, à vrai dire, ne favorise et ne développe directement que la consommation. L'agent direct de la production est un autre contrat, non moins initial, non moins fondamental, le contrat de prêt. Par l'échange, on se rend service l'un à l'autre, mais en se défiant l'un de l'autre donnant donnant; par le prêt, on se confie. p375-6

Unlike Marx's primitive capital accumulation theory (Marx 1867, chapter 26) who locates the origin of capitalism and the birth of salaried labor in the violent deprivation of laborers, Tarde locates in the association and the primordial economic figure of lending – as opposed to the exchange - the possibility of accumulation. It does not rule out the exercise of force and power in the early stages of economic development, rather it fleshes out what one should understand behind the motto of “uneven and rough” beginnings. The feature of unevenness is central to accumulation: it is what paves the way to economic uprisings and transformations. Yet, it is not to be read as a sheer

deployment of strength. In itself, strength does not lead to accumulation. Pure strength needs channeling of some sort to be effective. It needs a systematic and organizing drive to produce any kind of accumulation. The technology of this accumulation is of primary importance for Tarde, whereas it recedes in the taken-for-granted in Marx accounts of the early phases of capitalism. Even the technology of expropriation remains in the background of the primitive capital accumulation account, although it holds a large part of the story.

For Tarde, the necessary seed for capitalism to take off is rather on the side of the association of isolated and dispersed forces that suddenly gather momentum when they discover their compatibility.

il n'est pas nécessaire d'être capitaliste, à notre époque, pour fonder une entreprise avec chance de succès : il suffit de s'associer et d'emprunter les capitaux d'autrui. Dix prolétaires en s'associant trouvent un crédit qu'aucun d'eux séparément n'aurait rencontré p.353

If, for accumulation of cotyledon-capital, faith and trust are necessary, what then is needed for hybridization? The genius mind Tarde is adamant on repeating this, must be allowed to wander and stray to come up with a disruptive idea. It needs to get off the tracks of one example, repeating itself *ad eternam*, to meet the challenge of another example, which will eventually turn out compatible into a radically new wave of example.

Ce n'est donc pas, à vrai dire, le travail non payé de l'esclave ou le sur-travail non payé de l'ouvrier qui a permis au capital de naître et de grandir, c'est, encore une fois, le loisir de l'homme libre antique et du « bourgeois » moderne, le loisir, père du plaisir qu'ils ont eu à découvrir et à inventer, après le tourment douloureux de la recherche, et qu'ils se sont fait payer quelquefois, mais jamais trop cher. p.350

The two sides of capital have two different modes of coming to existence. Cotyledon-capital assumes the form of accumulation and it requires faith and focus. It borrows a straightforward path in its way to growth. Germ-capital assumes the form of hybridity, but it requires hesitation and usually borrows a winding path on its way to inventions or discoveries.

2-The different characters of Labor in PE

Tarde most enduring and specific contribution in PE touches what generations of economists have been trying to circumvent for decades. The contribution of production

factors to the making of the economy has divided economists along the line of what is the economy (Mitchell 2003). Tarde, himself not an economist in what was the rising technical sense of the word, penetrates the question with a daring view that criticizes any attempt to reduce the economy to a shrinking list of factors. His opening up of the manufacture of the economy leads him first to consider the first candidate to a foundational pillar to the economy, labor.

Labor as collaboration

On the relative agency of Nature, Machines and money

Among the factors contributing to the continuous deployment of the economy, Nature ranks high. Without acknowledging this tribute clearly – at least in PE – this taking into account of Nature recalls the physiocrats' definition of wealth grounded into Natural forces – to start with germination and its cycles. Yet, if Tarde embraces Nature, it is not to reify it but to locate in its very principles – taken as ultimate production factors by the physiocrats – a collaboration. The seed is a site of collaboration between nutrients (cotyledon and the necessary water) and what Tarde could not name its DNA structure. Tarde starts insisting on the collaboration the buttresses any labor, so that labor can never be considered isolated.

Car tout travail est une collaboration avec la nature : depuis l'agriculteur ou le pâtre qui dirige les forces végétales et les forces animales, jusqu'à l'industriel qui met en oeuvre les forces physiques et chimiques, il n'est pas de travailleur qui n'agisse de concert avec quelque agent naturel sans lequel toute sa dépense d'activité personnelle serait perdue. Avec les autres hommes : il n'est pas un ouvrage accompli dans une société, même par le plus solitaire des artisans, qui ne soit un fragment d'un tout, une maille d'un tissu, une besogne partielle se rattachant à une élaboration générale dont la conception le domine.
p240

Labor reproduction

But parallel to this definition of col-labor-ation, Tarde also narrows down labor to a purely reproductive activity.

Le travail, c'est de l'imitation à jet continu, c'est une série périodique d'actes enchainés, dont chacun a dû être enseigné par l'exemple d'autrui et fortifié par la répétition de soi-même, par l'habitude. P168

Reproduire, et non produire, au fond, est l'effet propre du travail (...) Tout est imitation et reproduction dans le travail économique. P224

La finalité est essentielle au travail. Quand, à force de répéter un même acte, le travailleur l'opère mécaniquement, presque en dormant, quand il n'a plus conscience du but ni du moyen, ni de l'adaptation du second au premier, et que la reproduction des actes devient automatique, il y a fonction vitale, travail vital si l'on veut, mais il n'y a plus travail au sens psychologique et social du mot. A l'inverse, quand, à tâtons, on poursuit très consciemment un but sans savoir par quels moyens, il n'y a pas, non plus, de travail. Le travail est donc une forme d'activité intermédiaire entre la routine de l'automate et l'innovation du génie. P225

Unlike most classical economists, Tarde reverses the order of importance attributed to production factors. If Labor loses its importance within the economic process, it is not by a lack of consideration for human involvement in economic affairs. It is not either by an anti-humanism that would make him prefer either the past communities or the upcoming new socialist order. Tarde repeats time and again his interest and even his affection for certain forms of labor: craftsmanship and agriculture are always described in positive terms throughout PE. Both brand of activities entail solving a series of puzzles and collaborating to bring to fruition an economic enterprise. Both forms of labor are not what he otherwise describes as a dumb exercise of repetition, most painfully embodied by the "machinofacture" worker. Tarde is emphatic⁵ on the rewards that different categories of labor should receive and he insists on a rule that can be found under different guise in most political economists of the XIXth century: the greater the problem-solving part of an activity – as opposed to its routine and repetition exercise – the higher the monetary reward.

But by and large, Labor in its specific form of a repetitive activity, driven by a clear finality is not worthy of much consideration in PE. Inspired by a growing trend in favor of leisure (Fourier 1820, Lafargue 1880) in this laborious century, Tarde makes a tricky case⁶ for a division of labor in society that will leave as much free time as possible considering the growing demand for goods and its necessary increase in labor force to meet this demand. The aristocratic order provided one class with all the desirable leisure and with income not tied to labor. Uncomfortable with this solution to the social division of labor, Tarde immediately notes the flaws of a fully egalitarian division that would only give a little leisure to the plenty. The ground for his rejection of the socialist solution is not only on the fairness – or lack thereof – of a society where everyone would be given the same amount of leisure. It is also and primarily on the efficiency of this solution. Holding for

⁵ C'est par où la main-d'oeuvre mérite toujours d'être payée plus cher que la fabrication mécanique p226

⁶ Quant aux grandes et capitales idées vraiment rénovatrices, elles sont nées du loisir et de la liberté d'esprit, non du travail et de la contrainte d'un esprit assujéti à une seule et unique occupation p228

true the idea that the greatest innovation have come from men who enjoyed a lot of leisure, Tarde concludes that the greatest social good will come from the unleashing of these great minds. Invention, once proprietary will become public goods and benefit the population as a whole, not only a small circle of happy fews.

Collaboration, reproduction and the worker

Tarde's humanism is a very subtle one that makes space for a fragile humanity, informed and shaped by its activities. Exchanging and adopting qualities with its surrounding, the workers – among other – develop skills and capabilities through their close contacts with capital, machine and nature.

Le travail de l'agriculture est si bien une association avec cette étrange et divine personne voilée qu'on nomme la vie, que la longue intimité établie entre elle et le paysan a imprimé sur lui comme un reflet d'elle. Il y a quelque chose du génie de la nature vivante dans l'ingéniosité rusée et tenace du paysan, en quelque pays du monde qu'on l'observe. p242

Nature, by its unmatched genius, makes peasants smart. It activates them and produces something that was neither in Nature nor in the peasants themselves. The organic potentiality of Nature needs to be channelled by the art of the peasants to produce its fruits. A smart worker – unlike a routine worker – responds to challenges that are raised by that very substance on which he works. Once again, Tarde situates the individual at the intersection of waves of influences. Position a worker in an environment that produces, with certainty, only a limited range of these waves and his ability to differ will soon wither. Now, make him tackle the mysteries of Nature and he will take over some of its more subtle features.

As its position in the book (ch.5, before the chapter on money and the final chapter on capital) indicates labor is part of the repetition. Money and capital are also moments of this repetition but they partake in a different process of the economy. The presentation, running from Labor to Capital, via Money, follows a gradient of economic agency.

- Labor is only repetition
- Money and Capital are only material expression of this repetition
- Germ Capital is the locus of innovation
- Nature organic principles can only be discovered

We will come back later to the problems raised by the last two stages of this increasing agency granted to capital goods.

Labor-machine

In a manner nearly exactly opposed to Marx reduction of capital to Labor, Tarde develops a reduction of Labor to forms of capital.

Une découverte ou une invention, qui accroît la science ou la puissance de l'homme, ou à la fois les deux, s'incarne toujours, soit, au dedans de nous, dans notre mémoire nerveuse ou musculaire, sous la forme d'un cliché mental ou d'une habitude acquise, d'une notion ou d'un talent, — soit, au dehors, dans un livre ou une machine. Un livre n'est qu'une rallonge et un appendice de notre cerveau; une machine n'est qu'un membre additionnel. **On peut dire indifféremment** qu'un livre est un souvenir extérieur, ou qu'un souvenir est un livre interne, qu'une sorte de bibliothécaire invisible, caché dans notre sous-moi, nous met sous les yeux au moment voulu. De même, une machine est un talent extérieur et un talent est une machine interne (...) C'est ainsi que les habiletés diverses et multiples des anciens artisans, leurs longs apprentissages, leurs emmagasinevements lents d'habitudes spéciales, ont été rendus inutiles en grande partie par la fabrication des machines successives. Celles-ci ne sont que la projection extérieure et aussi l'amplification souvent prodigieuse de ces talents et des organes par lesquels ces talents s'exerçaient. Et **l'on peut dire aussi bien** que, si la destruction de ces machines forçait ces talents à renaître si, par exemple, la suppression des imprimeries faisait ressusciter les calligraphes et les enlumineurs de manuscrits, ou la suppression des filatures les anciennes fileuses, les talents ainsi renaissants seraient la réincorporation simplifiée et repétissée des machines détruites p353-4

What is striking in this excerpt is the reversal that Tarde plays with. Machine – meaning here any form of capital, because it comes along the example of the book – is the expression of talents and skills. Conversely, talents are little internal machines and memory is a little model book operating within the mind. From this reversal, Tarde defines labor as an exclusively machinic exercise.

3-Difficulties of Tarde capital's theory. What is a germ?

Endurance of germs vs withering of cotyledons

In this couple of pages of discussion around the difference between germ and cotyledon capital, Tarde makes a strong assumption that he never explicitly discusses or submits to critical inquiry. This assumption is all the more troubling in a discussion focused on capital and on the resistance and time span of economic arrangements. This assumption assumes the following form

Certes, l'individu qui, réduit à ce legs intellectuel du passé, n'aurait ni semences, ni approvisionnements, ni outils serait dans de déplorables conditions pour faire oeuvre agricole ou industrielle. Mais il ne serait pas dans l'impossibilité de produire **un peu plus tôt ou un peu plus tard**, — tandis que, si, pourvu des semences ou des matériaux les plus abondants, amassés et accumulés par l'épargne, et de l'outillage le plus perfectionné, il est en même temps ignorant des secrets de l'industrie qu'il prétend diriger, ou des méthodes de la culture à laquelle il se livre, il sera frappé d'impuissance productrice en dépit de tout son prétendu capital

This leeway offered to the individual rich of know-how and techniques, why is it not granted to cotyledon-capital? Why is it assumed that knowledge endures more and more easily than material capital? Why is it assumed that geniuses or gifted entrepreneurs can wait and, hence experience and enjoy a much looser time constraint than material capital? The economy is sometimes described as a game (see Joseph 1999) in which moves can be withheld as a player awaits better circumstances. At least, players are endowed with capacities whose endurance and survival are not questioned. It all depends on this provision alluded to by Tarde when he discusses the damages of the Civil War on America's prosperity

Mais les ravages d'une guerre (...) n'empêcheraient pas l'Amérique, si elle restait éclairée et instruite, de reconquérir sa prospérité en quelques années
p335

il y a cette différence entre le capital intellectuel et le capital-matériel, qu'il est bien plus aisé de vulgariser le premier que le second. p353

Education and more generally enlightenment is what guarantees the survival capacity of germ-capital as opposed to material preservation for cotyledon-capital. Yet, another element enters the conditions of germ-capital endurance. They circulate easily because, just as parasites, they hop onto humans and activate the law of examples. This mode of diffusion for germ capital is what protects them from the threats specific to cotyledon-capital; it is also what threatens them from other germ-capital picking up and slowly taking over. Germ-capital is threatened by upcoming innovations and change of tastes among consumers, cotyledon-capital by natural disasters. But, on this critical assumption that makes germ-capital and cotyledon capital differ in terms of conservation, Tarde never theorizes the existence of a sphere of preservation for inventions. He states it explicitly

Ainsi, pour le capital-invention, la propriété individuelle est une cause d'accroissement, et la propriété collective une cause de conservation p.351-2

The existence of a collective locus for the preservation of innovations, is taken for granted although it is itself a form of capital that arises under very stringent conditions. If education is a topic for the emergence of inventions, it is not the only condition as the leisure of the prosperous class account for a great deal of their most decisive ideas. But education will not work for preservation of already existing inventions. Only in the course of discussing the likely prehistory of accumulation does Tarde mentions the historical phase during which goods do not persevere on their own and inventions need to be safeguarded. This stage he mentions as the

conservation prévoyante des plantes ou des animaux capturés p347

If capital is, as Tarde very concisely puts it, the certainty of reproduction

Cette certitude de reproduction, il n'y a que le capital qui la donne, et tout ce qui la donne est capital p347

then a public space that operates as a circulation medium for ideas, once they have left the private domain of personal exploitation, needs to be topicalized. It may be the case that this very specific form of capital – providing security and certainty – never goes through the first stage of private and exclusive ideas.

Materiality of the germ

The germ, the brilliant idea occurring to the brilliant scientist, can also very simply be a composition of existing cotyledon out there.

For Tarde intellectual-capital or human-capital are virtualities until they become material stuff, at which point they lose their important characteristics of being likely to be activated, or remain silent. This point is the fall into materiality, the transformation of a germ into a cotyledon. Yet, within this broad category, Tarde also draws differences. There are several qualities of cotyledon, not all are treated in the one and same way. The use of the book economy example in *Psychologie Economique* draws our attention to one of these problematic material capital good that seems to have not entirely severed its ties with its primordial germ. Consider another capital good, one that economist would categorize with circulating capital goods. Water. Both are material goods but one seems to be much closer to a germ than the other one. The book contains its own script, it forces the reader to approach it in a pretty limited way. Think a recipe book or an industrial blueprint. They come with the rules of their future use and

they foreclose the range of possible interpretations that readers can attach to them. On the other end, pure water does not provide the rules of its use. So many ways to make use of a pint of water, the germ seems far from the materiality of water. If the instant preceding the stabilization of the germ is one of indeterminacy and hesitation, it is striking that this is also the status of a pure cotyledon. In between these two states, the germinal-cotyledon – the book – displays a precise script.

Here, one question need to be raised in connection with the materiality of cotyledon and the spirituality of germs. Rather than this opposition, isn't at stake the openness of the cotyledon script? Through its ability and hesitation to graft onto many different enterprises, water has something of a genius, connecting unrelated lines of thoughts into a new idea.

The crux of the matter may reside within the notion of a teleological system that provides nature with animation, a soul if one accepts to dig up the latin root of animation, that which has an *anima*, a soul, a principle for self determination). Tarde insists in every ways that machinic systems are not endowed with animation, unlike natural beings that can be tamed, disciplined but that always retain their inner principles and movements. Yet, their teleology, their ability to force their own specific movement in the face of what lies outside their realm, is only to be witnessed after the facts. Only a precise observation of nature can make a biologist utter this strong statement of a divide between organic and machinic beings. What if an unexpected encounter between two machinic systems were to produce this animation. The hypothesis should not be ruled out too hastily on principled grounds because it is what happens before our very eyes. If one remembers that animation is immediately a collective exercise and an association of otherwise less animated beings, then machinic systems can easily display animation. They are themselves, and from the outset, combinations of more or less animated parts. Tarde is adamant that these systems – organic or machinic – are never to be seized from an abstract positivist perspective, but from their lived-in experience. The animation of laborers is thus much greater when they exercise their art on Nature, as do farmers, than when they respond to a routine machine. Between discoveries of Nature's secrets and inventions of misleadingly ingenious machines, Tarde uses the verb *susciter*. The following excerpt introduces *susciter* and its very specific modes of interpellating Nature

Par les plantes et les animaux l'homme est servi comme il l'est, au fond, par les autres individus de son espèce. Le plus humble des êtres vivants porte en lui-même un vouloir propre, conscient ou inconscient, mais toujours ingénieux, qui est le principe même de vie, et où la volonté humaine se mire comme dans sa

vivante image. Aussi ne pouvons- nous l'utiliser que comme nous utilisons le vouloir de nos semblables en faisant en sorte que son but propre converge vers l'accomplissement même du nôtre. Au contraire, les choses inorganiques n'ont pas de fin à elles, elles n'ont donc, strictement, que l'ingéniosité, tout apparente et tout artificielle, que nous leur prêtons par notre génie inventif. Elles n'ont pas de but, ce qui veut dire qu'elles ne sauraient travailler, d'après notre définition du travail. Il n'y a en elles, en fait d'adaptation, que ce que nous y mettons, sous forme de machines; tandis que, lorsque, par l'élevage, par la sélection méthodique, par des moyens indirects, qui n'ont rien de commun avec l'invention d'une machine nouvelle, nous *suscitons* une nouvelle plante ou un nouvel animal, mieux adapté à nos fins, ces variétés jaillies du sein fécond de l'imagination vivante, sous notre provocation, soit mais sans que nous sachions comment, nous étonnent toujours par l'inattendu des propriétés, des vertus, des charmes, que nous découvrons en elles.

Animation is not a binary quality. Rather, it is a gradual shade. Germ-capital can rise from the combination of least animated parts. If, as Tarde posits it, machinic beings lack a teleological perspective, then it becomes difficult to understand how they inspire some of their use. Is not it more fruitful to understand teleology as the inner movements that these machines or organic compositions inspire to their observer? What else could it be ? Teleology is thus the intellectual choice of taking a being for what it is and of not deconstructing it further. Not opening it up and not investigating how its telos is itself a construction of other telos.

Then, whenever an engineer recombines two existing tools into a new one, it can be said that he unearths a new teleology that had been hidden from his sight so far. Even the most rudimentary of tools can be turned into a brand new machine.

So what, does it mean that cotyledon is a shapeless, uninformed side of the world that is only activated through the master plan and blueprints put into form by germs? It reads an almost anti-leibnizian solution that Tarde adopts for the study of capital. It deprives this neutral, shapeless world of any qualities and submits it to the guidance of a germ.

One first answer to this difficult question is provided by the tardian theory of money emergence. Tarde insists that any form of money, be it metal or paper based – and for that matter there is no difference – came to rule only gradually. These sorts of convention are actually not conventional, if one wants to construe the convention as a binary and arbitrary step. They get a privilege over other possible conventions after long and laborious conflictual competitions with these alternative candidates. The arbitrary surrounding the convention dissolves into the regressive method adopted by Tarde. From this point of view, money standards and language deserve the same treatment.

Against the “instinct theory” that locates the diffusion of language and money⁷ in a collective instinct and the convention theory that hits the paradox of the beginning, the regressive method favored by Tarde reaches back for the germ that will account for a money system, a language.

The germ is not an instinct, it is rather a moment of strength, a moment of imbalance where a path is borrowed.

Organic germs

In line with a special emphasis on the action of Nature and its genius in the economic process, Tarde identifies and conflates all living activities that contribute to production under the term labor. Vegetal, animal and human are thus equated as opposed to the sheer physico-chemical activities of the wind, of the sun or of the tide. The line is drawn on the basis of the teleology of these living systems

Quant aux activités simplement physiques, telles que la force des vents ou des marées ou des rayons solaires, ou des substances chimiques, il y a entre elles et les activités vivantes — précisément parce que celles-ci sont faites de celles-là, mais de celles-là dirigées et systématisées — une différence profonde, théoriquement des plus importantes p271

Between the purely physico-chemical activity and the living organism, Tarde draws a radical difference that could surprise the reader expecting to read Leibnizian themes in Tarde.

Why does Tarde force this difference between chemical and living processes ? Are not they all made up of the same fabric, monads endowed with a specific movement ? The answer to this apparent puzzle is provided once again by the notion of the germ and its accumulation. Plants, animals and humans are all compositions of chemical processes, but orderly and systematic compositions. They are themselves germs in the larger Tardian economy. They are not only large accumulations of processes but teleological accumulations.

Even within the labor-tagged activities, there is already organization and aim that makes them more than the routine work of an automat and in a way, it is possible to see these living activities as being small economies.

Nous *découvrons* les innovations végétales ou animales, nous ne les *inventons* pas. Nous provoquons de nouvelles *habitudes* chez les êtres vivants;

⁷ and institutions in general

l'impulsion qui leur est donnée par nous, à tâtons l'habitude la conserve et l'enracine. Rien d'analogue à l'habitude pour les choses inorganiques. Si nous les manions bien plus complètement, *tan quam cadavera*, elles n'arrivent jamais à se diriger elles-mêmes, il faut toujours les surveiller avec le même soin. Elles ne nous obéissent pas, elles vont où nous les poussons. p.277

Tarde distinguishes between the germ as the outcome of a process of combination that usually ends up into a new idea for the genius and a new organization in the organism (plant or any individual if one accepts to call an individual a being that is able of germinating) and the germ that has been reified into a process, either industrial or mental. It has once been a dazzling revelation, aggregating two waves of examples into an unprecedented new species, but it is now a routine. The industries are nothing but ex bursting of genius, but unlike the burst itself that was full of surprise, they do not strike us anymore. They just repeat a formula again and again. The difference between the organic and the non-organic stems from the ability to differ continuously for the latter, unlike the industry that sticks to its rules once pronounced by the inventors and the entrepreneur. With the difference comes the joy of working on and with an intelligent interlocutor, the surprise of unexpected reactions, all feeling that workers of the machinofacture will not experience with rule driven machines.

One clear example provided by Tarde to get to the idea of accumulation and the germ comes under the guise of the tool.

Tous les outils, soit pour les travaux manuels, soit pour les travaux intellectuels eux-mêmes, sont, remarquons-le, des substances à l'état solide, et non à l'état liquide ou gazeux. (...) L'encre dont se sert la plume de l'écrivain, la couleur à l'huile où se trempe le pinceau du peintre, sont liquides ou plastiques, mais la plume et le pinceau sont solides; la lumière de la lampe qui éclaire le savant, l'électricité du télégraphe qui expédie les informations du journaliste, sont des mouvements de molécules d'éther, mais la lampe et le télégraphe sont des corps durs. Pourquoi en est-il ainsi? Parce qu'on ne s'appuie que sur ce qui résiste la solidité, c'est la résistance et l'appui aussi bien. Outillage et solidité sont deux idées si intimement unies que, même dans le travail de la vie animale ou végétale, d'un bout à l'autre de l'échelle zoologique, nous constatons cette liaison indissoluble. Les outils de l'être vivant sont, pour chaque cellule, ses appendices ou ses expansions plus ou moins mobiles et toujours d'un tissu plus ou moins résistant, et pour l'organisme tout entier, ses membres, toujours d'une certaine dureté relativement au reste du corps. (...). La plus grave difficulté de la vie, à ses débuts a dû être de franchir le passage des êtres mous et gélatineux, par où elle a commencé, aux êtres à squelette extérieur, puis intérieur qui sont venus ensuite. La sécrétion d'une substance calcaire ou siliceuse a été pour elle l'équivalent de ce qu'a été pour l'humanité primitive l'art de tailler le silex, et plus tard, la métallurgie. P 258-9

If Tarde equates capital goods (tools for intellectual exercises or manual tasks) and resistance in *Psychologie Economique*, it is not clear whether he imagines this trend, from the soft to the harder, to be a general rule of capital. One first reading of his approach to the softness differential is to take that germ-capital fleshes out its illuminations into hard cotyledon-capital. Each germ gets stabilized and assumes the form of a more or less harder composition. It can be the book, as an expression of a composer's ideas or a machine expressing an engineer's findings. As germs harden into machines, they also lose their versatility. The germ is dead as a process and only exists *tan quam cadavera*.

The second reading of the softness differential does not assign a state (soft-hard) to one of the two capital kinds singled out by Tarde. If neither cotyledon rhymes with hard and stabilized, nor germ with soft and versatile, then things become more challenging. Could it be that cotyledon-capital is not necessarily on the hard side ? What would a fluid and versatile cotyledon be ?

The puzzles raised by the metaphoric solid state forms of capital goods all point to a question that Tarde circumvents several times. What is the relationship between the resistance of capital goods - the intimate ideas of tool and solidity – and the strategy of difference of any being.

Organic is not a domain, it is a specific quality of the compositions. An ability of these compositions to resist. A book, is the most advanced form of germ-capital turned into a cotyledon. As such, it has the hard features of a tool, it is a memory-made-matter but because it can associate with other books and find itself enrolled into other networks thanks to its relative light weight and little cumbersome properties, its is also still close to the versatility of the germ.

Conclusion

Still to be written