

Yulia Altukhova-Nys\*

*Productivity? – Yes, but subject to sustainability!*

*An evidence of (re)emergence of accounting for sustainability from the French agricultural authors from the XVII<sup>th</sup> to the beginning of the XIX<sup>th</sup> centuries*

## 1. Introduction

The topic of accounting for sustainability is relatively recent in management sciences research: the first works and researches date back to 1970 (Christophe 2000; Gray 2007; Richard 2012b). As Gray (2007, 187) said, accounting for sustainability research «has grown, in a relatively few years, from a very marginal area of interest and practice to a diverse and vibrant area of research, teaching and practice».

Agricultural production is closely linked to, if not completely dependant on, nature. Moreover, at the present time, the environmental impact of agriculture is not less and sometimes even much higher than the impact of industrial enterprises (Kafadaroff 2008). That is why this economic sector proves to be a very interesting research field in the view of sustainability.

We chose to focus on French literature on agriculture for two main reasons: 1) for a long time, this country is an agricultural power (Parmentier 2009); 2) in France, there is a fertile ground for the historical research given a rich literature in agricultural accounting since the 16th century, and given preserved archives of some State experimental farms. Historically, works on agricultural management (de Serres 1651; de Cazaux 1824; Mathieu de Dombasle 1824-1832; Bahier 1860; De-granges 1909) are among the first French publications in accounting and management.

However, a depth analysis of agricultural accounting has been the subject of few in number research, notably in France (Lemarchand et al. 2017; Giraudeau 2017). So, agricultural accounting deserves an investigation in light of sustainability issues.

The fact that in France, in agricultural sector, scientific methods concerning a consideration of natural processes have been developed since long – for example, Ciriacy-Wantrup (1938) testifies that already from the time of feudalism in France (in the form of «manoir») an issue of soils conservation was of great importance, – leads us to question a very emergence of accounting for sustainability, notably for

---

\* Associate Professor, Université de Reims Champagne-Ardenne, REGARDS, Reims, France.

strong sustainability (Daly 1991) respecting physical thresholds characterizing the minimum level of natural capital to be preserved. Is this concept so new?

As Braudel said (1979) about the term of capitalism, and what this paper questions about accounting for sustainability, the concept may have existed even before the term emerged.

For that reason, this paper aims to follow the (re-)emergence of agricultural accounting for sustainability, notably in the French literature from XVII<sup>th</sup> to early XIX<sup>th</sup> centuries, that is even earlier than the term of «accounting for sustainability» existed. So, the research question of this paper is: Are there some premises to strong sustainability in French agricultural accounting of XVII<sup>th</sup>-early XIX<sup>th</sup> centuries?

As in the Kidd (1992), Fressoz and Locher (2020), Cummings and Bridgman (2021) works, we are looking for the answer to a diachronical question related to sustainability: Are the works of French agromen (agronomists-economists) on improving productivity in agriculture respecting strong sustainability principles?

We will show that some French authors in agronomy, rural economy and agricultural accounting of XVII<sup>th</sup>-early XIX<sup>th</sup> centuries dealt with ecological and social issues, even if they did not use the word «sustainability».

Consequently, this paper is structured as follows. Firstly, a theoretical framework and some arguments for choosing a methodology are provided. Secondly, to make a history of the development and diffusion of the agricultural accounting for sustainability means not only to establish a chronology of steps and places of its appearance, but also to come back to the economic and social context which formed the backdrop of this process. That is why we present a social-political context in France for the period under study while discussing some early works on agricultural accounting and management in general. Finally, conclusions concerning sustainability approach in agricultural accounting and management are drawn from this analysis.

## 2. Theoretical framework, methodology and data

As mentioned by Colasse (2007, p. 28-29), «... accounting... participates in and to the capitalist system, there is interaction between the tool and the system; that's probably the fundamental intuition of Sombart, intuition that retains its heuristic value for many researchers».

This paper is based upon the theoretical background inspired by theories of capitalism and accounting evolution that take into account the socio-political context, where the institutions in their broader sense, include norms, social representations, collective action processes (especially power dimensions), forms and types of exploitation, and governance aspects.

This study is in line with research works which consider accounting as a subjective technique because of its dependance on a subject which has the power (Richard 1980; 2012a; Cooper and Sherer 1984; Tinker 1984; 1985; Hopper et al. 1987; Cooper et al. 1989; Catchpole et al. 2004; Chiapello 2007; Colasse 2007).

To follow the genesis of agricultural accounting in France, from the strong sustainability point of view, this paper is based upon the historical approach.

Concerning farm accounting, there are mostly historical works on English context (see for example, Mephram 1988; Edwards 1989; Bryer 1991; 2006; Juchau and Hill 1998), but also on the French one (see for example, Garnier 1982; Lemarchand 1993; Cocaud 1999; Depecker and Vatin 2016; Joly 2016a; 2016b; Lemarchand et al. 2017), and the Italian one (e.g., Rossi 2013).

In the field of accounting for sustainability, the works based on historical method are dealing more particularly with the subject of corporate social responsibility, but not in the agricultural sector (Grinberg and Pezet 2006; Pezet and Loison 2006; Loison 2009; Loison and Pezet 2010; Berrier-Lucas 2012; 2014).

That is why we decided to examine agricultural accounting literature. We realised an observation of farm accounting practices described through selected publications of the period from the XVII<sup>th</sup> to the early XIX<sup>th</sup> centuries.

The choice of this study period is related to available literature: this period is characterized by the emergence of works of prominent French authors in rural economy and agricultural accounting, namely Olivier de Serres, known as the «father of French agriculture», and Christophe-Joseph-Alexandre Mathieu de Dombasle known as the author of the first French manual of agricultural accounting in double-entry.

Three authors were chosen notably because of the popularity of their publications, as well as due to their notoriety: Olivier de Serres, C.J.A. Mathieu de Dombasle, and Auguste Bella. Olivier de Serres' book has been edited 21 times during the XVII<sup>th</sup> and XIX<sup>th</sup> centuries. The 21<sup>st</sup> edition dates back to from 1804 and was published with Napoléon's support. The C.J.A. Mathieu de Dombasle's books have seen dozens of re-editions, some of which posthumously as well. The accounting model he described, was included in many books and taught in agricultural schools, including the Grignon one, where Auguste Bella worked. The *Annales de Grignon*, signed by Auguste Bella, have seen also many issues (between 1821 and 1849).

Moreover, all of these three authors practiced in and managed their farms (respectively: Pradel domain, *la Ferme de Roville*, and *Institution royale agronomique de Grignon*) that can be called experimental farms thanks to the freedom that these authors had to make decisions and to act.

- The sources that nourish this analysis are diverse and following ones:
- Original documents, such as several contemporary works of the period under study;
- Historical works, including accounting history papers, as well as works on rural, economic and political history;
- Non-historical works which fall under the accounting and control, other disciplines of management, or agriculture topics.

In order to discuss some examples of premises to accounting for sustainability in agricultural literature of XVII<sup>th</sup>- early XIX<sup>th</sup> centuries, it is necessary to examine the socio-economic and political environment of the time.

### 3. Some examples of premises to accounting for sustainability in agricultural literature of XVII<sup>th</sup>-early XIX<sup>th</sup> centuries

In this section, we will focus on describing, in the light of accounting for sustainability issues, the work of some outstanding figures in French agriculture of the XVI<sup>th</sup> - beginning of the XIX<sup>th</sup> centuries who contributed to the emergence and development of agricultural accounting, namely the Olivier de Serres' (1539-1619), C.J.A.Mathieu de Dombasle's (1777-1843) and Auguste Bella's (1777-1856) works.

#### 3.1 Olivier de Serres' work and domain of Pradel

One of the outstanding figures in the history of agriculture was Olivier de Serres. He has been called Father of Agriculture by Arthur Young<sup>1</sup> and other researchers.

Olivier de Serres was among the first persons to practice reasonable farming in the agricultural field of Pradel of nearly 200 hectares, by using crop rotation (crops rotation on the same land in the time). He discovers that the lucerne crop enriches the soil and allows the next year higher yields on the ground where it grew. He cultivated the land himself. The Pradel domain became a laboratory, an experimental farm, where the intuition of agricultural modernity shoots up and where the test administered empirical proof of the validity of inventions (Ardèche, «Olivier de Serres»).

The lord of Pradel was free or substantially free in all of his decisions, which was not the case for the vast majority of farmers of his age: he was the owner. It gave him the freedom to act. Until the nineteenth century, his lessons concern only his counterparts, that is in total quite a few world (Boulaine and Moreau 2002, 17-18). His book from 1600 (*Theater of Agriculture*, in French - *Théâtre d'Agriculture*)<sup>2</sup> contains the innovative feature of developing a management philosophy known as a good father management (*en bon père de famille*), «with the aim of preserving the future of farm while seeking to increase its production » (Boulaine and Moreau 2002, 34). Boulaine and Moreau (2002, 34), bringing together two contradictory words, notice that «Olivier de Serres has made productivity ecology without knowing it».

The book will see eight editions during the lifetime of the author, 19 editions until 1675, and a 21<sup>st</sup> edition in 1804. The book is divided into eight « places » (chapters) which analyzes the different agricultural and horticultural activities, from the description and organization of the field to the expense of the property by the owner.

The book describes the rational ways of knowing an agricultural land, of cultivating cereals, mulberries and grapevines, of raising livestock, poultry, bees and

---

<sup>1</sup> After his visit to Pradel two centuries after Olivier de Serres' death, Arthur Young (1741-1820) gave the finest witness to this agronomist of the sixteenth century: «I was contemplating the home of the illustrious father of French agriculture, one of the greatest writers on the subject that had then appeared in the world» (Boulaine and Moreau 2002, 7).

<sup>2</sup> The word «theater» refers to treatises that put theories as if they were characters in a scene (Ardèche, «Olivier de SERRES»).

silkworms, of shaping vegetable, flower, medicinal and fruit garden, of arranging the paysage, and also of how to use food, clothes, furniture and tools. This is to meet the basic necessities of a decent «home» (or «housekeeping») family: food and health, but also the profit and pleasure. The Olivier de Serres' project is quite simple, it offers a serene philosophy:

- to shove an ancient peasant myth of the tired earth who need to rest during the fallow period and wasteland, by replacing it by forage crops improving soil fertility;
- to implement innovative field experiences in the garden by intensifying crop culture: animal manure of the soil, new crop species such as potato then known as the cartoufle or white truffle..., irrigation of meadows, selection of more productive and more resistant to disease varieties; ...
- to build "beautiful and good" agricultural buildings; ...
- Finally, this book provides some advices to fathers and mothers on how to educate their children so that they know to grow their property (Ardèche, «Olivier de SERRES»).

At that time, farmers are cultivating their land once each two years due to the lack of manure. The rest of the time, the land remained fallow. Thanks to Olivier de Serres, the alfalfa and sainfoin on fallow inaugurate tame pastures.

By reading his book, one can observe some premises to accounting for sustainability. For example, Olivier de Serres (1651) focuses on the importance of care for the Nature and soils, or, for the manner of measuring soil (chapter 3 of the book): «... there is a difference between measures of soils, from province to province...», «... the first [kind of soil], as also the most antic one... is Herbages [grassland]. The second to the Bread that is made from cereals. And the third: to the Wine, from Grapes...» (Serres 1651, 8; 12), that is the distinction of soil kinds and correspondent treatment.

Olivier de Serres (1651, 46; 47) indicates also the problem of «bad housework» («*mauvais mesnage*»), he speaks of the importance of cultivating oneself as to entrust to farmers who try to make the most profit for them and to care of the soil, «without thinking about honor».

He stresses the long term character of activity and importance of care of the natural resources, even if it demands additional costs, by quoting the maxime: «*with work the property is acquired, and with length it is owned: and, it costs more to keep than to buy*». (Olivier de Serres 1651, 47). This kind of approach is similar to historical cost accounting one in accounting for strong sustainability (Huetting 1989; Lamberton 2000; Rambaud and Richard 2015; Murphy and Seabrooke 2019) seeking to take into account all the costs of natural and/or human capitals preservation, instead of evaluating these capitals by market or fair value that is characteristic of accounting for weak sustainability models (McCandless et al. 2008; R3.0).

Olivier de Serres, quoting Caton, called of «great shame to not leave his heritage to his successors greater than had received from his predecessors» (Olivier de Serres 1651, 48-49). This sentence brings to mind a similar definition of accounting for sustainability by Gray (1992, 420):

a parallel accounting system which provided calculations of what additional costs must be borne by the organisation if the organisational activity were not to leave the planet worse off, i.e. what it would cost at the end of the accounting period to return the planet and biosphere to the point it was at the beginning of the accounting period.

Moreover, Olivier de Serres (1651, 49) notes the importance of soil work «with science and diligence» that could prevent «so many scarcity of all of the kinds». So here too, we see some premises of accounting for strong sustainability in the sense that the last one refers to «safe minimum standard» (SMS) (Ciriacy-Wantrup 1952) and/or critical (natural) capital<sup>3</sup> (Ekins et al. 2003) defined based on scientific norms and eventually collective choices as an aim of conservation.

Finally, concerning the accounting in its more conventional acception, that is measuring and monetary valuation of costs and incomes, Olivier de Serres, even if he acted «with esteem» (Boulaine and Moreau 2002, 77) in cultivating his domain, noted each day each expense in his book of reason. However, he did not encrypt neither his cash receipts, nor the results of its work. But on this point, nobody thought at this time (Boulaine and Moreau 2002, 38). It was only in 1673, long after the first edition of the analysed Olivier de Serres' book, that the first accounting regulations saw the light: Order of March 1673. This order was aiming to stop the bankruptcy and to restore credit (Lemarchand 1993, 101). Among the legal requirements relating to accounting there was an obligation to conduct an inventory every two years.

Remarkably, in 1804, Napoléon supported the reprinting of the Olivier de Serres work, proposed by Society of Agriculture members (Guy, «Histoire de l'agriculture»).

### 3.2 Mathieu de Dombasle's works and *la Ferme de Roville*

Christophe-Joseph-Alexandre Mathieu de Dombasle (1777-1843), son of a former military Grand Master of Forestry under the Empire, studied chemistry and agronomy; he also worked in the campaign of Luxembourg as an accountant in the service of the convoys. He was a member of the Academy of Sciences, of the Royal and Central Society of Agriculture<sup>4</sup>, and of the Society for the encouragement of domestic industry (Lemarchand 1993, 354-355). C.J.A. Mathieu de Dombasle trans-

<sup>3</sup> Critical natural capital is often defined as the natural capital which is responsible for essential environmental functions and cannot be substituted in the delivery of these functions by manufactured capital (Ekins et al. 2003, 169). Critical natural capital should be preserved whenever possible (Daly 1991).

<sup>4</sup> An outstanding event in the agricultural history of France is the creation of the Royal Agricultural Society of Paris in 1761, preceded by the emergence of regional agricultural societies in some cities (Rennes in 1757, Tours in 1759 and Clermont-Ferrand, Orléans, Rouen and Soissons in 1761). There were mostly nobles (civil servants, lawyers and doctors, rental owners), landowners and some farmers who had land and used it themselves and who applied agronomic theory that was constituted in this period. It is worth noting that these institutions, even being constituted by «agromane aristocracy» and consequently being outside of the peasant masses, were there to encourage the dissemination of technical progress in the countryside (Marache and Bourrigaud 2005).

lated Thaer's and Sinclair's works, the last exponents of classical agronomy in Germany and in England (Argemi 2002). He managed from 1822 and for twenty years the farm of Roville (Roville-devant-Bayon, in the southern department of Meurthe), where he organized the farming school (Knittel 2007). C.J.A. Mathieu de Dombasle was a pioneer of agricultural higher education in France (Boulaïne and Moreau 2002). He introduced the cultivation of flax in Lorraine, showed the benefit of lime to improve clay soils, and created a famous plow. Despite his efforts, the cereals yield did not exceed 11 to 12 quintals per hectare.

C.J.A. Mathieu de Dombasle's *Calendar of good farmer or manual of practitioner farmer*, the book edited in 1821 and which had known seven editions from 1824 to 1846, is the first French agricultural manual of double entry bookkeeping (Le-marchand 1993).

In the *Annales de Roville* of 1824, we see that it is from 1823 that the accounting was organized at the farm of Roville, and after their author, it was easy to realize it:

... I can assure you that with the exception of the first two or three months, which required me some care to form a *commis* who had no idea of commercial accounting, all is constantly worked with extreme ease. Today everything is always under my direct supervision, and there are even some ledgers, such as tables of rotation, which I reserved for my writing; but such supervision and work demand from me the use of very shortly time. It is this like many things that scare when you see from afar. When once we conceive such accounts, we see that it is extremely simple and does not require much time for writing as one might suppose (Mathieu de Dombasle 1824, 122-23).

Mathieu de Dombasle discusses the usefulness of the auxiliary books, written in the form of tables, where all operations of every day were brought (instead of registering it in the journal, which, in a farm, would form entries to the infinity). Then the results are written in the journal, and from there to the general book, in a single article for each subject at the end of each fortnight.

The author proposes to hold twenty-three auxiliary books, stressing that «it takes very little time each day to put some numbers on the tables they contain, when the journal is discharged from a multitude of items that it was unnecessary to burden, but it was still very important to keep it» (Mathieu de Dombasle 1824, 116).

For example, the auxiliary book of livestock consumption was divided into several columns, each of which was devoted to a species of cattle on the farm. Each column is subdivided into other ones, depending of number of forage species, grain or roots they could consume (Appendix 1):

Every evening one writes in this book the consumption of the day, and every two weeks, one registers at the debit of each species of livestock and credit each type of feed, which value it consumed. ... all fodder are bunched, and regularly distributed to men who care each species of livestock... (Mathieu de Dombasle 1824, 117).

Another auxiliary book, the employees of the farm one, was to receive an indication of the work done every day by teams and farm workers. What is curious is that not only employees, but also horses and working beef had a large column, «divided into a large number of others, who holds the title of special accounts at grand-livre for each species harvested, and other objects that work can be applied to» (Mathieu de Dombasle 1824, 117):

The unit I have adopted for this table is a work's hour of a man, a horse or a beef. Every evening, one enters the number of hours to be used for each account, which is then debited of the mass of price of all the work it required within a fortnight, in crediting the accounts of employees, of beefs and horses. To this end, I have provisionally estimated at the amount that seemed as close as the truth, is the price that one hour of work a man, a horse, etc. costs; the balance of my accounts then show me if I'm wrong, when tells me so, in a very precise manner, the real price of a work's hour, and therefore the expense that entailed actually every kind of work that I do then use my teams.

Thus, we see that the accounting was held in working hours, in number of quintals of harvest, etc... One could even say that there are already elements of economic analysis and a draft of the standard cost accounting, but also of (management) accounting for sustainability<sup>5</sup> (Schaltegger et al. 2002) because of its tracking and managing the quantities produced and consumed by the farm.

Mathieu de Dombasle described other auxiliary books that were used in the Farm of Roville, including the production and use of manure, the household consumption book with «tables on which one registered every evening: 1° the number of individuals who were fed during the day or at the master's table, or the household table; 2° all items consumed even if they were purchased outside or were taken in the house» (Mathieu de Dombasle 1824, 120). In addition, one of the largest auxiliary books, according to the author, was the the rotation tables one (Appendix 2):

Every piece of land has its own table, which is divided into as many columns as it contains logs, each log has a serial number. All operations performed in the field, such as plowing, harrowing, use of manure and other fertilizers, sowing, hoeing, harvesting, etc., are entered into the appropriate columns of the table; abbreviative signs indicate each operation, and leave little thing to write.

Using these rotation tables, there is not, in the farm, a single ridge of soil, which I will not always have all the information I could wish, to determine me on that kind of harvest it can receive, or to study the results of operations to which it was submitted (Mathieu de Dombasle 1824, 121-22).

Mathieu de Dombasle notes that:

---

<sup>5</sup> For an example of management accounting for strong sustainability, see Zahm et al. (2019).



all of these books, which include details of all branches of the farm do not yet constitute a proper accounting; but it has all the elements necessary to establish it with the most accuracy, and these elements are classified so as to commonly require a simple addition, in order to bring them in the journal, where they come to rank back into the grand-livre, which shows the economic performance of each brunch of farm (Mathieu de Dombasle 1824, 122).

In this way we may notice that in 1824, there was an accounting organization similar to that of today. We can also conclude that the main goal of agricultural accounting teached by Mathieu de Dombasle was to know the economic performance of farm activities.

Indeed, agricultural growth was undeniable in France: between 1815 and 1851 agricultural production increased by 78%, wheat progresses as potato which greatly improves food security. But this growth was achieved by an increase in labor and a declining fallow more than by technical progress (Herment 2017).

Another interesting point in line with accounting for strong sustainability was the issue of depreciation, concerning notably land improvement, which is an expense for the restitution of soil fertility. As noted by Lemarchand (1993, 447-448), in 1826, at the general meeting of shareholders of the Farm of Roville, Mathieu de Dombasle shows have opened a *land improvement expenditure* account debited by expenses of liming, tidal range, removing stones, buildings, «and other operations of the same kind, the effect of which should be felt much time of the lease», and every year a tenth of the total amount will be charged to overhead<sup>6</sup>. These costs are not retrievable; the effects of some of them are necessarily limited in time and any capital gains, thus conferred on soil, go to the lessor at the end of the contract (Lemarchand 1993, 447-48).

These expenses were considered as improving the land, but it was the case from the productivity point of view, and as we know now, not obligatorily aiming at the restoration of natural capital of soil from the actual strong sustainability point of view.

Moreover, Mathieu de Dombasle proposed a distribution system, under a four-year rotation, on the example of a piece of land that once fertilized by manure is successively producing potatoes, barley, clover and finally wheat. The allocation is made by the game of accounts of the various products concerned, from one year to another. The first year, one imputes the full cost of amendment to account of *potatoes*, then at the inventory period credits it by half of this expense by debiting the *barley* account next year. The third year, *clover* is charged for half of this amount, that is a quarter of the total, but improving itself soil fertility, it is completely discharged at the expense of wheat in fourth campaign<sup>7</sup>. The allocation is as follows:  $\frac{1}{2}$ ,  $\frac{1}{4}$ , 0,  $\frac{1}{4}$ . The mechanism put in place by the agronomist is quite sophisticated,

<sup>6</sup> Rapport à l'A.G. du 28-11-1826, *Annales agricoles de Roville*. 4<sup>ème</sup> livraison, 1828, p. 47, cited by Lemarchand (1993, 448).

<sup>7</sup> Lemarchand (1993) emphasizes that the same scheme can be found in L.F.G. de Cazaux (1825, 78-80), and A.Malo (1841, 68-70).

it combines the allocation in time and the allocation between productions. The fixed coefficients attempt to reflect actual consumption, in perfect agreement with the prospect of costing (Lemarchand 1993, 448).

It is worth noting that this mechanism is taking into account the clover properties of soil restoration and its necessary presence in the aim of preserving the cultivated soil. So there is a preoccupation, in some kind, for the soil natural capital preservation reflecting actual sustainability point of view.

### 3.3 Auguste Bella's works and the *Institution royale agronomique de Grignon*

In July 1827, Mathieu de Dombasle's student, Auguste Bella (1777-1856) settled, with Antoine-Rémy Polonceau and Ternau(n)x, the school of Grignon (Seine-et-Oise Region) (Briaune 1837), which later became the National Agronomic Institute of Paris-Grignon (INA-PG, which is actually AgroParisTech). He described the experience of the accounting organization and of the state of the Royal Agronomic Institution of Grignon (*Institution royale agronomique de Grignon*).

The first general balance published in the *Annales de Grignon* dates back to June 1, 1828 and it was signed by Polonceau, the Secretary of the Board, while the following years the status reports were presented by Auguste Bella. Bella also used the double-entry bookkeeping, with the auxiliary books and the Journal. Polonceau in his report has quickly passed under review 13 following auxiliary books: the workforce book, the employees of the firm book, work sheets, books by tables of days and hours employed in the work of carpentry and masonry, the book of instruments manufacture, the one of consumption of straw, fodder, roots, seeds, etc., distributed to each type of animals, the dairy book, the book of household for subordinate employees only, the book specially designed for cows, the manure book, the book of penalties, the book of nominal state of every kind of cattle, and finally, the cash book held in revenue and expenses, day by day.

It should be noted that the auxiliary book devoted to farm workers, that is to say, to the servants and workers of the year, indicated all hours of work and its various specialties. There are also registered, on separate tables, the hours of horses and beef work, always with counting and allocation of hours on specialties, at the supposed prices to make the parity with the cost of these animals. «So the work produced by labor, by employees, horses and beef on the farm, is classified and summarized each day and summarized by a week, a fortnight or a month: everything is then allocated to the various cultures or improvements or other specialties» (Annales de Grignon, 1828, 60). In this way, this method is similar to Mathieu de Dombasle's one.

The accounts were opened to different cultures:

The first operations, which are defoncemens (sic) or other tillage, are generally represented by potatoes; the following year by cereals, later by alfalfa, clover, leys, etc. One transfers a half of the fertilizer from the first harvest to the second one; thereof half or a quarter of the first to the third harvest. The defoncemens, clearings, extraordinary stone removings resulted in an ac-

count entitled: Increase in Capital of land for the first extraordinary plowing or clearing work with pick or with shovel (Annales de Grignon, 1828, 65).

One can notice the use of crop rotation, as well as the consideration of soil natural capital of land in accounting to restore by different actions, such as clearings, or extraordinary stone removings, etc., that is one of the features of accounting for strong sustainability.

Moreover, in the Report for the year 1829-1830, Auguste Bella distinguished two types of accounting: that of the farmer that needs «little time for it» and «should be simple and brief», and that of an Institution, «which is accountable to its shareholders and the public of the smallest operations», because «accounting, as all other parts of agronomic science, is perfected by practice and by reasoned application of requirements of localities and of position» (Annales de Grignon, 1828, 105).

Thus, there is an emphasis on distinction between management accounting and general accounting, the last one being dedicated to shareholders and, more generally, to the public use. Like in accounting for strong sustainability, one of which goals is to divulgate an information to different stakeholders, so to different kinds of public, and not only to the shareholders.

Therefore, Bella made several improvements, including the allocation of overhead costs and development of several other accounts, as well as the change of the holding of the grand-livre:

Every open account gives, besides the value figures, the figures of quantities of each species of food produced or sold. These figures, sorted by columns, present a table where it is easy to see the importance of harvests, of consumption, or of sales (Annales de Grignon, 1828, 105).

It has to be noted, that the importance of taking into account the quantities, and not only the monetary items, for the accounting for sustainability, notably the strong sustainability, is often stressed by researchers (Halberg et al. 2005; Zahm et al. 2008; Richard 2012b; Altukhova 2013).

Finally, Bella notes the advantage of agricultural accounting:

it attracts attention and has to think about things that have eluded the most careful monitoring. It is to it that the agricultural art had part of his progress in a highly calculating neighboring people. By introducing this system in France, one will make a real service to the country. The government itself will draw, on a range of political economy issues, the lights that in the current state, it can not obtain. So instead of more or less probable calculations of the cost of cereals, ten farmers by department, whose accounts have been accurate, would have given information that it was impossible to get by it [The government]... (Annales de Grignon, 1828, 163).

#### 4. Discussion and conclusion

The socio-historical approach could give us some lessons from the past on accounting for sustainability.

The French agricultural accounting literature was chosen notably because of richness of agricultural accounting literature since the 17th century and of preserved archives of some large experimental farms. But so far, a depth analysis of agricultural accounting has been the subject of few in number research, notably in France (Giraudeau 2017).

One of the first French publications on agricultural management is the Olivier de Serres' book that had 21 editions from 1600 to 1804, and where one can find some premises to accounting for strong sustainability, notably concerning the land measurement, the crop rotation and other techniques for the renewal of soil fertility, as well as the social concerns of decent work and life.

The first accounting practices described by Mathieu de Dombasle, Bella, and many others see their appearance in the tumultuous years just after the Great French Revolution of 1789<sup>8</sup>, and develop under Napoléon, and then under *Second Empire* (1852-1880).

As we have seen in the preceding parts, the State was almost always interested in agriculture and its problems, even if the first French ministry in charge of agriculture appeared in 1881.

By the way, the Agricultural Societies were one the favorite instruments of the State in disseminating the knowledge (for example, François de Neufchâteau<sup>9</sup>, Minister of the Interior during the *Directoire* period (1795-1799) (there was not yet an economic ministry nor agriculture one), devoted himself to the study and promotion of domestic production, both industrial and agricultural ones (Duby and Wallon 1976, 49).

Later, in 1814, there is the exaltation of the property, the appearance of its various types in agriculture. Large farms were often entrusted to the management of financials, which were not themselves owners or farmers. That is why, the charge and discharge accounting model was often used in seigneurial estates and large farms.

Another interesting fact, from the beginning of 1810s, *Royal and central agriculture society* offered a prize for the redaction of farm accounting treatise (Lemarchand 1993). This interest to the farm accounting may be explained, as we saw *supra*, by the State concern for agricultural production increase and consequently by its en-

---

<sup>8</sup> The 1789 revolution is born because the economic crisis was combined in time with the ultimate crisis of the monarchy, financial one, institutional one and moral one (Duby and Wallon 1976, 19-20). Essentially «bourgeois revolution», it coincided with the explosion of a «largely autonomous peasant revolution». The night of August 4, 1789, the abolition of feudalism in all its aspects has occurred.

<sup>9</sup> He might be called the earliest of «agrarians» (if we accept, after Pierre Barral (1968. *Les Agrariens français*, de Méline à Pisani, Armand Colin), to designate by this word in extended meaning, statesmen who thought and acted especially for agriculture). Bourgeois himself, and of innovative spirit (e.g., use of statistical information), François de Neufchâteau wanted to return, beyond the revolutionary turmoil that he also accepted contributions, to the heyday of the Physiocrats, economists, Turgot.

couragement of Agricultural Societies activities. This is perhaps one of the reasons of a very abundant and rich accounting literature destined to farmers use at this time. This richness, as Lemarchand (1993, 364) notes, even surprised some authors such as Ronald S. Edwards who suggested the existence of a large gap between the prescribed techniques and the practice:

It would be surprising if agricultural accounting in France at the beginning of the nineteenth century was of the quality described above... In spite of efforts of the early writers, it appears that the farming community of France had not been transformed into a nation of bookkeepers... (Edwards R. 1937, 18-19, cited by Lemarchand 1993, 364).

Indeed, these are mostly large rural estates that are first to introduce agricultural innovations and to practice accounting (Lemarchand 1993; Cocaud 1999). The Domain of Pradel, as well as the Farms of Roville and of Grignon are among them. The last two farms contributed to the industrialization of agriculture, and built the foundation for the French agricultural accounts in double-entry (Lemarchand 1993). So to speak, some books on the farm accounts contain more information than those of industry.

From the writing style and manner of expression of the authors of *Annales de Roville* and *Annales de Grignon*, we can guess that Mathieu de Dombasle and Bella addressed to their farms shareholders and public in general in the reporting and communication aims, but also to farmers in general in the aim of knowledge diffusion.

It has to be noted that the context in which C.J.A. Mathieu de Dombasle and Auguste Bella lived was the first stage of institutionalization of agronomy (between 1750 and 1850) as a new science. Agronomy passed from an « agronomy art » status to that of « agricultural science » (Knittel 2007). The development of agriculture has been situated in a complex reality that was similar to structuration of other sciences, such as geography or medicine.

One could now be led to conclude that one of the main goals of agriculture was the production increase. Indeed, Argemi (2002, 458) points out that « increasing agricultural production was one of the most important means of increasing the wealth of the country ». In addition, the main objective of agronomists « was to feed a population that was fast increasing » (Argemi 2002, 458).

However, based on the study of French agricultural management and accounting literature, one could also conclude that, even if the central concern of agronomists was to increase productivity, this passed at sustainability condition!

Accordingly, Kidd (1992, 24) argues that productivity and equity criteria have to be considered in addition to sustainability, « in judging the overall desirability of any system ».

Moreover, Mathieu de Dombasle, as well as Auguste Bella show in their accountings the consideration of natural capital of land by opening the accounts of *land improvement expenditure*. There have to be registered the expenses concerning the restitution of soil fertility by different actions, such as manure, clearings, or ex-

traordinary stone removings, etc. This issue of depreciation, concerning notably land improvement, is another interesting point in line with accounting for strong sustainability.

But at the same time, we should not ignore the state of science on the development of physical environmental thresholds to be respected. In the XIX<sup>th</sup> century, «the scientific principles involved were not well known, but practice had shown increased productivity» (Argemi 2002, 454-55). Jean-Baptiste Boussingault and Justus Liebig also thought that «as many nutrients should be returned to the land as possible» and precised that it has to be done «in the same place where they had been extracted» (Argemi 2002, 459-60).

Thus, in addition to agricultural innovations (such as the use of leguminous crops, improved cultivation and harvesting techniques, new equipment), the French agriculture has benefited from accounting advancements that have taken these first into account.

Indeed, at the Napoléon' time (1802-1814), the dissemination of knowledge, change of agricultural structures made the general increase in living standards. Finally, the *Second Empire* (1852-1880) was a period of a real apogee of peasant France (Duby and Wallon 1976).

So, the meeting between tradition and innovation took place, but farming methods are modified only while agronomic theories are discussed (with creation and development of Royal Agricultural Societies) and while it allows improving efficiency and productivity of the farm.

The authors of studied works are somehow *agromanes* since they gather themselves farmers, agronomists, economists and teachers<sup>10</sup> (Lemarchand 1993). That is the multidisciplinary feature – the wish of so many accounting for sustainability specialists!

Thus, even four centuries ago, instead of four decades, one can find some premises to accounting for sustainability!

In this regard, we join the relatively recent researches in rural history (Lyautey, Humbert and Bonneuil 2021), in line with science studies and the social and cultural history of science and technology, which consists in historicizing technical choices and scientific rationalities and restoring a multiplicity of knowledge in tension. This is why we describe the socio-economic and political context in which the analyzed works of French authors were developed. Finally, we show that some French authors in agronomy, rural economy and agricultural accounting of XVII<sup>th</sup>-early XIX<sup>th</sup> centuries dealt with ecological and social issues, even if they did not use the word «sustainability». Their ideas may inspire, and somehow explain, the current developments in the accounting for sustainability.

Like Knittel (2007), we can say that the history of agricultural accounting is a field of historiography which calls for a transversal approach combining several disciplines: history, essentially rural one but also history of science and technology, accounting, agronomy, epistemology, philosophy of science and, finally, sociology of

---

<sup>10</sup> One can enlarge this list of *agromanes* with the Argemi's (2002, 458-59) help. This author cites eminent agronomist who had a scientific background: for example, «Duhamel was responsible for French naval affairs», Chaptal was professor of chemistry and state controller of powder production. «Chaptal ([1823] 1829) advanced toward the identification of agronomy with practical chemistry».

science. After all, the history of agricultural accounting is above all the history of *agromanes*, their work, their discoveries and the institutions in which they worked.

Further research is necessary to deep the conclusions drawn from this study.

As noted by Zimnovitch (2013, 92), «we know how much historical knowledge is beneficial to understand the present time... [but] it is also beneficial to think about the conditions that enable innovations to integrate into the organization».

Actually, the limits of this work are particularly associated with the methodological choices made in this research. The methodology adopted is based on the study of three cases and the selected publications of three authors. An originality of the three cases studied is that these farms were experimental and their accounting practices were well documented due to the publications by their managers. So, the problem of generalizing the results may arise, notably at the level of different types of farms with corresponding management differences.

That is why it would be interesting to investigate other French farms archives to see if the developed in De Serres', Mathieu de Dombasle's and Bella's works accounting for sustainability principles were applied effectively (or not, and why?).

Some answers to this question may be found for example in Lemarchand et al. (2017) and Joly (2016b) analyzes.

It would be interesting also to examine the other countries agricultural accounting literature and archives to strengthen our conclusions about the existence of premises to accounting for sustainability. There are mostly historical works on Anglo-saxon agricultural accounting. But note that the Anglo-Saxon accounts do not have the same approach as the accounts in France. In addition, in Anglo-saxon countries the term «sustainability» emerged «in the context of broad social, economic, and political goals, rather than in the context of more narrowly defined resource management and ecological concepts» (Kidd 1992, 18). It would be interesting to see through the accounting theories and practices if it was the case in other countries.





## BIBLIOGRAPHY

- Altukhova, Yulia. 2013. *Comptabilité agricole et développement durable: étude comparative de la Russie et de la France*. Doctorat en sciences de gestion, Paris: Université Paris-Dauphine.
- Annales de l'institution royale agronomique de Grignon*. Paris: Huzard, 1828. 216 p. (à partir de 1828). (cote f.a. P9 à l'INA-PG).
- Ardèche, "Olivier de SERRES."  
 <[http://www.medarus.org/Ardeche/07celebr/07celTex/serres\\_olivier.html](http://www.medarus.org/Ardeche/07celebr/07celTex/serres_olivier.html)>  
 (2013-03-12).
- Argemí, Lluís. 2002. "Agriculture, agronomy, and political economy: Some missing links." *History of Political Economy* 34, 2: 449-78.
- Bahier, Jean-Louis. 1860. *Nouveaux conseils moraux et agricoles aux cultivateurs bretons*. Saint-Brieuc. 136p. (cote f.a. P2957 à l'INA-PG).
- Barral, Pierre. 1968. *Les Agrariens français, de Méline à Pisani*. Paris: Armand Colin.
- Berrier-Lucas, Celine. 2012. "Le concept de verdissement dans l'entreprise hydro-électrique québécoise, Hydro Québec. Le cas du barrage de Bersimis à partir de 1952." In *Agro-ressources et écosystèmes: Enjeux sociétaux et pratiques managériales*, ed. Bernard Christophe, and Roland Pérez, avec la contribution de Elinor Ostrom, prix Nobel d'économie, 167-78. Villeneuve d'Ascq: Presses universitaires du Septentrion.
- Berrier-Lucas, Celine. 2014. *Emergence de la dimension environnementale de la RSE: une étude historique franco-québécoise d'EDF et d'Hydro-Québec*. Doctorat en sciences de gestion, Paris: Université Paris-Dauphine.
- Boucher, Pierre. 1808. *Le parfait économe de la ville et de la campagne*. Paris: Arthus-Bertrand.
- Boulaine, Jean, and Richard Moreau. 2002. *Olivier de Serres et l'évolution de l'agriculture*. L'Harmattan.
- Bourrigaud, René. 2005. "Au coeur des campagnes: l'agriculture et ses mutations." In *Les campagnes dans les évolutions sociales et politiques en Europe des années 1830 à la fin des années 1920: étude comparée de la France, de l'Allemagne, de l'Espagne et de l'Italie*, ed. Jean-Marc Moriceau, 91-121. Paris: CNED. SEDES.
- Braudel, Fernand. 1979. *Civilisation matérielle, économie et capitalisme, XV<sup>e</sup>-XVIII<sup>e</sup> siècle*, tome 2, Les jeux de l'échange. Paris: Armand Colin.
- Briaune. 1837. *De l'école d'agriculture de Grignon*. Extrait des *Annales de Grignon*, 6e livraison. Imprimerie de Mme Huzard (née Vallat La Chapelle), rue de l'Eperon, n°7. Avril 1837. 20 p. (Bibliothèque de la ville de Lyon).
- Bryer, Rob. 1991. "Accounting for the social relations of feudalism." *Accounting and Business Research* 24, 95: 209-28.
- Bryer, Rob. 2006. "The genesis of the capitalist farmer: towards a Marxist accounting history of the origins of the English agricultural revolution." *Critical Perspectives on Accounting* 17: 367-97.
- Catchpole, Lesley, Christine Cooper, and Andrew Wright. 2004. "Capitalism, states and ac-counting." *Critical Perspectives on Accounting* 15, 8: 1037-58.

- Cazaux (de), L.F.G. 1824. *De la comptabilité dans une entreprise industrielle et spécialement dans une exploitation rurale*. Toulouse : J.M. Douladoure.
- Cazaux (de) L.F.G. 1825. *Elémens d'économie privée et publique*. Paris: Huzard.
- Chiapello, Eve. 2005. "Transformation des conventions comptables, transformation de la représentation de l'entreprise." In *Les normes comptables internationales, instruments du capitalisme financier*, ed. Michel Capron, 121-50. Paris: éditions La Découverte
- Chiapello, Eve. 2007. "Accounting and the birth of the notion of capitalism." *Critical Perspectives on Accounting* 18, 3: 263-96.
- Christophe, Bernard. 2000. "Environnement naturel et comptabilité." In *Encyclopédie de comptabilité, contrôle de gestion et audit*, ed. Bernard Colasse, 657-68. Paris: Economica.
- Ciriacy-Wantrup, Siegfried Von. 1938. "Soil Conservation in European farm management." *American Journal of Agricultural Economics* 20, 1: 86-101.
- Ciriacy-Wantrup, Siegfried Von. 1952. *Resource conservation: Economics and policies*. Berkeley: University of California Press.
- Cocaud, Martine. 1999. "Une approche de la modernisation agricole de l'Ouest au XIX<sup>e</sup> siècle: des statistiques aux comptabilités d'exploitation." *Ruralia* 05. <<http://ruralia.revues.org/108>> (2014-06-14).
- Colasse, Bernard. 2007. *Introduction à la comptabilité*, avec la collaboration de C. Lesage. 10<sup>e</sup> édition. Ed. Economica.
- Cooper, David, Tony Puxty, Tony Lowe, and Hugh Willmott. 1989. "The accounting profession, corporatism and the state." In *Critical perspectives in management control*, ed. Wai Fong Chua, Tony Lowe, and Tony Puxty. Basingstoke: MacMillan.
- Cooper David J., and Michael J. Sherer. 1984. "The value of corporate accounting reports: arguments for a political economy of accounting." *Accounting, Organizations and Society* 9, 3/4: 207-32.
- Dagognet, François. 1973. *Des révolutions vertes*. Paris: Herman.
- Daly, Herman. 1991. *Steady-state economics*. Second edition with new essays. Island Press.
- Degranges, Edmond. 1909. *Traité de comptabilité agricole*. 5e édition. Paris: Hachette.
- Depecker, Thomas and François Vatin. 2016. "Taking stock to yield a return: agricultural accounting, agronomometry and chemical statics in the early-nineteenth century." *Accounting History Review* 26, 2: 107-29. <https://doi.org/10.1080/21552851.2016.1188322>
- Duby, Georges, and Armand Wallon. 1976. *Histoire de la France rurale*. Tome 3, *Apogée et crise de la civilisation paysanne: 1789-1914*, ed. Juillard, Etienne. Paris: Seuil.
- Edwards, John Richard. 1989. *A history of financial accounting*. London: Routledge.
- Edwards, Ronald S. 1937. "Survey of French contributions to the study of cost accounting during the 19<sup>th</sup> century." *The Accountant*, Supplement to the Accountant.
- Ekins, Paul, Sandrine Simon, Lisa Deutsch, Carl Folke, and Rudolf De Groot. 2003. "A framework for the practical application of the concepts of critical natural capital and strong sustainability." *Ecological Economics* 44, 2-3: 165-85.

- Fressoz Jean-Baptiste, Fabien Locher. 2020. *Les révoltes du ciel. Une histoire du changement climatique XV<sup>e</sup>-XX<sup>e</sup> siècle*. Paris: Editions du Seuil.
- Garnier, Bernard. 1982. "Comptabilité agricole et système de production: l'embouche bas-normande au début du XIX<sup>e</sup> siècle." *Annales, économies, sociétés, civilisations* 37, 2: 320-43.
- Giraudeau, Martin. 2017. "The farm as an accounting laboratory. An Essay on the History of Accounting and Agriculture." Working Paper. London School of Economics and Political Science.
- Gray, Rob. 1992. "Accounting and environmentalism: An exploration of the challenge of gently accounting for accountability, transparency and sustainability." *Accounting Organisations and Society* 17, 5: 399-425.
- Gray, Rob. 2007. "Taking a long view on what we now know about social and environmental accountability and reporting." *Issues in social and environmental accounting* 1, 2: 169-98.
- Grinberg, Ivan, et Anne Pezet. 2006. "Une illustration précoce des problèmes de responsabilité sociale de l'entreprise: une usine de production de soude et de chlore au tournant du XX<sup>e</sup> siècle." *Entreprises et Histoire* 45: 157-59.
- Guy, Michel. "Histoire de l'agriculture."  
<[http://agriculture.gouv.fr/histoire/2\\_histoire/index\\_histoire\\_agriculture.htm](http://agriculture.gouv.fr/histoire/2_histoire/index_histoire_agriculture.htm)> (2013-02-10).
- Halberg, Niels, Gerwin Verschuur, and Gillian Goodlass. 2005. "Farm level environmental indicators; are they useful? An overview of green accounting systems for European farms." *Agriculture, Ecosystems & Environment* 105, 1-2: 195-212.
- Herment, Laurent. 2017. "Y a-t-il eu une révolution industrielle dans le Bassin parisien au xixe siècle?" *Revue d'histoire moderne & contemporaine* 4, 64-4: 105-33.
- Hopper, Trevor, and Peter Armstrong. 1991. "Cost accounting, controlling labour and the rises of conglomerates." *Accounting, Organizations and Society* 16, 5-6: 405-38.
- Hopper, Trevor, John Storey, and Hugh Willmott. 1987. "Accounting for accounting: towards the development of a dialectical view." *Accounting, Organizations and society* 12, 5: 437-56.
- Hueting, Roefie. 1989. "Correcting national income for environmental losses: Toward a practical solution." In *Environmental accounting for sustainable development*, ed. Yusuf J. Ahmad, Salah El Serafy, and Ernst Lutz., 32-37. Washington, D.C.: The World Bank.
- McCandless Matthew, David Venema, Stephan Barg, and Bryan Osborne. 2008. *Full cost accounting for agriculture*. Final Report, December 2008. International Institute for Sustainable Development (IISD).  
<[http://www.iisd.org/pdf/2008/measure\\_fca\\_2008.pdf](http://www.iisd.org/pdf/2008/measure_fca_2008.pdf)> (2009-11-22)
- Joly, Nathalie. 2016a. "L'organisation comptable dans les exploitations agricoles au milieu du XIX<sup>e</sup> siècle: Les agents de la diffusion et le rôle des supports." In *Dictionnaire historique de comptabilités des entreprises*, ed. Didier Bensadon, Nicolas Praquin, and Béatrice Touchelay. Villeneuve d'Ascq: Les Presses Universitaires du Septentrion.

- Joly, Nathalie. 2016b. "Educating in economic calculus: The invention of the 'enlightened peasant' via manuals of agriculture, 1830-1870." *Accounting History Review*, 26, 2: 131-60. DOI: 10.1080/21552851.2016.1187639
- Juchau, Roger and Paul Hill. 1998. "Agricultural cost accounting development in Britain: the contributions of three men from Wye - a review note." *Accounting, Business and Financial History*, 8, 2.
- Kafadaroff, Gérard. 2008. *Agriculture durable et nouvelle révolution verte*. Paris: Le Publieur.
- Kidd, Charles V. 1992. "The evolution of sustainability." *Journal of Agricultural and Environmental Ethics* 5, 1: 1-26.
- Knittel, Fabien. 2007. "Mathieu de Dombasle. Agronomie et innovation. 1750-1850." *Ruralia*, 20. <URL: <http://ruralia.revues.org/1752>> (2013-11-06).
- Lamberton, Geoff. 2000. "Accounting for sustainable development – a case study of city farm." *Critical Perspectives on Accounting* 11: 583-605.
- Lemarchand, Yannick. 1993. *Du déperissement à l'amortissement, enquête sur l'histoire d'un concept et sa traduction comptable*. Nantes: Ouest Editions.
- Lemarchand, Yannick, Yves Levant, and Henri Zimnovitch. 2017. "Schisme à Grignon autour de la comptabilité agricole, durant les années 1870." *Entreprises et histoire* 3, 88: 37-52. DOI 10.3917/eh.088.0037
- Lemarchand, Yannick, Nikitin, Marc. 2009. "Capitalisme et comptabilité." In *Encyclopédie de comptabilité, contrôle de gestion et audit*, ed. Bernard Colasse, 105-14. Paris: Economica.
- Loison, Marie-Claire. 2009. *Contribution à l'histoire de la responsabilité sociétale de l'entreprise: du paternalisme au développement durable: le cas du groupe Pechiney (1855-2003)*. Doctorat en sciences de gestion. Paris: Université Paris-Dauphine.
- Loison, Marie-Claire, and Anne Pezet. 2010. "Contribution à une généalogie de la responsabilité sociale de l'entreprise: le cas Aluminium du Cameroun (1954-2005)." *Revue Organisation Responsable* 5, 2: 86-100.
- Lyautey, Margot, Humbert, Léna, and Christophe Bonneuil, ed. 2021. *Histoire des modernisations agricoles au XX<sup>e</sup> siècle*. Rennes: Presses universitaires de Rennes.
- Malo, Amand. 1841. *Eléments de comptabilité rurale théorique et pratique*. Paris: Hachette.
- Marache, Corinne, and René Bourrigaud,. 2005. "Vers la structuration du monde agricole." In *Les campagnes dans les évolutions sociales et politiques en Europe des années 1830 à la fin des années 1920: étude comparée de la France, de l'Allemagne, de l'Espagne et de l'Italie*, ed. Jean-Marc Moriceau, 138-57. Paris: CNED: SEDES.
- Mathieu de Dombasle, Christophe-Joseph-Alexandre. 1824. *Annales agricoles de Roville, ou mélange d'agriculture, d'économie rurale et de législation agricole*. 1<sup>re</sup> livraison. 4<sup>ème</sup> édition. Paris: Huzard.
- Mathieu de Dombasle, Christophe-Joseph-Alexandre. 1825. *Annales agricoles de Roville, ou mélange d'agriculture, d'économie rurale et de législation rurale*. 2<sup>ème</sup> livraison. Seconde édition. Paris: Huzard.
- Mayaud, Jean-Luc. 1999. *La petite exploitation rurale triomphante. France XIX<sup>e</sup> siècle*. Paris: éditions Belin.
- McNally, David. 1988. *Political economy and the rise of capitalism: A reinterpretation*. Berkeley: University of California Press.

- Mephram, Michael J. 1988. "The eighteenth-century origins of cost accounting." *ABACUS* 24, 1: 55-74.
- Moriceau, Jean-Marc. 2002. *Terres mouvantes. Les campagnes françaises du féodalisme à la mondialisation: XII<sup>e</sup>-XIX<sup>e</sup> siècle*. Paris: Fayard, DL.
- Moriceau, Jean-Marc, ed. 2005. *Les campagnes dans les évolutions sociales et politiques en Europe des années 1830 à la fin des années 1920: étude comparée de la France, de l'Allemagne, de l'Espagne et de l'Italie*. Paris: CNED: SEDES.
- Murphy Richard, and Leonard Seabrooke. 2019. "The case for building climate reporting into financial accounting." *SAMFUNDSØKONOMEN* 4: 95-101. <[https://www.djoef-forlag.dk/openaccess/samf/samfdocs/2019/2019\\_4/Samf\\_11\\_4\\_2019.pdf](https://www.djoef-forlag.dk/openaccess/samf/samfdocs/2019/2019_4/Samf_11_4_2019.pdf)> (2022-02-08)
- Parmentier, Bruno. 2007, 2009. *Nourrir l'humanité. Les grands problèmes de l'agriculture mondiale au XXI<sup>e</sup> siècle*. Préface d'Edgar Pisani, postface inédite de l'auteur. Paris: Editions La Découverte/Poche.
- Perelman, Michael. 1984. *Classical political economy*. London: Rowman.
- Pezet, Anne, and Marie-Claire Loison. 2006. "L'entreprise verte et les boues rouges. Les pratiques controversées de la responsabilité sociétale à l'usine d'alumine de Gardanne (1960-1966)." *Entreprises et Histoire* 45: 97-115.
- Rambaud, Alexandre, and Jacques Richard. 2015. "The 'Triple Depreciation Line' instead of the 'Triple Bottom Line': Towards a genuine integrated reporting." *Critical Perspectives on Accounting* 33: 92-116.
- Reporting 3.0 (under the coord. of Van Der Lugt, Cornelis T.). 2018. *Blueprint 2: Accounting. The Blueprint for New Accounting: Laying the foundations for Future-Ready Reporting*. White paper, Blueprint Series 2016-2018.
- Richard, Jacques. 1980. *Comptabilité et systèmes économiques*. Thèse. Paris: Université Paris 1 Sorbonne.
- Richard, Jacques. 2012a. "The victory of the Prussian railway "dynamic" accounting over the public finance and patrimonial accounting models (1838-1884): an early illustration of the appearance of the second stage of capitalist financial accounting and a testimony against the agency and the market for excuses theories." *Accounting Historians Journal* 39, 1: 89-124.
- Richard, Jacques. 2012b. *Comptabilité et développement durable*. Paris: Economica.
- Rossi, Marie-Lucie. 2013. "Une entreprise agricole à la recherche du profit optimum: la Casa Spalletti en Italie au XIX<sup>e</sup> siècle." *Comptabilités* 5. <<http://journals.openedition.org/comptabilites/1349>> (2019-06-11)
- Schaltegger, Stefan, Tobias Hahn, and Roger L. Burritt. 2002. "An integrative framework of environmental management accounting – Consolidating the Different Approaches of EMA into a common framework and terminology." In *Environmental management accounting: Informational and institutional developments*, ed. Teun Wolters, Martin Bennett, and Jan Jaap Bouma, 21-35. Dordrecht-Boston-London: EMAN. Kluwer Academic Publishers.
- Serres, Olivier de. 1651. *Le théâtre d'agriculture et mesnage des champs, d'Olivier de Serres, Sr du Pradel: où est représenté tout ce qui est requis et nécessaire pour bien Dresser,*

- Gouverner, Enrichir et Embellir La Maison Rustique*. Dernière édition, Reveuë et Augmentée par l'Authéur. Genève: Imprimé pour Samuel Chouët. M.DC.LI.
- Sombart, Werner. 1916. *Der moderne Kapitalismus*. München, Leipzig: Duncker and Humpbolt. Traduction française de M. Nikitin, 1992, de "Tome 2, Livre 1, 2e section: Les systèmes économiques, 10<sup>e</sup> chapitre: Les entreprises capitalistes, paragraphe III: L'entreprise comme unité comptable", *Der moderne Kapitalismus* (1916), 110-125, *Cahiers d'histoire de la comptabilité*, Editions Ordre des experts-comptables et Editions comptables Malesherbes, n°2, 19-28.
- Thaër, Albrecht Daniel. 1842. *Guide pour l'enseignement de l'agriculture considérée comme profession et envisagée dans son ensemble, ou Principes généraux et fondamentaux de l'économie rurale: Travail, Capital; Emploi des Capitaux; Prix des Produits; Sol; Domaine; Energie productive du sol; Engrais; Bétail; Assolement; Talent; Direction; Comptabilité; Industries accessoires*. Traduit de l'allemand sur la 2e édition, par J.-B. Sarrazin. Dijon: Douillier.
- Tinker, Anthony. 1984. "Theories of the state and the state of accounting: economic reductionism and political voluntarism in accounting regulation theory." *Journal of Accounting and Public Policy* 3, 1: 55-74.
- Tinker, Anthony M. 1985. *Paper prophets*. London: Holt, Rinehart, Winston.
- Yamey, Basil S. 1964. "Accounting and the rise of capitalism: Further notes on a theme by Sombart." *Journal of Accounting Research* 2, 2: 117-36.
- Zahm, Frédéric, Philippe Viaux, Lionel Vilain, Philippe Girardin, and Christian Mouchet. 2008. "Assessing farm sustainability with the IDEA Method – from the concept of agriculture sustainability to case studies on farms." *Sustainable Development* 16: 271-81.
- Zahm Frédéric, Alonso Ugaglia Adeline, Jean-Marc Barbier, Héloïse Boureau, Bernard Del'homme, Mohamed Gafsi, Pierre Gasselín, Sydney Girard, Laurence Guichard, Chantal Loyce, Vincent Manneville, Amandine Menet, and Barbara Redlingshofer. 2019. "Évaluer la durabilité des exploitations agricoles. La méthode IDEA v4, un cadre conceptuel combinant dimensions et propriétés de la durabilité." *Cahiers Agriculture* 28, 5.  
<https://doi.org/10.1051/cagri/2019004>
- Zimnovitch, Henri. 2013. "Essai sur un rapport critique et fécond entre histoire et gestion." In *Histoire et sciences de gestion*, ed. Ludovic Cailluet, Yannick Lemarchand, and Marie-Emmanuelle Chessel, 87-112. Paris: Editions Vuibert.