FROM THE ACCOUNTS OF PHILOSOPHIE RURALE TO THE PHYSIOCRATIC
TABLEAU: FRANÇOIS QUESNAY AS A PRECURSOR OF NATIONAL ACCOUNTING
BY PIERRE LE MASNE*, ROMUALD DUPUY** AND PHILIPPE ROMAN***

Abstract

Quesnay's Tableau, as it appears in Philosophie rurale, is an understandable, robust and innovative construction despite detail errors. It provides a precise representation of the economic circuit. The accounts of chapter VII of Philosophie rurale are introduced and we explain how Quesnay's Tableau comes from these accounts. The transposition of the accounts of chapter VII and of the Tableau into two input-output tables shows the balance of resources and uses. In order to shed light on the progress of exchanges along the year, the Tableau is also transposed into three double-entry accountings (proprietors, farmers and artisans).

* Faculté de Sciences Economiques, Université de Poitiers.

Contact: le-masne.pierre@wanadoo.fr

** Faculté de Sciences Economiques, Université de Poitiers. Contact: etu.dpy@orange.fr

*** ICHEC Brussels Management School. Contact: philippe.roman@ichec.be

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From the accounts of *Philosophie rurale* to the physiocratic *Tableau*: François Quesnay as a precursor of national accounting

Introduction

François Quesnay is generally considered as a founder of economics, though his view of industry as a “sterile” sector is criticised by many scholars. Adam Smith (1976, pp. 663-688) evoked the physiocratic system and the *Tableau*. Karl Marx (2000, p. 319) considered that the idea of representing the economy through a *Tableau* “was an extremely brilliant conception” and gave his own version of the *Tableau*.¹ Léon Walras (1988, pp. 601-606) examined the physiocratic doctrine in his *Éléments d'Économie politique pure*. Wassily Leontief (1941) acknowledged a relation between his input-output table and Quesnay's *Tableau*. Quesnay's *Tableau* also influenced Piero Sraffa (1960, p. 93) and growth models of Harrod-Domar type (Eltis 1998).

Some scholars still wonder about the feasibility of the exchanges described by the *Tableau* or even criticize Quesnay (Blaug 1973, p. 35; Samuelson 1982, p. 68). Relying on *Philosophie rurale* (Mirabeau, Quesnay and Butré 1763; 2014), we show that the *Tableau* is indeed a coherent construction. The *Tableau* evolved and reached a mature form only in *Philosophie rurale* and in later texts, *Elémens de la Philosophie rurale* (Mirabeau and Quesnay 1767), and *Physiocratie* (Quesnay 1767-68). Long misunderstood, *Philosophie rurale* has been the object of a progressive rediscovery beginning with Ronald Meek (1963).

Meek (1963, p. 138-149) provided clarification on the *Tableau* of *Philosophie rurale* as later did Steven Pressman (1994), Walter Eltis (1996, 2002) and Lars Herlitz (1996). Christine

¹ Letter of Marx to Friedrich Engels from 6 July 1863 (Marx and Engels 1964; Gehrke and Kurz 1995).

Théré, Loïc Charles and Jean-Claude Perrot (editors of the 2005 *Œuvres de Quesnay*) analyzed the manuscripts of *Philosophie rurale* and evoked the contribution that Charles Richard de Butré made to the book. Albert Steenge and Richard van den Berg (2007) relied on *Philosophie rurale* to make an “input-output analysis à la Quesnay”. In the 2014 reedition of *Philosophie rurale*, the first critical reedition since the 18th century (with the name of Butré on the book cover), Romuald Dupuy and Pierre Le Masne (2014) provided explanations on the forty *Tableaux* of the book. Branko Milanovic (2015) used chapter VII of *Philosophie rurale* for measuring the distribution of income and his study shows the interest of Quesnay’s data.

In the present article, we extend the rediscovery of *Philosophie rurale*. We show how the *Grand Tableau* is deducted from the chapter VII of *Philosophie rurale*. The accounts of chapter VII and the *Grand Tableau* are transposed in two ways: firstly, into two input-output tables which explain the treatment of intermediate consumptions; secondly, into three double-entry accountings that allow a better understanding of the exchanges along the year.

The transposition of Quesnay’s *Tableau* into input-output tables leads us to establish relations between physiocratic accounting and modern national accounting. Though Quesnay’s accounting focuses on net product [“*produit net*”] and national accounting focuses on value added, it is possible to move from the former to the latter. The details of the *Tableau* are understandable, but it is necessary to choose a definite *Tableau* and avoid to mix details from different *Tableaux*. We ask precise questions on the *Grand Tableau* of *Philosophie rurale*: What are the various advances made of? Original advances [“*avances primitives*”], annual advances [“*avances annuelles*”], sterile advances [“*avances stériles*”]? How are intermediate consumptions introduced? What could be the equivalent of Quesnay’s net product and interest [“*intérêt*”] in modern national accounting? Do farmers and agricultural workers consume industrial products? And the members of the sterile class? What is the amount of money

supply and how does it circulate during a year? Our answers introduce several elements complementary to another work (Le Masne 2016) dedicated to the similarities between Quesnay's *Tableau* and Leontief's model.

The three classes are called “*class of proprietors*”, “*productive class*”, and “*sterile class*”. In the accounts of *Philosophie rurale*, the productive class is broken down into two sub-groups, farmers and agricultural wage-earners, and we use this decomposition.

The first section contains a presentation of the zig-zag *Grand Tableau*. It shows the difference between the *Grand Tableau* and the “*Précis*”, a new form of *Tableau* introduced in *Philosophie rurale*. In the second section, we transpose the accounts of chapter VII into two input-output tables, the second of which corresponding to Quesnay's *Tableau*. We analyze precisely the composition of the agricultural advances and explain the way Quesnay treats intermediate consumption. We show that Quesnay's economy is as a modern economy, with salaries and agricultural or industrial products purchased on markets. The third section transposes Quesnay's *Tableau* into three double-entry accountings (proprietors, farmers and artisans). The exchanges are followed all the year long. We demonstrate that these exchanges are possible and that the money supply indicated by Quesnay (2 billion *livres tournois*) is sufficient.

I. The evolution of Quesnay and the *Tableau* of *Philosophie rurale*

I. 1 The successive versions of the *Tableau*

The history of the *Tableau* is convoluted, with different *Tableaux* and different forms². The first zig-zag version (Quesnay 2005, pp. 397-403) was developed in late 1758, the second zig-zag version in early 1759 (Quesnay 2005, pp. 404-411), and the third zig-zag version in summer 1759 (Quesnay 2005, pp. 412-438). The fourth version, *Tableau oeconomique avec ses explications*, was published in 1760 (Quesnay 2005, pp. 412-438). The fifth version given in *Philosophie rurale* (1763) introduced a new form of the *Tableau*, the *Précis*. A last form of the *Tableau* (*Analyse de la formule arithmétique du Tableau*) appeared in *Elémens de la Philosophie rurale* (Mirabeau and Quesnay (1767)) and *Physiocratie* (Quesnay 2005, pp. 545-635) but the economy remains the same as in *Philosophie rurale*. *Physiocratie* refers to chapter VII of *Philosophie rurale* (Quesnay 2005, pp. 556). Quesnay's successive modifications of the *Tableau* did reflect difficulties, which he tried to correct. Considering the various changes in hypotheses, no single *Tableau* can constitute a synthesis of all of them (Lars Herlitz 1961, 1996).

In 1763, *Philosophie rurale* provided important changes. Detailed accounts of agriculture were introduced. While the *Tableau Économique avec ses explications* took account of foreign trade (Quesnay 2005, p. 453), *Philosophie rurale* did not (*PR*³ 1763, p. 126; 2014, p. 256). Furthermore, the reflection on intermediate consumption was deepened. The *Tableau* of

² Meek (1963), Marguerite Kuczynski and Meek (1972), Lars Herlitz (1996), Théré, Charles and Perrot (Quesnay 2005, pp. 391-396, pp. 639-687) provide elements on the history of the *Tableau*.

³ Hereafter, the references of *Philosophie rurale* are given in connection to the pages of two editions, the original 1763 in-4to edition and the 2014 edition. The original 1763 edition (in one volume) was printed in 1763 but sold only in February 1764, delayed by censorship (Sabbagh 2015).

Philosophie rurale only considered the economic operations that contribute to the creation of net product.

I. 2 The *Grand Tableau* and the *Précis* of *Philosophie rurale*

The *Grand Tableau* of *Philosophie rurale* (Table 1) represents under a zig-zag form the French economy, more precisely its essential part that gives net product [“*produit net*” or “*revenu*”]. The title of the central column of proprietors, “*Dépense du revenu*” (“*expenditure of net product*”), indicates that the net product and its circuit are at the core of analysis. The *Tableau* distinguishes “*production*” and “*circulation*”, and focuses on “*circulation*”. The “*production*” is mentioned with horizontal dotted lines starting from the advances of the productive class and leading to the net product.⁴ The advances of the sterile class are not connected to the column of proprietors. These advances have no productive dimension for Quesnay.

The *Tableau* constitutes a model of potential national income (Paul Studenski 1958, p. 62). Agriculture has a gross production of 5,000 million (*livres tournois*) and a net product of 2,000 million. The transition to large-state cultivation is achieved, with a net product rate (net product/annual advances) of 100%.

At the beginning of the year, the annual advances of the farmers consist of a money capital of 2,000, which will be paid to proprietors and then recovered progressively by farmers during the year. According to the *Tableau*, these advances paid to proprietors launch the economic circuit (PR 1763, p. 23; 2014, p. 100). Proprietors spend 1,000 in favour of the productive class and 1,000 in favour of the sterile class.

⁴ “Dotted points starting from the annual advances and leading to the income show that they are at the origin of the income” (PR 1763, p. 35; 2014, p. 118).

The productive class and the sterile class exchange their products via money payments. The advances of the sterile class (1,000) are fixed to a quarter of the sum of the advances of the productive class (2,000) and of the net product (2,000) (*PR* 1763, p. 117; 2014, p. 241).⁵ The original advances of the sterile class are not considered.⁶

⁵ Half proprietors' expenditure goes to finished goods, and the purchases of the productive class to the sterile class are equal to half their annual advances (and to one half of the net product). Sterile advances constitute half the uses of the sterile class and these sterile advances must be equal to a quarter of the sum of the net product and the annual productive advances. The rule limits the importance of the sterile class activities (Mirabeau and Quesnay 1767, p. 30).

⁶ Industry is an activity of artisans, essentially rural, often at home, with insignificant fixed capital (*PR* 1763, p. 32; 2014, pp. 114-115).

TABLEAU ECONOMIQUE

*Objets à considérer, 1°. trois sortes de dépenses ; 2°. leur source ; 3°. leurs avances ;
4°. leur distribution ; 5°. leurs effets ; 6°. leur reproduction ; 7°. leurs rapports entr'elles ;
8°. leurs rapports avec la population ; 9°. avec l'Agriculture ; 10°. avec l'industrie ;
11°. avec le commerce ; 12°. avec la masse des richesses d'une Nation.*

DEPENSES. PRODUCTIVES <i>Relatives à l'Agriculture, etc.</i> Avances annuelles pour produire un revenu de 2000.l ^t sont 2000.l ^t 2000.l ^t produisent net	DEPENSES DU REVENU, <i>L'impôt compris, se partagent à la Classe productive et à la Classe stérile</i> Revenu Annuel de. 2000.l ^t	DEPENSES. STERILES. <i>Relatives à l'Industrie, etc.</i> Avances annuelles pour les Ouvrages des dépenses Stériles sont 1000.l ^t Ouvrages, etc.
Productions		
1000.l ^t „s. „d	reproduisent net 1000.l ^t „s. „d	1000.l ^t „s. „d
500 „ „ „	reproduisent net 500 „ „ „	500 „ „ „
250 „ „ „	reproduisent net 250 „ „ „	250 „ „ „
125 „ „ „	reproduisent net 125 „ „ „	125 „ „ „
62 10 „ „	reproduisent net 62 10 „ „	62 10 „ „
31 5 „ „	reproduisent net 31 5 „ „	31 5 „ „
15 12 6 „	reproduisent net 15 12 6 „	15 12 6 „
7 16 3 „	reproduisent net 7 16 3 „	7 16 3 „
3 18 2 „	reproduisent net 3 18 2 „	3 18 2 „
1 19 1 „	reproduisent net 1 19 1 „	1 19 1 „
0 19 6 „	reproduisent net 0 19 6 „	0 19 6 „
0 9 9 „	reproduisent net 0 9 9 „	0 9 9 „
0 5 „ „	reproduisent net 0 5 „ „	0 5 „ „
0 2 6 „	reproduisent net 0 2 6 „	0 2 6 „
0 1 3 „	reproduisent net 0 1 3 „	0 1 3 „
0 0 8 „	reproduisent net 0 0 8 „	0 0 8 „
Total 2000.l ^t „s. „d	Total 2000.l ^t „s. „d	Total 2000.l ^t „s. „d

Il n'êt pas nécessaire de s'attacher à l'intelligence de ce Tableau avant la lecture des 7. premiers chapitres, il suffit à chaque chapitre de faire attention à la partie du Tableau qui y a raport.

Table 1: The *Grand Tableau* of *Philosophie rurale* (2,000 livres of net product)

The *Précis of Philosophie rurale* (Table 2) is composed of a main part and two additional parts which add elements that were absent in the *Grand Tableau*.

La reproduction totale est égale à toutes les sommes qui se réunissent et se dépensent à la classe productive, Sçavoir ;

Les avances de la classe productive.....	2000
La portion du revenu qui passe immédiatement à la classe productive.....	1000
Total des reversements de la classe stérile à la classe productive.....	1000
Les avances de la classe stérile employées pour les achats des matieres premieres à la classe productive.....	1000
TOTAL ...	5000

Ainsi la reproduction totale est 5000, dont le Cultivateur retire pour ses avances et les intérêts de ses avances primitives et annuelles.....	3000
Reste pour le revenu.....	2000
TOTAL ...	5000

MASSE TOTALE des richesses comprises dans le Tableau.

La reproduction totale.....	5000
L'argent du revenu.....	2000
Les avances de la classe stérile, toujours conservées par les Agens de cette classe ...	1000
TOTAL ...	8000

Table 2: *Précis of Philosophie rurale* (2,000 livres of net product, Chapter IV)

The main part of the *Précis* shows the *Grand Tableau* in a simplified form. The top line of the *Précis* displays the advances of the productive class (2,000), the net product [“*revenu*”] for proprietors (2,000), and finally the advances of the sterile class (1,000). The numbers between the two bold horizontal braces represent the flows between the three classes of society. The left-hand flows regard the productive class. The top number (1,000) represents the purchases of proprietors to the productive class. The bottom number (1,000) represents the purchases of the sterile class to the productive class, made with the 1,000 sales of the sterile class to proprietors.

The first additional part of the *Précis* explains in detail the total reproduction [“*reproduction totale*”]. The reproduction of 5,000 is the agricultural production of the year. A second additional part appears at the bottom of the *Précis* with the title “*Total mass of the riches of the Tableau*”. The total riches of the economy (8,000) are the sum of agriculture reproduction (5,000), money to pay the net product (2,000), and advances of the sterile class (1,000).

II. Transposition of the accounts of *Philosophie rurale* into two input-output tables

II. 1 The accounts of *Philosophie rurale*

The accounts of chapter VII are given in the modern form of a dozen of tables (PR 1763 128-140; 2014 259-280) relative to the seven sectors of agriculture and to the general resources and uses of agriculture. The sectors of agriculture are: *Grains*, *Wine Production*, *Forestry*, *Meadows Production*, *Other Parts (Mining and Fishing)*, *Livestock Production*, and *Rural Trade*. *Philosophie rurale* gives the elements of the gross production of each sector and the total gross production of 6.3672 billion (*livres*).

Considering the fodder expenditures as intermediate consumptions, a distribution of the expenditures into five elements is given: intermediate consumptions, salaries of the wage-

earners, remunerations [*“rétributions”*] of the farmers, interest of the farmers, and net product⁷. We can easily reconstitute the accounts of five sectors but two sectors contain errors: *Forestry* and *Livestock Production*. Box 1 explains the errors. Our corrections are made to keep the total gross production of 6.3672 billion (*PR* 1763, p. 139; 2014, p. 278). *Other Parts* and *Livestock Production* do not deliver remunerations to the farmers⁸. Before our corrections, Table 3 is very similar to the accounts of Milanovic (2015)⁹. Annual advances represent 21.6% of total advances.

⁷ For a comparison between profit and net product, see Matteo Menegatti (2018).

⁸ *Other Parts* (Mining and fishing) represent activities without farmers; the director of a mine may receive a salary instead of a remuneration. *Livestock production* is an auxiliary activity of farmers who need horses for their cultures: the remuneration of the farmers seems to be included in other sectors like *Grains*.

⁹ However, Milanovic does mention intermediate consumptions of fodder.

The first error affects *Forestry* (PR 1763, p. 134; 2014, pp. 271-272): an amount of 75 is lacking in the 688.8 total. The second error concerns *Livestock Production* (PR 1763, pp. 136-137; 2014, pp. 274-75): the gross production of 900 million is the total of fodder (600) and salaries (300). This sector also includes an interest that cannot be pulled out of the 900 million. *Philosophie rurale* asserts that this interest can be found in other sectors (PR 1763, p. 137; 2014, p. 274), which is wrong. The 215 interest is in fact included in the total interest of farmers (1,197) but not in the interest of the other 6 sectors.

On the one hand, an amount of 75 is missing in *Forestry*, and on the other hand an interest of 215 is not registered in *Livestock Production*. Both errors are partly compensated. An amount of 75 interest is registered in *Forestry* and the *Forestry* interest grows from 60 to 135¹⁰. The 215 interest of *Livestock Production* has now a counterpart for 75. An interest of 140 remains without counterpart: therefore, the total interest of farmers is reduced by 140 (1,057 instead of 1,197). The amended figures in Table 3 are crossed out and replaced by new figures.

Quesnay noticed an error in the accounts of chapter VII which he tried to correct in *Elémens de la Philosophie rurale*. The correction appears by comparing *Elémens..* (Mirabeau and Quesnay 1767, p. 170) to *Philosophie rurale* (PR 1763, p. 138; 2014, p. 277). Quesnay introduced collective meadows [“*dépaîtres*”] in order to find a new resource, but the correction is not satisfactory.

Box 1: The accounts of agriculture (chapter VII) and corrections made

¹⁰ The disadvantage of our correction is that the interest of *Forestry* and *Livestock Production* moves away from the physiocratic rate of 10% of total advances.

(unit: 1 million of livres tournois)	Grains (S. I)	Wine Prod. (S. II)	Forestry (S. III)	Meadows Product. (S. IV)	Other Parts (S. V)	Livestock Product. (S. VI)	Rural Trade (S. VII)	All Sectors
Intermediate Consumptions (fodder)	0	0	0	0	0	600	300	900
Salaries of wage-earners	771	225	225	50	200	300	100	1,871
Remunerations of farmers	300	75	28.8	14.4	0	0	120	538.2
Interest of farmers	608	30	60 135	24	20	215 0	240	4,197 1,057
Net Product (1)	1,071	300	300	250	80	0	0	2,001
Gross Production	2,750	630	688.8	338.4	300	900	760	6,367.2
Annual Advances (2)	1,071	300	253.8	64.4	200	900	520	3,309.2
Original Advances	6,080	300	600	240	200	2,150	2,400	1,1970
Total Advances (3)	7,151	600	853.8	304.4	400	3,050	2,920	15,279.2
Rate of Net Product (1)/(2)	100%	100%	118.2%	388.2%	40%	0	0	60.5%
Rate of Surplus (1)/(3)	15.0%	50.0%	35.1%	82.1%	20%	0	0	13.1%
Population (Thousands)	7,168	1,800	1,896	496	1,680	3,260	1,200	17,500

Table 3: Accounts of agriculture (chapter VII, *Philosophie rurale*)

II. 2 Transposition of the accounts of chapter VII and of the *Tableau* into input-output tables

The idea to transpose Quesnay's *Tableau* into an input-output table dates back to Almarin Phillips (1955). Phillips, who relies on the *Tableau of Physiocratie*, makes no difference between intermediate and final flows. Tibor Barna (1975) considers that Phillips' presentation is not in accordance to Quesnay, particularly because intermediate and final flows are aggregated. Barna provides detailed accounts (from the summer 1759 *Tableau*) and distinguishes intermediate and final flows. Barna's input-output table represents an important progress.

The transposition by Samuelson (1982), based on *Philosophie rurale* and *Physiocratie*, leads to a 3-sectors input-output table. Samuelson (1982, pp. 57-58) rightly considers that proprietors do not produce and nevertheless have a final consumption. But he merges intermediate and final flows (of the productive and sterile class), so that one does not know what the final consumptions of these two classes are. However, *Philosophie rurale*, to which Samuelson refers, specifies that wage earners receive salaries (1,871 million, see Table 3) and that farmers receive remunerations (538.2 million). How can they spend their salaries and remunerations without final consumption? While neglecting the final consumption (of the productive and sterile class), Samuelson departs from Quesnay's economic model.

Our transposition is similar to Barna's on several points, but we examine the intermediate consumptions in more detail. We also consider that part of the farmers' investment is coming from industry.

Productive and sterile classes are active [*"actives"*] (*PR* 1763, p. 24, p. 49, p. 265; 2014, p. 100, p. 145, p. 468). Proprietors are not active (Quesnay 2005, p. 218) and they receive a transfer income from the farmers. Thus, we only consider two activity sectors: agriculture and

industry. Within agriculture, we distinguish, as *Philosophie rurale* does, farmers (who receive remunerations) from wage-earners (who receive salaries). Farmers and wage-earners buy agricultural and industrial products. The sterile class has receipts allowing them to buy agricultural and industrial products. However, their production of industrial products for themselves is not recorded in the *Tableau*: it does not in fact generate net product.

Original advances represent the capital necessary for a farmer who settles down in a farm for around ten years (a nine-years lease plus a ten-month period until harvest time). In most French regions, the new farmer arrives in the farm on November 11 (Saint Martin's day, calendar year n) while the previous farmer sowed in October, and will come back to harvest for himself in July ($n + 1$). The new farmer will sow in October ($n + 1$) and harvest his first wheat in July ($n + 2$) ((*PR* 1763, p. 240; 2014, p. 429); (Butré 1781, pp. 23-26)). Original advances represent the necessary elements for the farmer to live until summer ($n + 2$): subsistences, fodder and seeds for October ($n + 1$)¹¹. Original advances also include the household furnishing of the farmer and the capital necessary for the exploitation of the farm. They consist in industrial instruments such as plows or leather harnesses as well as horses, oxen or sheep (*PR* 1763, pp. 29-30; 2014, pp. 109-110). Livestock represents the greater part of exploitation capital (*PR* 1763, p. 33; 2014, p. 115). To maintain original advances, farmers use their "*interest*". Interest is a part of production.

Interest has a specific sense, and the Physiocrats consider that agriculture alone generates interest (*PR* 1763, p. 105; 2014, pp. 225-226). Every year, farmers literally pull out of the ground "*their costs, their remunerations and the interest of their advances*" (*PR* 1763, p. 80;

¹¹ Butré (1767, 1781) gives detailed examples of original advances. The distinction between annual and original advances is not exactly that the former are those inputs that last one year and the latter those inputs that last more than one year.

2014, p. 191). The interest, that represents 10% of the farmer's advances, is not a freely available income but a reserve. It is at the same time resource and use (Mirabeau and Quesnay 1767, pp. 230-231). The maintenance of original advances stands for 5% (*PR* 1763, pp. 139-140; 2014, pp. 280) but this reserve may also be used for the other 5% in case of illness of the farmer (*PR* 1763, p. 80; 2014, pp. 190-191) or occasional loss (*PR* 1763, p. 406; 2014, p. 681). If there is no loss, the other 5% may be added to the original advances. The maintenance of original advances depends on circumstances, and correspondence with a depreciation expense or consumption of fixed capital is not simple. A great part of original advances consists of the livestock, whose maintenance depends on such events as sudden epidemics. In case of an epidemic, the whole interest is used to maintain the original advances. Let us assume that the interest is entirely (10%) a consumption of fixed capital (CFC).¹² The third section of the article deals with this assumption.

Farmers' annual advances are expenditures made each year on the farm. They include wage-earners' salaries, farmers' remunerations and other expenditures which we call today "*intermediate consumptions*".

Seeds are not considered in *Philosophie rurale* as annual advances.¹³ Fodder is an annual advance that we consider as intermediate consumption (of horses and oxen), also necessary for rural trade (*PR* 1763, p. 124; 2014, pp. 253-254).

¹² This assumption is in line with Meek (1963), Barna (1975) and Samuelson (1982).

¹³ For the first seeding of the farmer in October ($n + 1$), seeds are considered as original advances (*PR* 1763, pp. 238-240; 2014, pp. 426-429). Seeds for the following year come from the production of the year. From summer ($n + 2$), the farmers retain the necessary corn from production. Production is evaluated "*out of seed*" [*semence prélevée*] (*PR* 1763, p. 129, p. 227; 2014, pp. 261-262, p. 409).

Philosophie rurale uses two accounting systems. The first one encompasses all the economy's expenditures, while the second only gives the elements concerning net product. The authors (PR 1763, p. 125; 2014, pp. 254-255)

“distinguish the distribution of expenditures in the different types of exploitation from the expenditures of proprietors' revenue [i.e. net product], and from the expenditures originating in the remuneration of the agents of the productive class and of the sterile class, as it is related in the Tableau. The Tableau confines to the expenditure of the Nation's revenue and to related expenditures”.

The first system displays an extended account of the French economy, with a gross production of 6.3672 billion (*livres*). *Livestock production*¹⁴ and *Rural Trade* have expenditures (in particular fodder) but do not have net product (PR 1763, pp. 139; 2014, pp. 277-278).

The second accounting system gives a gross production of 5 billion (*livres*) only. This reduced system is the basis of the *Grand Tableau*. The operations concerning *Livestock Production* and *Rural Trade* are neutralised, as these sectors do not contribute to net product (PR 1763, p. 137; 2014, pp. 275-276):

“These last parts of the productive class which take part in the production of income but which do not produce income (livestock for profit and expenditures related to rural trade) are

¹⁴ Even if Quesnay (2005, pp. 150-152) considers the production of oxen as a profitable activity, *Livestock Production* does not generate net product. *Livestock Production* entails two principal activities: oxen and horses. The production of horses is necessary in large-state cultivation, but old horses, at the difference of old oxen, cannot be sold (Quesnay 2005, p. 133). The consumption of horse meat is forbidden during the 18th century. Quesnay considers that the net product on oxen compensate the loss on horses.

not included in the Tableau. This Tableau only features the order of the distribution of expenditures and of the reproduction of income by the expenditure of income itself. As they do not produce any income, they cannot enter the Tableau of the distribution and reproduction of incomes. They are only evaluated and added to the mass of annual reproduction in order to complete the detailed and general calculation of products and expenditures”.

There are three kinds of commerce between the classes (PR 1763, p. 38; 2014, p. 125): the commerce of proprietors with the productive and sterile classes, the commerce between the productive class and the sterile class, and other exchanges within the productive class (between farmers and wage-earners). Farmers pay wage-earners, and the latter buy agricultural products on various markets. The members of the sterile class buy agricultural and industrial products. The shoemaker buys agricultural subsistence products for his family, and also leather to produce shoes. With the money from shoe sales, he buys industrial products. But the *Grand Tableau* does not supply an account of the industrial purchases of the sterile class because these purchases have no effect on the net product.

Table 4 and Table 5 give the two input-output tables corresponding to the two systems of accounts (6, 3672 billion and 5 billion). Details are given in Appendix 1 and in Le Masne (2016).

In relation to Tables 3 and A1, Table 4 gives the input-output table corresponding to the developed system of accounts of *Philosophie rurale*. Investment is nevertheless derived from *Elémens de la Philosophie rurale*. In *Philosophie rurale*, annual investment entirely originates from agriculture without industrial investment. In *Elémens de la Philosophie rurale*, the authors claim the necessity of an industrial investment to buy new plows (Mirabeau and Quesnay 1767, p. 52-53). The accounts of the large-state cultivation farm of Lisoir (Northern France), given in *Philosophie rurale* (PR 1763: 238-239; 2014: 426), point out that industrial investment is nearly 10% of total investment. We adopt this proportion.

(unit: 1 Million of livres tournois)	Interm. Consumption Productive Class	Interm. Consumption Sterile Class	Final Uses of Productive Class (a + b + c) <i>Investment in original advances. Farmers (c)</i> <i>Final Consumption Farmers (b)</i> <i>Final Consumption Wage-earners (a)</i>				Final Consumption Sterile Class	Final Consumption Proprietors	Total Final Uses	Total Uses
Productive Class	900	1,545.2	949.4	249	951	2,149.4	772.6	1,000	3,922	6,367.2
Sterile Class	0	0	921.6	289.2	106	1,316.8	772.6	1,001	3,090.4	3,090.4
Total	900	1,545.2	1,871	538.2	1,057	3,466.2	1,545.2	2,001	7,012.4	9,457.6
Value Added	5,467.2	1,545.2								
<i>Net product</i>	2001	1545.2								
<i>Interest (CFC)</i>	1057									
<i>Remuner. farmers</i>	538,2									
<i>Salaries</i>	1871									
Total Resources	6,367.2	3,090.4								

Table 4: Input-Output Table of the French economy (developed system of accounts)

The resources of the productive class (6,367.2) consist of agricultural intermediate consumptions (900) and of value added (5,467.2): net product (2,001), consumption of fixed capital (1,057), salaries (1,871) and retributions (538.2). The resources of the sterile class (3,090.4) consist half of labour (value added) and half of agricultural raw materials.

The productive class delivers agricultural products to the sterile class as intermediate consumptions (1,545.2) and as subsistences (772.6). It also delivers subsistences to

proprietors (1,000). The final consumption of farmers is equal to their remunerations and the final consumption of wage-earners to their salaries¹⁵.

Table 5 gives an input-output table corresponding to the *Grand Tableau*. The agricultural sector has no intermediate consumptions anymore. Agricultural value added breaks down into salaries (1,550), remunerations (450), consumption of fixed capital (CFC, 1,000) and net product (2,000). The uses of agriculture are the intermediate consumptions of industry (1,000) and the final uses of 4,000 (2,000¹⁶ for the productive class and 1,000 for each of the two other classes). The resources of the sterile class (2,000) are its own labour (1,000) and agricultural intermediate consumptions (1,000). The sterile class has total uses of 2,000, delivered to the proprietors (1,000) and to the productive class (1,000). The final consumption of the sterile class in agricultural products is 1,000. Its final consumption of industrial products is not included in Table 5.¹⁷ Industry does not generate net product: the value of its work equals the cost of the raw materials plus the means of subsistence of its members. The

¹⁵ The industrial consumption of wage-earners is 921.6, total consumption (1,871) less agricultural consumption (949.4). We suppose that the sterile class has industrial final consumption (772.6) equal to its agricultural final consumption (772.6).

¹⁶ The productive class' final consumption in industrial products, which amounts to 900 (2,000 – 1,000 – 100), may be divided in different ways between farmers and wage-earners: we choose 675 for wage-earners and 225 for farmers. Farmers are 5 times less numerous than wage-earners but have a higher standard of living.

¹⁷ The final consumption in agricultural products of the sterile class has increased from 772.6 to 1,000, passing from Table 4 to Table 5. The sterile class uses 227.4 of agricultural raw materials (1,000 – 772.6) to elaborate industrial products for itself, that are now final consumptions (and no more intermediate consumptions).

industrial products delivered by the sterile class to the productive class (1,000) concern the investment of farmers (100), and the final consumption of farmers (225) plus agricultural wage-earners (675).

(unit: 1 Million of livres tournois)	Intermed. Consumption Productive Class	Intermed. Consumption Sterile Class	Final Uses. Productive Class (a + b + c) <i>Investment in original advances of Farmers (c)</i> <i>Final Consumption Of Farmers (b)</i> <i>Final Consumption of Wage-earners (a)</i>				Final Consumption Sterile Class	Final Consumption Proprietors	Total Final Uses	Total Uses
Productive Class	0	1,000	875	225	900	2,000	1,000	1,000	4,000	5,000
Sterile Class	0	0	675	225	100	1,000	/	1,000	2,000	2,000
Total	0	1,000	1,550	450	1,000	3,000	1,000	2,000	6,000	7,000
Value Added	5,000	1,000								
<i>Net Product</i>	2,000	1,000								
<i>Interest (CFC)</i>	1,000									
<i>Remunerat. of Farmers</i>	450									
<i>Salaries</i>	1,550									
Total Resources	5,000	2,000								

Table 5: Input-output table relative to the *Grand Tableau* (agricultural gross product of 5,000)

Quesnay's accounting can be analysed from the vantage point of today's national accounting. Without using the term, Quesnay understands the notion of intermediate consumptions. He is consequently close to the notion of value added (difference between gross production and

intermediate consumption)¹⁸. The concept of net product is equally close to “*net operating surplus*” in national accounting.

The difference between Quesnay’s accounting and national accounting is that the former focuses on net product as the latter focuses on value added. But we can pass from Quesnay’s accounting to national accounting taking the *Grand Tableau* given in Table 5 as an illustration:

- the gross value added (GVA) of agriculture (5,000) includes three elements: net product (2,000, net operating surplus (NOS)), interest (1,000), and salaries and remunerations (2,000).

If the interest is completely used for consumption of fixed capital (CFC), we can write:

$$\text{GVA (5,000)} = \text{NOS (2,000)} + \text{CFC (1,000)} + (\text{Salaries and Remunerations}) (2,000).$$

- the gross value added of industry (1,000) corresponds to the salaries of the members of the sterile class. The net operating surplus of industry is null. Industry is “*sterile*” in terms of net product, but not in terms of value added.

- the gross value added of the economy is 6,000: net operating surplus (2,000), consumption of fixed capital (1,000), salaries and remunerations (3,000). The total resources of the economy are 7,000, gross value added (6,000) and intermediate consumptions (1,000).

- the share of salaries and remunerations in the gross value added is 40% for agriculture (2,000/5,000) and 50% for the whole economy.

In the *Grand Tableau* (Table 5), the authors distinguish two kinds of activities: agricultural production giving net product and industrial production for proprietors and the productive

¹⁸ On this point, see also the evaluation of the value of wood in accordance with transport expenditure (*PR* 1763, p. 123-125; 2014, p. 253-255).

class, without net product. Table 4 entails two other kinds of production, which do not appear in the *Grand Tableau*: agricultural production without net product (*Livestock Production* and *Rural Trade*), and industrial production for the members of the sterile class.¹⁹

III. The *Grand Tableau* and double-entry accounting

III. 1 Problematic, progress of the year and structure of advances

How do exchanges take place during the year? Do the purchasers have at their disposal enough money to pay? Do the sellers have the available products? Time plays an important role in Quesnay's economy (Schumpeter 1954, pp. 238-243; Eltis 1998) but this does not appear in an input-output table.

Theodor Schmalz (1826) produced a double-entry accounting relative to the *Tableau*.

Schmalz's attempt interested Marx, who wrote to his friend Engels:²⁰ "*A propos! If it can be done in all briefness, without making heavy demands on you, I would wish a paradigm (plus an explanation) of Italian book-keeping. It would be useful in the illumination of the "Tableau Economique" of D^r Quesnay*". Marx did not carry out the idea, but he understood the interest of double-entry accounting to shed light on the *Tableau*. Schmalz's accounting is unique. In relation to Table 5, we give the accounting of proprietors, sterile class, and farmers.²¹

¹⁹ Meek (1963, p. 278) argues after Marx (2000, p. 355) that the sterile class has no access to industrial products: it is exact in the *Grand Tableau* (Table 5) but not in Table 4.

²⁰ Letter from Marx to Engels from 18 June 1862 (Marx-Engels (1964, p. 249)).

²¹ Meek (1963, p. 284-286) and Pressman (1994) give successive holdings of the three classes during the year. Meek globalizes the operations: proprietors and artisans buy for example subsistences once a year. With our method, exchanges take place all year long. We distinguish

The timespan of the three accountings is an agricultural year (n) beginning on November 1 and ending on October 31.²² Money supply, called in Table 2 “*money of income*” [“*argent du revenu*”] and sometimes “*pécule*”, amounts to 2,000. The “*pécule*” is equal to the net product (PR 1763, p. 396; 2014, p. 666): an amount greater than net product is not necessary for the exchanges.

The composition of sterile advances (1,000) must be explained. The money supply of 2,000 is entirely necessary for the payment of the farm-rent at the beginning of the year: consequently, sterile advances do not include money at the beginning of the year. *Philosophie rurale* (PR 1763: 406; 2014: 681) specifies that annual sterile advances are a “*a heap of commodities that the sterile class has to work, of finished products, and of means of subsistence before remuneration*”. We assume that sterile advances consist at the beginning of the agricultural year of means of subsistence (250, three months of final consumption), agricultural raw materials (250, three months of stock) and industrial finished products (500, three months of stock). Other amounts are possible.

When are farm-rents paid to proprietors? It is usually supposed that farmers pay 2,000 at the beginning of the economic year, in a single payment: in the *Grand Tableau*, a line connects the net product of farmers (2, 000) to the income of proprietors (2,000). Actually, the reason is not economic but related to the presentation of the *Tableau*, which Quesnay wants as simple as possible. We will stick to this presentation for the moment, supposing that farm-rents are paid at the beginning of the year in a single payment. We will reconsider this assumption later.

operations concerning incomes and expenses during the year, and operations at the end of the year which modify the balance sheet of farmers and artisans.

²² The fiscal year was beginning on November 1 (Touzery 1994, p. 117).

This assumption introduces a monetary constraint. At the beginning of the year, farmers hold the whole money supply. Proprietors and the sterile class have no liquidity. When farmers have paid farm-rents, the productive class and the sterile class have no more liquidity, and proprietors dispose of the whole “*pécule*”.

In the first days of November, proprietors receive the farm-rent (2,000). They buy then agricultural products from farmers and industrial products from artisans, 83.33 each month: it means during the whole year 1,000 to farmers and 1,000 to artisans. These sales constitute receipts for both active classes which permit their exchanges. Farmers pay wage-earners, and the latter buy means of subsistences; farmers receive remunerations. As soon as they sell finished products, artisans can buy new means of subsistence.

In summer, wheat is harvested. The grape harvest takes place next. The whole harvest, stored at the end of October, has a market value of 5,000 (*livres*).

The three accountings of an agricultural year (n) are given successively with, for each of them, the names of the accounts and the General Journal. The stocks are computed with the periodic inventory method; stocks inventory is made at the beginning and at the end of the year, but stock accounts are not modified during the year. Purchases of the members of the productive and of the sterile class on various markets are not registered in the General Journal of farmers and artisans. The purchases of proprietors are registered into the General Journal, considering that their economic activity consists in consuming. For farmers, we write the cash balance after the operations on the right side of the General Journal.

III. 2 Proprietors and artisans

Proprietors dispose of three accounts: Cash, Purchases and Farm-rent revenues. On November 1, their Cash balance is null.²³ In the first days of November, the farm-rent (2,000) is paid by farmers to proprietors.²⁴ Proprietors start buying regularly agricultural products in November: 83.33 each month, 1,000 a year. They also start buying industrial products to the artisans in November: 83.33 each month, 1,000 a year. After these 2,000 worth purchases, the Cash balance of proprietors is brought back to zero (Table 6).

N°	Agricult. year n	General Journal of proprietors	D	C
1	First days of November	Cash Farm-rent revenues <i>Cashing of the farm-rents</i>	2,000	2,000
2	November to October	Purchases Cash <i>Agricultural products purchases (83.33 each month)</i>	1,000	1,000
3	November to October	Purchases Cash <i>Finished products purchases (83.33 each month)</i>	1,000	1,000
		Total	4,000	4,000

Table 6: General Journal of proprietors

²³ We describe only the part of the economy corresponding to the *Tableau*. Proprietors dispose of other riches which do not intervene in exchanges. *Philosophie rurale* refers on this point to *Tableau Économique avec ses explications* (PR 1763, p. 387; 2014, p. 653).

²⁴ This income concerns the previous year. It would be possible to note it in the accountancy with income accounts of the previous year. We treat it as an income of the year, payed at the beginning of the year; it does not modify the situation as the farm-rent remains unchanged year after year.

Artisans dispose of seven accounts: Capital stock, Cash, Agricultural products stock, Finished products stock, Agricultural products purchases, Wages paid and Sales of finished products.

The balance sheet of artisans at the beginning of the year (November 1) is given in Table 7.

Assets		Liabilities and equity	
Agricultural products stock (means of subsistence 250, raw materials 250)	500	Capital stock	1,000
Finished products stock	500		
Cash	0		
Total	1,000	Total	1,000

Table 7: Balance sheet of artisans on November 1

Artisans sell finished products to proprietors: 83.33 each month, 1,000 a year. Artisans sell also to the members of the productive class: 83.33 each month, 1,000 a year (900 for final consumption and 100 for investment). Their sales amount to a total of 2,000, with 166.67 each month (Table 8). Artisans pay salaries: 83.33 each month, 1,000 a year. The replacement of the agricultural raw materials leads also to purchase 83.34 each month, 1,000 for the year. The artisans cash 166.67 each month and spend the same amount. Their Cash balance is null at the end of each month and at the end of the year.

The stocks of agricultural and finished products are the same on November 1 and October 31.

Artisans have incomes worth 2,000 (sales of finished products) and expenses worth 2,000 (salaries (1,000) and purchases of agricultural raw materials) a year. They have no economic surplus.

N°	Agricult. year n	General Journal of artisans	D	C
1	November to October	Sales of finished products Cash <i>Sales of finished products (166.67 each month)</i>	2,000	2,000
2	November	Wages paid	1,000	

	to October	Cash <i>Payement of wage-earners and artisans (83.33 each month)</i>		1,000
3	November to October	Purchases of agricultural products Cash <i>Purchases of raw materials (83.34 each month)</i>	1,000	1,000
		Total	4,000	4,000

Table 8: General Journal of artisans

III. 3 Farmers

Farmers dispose of nine accounts: Capital stock, Fixed assets (material, livestock..), Stock of agricultural products, Cash, Wages and remunerations paid, Farm-rent expenses, Depreciation expenses, Sales of agriculture products, and Production transformed into asset. The balance sheet of farmers on November 1 is given in Table 9. Farmers have 10,000 in fixed assets (original advances), a stock of 5,000 in agriculture products, and 2,000 in cash (annual advances). Assets amount to a total of 17,000, corresponding to 10,000 in original advances (not given in the *Tableau* but which exist besides) and 7,000 in exploitation riches.

Assets		Liabilities and equity	
Fixed assets (material, livestock)	10,000	Capital stock	17,000
Stock of agricultural products	5,000		
Cash	2,000		
Total	17,000	Total	17,000

Table 9: Balance sheet of farmers on November 1

Farmers pay on the first days of November a 2,000 farm-rent to proprietors (Table 10). They regularly sell subsistence goods to proprietors (1,000 during the year) and to the members of the sterile class (1,000), and equally raw materials (1,000) to the artisans: the total amounts to 3,000 a year (and 250 a month). With these receipts, salaries and remunerations are paid, 166.67 a month and 2,000 a year. Farmers sell also agricultural products (91.67) to themselves and to wage-earners for final consumption every month: 1,100 a year. Farmers

buy industrial equipments from artisans: 8.33 a month, 100 a year. The receipts of farmers amount to 341.67 (250 + 91.67) a month and their payments to 175 (166.67 + 8.33): their cash balance increases each month by 166.67 (341.67 – 175). After 12 months, they have recovered their initial cash, with an amount of 2,000, and they will be able to pay the following year's farm-rent.

The investment of 1,000 is composed of agricultural products (900, AP)²⁵ and industrial products (100, IP). On October 31, a 1,000-worth depreciation expense of fixed assets is registered.²⁶ An inventory shows that the stock of agricultural products is always 5,000: the stocked production of the preceding year has been exhausted but an equivalent production is registered. The balance sheet on October 31 is identical to the balance sheet on November 1.

N°	Agricult. year n	General Journal of farmers	D	C	Cash Balance
1	First days of November	Farm-rent expenses Cash <i>Payment of farm rent</i>	2,000	2,000	0
2	November to October	Cash Sales of agricul. products <i>Sales AP (proprietors and sterile class, 250 each month)</i>	3,000	3,000	/
3	November to October	Wages and Remunerations paid Cash <i>Payment of wages and remuner. (166.67 each month)</i>	2,000	2,000	/
4	November to October	Cash Sales of agricul. products <i>Sales to farmers and wage- earners</i>	1,100	1,100	/
5	November to October	Fixed assets Cash <i>Increase Fixed assets (IP)</i>	100	100	/
6	November to October	Fixed assets Production transformed into asset <i>Increase Fixed assets (AP)</i>	900	900	/

²⁵ Horses or oxen born during the year, kept by the farms and transformed into asset.

²⁶ In order to simplify the entries, we do not use the account “*Allowance for depreciation*”.

7	31/10	Depreciation expenses Fixed assets <i>Depreciation expenses</i>	1,000	1,000	2,000
		Total	10,100	10,100	

Table 10: General Journal of farmers

The Profit and Loss account of farmers is given in Table 11. Farmers' incomes amount to 5,000 (sales (4,100) and production transformed into asset (900)). The expenses are farm-rents (2,000)²⁷, salaries and remunerations (2,000), and depreciation (1,000). Incomes and expenses amount to 5,000: farmers have no economic surplus, as we supposed that depreciation absorbs entirely the interest.

Profit and Loss account of farmers			
Farm-rent expenses	2,000	Sales of agricultural products	4,100
Wages and remunerations paid	2,000	Production transformed into asset	900
Depreciation expenses	1,000		
Total	5,000	Total	5,000

Table 11: Profit and Loss account of farmers

Exchanges can take place according to Quesnay's assumptions. They should however be regular, and monetary tensions appear at the beginning of the year. Members of the productive class may have difficulties disposing of the necessary liquidities for their purchases. These difficulties would be suppressed if farm-rent was paid in several payments.

III. 4 Complementary remarks

²⁷ It is an expense concerning the preceding year but which does not vary from one year to the next.

Relying on *Philosophie rurale*, we assumed a payment of the farm-rent in one payment, at the beginning of the year. Sometimes, the authors move away from that supposition. They assert that the zig-zag *Tableau* is a presentation trick (*PR* 1763: 43; 2014: 132): “..what appears here gradual and goes by steps is only a fictional order of clarification, necessary in order to present on a regular and fixed aspect the decisive results of the real order, which is free and confused”. Real exchanges take place differently from the presentation of the *Tableau*. The circuit may be launched for a part by expenditures of annual advances of farmers. The proprietors receive the farm-rent in several payments (*PR* 1763, pp. 215-215; 2014, p. 391).

Generally, a farmer paid the farm-rent in one payment. Nevertheless all farmers did not pay at the same time. Farm-rent was sometimes payed on Saint Michel day (September 29) in regions like Brittany (with few vineyards). Butré (1759 p. 173) mentions a farm-rent payed half for Christmas and half in June. With farm-rent payed from October until December, liquidities remain available during this period for farmers and artisans: the monetary constraint disappears.

We have supposed a bad agricultural year, for example with epidemics: the interest, 10% of the original advances, was then entirely used to maintain these advances. The authors (*PR* 1763, pp. 139-140; 2014, p. 280) suppose more precisely a maintenance of the advances on a basis of 5%; the other 5% are used mainly for casual losses. Without casual loss, the interest of 1,000 is splitted between depreciation (500) and surplus (500). The surplus is the opportunity for farmers to increase original advances (capital) as noted by Marx (1972, p. 235). Chapter IX of *Philosophie rurale* develops this growth logic.

Conclusion

Philosophie rurale was written two and a half centuries ago, at a time when national accounting did not exist. Mirabeau and Quesnay (1767: ciiij-cv) admit that *Philosophie rurale* presents defects. To give an example, the composition of sterile advances is defined in different ways at the beginning or at the end of the book.²⁸ We have chosen the last definition because it is an improvement on the first definition. The sterile class needs means of subsistence to live on, and the first definition does not tackle the problem. Other analysts would choose the first definition, arguing that Quesnay does not understand the necessity of means of subsistence for the sterile class. We have adopted a comprehensive attitude which does not insist on the defects of *Philosophie rurale* and which tries to understand its general logic, also replacing the *Tableau* in its institutional context.

In Quesnay's economy, the three classes have access to agricultural and industrial products, in a monetary and market economy. It is possible to depict the progress of exchanges along the year. The *Tableau* gives a simplified representation of the economy, centered on the search of net product (for proprietors and the Sovereign). Quesnay relies on empirical data (Perrot 1992), as it already was the case in *Grains* (Quesnay 2005, pp. 161-212) and *Théorie de l'impôt* (Mirabeau and Quesnay 1760).

Paul Studenski (1958, p. 61-62) considers Quesnay as an important pathfinder in the field of national accounting and “a forerunner of the modern practice of constructing models of potential national income under varying conditions”. Quesnay's *Tableau* anticipates national

²⁸ At the beginning of the book, *Philosophie rurale* (PR 1763, p. 33; 2014, p. 115) affirms that the sterile advances are “a heap of commodities that the sterile class has to work”. At the end of the book, *Philosophie rurale* (PR 1763, p. 406; 2014, p. 681) says that the sterile advances are “a heap of commodities that the sterile class has to work, of finished products, and of means of subsistence before remuneration”.

accounting by giving expenditures and surplus by sector accounts, as well as tables of total resources and uses. The *Tableau* is derived from accounts; similarly the input-output table of a country is today connected to national accounts. Precise relationships may be established between Quesnay's concepts and national accounting concepts. Quesnay understands the notion of intermediate consumption and comes closer to the concept of value added.

Philosophie rurale remains the best text to study the *Tableau*. Even if some excerpts of *Philosophie rurale* have been translated into English (Meek 1963; Steenge and van den Berg 2007), a full translation of the book would permit a larger access to this important text.

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Appendix 1: Details on the input-output tables

Total uses of agriculture in *Philosophie rurale* are given in the first column of Table A1. As the figures of the original text include an error on interest (see Box 1), these uses are corrected before juxtaposing them with resources (in order to elaborate a table of uses and resources).

Uses of agriculture (million of <i>livres tournois</i>)	According to <i>Philosophie rurale</i> (before our corrections)	According to <i>Elémens de la Philosophie rurale</i> (after our corrections)
Intermediate consumption of agriculture	900.0	900.0
Intermediate consumption of sterile class	1,437.1	1,545.2
Final consumption of wage-earners	883.0	949.4
Final consumption of farmers	231.6	249.0
Interests (Fixed capital investment)	1,197.0	951.0
Final consumption of sterile class	718.5	772.6
Final consumption of proprietors	1,000.0	1,000.0
Total Uses	6,367.2	6,367.2

Table A1: Uses of agriculture

In *Philosophie rurale*, the annual investment of 1,197 (first column of Table A1) originates entirely from agriculture, without any industrial investment. However, in *Philosophie rurale*, the large-state cultivation farm of *Lisoir* uses industrial fixed capital (*PR* 1763, pp. 238-239; 2014, p. 426). *Elémens de la Philosophie rurale* argues later that investment has an industrial component: it is necessary to buy plows back (Mirabeau and Quesnay 1767, pp. 52-53).

Following *Elémens de la Philosophie rurale*, an industrial investment (based on the *Lisoir* farm (*PR* 1763, pp. 238-239; 2014, p. 426)) is introduced. Original advances of the *Lisoir* farm are essentially made of agricultural goods but industrial goods represent 9.3% of the total (*PR* 1763, p. 29, p. 33; 2014, p. 109, p. 115). Rounding off to 10%, the investment of the productive class (1,057) includes agricultural goods for 951 (90%) and industrial goods for 106 (10%). The second column of Table A1 corrects the agricultural uses of *Philosophie rurale* so as to elaborate Table 4.

To deduct the *Grand Tableau* from the accounts of *Philosophie rurale*, Table A2 merges the sectors I to V of Table 3. As sectors VI (*Livestock Production*) and VII (*Rural Trade*) have no net product, the corresponding columns are suppressed. We add a last column, corresponding to the figures of the *Grand Tableau*. The figures of this column are rounded. Without rounding, it would be impossible, starting from a set of accounts, to arrive at the physiocratic

proportions, for example to annual advances equal to net product, or to original advances equal to five times the annual advances (*PR* 1763, p. 34; 2014, p. 117). Gross production increases from 4,707.2 to 5,000, the net product decreases from 2,001 to 2,000. The salaries of wage-earners amount to 1,550 and the remunerations of the farmers to 450²⁹, with annual advances totalling 2,000.

	Sectors I to V	Live- stock (S. VI)	Rural Trade (S. VII)	Figures taken up in the <i>Grand Tableau</i>
Interm. Consumptions	0	600	300	0
Salaries of wage-earners	1,471	300	100	2,000 (Salaries: 1,550, Remunerations: 450)
Remunerations of Farmers	418.2	0	120	
Interests of Farmers	817	0	240	1,000
Net Product	2,001	0	0	2,000
Gross Production	4,707.2	900	760	5,000

Table A2: Accounts of agriculture (reduced system of accounts)

²⁹ These figures result (Table 3) from the proportion of salaries (77.6%) and remunerations (22.4%) in the total (salaries + remunerations).