The Discovery of the ‘Ricardian’ Theory of Rent – Multiple and therefore Exceptional?*

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This paper addresses the following five questions. What is the ‘Ricardian’ theory of rent? Is it an example of multiple discovery? Why is it associated with Ricardo? Is multiple discovery exceptional? Should historians of economic thought pay more attention to the concept of multiple discovery?

In an article entitled ‘Merton on Multiples, Denied and Affirmed’ Stigler listed eight history of economic thought candidates for multiple discovery, the ‘Ricardian’ theory of rent topping the list; the title of Stigler’s article reflects the fact that the American sociologist Robert K. Merton wrote a seminal article on the concept of ‘multiple discovery’. The plural of this term, ‘multiple discoveries’, means not multiple discoveries by one person but one discovery made by multiple persons, and Merton coined the simpler (and less confusing) terms ‘multiple’ and ‘multiples’ as an alternative, and for the most part it is these terms that will henceforth be used in this paper. Discussion of the definition of this concept is deferred until later, it being noted at this stage only that at a minimum it would seem to require that the same idea be discovered independently by more than one person.

The paper also notes that the term ‘Ricardian’ theory of rent has been used to describe both of two fundamentally distinct though related theories, those commonly referred to respectively as the ‘external margin’ and ‘internal margin’ differential theories of rent, and that at least one of these theories was proposed in four papers each published in February 1815, independently in the cases of Malthus, West and Torrens. It describes the way in which the theory was presented in each of these three cases. The paper then examines the claims of each of an anonymous author, Steuart, Turgot and Anderson to be recognised as a discoverer of the ‘Ricardian’ theory of rent. It next discusses the proposition that the Ricardian theory of rent is an example of a multiple; it is here that the criteria for a multiple are discussed more extensively. The paper then addresses the question of how and why this theory became known as ‘Ricardian’. It concludes with a discussion of whether or not (1) a multiple is exceptional, and (2) the concept of multiples should be more utilised by historians of economic thought.

The Ricardian theory of rent is alternatively known as the ‘differential’ theory of rent due to the fact that it depends on the proposition that rent occurs because as more and more units of a factor of production are used, the product of each additional unit of a factor differs from that of its predecessor, or more specifically, the product per unit of factor diminishes. As already noted, there are in fact not one but two differential theories of rent, fundamentally different from each other;
one involves a heterogeneous factor of production, and the other homogeneous factors of production. In one of these cases, that where the variable factor is heterogeneous, the use of more units of it brings into play less productive units than those previously employed; this is often referred to as the ‘extensive margin’ law of diminishing returns, with rent resulting from the excess of an assumed uniform price over cost of production for intra-marginal units of the factor (price being equal to the cost of production where the marginal unit of the factor is used). In the other case, where the variable factor is homogeneous, diminishing returns will set in at some stage if more and more units of it are applied to a fixed quantity of another factor of production; this is often referred to as the ‘intensive margin’ law of diminishing returns, with rent again resulting from the excess of price over cost of production for intra-marginal units of the factor. I shall refer to these two differential theories of rent respectively as the extensive margin and intensive margin theories of rent.

The differential theories of rent first appeared in the late 1700s and early 1800s, when, with the advent in Britain of the Industrial Revolution, manufacturers were challenging the previous dominance of landowners. As early as the corn laws of 1436 and 1463 landowners in Britain had obtained protection from foreign competition either through permitting or subsidising the exportation of corn (as in 1436) or through limiting its importation (as in 1463) in years of plenty and low prices; by ‘corn’, was meant any edible grain of a grass, for example wheat, rye, oats or barley. Because manufacturers regarded this protection of British agriculture as causing labour costs to be higher than they would otherwise be, they opposed proposed increases in agricultural protection and advocated reductions in existing agricultural protection. The differential theories of rent can be seen as a by-product of this conflict.

In 1813 committees set up by both the House of Commons and the House of Lords to consider whether, given the prospect of an increase in corn imports following the end of the Napoleonic wars, the existing Corn Laws should be strengthened, published their reports, the House of Commons committee recommending that a high tariff be imposed on corn unless its price exceeded eighty shillings a quarter. The trigger for the publication in February 1815 of four pamphlets setting out a differential theory of rent was the impending parliamentary debate on the Corn Laws in the following month.

By then Malthus had already published, in 1814, a pamphlet entitled Observations on the Effects of the Corn Laws, and of a rise or fall in the price of corn on the agriculture and general wealth of the country, in which he discussed the cases for and against the proposed corn law. In February of the following year he published two more pamphlets. One, entitled The Grounds of an Opinion on the
Policy of Restricting the Importation of Foreign Corn: intended as an appendix to “observations on the corn laws” (published 10 February), argued that the case for the proposed corn law was vastly stronger than that against, partly because of the importance of a thriving agriculture to a country’s wealth, and partly because of the importance of self-sufficiency in food production to a country’s defence. The other, entitled The Nature and Progress of Rent: an inquiry (published 3 February), set out a differential theory of rent. In the ‘Advertisement’ to this pamphlet Malthus stated that he had hastened the ‘appearance’ of notes written over the period of time he had spent as lecturer at Haileybury College because of ‘the very near connection of the subject of the present inquiry, with the topics immediately under discussion’, the latter presumably a reference to the corn law parliamentary debate scheduled for March.

In the text of this pamphlet Malthus rejected the argument that a high price of corn (relative to prices of other commodities) is due to high rents, an argument he noted had been advanced by both Adam Smith (in some places) and Sismondi, among others, as well as in contemporary debates over recent increases in the price of corn. Exploring the nature and origin of rent, he contended that a fundamental distinction had to be made between an excess of price over cost of production due to rent on the one hand, and an excess due to a natural or artificial monopoly on the other (an example of a natural monopoly being French wines). He saw the cause of high prices in the case of a monopoly as an excess of demand over limited supply, whereas increases in demand for a necessary good such as corn are limited by increases in population, and therefore by increases in the supply of ‘the necessary good’ – in short, the demand for corn is constrained by the supply of it. Thus by contrast with the case of a monopoly, where there is no such constraint on demand, the cause of a high price of corn is an extension of cultivation and consequent use of capital (both fixed and circulating, the latter being used to pay labour) on land less productive than land currently under cultivation, use of the newly-cultivated less-productive land resulting in an increased unit cost of production. This is an example of the ‘extensive margin’ law of diminishing returns, caused by the heterogeneous nature of a factor of production, in Malthus’s case land. Rent, Malthus argued, results from the excess of price over cost of production on what we now term intra-marginal pieces of land. Thus he described the external margin theory of rent.

Malthus concluded that rent was due to ‘the most inestimable quality in the soil, which God has bestowed on man – the quality of being able to maintain more persons than are necessary to work it’ (Malthus, 1815, p.122), a quality applicable to all but the least productive land under cultivation [Pullen (2013, p.12) uses a similar statement in Malthus’ Principles of Political Economy to support his argument that Malthus put forward an absolute, in addition to a differential, theory of rent; and
by contrast with Malthus, Ricardo approvingly quoted (1951a, p.76) Adam Smith’s statement that ‘[t]he labour of nature is paid, not because she does so much, but because she does so little. In proportion as she becomes niggardly in her gifts, she exacts a greater price for her work ’. Malthus, concluded that the payment of rent ‘as a kind of fixture upon lands of a certain quality, is a law as invariable as the action of the principle of gravity’ (Malthus, 1903, p.125), such payment occurring regardless of who owns the land, whether a landlord, the crown, or the actual cultivator.

Malthus came no closer to the intensive margin theory of rent, in this pamphlet, than noting that additional land would not be taken into cultivation in response to a fall in the cost of production until the new opportunities for profit by more intensive cultivation of land already under cultivation had been fully taken up.

The second pamphlet expounding a differential theory of rent to appear in February 1815 (published 13 February) was that by Edward West, published anonymously (though credited to ‘a Fellow of University College, Oxford’) under the title Essay on the Application of Capital to Land. West began his pamphlet by declaring that his purpose was to make public a principle in political economy that had occurred to him some years previously, and in his view had been confirmed by many of the witnesses whose evidence to recent parliamentary committees on the corn laws appeared in published reports. This was the principle that ‘in the progress of the improvement of cultivation the raising of rude produce becomes progressively more expensive’, or in other words, ‘every additional quantity of capital laid out produces a less proportionate return’ (1815, p.2), which West illustrated by reference to the occupiers of a new colony cultivating first the richest lands, then lands second in quality, and so on. He contrasted this characteristic of agricultural production with the ability of manufacturing to expand without any increase in unit cost, and adopting the then common assumption that as a country develops the rate of profit falls, concluded that this is explained by the fact that any tendency of the rate of profit to rise in agriculture as well as manufacturing as a result of ‘improvement’ will be outweighed by characteristic diminishing returns in agriculture.

West subsequently turned his attention to the consequences of removing restrictions on the import of corn. He argued, first, that removal of such restrictions would not as some feared result in the demise of British agriculture, as a reduction in cultivation in Britain would reduce the unit cost of corn produced there, making it more competitive, and the imported corn that replaced it would increase in unit cost as more was produced, making it less competitive. He looked, second, at the consequences for rent, concluding that ‘[i]t is diminishing rate of return upon additional portions of capital bestowed upon land that regulates, and almost solely regulates, rent’ (1815, pp.49-50). More specifically, given that the farmer will receive the same rate of profit regardless of the productivity of
the land he cultivates, compared with corn that is raised at the greatest expense, ‘all the additional profit, therefore, on that part of the produce which is raised at a less expense, goes to the landlord in the shape of rent’ (1815, p.51). Thus West described the extensive margin theory of rent. But unlike Malthus, West then went on to expound the intensive margin theory of rent, which does not depend on a factor of production being heterogeneous. Noting, as Malthus had done, that an increase in the demand for corn will not induce an increase in land brought under cultivation until profit opportunities have been exhausted on land already under cultivation, West illustrated the consequences of more intensive cultivation by means of an example, in which of a capital of £100 applied to land the first £10 generates a profit of 40 per cent, the second £10 a profit of 30 per cent, and so on, concluding that ‘[t]he rent of the landlord would ... be all that was made on the whole capital above what the last or least profitable portion of that capital produced’ (1815, p.53).

The third independent exposition of the differential theory of rent appeared in a book written by Robert Torrens in 1814 (1829, p.ix), but not published until 24 February 1815, under the title An Essay on the External Corn Trade: containing an inquiry into the general principles of that important branch of traffic; an examination of the exceptions to which these principles are liable; and a comparative statement of the effects which restrictions on importation and free intercourse, are calculated to produce upon subsistence, agriculture, commerce, and revenue. In this book Torrens at one stage challenged the House of Commons Committee’s view that cutting off the foreign supply of corn would decrease the price of corn, arguing that instead this ‘would, in order to meet the growing demand for corn, and to feed our increasing population, force into cultivation land which could not under free competition, be profitably tilled’, adding that ‘as such lands afforded the cultivator an adequate profit, better soils would afford a higher rent’ (1815, p.211). The higher rent would not eventuate until existing leases expired, but once they did, competition between cultivators for superior land would cause rent on it to rise until the rate of profit fell to its customary rate (1815, pp.219-20). But while restrictions on the importation of corn would initially benefit landowners, ultimately they would suffer from the adverse effect on manufacturing of the consequent higher price of corn, and the resulting decline in the country’s wealth, population, and demand for food. It is thus the external margin theory of rent that is to be found in Torrens’ book.

Essential elements of one or more of the two differential theories of rent were discovered earlier than the 1815 publications discussed above. An anonymous French author, Steuart, Turgot and James Anderson have each been nominated as discoverers.

The nominator of the anonymous French author is McCulloch, who in the history of economic thought text based on his lectures entitled A Discourse on the Rise, Progress, Peculiar Objects, and
Importance of Political Economy: containing an outline of a course of lectures on the principles and doctrines of that science and published in 1824 noted that the author of a book entitled *Principes de tout Gouvernement* published in 1766 had ‘hit upon the real origin of rent’ (McCulloch, 1824, p.69), ‘real origin’ being a reference to the external margin law of diminishing returns; the passage on which McCulloch relies, when translated, could read ‘[w]hen cultivators, having become numerous, have cleared all the good land; for their successive augmentation and for the continuity of cultivation, there will be found a point where it will be more advantageous for a new coloniser to take a lease on second quality land, than to clear for the first time land that is much less good’. However, as McCulloch admits, it is apparent from the rest of his book that the author ‘was not at all aware of the principle he had stated’ (1824, p.69), and indeed it is doubtful whether the statement quoted can be said even to have stated the principle in question.

A nominator of Steuart is Schumpeter, who in his *History of Economic Analysis* claims that ‘Steuart in his *Principles* (1767) ... presented what the late followers of Ricardo were to call the case of the Extensive Margin: as population increases, poorer and poorer soils will have to be taken into cultivation and, applied to these progressively poorer soils, equal amounts of productive effort produce progressively smaller harvests’ (1954, p.259). A second nominator is Skinner, who in his introduction to his edition of Steuart’s *Principles* states that one of the three main arguments in this work is that ‘in the long run, there may be a tendency for relatively developed nations to meet diminishing returns in agricultural production’ (Skinner, 1966, p.xxviii). However, Schumpeter’s statement is puzzling, and Skinner’s puzzling in the extreme, as multiple perusals of Steuart’s *Principles* have elicited only a single passage that could possibly be used to support the contention that Steuart propounded the extensive margin law of diminishing returns, namely a statement in reference to a nation exporting manufactures that finds itself no longer able to import food that ‘[t]hey must therefore seek for it at a greater distance, and as soon as the expence of procuring it comes to exceed the value of the labour of the free hands [manufacturing workers] employed in producing the equivalent, their work will cease to be exported, and the number of inhabitants will be diminished to the proportion of the remaining food’ (1966, p.120). It is true that Steuart uses an example, of a society in which 500 farmers using plough and harrow to produce just enough for a population of 1000 to be fed scantily are replaced by 600 farmers using spade and rake, to conclude that ‘[t]he 600 will certainly produce more fruits than formerly; but as their labour is relatively less productive by supposition, it will be impossible for them to furnish a surplus equal to their own consumption’ (1966, p.130), but with its total replacement of one factor of production (plough and harrow) by another (spade and rake) this example bears no resemblance to the extensive margin law
of diminishing returns, and with its emphasis on ‘improvement’ or its opposite is more typical of Steuart’s writings on agriculture.

It was also in 1767 that Turgot wrote a paper consisting of comments on the winning entry by Saint-Péray in an essay competition he (Turgot) had organised, a paper subsequently published under the title Mémoire sur les effets de l’impôt indirect in the edition of Turgot’s collected works edited by Du Pont de Nemours, which appeared over the period 1808 to 1811. The first of Turgot’s comments relates to Saint-Péray’s assumption, in the context of Physiocratic theory, that annual advances in an economy are two-fifths of the total product. Pointing out that this calculation was based on ‘farms en grande culture in a fertile region’ (1977, p.111), Turgot argued first that ‘equal advances on soils of different fertility would yield very different total products’ (1977, p.111), and second that even if applied to the same field ‘it can never be assumed that double the advances will yield double the product’ (1977, p.111).

More specifically, Turgot stated that even though an increase in advances applied to land might initially bring increasing returns, after a certain point returns will begin to decrease, until they become zero, or even negative (he could have said ‘too many cooks spoil the broth’). Turgot thus discovered the intensive margin law of diminishing returns, and it is not surprising that Schumpeter was later to write that ‘Turgot’s formulation was indeed not surpassed until Edgeworth [more than a century later] took the matter in hand’ (1954, p.260). It is unlikely that either West or Ricardo knew of Turgot’s ‘formulation’, given that as already noted it was not published until 1808-1811, during the Napoleonic wars, and only in French; and although a copy of this edition of Turgot’s works was found in the 1930s amongst the books at Gatcombe Park, where Ricardo had lived during the later part of his life, and Sraffa included it in the list of which he wrote that ‘[t]here is also little doubt that the following had belonged to him [Ricardo]’ (1973, p.399), given the generosity of Ricardo in acknowledging his debt to Malthus and West it seems likely that he would have acknowledged Turgot likewise had he known of his (Turgot’s) discovery of the intensive margin law of diminishing returns.

Ten years after both the publication of Steuart’s Principles and the writing of Turgot’s Mémoire sur les effets de l’impôt indirect, James Anderson published An Enquiry into the Nature of the Corn Laws: with a view to the new corn-bill proposed for Scotland. In this pamphlet Anderson used the extensive margin law of diminishing returns to derive a differential theory of rent. The principal purpose of Anderson’s pamphlet was, as Marx noted in Theories of Surplus Value (1968, pp. 114, 121-22), not a theoretical but a practical one, namely to oppose a proposal that the Scottish parliament pass an Act encouraging the importation of oats, which at that time provided the Scots with not only porridge
but also bread, so as to lower the cost of labour to manufacturers. Anderson’s argument was that the thriving agriculture needed to feed the population requires relative stability of agricultural product prices. However, in a footnote (1777, pp. 24-25) designed to rebut a proposal that the price of oats be lowered simply by government fiat, Anderson provided a brief description of the extensive margin case of diminishing returns. In a later footnote (1777, pp. 45-50), to his argument that if the price of grain is high it is because a farmer has to cover his costs including profit, and in the course of attempting to rebut the ‘popular objection’ that a high price of grain is due to high rents, he supplemented this earlier brief description. He first stated that ‘[t]he rent of the land that determines the price of its produce, but it is the price of that produce which determines the rent of the land’, adding that ‘the price of that produce is often highest in those countries where the rent of land is lowest’ (1777, pp.45-6), a ‘paradox’ whose explanation led him to expound the extensive margin theory of rent in some detail. Inspired by his observation that land on the west coast of Scotland was less fertile than that on the east coast, his exposition was based on an example of returns progressively diminishing from lands of fertility A to those of fertility B, to those of fertility C, D, E, F and G in turn, which he used to demonstrate the effect on rent of increasing or decreasing the number of classes of land under cultivation. He concluded that given the fertility of the various classes of land in a country, the cost to its manufacturers of employing labour would vary directly with the size of the population that had to be fed.

Now that we have examined the claims of no less than seven economists to have discovered the Ricardian theory of rent, or at least key elements of it, we can turn to the question of whether the Ricardian theory of rent is an example of a multiple, as was suggested as early as 1828 by Macaulay, who put its discovery in the same class as that of the independent discovery of calculus by Leibnitz and Newton (see Merton, 1973, p.353). A serious shortcoming of the sociological literature on multiples is its failure to provide a sufficiently precise definition of a multiple for it to be possible to falsify the proposition that ‘x’ is an example of a multiple. As noted earlier in the paper, the concept of a ‘multiple’ would seem to require at a minimum that the same idea has been ‘discovered’ by more than one person independently. There are two problems with even this minimal definition of ‘multiple’. First, it can be argued that ideas should be regarded as belonging to a spectrum that approaches continuity, with the consequence, when there is a candidate for ‘a discovery’, that it is impossible to determine, both whether two ideas discovered independently are or are not ‘the same’, and whether an idea discovered previously is or is not ‘the same’, the latter calling into question whether the later event is or is not a ‘discovery’. Merton ducked this problem when he referred to multiples as involving ‘similar discoveries’ (1973, p.371). Second, it is often difficult to determine whether or not the same idea has in fact been discovered independently, for example
when the ‘discoverers’ work at the same time in the same or a nearby institution, or when they are so separated in time that the idea discovered by the earlier may have filtered through to the later. The most famous example of a multiple, that of calculus by Leibnitz and Newton, is perhaps also the clearest case, the idea discovered being clearly ‘the same’ and there being universal agreement that the discoveries were made independently.

Further problems may arise if the concept of ‘multiple discovery’ is defined more stringently. For example, Stigler (1980) narrows the definition by requiring that the idea be discovered in the same scientific context, thereby raising the thorny problem of distinguishing one ‘scientific context’ from another, of which Stigler however claims that ‘it is not an easy task but it is not an impossible one’ (1980, p.100), one illustration being the contention that the discoveries of Keynes and Kalecki do not qualify as a multiple because ‘the ruling (Marxian) economics in Poland bore little relationship to that in Britain’ (1980, p.100). Patinkin (1983) also narrows the definition, in his case by requiring that a discovery be part of the discoverer’s ‘central message’, likewise raising a thorny problem, namely that of distinguishing ‘central’ from peripheral messages. Narrowing the definition enabled Patinkin to strengthen his argument that what became known as Keynesian theory was not an example of multiple discovery, his argument being that Keynesian theory was not the ‘central message’ of either the Stockholm School or Kalecki, on the ground that ‘in brief, the Stockholm message was concerned with prices and not output, and that Kalecki’s was concerned with investment cycles and not unemployment equilibrium …’ (1983, p.315).

Since the Ricardian theory of rent is in fact two theories, we have the possibility that it provides two examples of a multiple. As we have seen, the external margin theory of rent was expounded independently by Anderson, Malthus, West and Torrens. This case surely meets Stigler’s stipulation of ‘same scientific context’, in this case the culture of Great Britain at the end of the eighteenth and beginning of the nineteenth century. It arguably also meets Patinkin’s stipulation of ‘central message’, as all four discoverers sought to demonstrate that the payment of rent does not influence price; though the policy conclusions associated with the theory differed, Anderson, West and Torrens arguing that the corn laws should be either abolished (in Torrens’ case) or weakened (in the cases of Anderson and West) on the ground not that their existence increases rent but that it increases the cost and therefore price of corn (due to extension of cultivation), but Malthus while acknowledging this consequence saw it as outweighed by considerations emanating from what he saw as the greater importance of agriculture and defence.

The discovery of the internal margin law of diminishing returns can also be argued to be an example of a multiple, Turgot and West being co-discoverers, though whether this case meets Stigler’s
stipulation of ‘same scientific context’ is debatable, given the context for Turgot was Physiocratic and that for West was Smithian, Stigler in fact concluding it does not meet his stipulation. Whether it meets Patinkin’s stipulation of ‘central message’ is perhaps less debatable, given that both Turgot and West were clearly pointing to the inevitability of ultimate diminishing returns if more and more homogeneous doses of capital and labour are applied to a fixed quantity of land. By contrast, the internal margin theory of rent was a singleton, West being the sole discoverer; although Brewer (1987, p.417) argues that ‘Turgot substantially anticipated Ricardo’s theory of rent’, the abstract of his article admits of the diminishing returns law that ‘[t]his [only] implies a rent theory’ (1987, p.417). Curiously, Ricardo may have played a part in ensuring this discovery remained an example of a singleton. By endorsing the internal margin theory of rent in his *Principles* within two years of the appearance of West’s pamphlet, Ricardo publicised it so widely that there was thereafter little opportunity for it to be re-discovered independently.

I turn next to the questions of first why, and second how, a theory of rent that was discovered by others became almost universally known as Ricardian. As to why, although Ricardo did not discover the differential theory of rent, as he himself clearly acknowledged, he did expound it. He did this first in *An Essay on the Influence of a Low Price of Corn on the Profits of Stock; shewing the inexpedience of restrictions on importation: with remarks on Mr. Malthus’ two last publications* (published 24 February, 1815). In this pamphlet Ricardo, after acknowledging his debt to Malthus’s analysis of rent, took as an example a country characterised by neither uncultivated land as well situated as that already under cultivation nor ‘improvement’ in agriculture over time nor a change in the real wage rate, arguing that to feed an increase in population in such a country, cultivation had to be extended to land less favourably situated than that currently under cultivation, consequently increasing unit transport cost and thereby lowering the rate of profit in agriculture, at the same time creating rent on land more favourably situated. He subsequently also used the example to draw the same conclusions in the case of the cultivation of land of worse quality than that previously under cultivation. This led him to the conclusion that ‘by bringing successively land of a worse quality, or less favourably situated into cultivation, rent would rise on the land previously cultivated, and precisely in the same degree would profits fall ’ (Sraffa, 1951b, p.14); Ricardo thus used the differential theory of rent to derive his theory that over time the rate of profit would fall. Having outlined the extensive margin theory of rent, Ricardo then went on to use the same example to draw similar conclusions in the case where alternatively more food was produced by applying additional capital to the fertile land already under cultivation, rent in this case accruing in the case of capital previously employed. Ricardo thereby outlined the intensive margin theory of rent. Adoption
of the differential theory of rent, in both of its forms, enabled Ricardo to conclude (Sraffa, 1951b, p.21):

the interest of the landlord is always opposed to the interest of every other class in the community. His situation is never so prosperous, as when food is scarce and dear: ... [but] high rent and low profits, for they invariably accompany each other, ought never to be the subject of complaint, if they are the effect of the natural course of things.

A very similar account of rent is to be found in Ricardo’s *On the Principles of Political Economy and Taxation*, which was published two years after his ‘Rate of Profit’ pamphlet, and which included an acknowledgment that the theory of rent contained in it had been discovered not only by Malthus, but also by ‘a Fellow of University College, Oxford’ (namely West). Since the ideas in Ricardo’s book quickly became ‘the orthodoxy’ (as Sismondi termed it) in classical political economy, partly through the popularisation of them by James Mill and McCulloch, it is not after all surprising that the differential theory of rent came to be named not after one of its discoverers but after Ricardo. In sum, the short answer to the question of why the differential theory of rent has become known as Ricardian is to be found in making a distinction between discovery and dissemination, analogous with the distinction between invention on the one hand, and its application, namely innovation, on the other. While Ricardo was not the discoverer of the differential theories of rent, it was mainly through his writings that they were disseminated.

Careful commentators have appropriately acknowledged both the usage of the term ‘Ricardian theory of rent’ and from the point of view of discovery its inappropriateness. Schumpeter, for example, in his *History of Economic Analysis* refers to “the ‘Ricardian’ theory of rent” (1954, pp.476, 490, 933, 934 and 936), both with ‘Ricardian’ in inverted commas, and an accompanying acknowledgement that Edward West’s independent discovery of the differential theory of rent and other Ricardian theories justifies reference to ‘West-Ricardian doctrines’. Marx, in his *Theories of Surplus Value*, refers in a chapter-heading to the ‘so-called Ricardian law of rent’ (1968, p.114), detailing in the chapter the prior claim of James Anderson, whom he asserts was plagiarised by Malthus, though first no evidence is provided for this assertion, second Marx is at pains to emphasise the differences in the uses to which Anderson and Malthus put the theory, and third the way in which the theory is developed is completely different in the two cases; the judgement of Jacob Hollander (1903, p.5) is that “[t]he most that can be hazarded is a reasonable likelihood that some part of the clear statement of the law of diminishing costs and of the co-ordination of extensive and intensive cultivation, which appeared in the tract on rent, figures in the Haileybury
lectures, and that James Anderson is to be counted among the influences which may have affected Malthus’ academic exposition [of the theory of rent].

Now that we know why the differential theories of rent have become known as Ricardian, how did this happen? Sraffa, in the introductory note to his edition of Ricardo’s ‘Essay on Profits’, notes that ‘[t]he popular belief that Ricardo actually invented the theory of rent (whence the phrase ‘the Ricardian theory of rent’) derives some support from the Note on Rent in McCulloch’s edition of the Wealth of Nations: “The theory of rent ... was first announced to the world in two pamphlets published in 1815, by Mr. West ... and Mr. Malthus. ... but, although he [Ricardo] was posterior to the authors above named, in promulgating the doctrine, and less happy in his mode of explaining it than Sir Edward West, it is well known to many of his friends that he was in possession of the principle, and was accustomed to communicate it in conversation several years prior to the publication of the earliest of these works”’ (1951b, p.6). If McCulloch’s assertion were true it would imply extraordinary generosity on Ricardo’s part in trumpeting the primacy of Malthus and West, and Sraffa himself describes the attribution of the discovery of the differential theory of rent to Ricardo as a ‘mistaken notion’. Sraffa goes on to assert that this ‘mistaken notion’ had an unfortunate consequence, namely ‘that of regarding Ricardo as the originator of the whole marginal theory’, and cites J. M. Clark as stating that ‘[t]he Ricardian theory of rent ... is the first great example of the marginal method, later to become the keystone of the entire Austrian system of economic theory’ (Clark, 1931, p.168, cited in Ricardo 1951b, p.6). If Clark’s term ‘marginal method’ is meant to refer to the analysis of changes in such variables as factor proportions, then Clark rather than Sraffa is right, as Ricardo’s exposition of ‘his’ theory of rent indisputably includes the intensive margin theory of rent, which is based on such changes; on the other hand, perhaps Sraffa understood ‘marginal method’ to refer to small or infinitesimal changes in such variables as factor proportions, in which case he was right, as in Ricardo’s writings all examples of changes in such variables as factor proportions involve changes that are substantial.

The McCulloch edition of the Wealth of Nations that refers to the association of Ricardo with the discovery of the differential theory of rent was published in 1828, five years after Ricardo’s death. I have, however, been able to find an even earlier attribution of the theory to Ricardo. In 1826 Robert Perronet Thompson published a pamphlet containing a critical review of the differential theory of rent as presented by Ricardo’s friend and disciple James Mill in his Elements of Political Economy, under the title An Exposition of Fallacies on Rent, Tithes, &etc., containing an examination of Mr Ricardo’s theory of rent, in the form of a review of Mr Mill’s Elements (a second edition of the pamphlet appeared later in the same year, retitled The True Theory of Rent in Opposition to Mr
Ricardo and Others). Since Thompson’s purpose was to criticise the differential theory of rent, it is curious that he went out of his way to associate it with the name of Ricardo, by then, as already noted, the recognised authority on political economy. Perhaps he thought it would attract attention. Regardless of whether or not the Ricardian theory of rent is an example of a multiple, there remains the more general question of whether multiple discoveries are exceptional. In an article entitled ‘Are inventions inevitable? A note on social evolution’ Ogburn and Thomas coined the term ‘multiple inventions’, and argued that multiple inventions are the rule rather than the exception (an ‘invention’ may be regarded as a sub-set of a ‘discovery’). The basis for their conclusion was that of ‘the two factors in the making of inventions, namely, mental ability and the existing status of culture’ (1922, p.86), the percentage of people with the mental ability to make a discovery changes very little over time, but the status of culture ‘is obviously highly variable over time, particularly in the last few centuries’ (1922, p.87). From this they deduced that an invention is made not, as the proverb has it, when it is necessary, but when culture has changed so as to allow it, and further that ‘if an inventor had died as an infant, there are chances that there are others with just as high native inventive ability’ (1922, p.87) who would have come up with the same invention. Building on this article, in a 1961 paper Merton went so far as to argue that ‘all scientific discoveries are in principle multiples, including those that on the surface appear to be singletons’ (1973, p.356), adding in a subsequent paper that this testifies to the fact that ‘though remote in space’, scientists ‘are responding to much the same social and intellectual forces that impinge upon them all’ (1973, p.375). He attempted to bolster his case by treating a discovery accompanied by a failed or unrecognised attempt at it as a multiple, as opposed to a singleton.

Finally, should historians of economic thought pay more attention to the concept of multiples? A weakness of this concept already noted is that it has been ill-defined, but it could be defined more precisely. Then it might prove useful in throwing light on the debate between those who favour the externalist explanation of change in the history of economic thought and those who favour the internalist explanation, possibly leading to the conclusion that the two kinds of explanation are complementary rather than competitive; for example, a change in events might make the time ripe for a discovery which nonetheless does not take place because economic theory is not yet ready for it. The externalist versus internalist debate often focuses on the so-called marginal revolution. The almost-simultaneous discovery of the concept of marginal utility by Jevons, Menger and Walras, the second on Stigler’s list, would seem to be a near-paradigm case of a multiple, though Stigler questions this on the ground that ‘the status and direction of economic science in France, Switzerland and Vienna were rather different than in England’ (1980, p.101). It should prove...
illuminating if the concept of multiples is also applied when further studies are undertaken of each of the remaining six (major) and two (minor) candidates for multiple discovery listed by Stigler; these are the marginal productivity theory (Marshall, Edgeworth, Stuart Wood, Wicksteed, Barone, J. B. Clark, Hobson), monopolistic and imperfect competition (Chamberlin, Joan Robinson), the modern theory of utility (Slutsky, Hicks and Allen), the theory of comparative cost (Torrens, Ricardo), refutation of the wage-fund theory (W. Thornton, Longe), and the international factor equalisation theorem (Lerner, Samuelson), and the measurable utility function (Wicksteed, Fisher) and the kinked oligopoly demand curve (Sweezy, Hall and Hitch). Additional candidates include the multiplier concept (Quesnay, Kahn, Meade), the Harrod-Domar growth theory, and the measurement of inequality (Lorenz and Gini).

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