

THE WALRAS PARADOX

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INTRODUCTION

Leon Walras is the Isaac Newton of neoclassical economics. He is the founder of general equilibrium theory. He is one of the three marginalist "revolutionaries" of the 1870s. The great historian of economic thought, Joseph Schumpeter [1954], called him the best ever. While undergraduate classes in microeconomics are usually watered-down versions of Marshall, graduate classes in microeconomics are usually jazzed-up versions of Walras. And, since the rational expectations revolution, graduate classes in macroeconomics, too, are jazzed-up versions of Walras. It is thus surprising that a basic problem in his thought has been largely ignored.

The very problem I refer to has not been clearly perceived. The closest understanding of this was Jaffé's [1983] discussion of the supposed "normative bias" in Walras' theory, which I discuss later in the paper. The problem is this: Leon Walras thought his general equilibrium theory was both "pure science" and normative. This apparent contradiction is "the Walras paradox."

On the one hand, in thinking of science as normative, Walras seems to be in the grips of a crude error and a gross confusion. Science is about what *is*; ethics is about what *should be*. No great insight is required to see that these are different. On the other hand, Walras was a great and famous scholar who had studied philosophy closely. His writings, especially *Studies in Social Economics*, made frequent reference to Descartes, Kant, Plato, and others. He was too sophisticated to confuse science with normative argument.

The contradiction is only apparent because Walras was working with a different set of assumptions than the set most English-speaking economists take for granted. The purpose of this paper is to explain those different assumptions sufficiently to make it clear how "pure science" could be normative too. A political and philosophical vision of the world undergirded Walras' economics. Understanding this vision lets us resolve the Walras paradox.

Resolving the Walras paradox has a payoff. If Walras meant to say something very different than we had thought, perhaps we need to rethink the uses to which we put general-equilibrium theory. As I shall argue later, the picture of Walras that emerges is not very "neoclassical." I will not, however, pretend to survey the consequences of this discovery.

OUTLINE OF THE SYSTEM

The Political Purpose of Walras' Philosophy of Science

Walras is famous mostly for his *Elements of Pure Economics* [1954]. But he also wrote *Studies in Applied Economics* [1898] and *Studies in Social Economics* [1936]. These three texts lay out an entire system of political economy consisting of three branches: pure, applied and social. Pure economics, general-equilibrium theory, is science. Applied economics, a practical matter of what is more or less useful to us in our industrial pursuits, is not science but art. Social economics, a matter of what is more or less just in our relations with each other, is ethics. Political economy has three branches: one for science, one for art, and one for ethics.

Walras' system of political economy had a purpose, and this purpose was well served by his tripartite division of the subject. Walras' purpose was to synthesize liberalism and socialism. Liberalism was, for Walras, the system of individualism and liberty; socialism was the system of collectivism and equality. He thought his synthesis had solved the "social problem." Though he never defined the term, it is clear what Walras meant by it—a catch-all term to refer to the issues of justice, property, equality, industrial organization, and so on.

Walras' proposed synthesis required him somehow to balance the economic ideas of liberals and socialists. He had to assign each group's theory its proper role. He did this by arguing that the economic ideas behind both liberalism and socialism were unscientific [1936, 175-202].

The liberals relied on utilitarian economics. "In industry," Walras argued, "it is utilitarianism or the doctrine of interest which is right" [1936, 179]¹. For Walras, as we shall see, "industry" was a matter of what is more or less useful and thus no matter for science. Utilitarian economics is not wholly false. It has a domain of application. But that domain is industry.

The socialists relied on moralistic economics. "[I]n ethics," Walras argued, "it is moralism or the doctrine of justice" which is right [1936, 179]. "Ethics" was a matter of what is good and bad and thus also no matter for science. Only Walras' "pure theory of value in exchange" was a branch of "science properly speaking."

The old schools of economics, Walras argued, were not really false, nor even incompatible. They just weren't science. One group was doing art, the other ethics. These were the proper domains for their ideas. Scientific economics is born, Walras thought, with general-equilibrium theory. On the foundations of this new, scientific economics, liberalism and socialism can be synthesized.

Walras thought his system of political economy was so rightly conceived, so original, so well grounded that now, for the first time in the history of man, the social problem could be definitively solved. The key to the supposed solution was the nationalization of land. With all land rents going to the government, there would be no need for the injustice of taxation. The three elements of Walras' political program were free trade, land nationalization, and the elimination of taxation. The results of implementing the program would be world peace and justice. There would be "liberty

to the individual," but "authority to the state;" "equality of conditions," but "inequality of positions" [1936, 162].

Walras thought he deserved the Nobel Peace Prize for his supposed solution to the social problem. He wrote a recommendation for himself and had three of his followers sign it and send it to the Nobel committee [Jaffé, 1965, vol. 3, letters 1589 and 1595]. Walras' new system would bring universal peace and prosperity and thus deserved the prize. The Nobel committee seems to have had less confidence in Walras' system than Walras himself; they chose not give him the prize.

As Walras' correspondence on the Peace prize shows, he strongly emphasized the supposed scientific character of what he called the "pure theory of value in exchange." For Walras, this claim to scientific status was an important matter. He thought that if his schemes of social reform were to be taken seriously, he had to show that they were based on "science properly speaking." Indeed, he called his synthesis of liberalism and socialism "scientific socialism." (There seems to be no connection to Marx here.)

To my knowledge, the link between Walras' division of political economy into pure, applied, and social economics and his attempt to synthesize liberalism and socialism has gone almost unnoticed. The one exception of which I am aware is the work of Hervé Dumez [1985]. If Walras' taxonomy serves simultaneously to establish the scientific character of his pure economics and to deny the scientific character of liberal and socialist economics, then the very meaning of his theory needs rethinking.

The Scientific Character of General Equilibrium Theory

In his *Studies in Social Economics*, Walras argued, in effect, that such valid results as the liberal school was able to reach were a part of applied economics. They were not pure economics. Similarly, such valid results as the socialist school was able to reach were a part of social economics, not pure economics [1936, 194-8; 1954, 73-80].

Walras notes the "curious fact" that, of the two sides of the social problem, socialists see only one and liberals only the other. For the socialists, "the whole social problem consists essentially in the problem of justice." For liberals on the other hand, "the whole social problem consists only in the problem of order" [ibid., 198]. The "problem of order" is a problem of industry to be solved by art; the "problem of justice" is a problem of "institutions" to be solved by ethics. His theory of price, Walras held, was the first and the only scientific theory of political economy [Jaffé, 1965, letters 16 and 81; Walras 1954, 71].

Walras dismissed liberal and socialist economics as non-scientific on metaphysical grounds. The basics of his metaphysics and philosophy of science are explained in lesson two of the *Elements*, "Science, Art and Ethics Distinguished" [1954, 58-64]. All "entities," he held, fall into one of two "great classes": people and things. This division induces a partition of phenomena into three classes. The first class of phenomena results from the relations of people to people and constitutes the domain

of institutions. The second class results from the relations of people to things and constitutes the domain of industry. The third class results from the relations of things to things and constitutes the domain of nature. According to Walras, a scholarly discipline corresponds to each of these classes or domains and a "criterion" corresponds to each discipline.² The three disciplines are science, art, and ethics; the three criteria are truth, utility, and justice.

Ethics is the study of institutions; the criterion of ethics is "the good." Applied science or art is the study of industry; the criterion of art is "the useful." Science is the study of nature; the criterion of science is "the true."

Liberal and Socialist Views of Man

Walras' three-way division of scholarly disciplines allowed him to argue that the valid theorems of liberal economics were really propositions of art, the valid theorems of socialist economics were really propositions of ethics, and that only his pure theory of value in exchange studied phenomena that result from the relations of things to things and that, in consequence, only his general-equilibrium theory is a branch of science.

Liberals and socialists alike adopted one-sided views of man. For Walras, man is a rational soul housed in an appetitive machine [Walras, 1936, 189]. The liberals abstract from man's rational soul, which seeks the good, and view him as an "organized body" [1936, 86] which seeks utility. But with such a view of man, the reasoning of liberalism can be guided only by the criterion of utility, "the useful," and can only be valid when applied to industry (i.e. to the phenomena that result from the relations of persons to things) [ibid., 194-5].

Similarly, the socialists abstract entirely from man's nature as appetitive machine, an "organized body" seeking utility, and view him purely as a "rational soul" [ibid., 86] who is morally responsible [ibid., 90]. But with such a view of man, the reasoning of socialists can be guided only by the criterion of justice, "the good," and can only be valid when applied to institutions, (i.e., to the phenomena that result from the relations of persons to persons) [1936, 198].

General equilibrium theory, the pure theory of value in exchange, studies the relations of things to things; it studies the mathematical determination of the ratios of value things acquire on account of their exchangeability. Exchangeability is a relation between things and things. It is a natural phenomenon.

Walras can argue for the naturalness of value in exchange by holding that exchange values exist once the conditions of exchangeability are established, rather than once exchange begins to take place [Walras, 1954, 67-9]. Scarce things acquire the property of exchangeability after two sets of decisions have been made. First, each individual chooses his own utility function. Second, the state chooses the division of property, i.e., the initial distribution.

It may not seem strange to think of society choosing the initial division of property. But what, one might wonder, does it mean to say the we *choose* our utility functions? We must remember how far Walras was from the sort of thinking we take for granted today. For Walras there was nothing mysterious or particularly daring in the suggestion that people choose their utility functions. Thus, he gives us no careful explanation of what it could mean to say they do. But from a general reading we can form a pretty good guess.

The essential feature of a person is the "free and cognitive human will." Choice is an act of the will. But the acts of the will are not a proper subject for science. There can be no scientific analysis of choice because there can be no scientific analysis of acts of the will. We can, however, reason scientifically about the consequences of choices already made. The utility function is the product of an unanalyzable act of the will. In that sense, it is chosen. But we may reason scientifically about the consequences of that choice. "[W]e have never attempted to predict decisions made under conditions of perfect freedom," Walras explained, "we have only tried to express the effects of such decisions in terms of mathematics" [ibid., 256].

General equilibrium theory does not study human actions or choices. It studies the consequences of two kinds of choices made by persons, *viz.*, the initial distribution chosen by persons collectively through the state, and the utility curves chosen by persons as individuals. Because it studies not these human choices, but their consequences, pure economics studies phenomena of nature, phenomena resulting from the relations of things to things. Pure economics is guided by the criterion of *truth* and it is scientific. Price theory is one of the natural sciences.

The Normative Bias of All Theory

It would seem, then, that since general-equilibrium theory is scientific, it is a positive discipline and not a normative scheme. Surprisingly, this conclusion does not follow. Walras was taking for granted an epistemology and metaphysics implying that all of theory—science, art, and ethics—had a kind of normative character. (To be sure, Walras did not use the words normative and positive except in senses largely divorced from the meanings they are given today.) Walras borrowed this epistemology and metaphysics from Etienne Vacherot.

Etienne Vacherot was a French philosopher of the "eclectic" school. The most prominent member of this school was Victor Cousin. Jaffé [1965, vol. 1, letter 128, note 1] describes Vacherot's *La métaphysique et la science* as Walras' *vade mecum*. Dumez describes Walras' approach to science as "very modernist," and "without doubt" a kind of Kantianism set on the base of Vacherot's writings [1985, 86]. Today, few philosophers pay attention to Victor Cousin. Fewer still take note of his more obscure colleague, Vacherot. But at the time that Walras was learning his philosophy, the eclectics were greatly influencing French political debate and, for a time at least, dominated French philosophy.

The part of Vacherot's thinking that matters for this paper is his metaphysics. For Vacherot, as for many thinkers, metaphysics is about principles that are thought to be, somehow, at work under the surface of things. Vacherot split these principles into two classes and derived two separate, but complementary, metaphysics: "positive" metaphysics and "ideal" metaphysics.

Positive metaphysics, as D. G. Charlton explains, "works from the knowledge given by the sciences to a synthetic view of the world as a whole, and although its conclusions are never susceptible to empirical verification, they are as reliable and as closely related to the real world as those of geometry—to which he explicitly likens it" [1963, 114]. This positive metaphysics already has something of a normative cast to it, for it leads us, putatively, to a teleological view of the universe. With it we see the world as one, as "the absolute, universal, infinite Being, principle, substance, and end of all things" [Vacherot, 1863 as cited in Charlton, 1963, 115].

Ideal metaphysics discusses ideal perfections. Vacherot held that the perfect is unreal and that what exists is necessarily imperfect. This principle reversed the old scholastic principle that existence is a perfection. Many medieval philosophers believed that existence comes in degrees. Some things exist more completely than others; some things are more real. God, of course, is the most fully existing and completely real thing of all. Vacherot turns all of this upside down. The distinguishing feature of perfect things is exactly that they do not exist. Reality is the realm of the imperfect.

The perfect is not, on account of its unreality, unimportant. The perfect has a claim on us as an ideal. The perfect exists, and can only exist for Vacherot, as an ideal [Charlton, 1963, 115]. Thus God, the most perfect thing, does not exist. But he is an ideal toward which we must move. Indeed, Vacherot sees in his 'ideal metaphysics' a new theology [ibid., 1963, 115]. "Ideal! Ideal!" he wrote, "You are truly the God I seek" [1863 as cited in Charlton, 1963, 116]. Positive metaphysics, in Charlton's words, "studies reality" whereas ideal metaphysics "studies the ideal or perfect, an abstraction created by man by means of extrapolation from the imperfect" [1963, 115].

Such a deification of the products of reason was not uncommon in the France of Vacherot's time. The French Revolution had seen the cult of Reason. The period from 1815 to 1870 saw the efforts of Saint-Simon, Victor Cousin, Auguste Comte and others to establish the "secular religions" studied by Charlton [ibid.]. It was in this context that Vacherot was writing. And it was in this context that Walras, as a young student and scholar, was learning both his philosophy and his sense of what problems social science and philosophy should try to solve. From Walras' description of theory and science, it seems that he conceived of political economy as a branch of ideal metaphysics, but without the added flourish of deification.

In the *Elements* Walras describes the "mathematical method" as a *rational* method and not an *experimental* method [1954, 71]. This seems to imply that it is a matter of ideal metaphysics. Just as Vacherot had explained that ideal metaphysics studies the ideal or perfect through an abstraction based on extrapolation from the imperfect, Walras said the rational method extracts "ideal-type concepts" from "real-

type concepts." This is what the "physico-mathematical sciences" in fact do; this is what pure economic theory should do. Once we have extracted these ideal perfections from experience, we return to experience to apply them. "The return to reality," Walras explains, "should not take place until the science is completed and then only with a view to practical applications" [ibid., 71-2]. Walras goes on to promise "that the truths of pure economics yield solutions of very important problems of applied economics and social economics, which are highly controversial and very little understood" [ibid., 72].

Walras argued in the *Studies in Social Economics* that the objects of all theoretical thought are "ideal perfections." For Walras, an ideal type is ideal not only in Max Weber's (*wertfrei*) sense of ideational, but also in the normative sense of providing an end or goal for action: Science is the "idealization of reality" and art is the "realization of the ideal" [1936, 11].

When Walras argues that science is "defined as the idealization of reality," whereas art is "defined as the realization of the ideal," one might dismiss the parallelism of his construction as bad style and conclude that "idealization" means simply "conceptualization." But before arriving at these definitions of art and science, Walras had already argued that, "the ideal is necessarily perfect," just as "all perfection is necessarily ideal; and that "all reality is imperfect" [ibid., 10-11]. Moreover, Walras' criterion of demarcation between theory and practice is "perfection or the absolute."

As concerns theory and practice, it may be said henceforth:

1. That perfection, or the absolute, is the constitutive principle of theory and science;
2. That imperfection, or the relative, is the constitutive principle of practice and art. [ibid., 11]

For Walras, then, "theory and science" are similar to and perhaps identical with the "ideal metaphysics" of Etienne Vacherot.

Walras distinguished between theory and practice according to the perfection of the objects of study. And he distinguished between theoretical disciplines according to the criterion (truth, utility, or justice) regulating the discourse. But he did not distinguish between normative and positive disciplines in the way of present-day Anglo-American philosophical orthodoxy. For Walras, all theoretical reasoning has the character we call normative, because all theoretical reasoning concerns ideal perfections rather than imperfect reality.

T. W. Hutchison's remark was something of an understatement: "There is certainly present in Walras' writings, as is frequently the case with rationalist reformers, a certain fundamental disinclination to distinguish between his positive and his normative doctrines, and the sorts of validity they can respectively claim" [1953, 212]. Hervé Dumez is sensitive to the difficulty of sorting out the real from the

ideal in Walras' thought when he describes the real and the ideal as "interlaced in delicate strands that are difficult to separate" [1985, 209].

Clearly, what Walras meant by natural science differs from present-day conceptions. For Walras, there is nothing contradictory in the attempt to construct economic science as a normative system of natural science. For most present-day economists such an attempt is contradictory in three ways. First, economic science is not natural science; second, natural science is not normative; and third, economic science is not normative. For Walras, on the other hand, all theory is normative in the present-day sense, because theories take ideal perfections as their objects and these ideal perfections serve as the ends of action.³ Moreover, for Walras, if there can be an economic science at all, it must be a natural science. All sciences study phenomena that result from the relations between things and things; all sciences study the "blind and ineluctable forces of nature." No science studies phenomena that result from the relations between people and things or between people and people; no science studies phenomena that arise fully or in part from the "free and cognitive human will." The theoretical disciplines which study these latter sorts of phenomena are called art and ethics.

Our inquiries into the foundations of Walras' system has brought us to an odd conclusion. Price theory, for Walras, is both natural science and a normative scheme. The Walras paradox is real; he did argue that general-equilibrium is a normative scheme and pure science. But a knowledge of the Vacherovian metaphysics undergirding this paradoxical claim shows that any contradictions in it are only apparent, not real.

SOME IMPLICATIONS

Our gloss on the philosophical and political roots of Walras' economic theories enables us to better understand some issues in the history of economic thought. It helps us to solve some old problems of Walrasian interpretation and sheds some new light on the meaning of neoclassical economics.

The Normative Bias

The issue of a normative bias in Walras' system is, I think, greatly illuminated by our understanding of his (Vacherovian) metaphysics. In his essay "The Normative Bias of the Walrasian Model: Walras versus Gossen," William Jaffé [1983, 326-42] argued that Walras had a "moral bias" which was hidden behind a "pure theory mask" which he let drop occasionally as in his critique of Gossen or his plea for the removal of obstacles to competition. Walras' "latent purpose," Jaffé held, was "to demonstrate the possibility of formulating axiomatically a rationally consistent economic system that would satisfy the demands of social justice without overstepping the bounds imposed by the natural exigencies of the real world" [1983, 340-41].

Apparently, Jaffé thought this latent purpose conflicted with Walras' claim that his theory was scientific. "Leon Walras's dominant preoccupation was with the problem of social justice. By osmosis, as it were, this paramount preoccupation passed through the partition Walras himself erected to separate his normative economics ('*économie sociale*') from his pure economics" [1983, 340].

Donald Walker, too, has held that if Walras' pure theory is a normative scheme, then it cannot be scientific. The "implications of Jaffé's thesis are important issues for the history of economic thought. There is a major difference in character between the work of a scientist who strives as best as he can to achieve what he believes is objective truth... and the work of someone who develops a system as a means of showing how his ideas about social justice can be distilled into rules of proper conduct; and as a way of demonstrating the desirable consequences those rules would have if they were adopted" [1984, 446]. By charging that Walras had a normative bias, Jaffé seems to suggest dishonesty on Walras' part. "Jaffé made a very serious allegation about Walras as a scientist..." [1984, 446].

In his "Is Walras's Theory of General Equilibrium a Normative Scheme?" Professor Walker showed that Walras did not "purposely conceal the normative nature of his general-equilibrium theory" [1984, 447]. And that general equilibrium theory was, for Walras, science, not art or ethics. In recapitulating his argument he says, "Thus the evidence all shows that Walras was very much aware of the distinction between normative and positive studies, and of the desirability of keeping them separate. It is also clear that he regarded economic theory as a positive study of economic behavior" [1984, 454]. But this conclusion is, in the strict sense, a *non sequitur*. It would follow if we could assume, as Walker and Jaffé both have done, that for Walras, science is necessarily a positive discipline. But as we have seen, Walras distinguished between science and non-science on the basis of the *objects of inquiry*, the domain, and *not* on the basis of such formal, semantic properties as falsifiability or normative content. Showing that Walras conceived of his pure economics as science does not relieve Walras of the charge of harboring a normative bias. On the contrary, since "science" is a part of what Vacherot called "ideal metaphysics," it studies ideal systems and in this sense embodies by necessity a normative bias.

Was Walras a Neoclassical Economist?

Hervé Dumez has argued that economists often retain from Walras only his "pure and perfect competition" while forgetting his reflections on the state and thus "place Walras in categories as absurd as that of 'neoclassical' economist" [1985, 17]. Dumez' word "absurd" is surely too harsh. The word "neoclassical," after all, has had so many meanings that perhaps it no longer has any meaning. But knowing Walras' philosophical and political vision shows us that in several ways he was not very neoclassical. I will discuss three.

First, neoclassical theory is often taken to represent, in one way or another, a market process [Mirowski, 1987, 92; Walker, 1989, 5; Hahn, 1982]. But we have seen that science describes, not a process, but the ideal ends of action. For Walras, the equations of his general equilibrium theory do not represent any market process. This system represents, for Walras, "free competition." Free competition is an ideal end-state, not a process. Moreover, in spite of his name for it, "free competition" does not necessarily describe a situation in which individuals are free to buy and sell as they please. The free competition Walras envisioned was consistent with almost any degree of government regulation and control.

Pure theory is the guiding light for applied theory. When we understand thoroughly —what till now we understand so imperfectly— the mechanism of freely competitive exchange, production, and capitalisation, we shall know exactly how far it is automatic and self-regulating, and how far it needs to be supplemented and controlled... When we have traced out the plan of a normal organisation of production and distribution, we shall see clearly where the actual organisation is satisfactory and where it is defective and must be modified. Then our children or grandchildren in the twentieth century will be able to refuse to be cast about, as we have been in the nineteenth century, between a smug conservatism which finds everything excellent and admirable, including the monopolies of the mines, railways, and banks, and the taxes on consumption, and on the other hand, a muddled progressivism out to turn everything upside down. [Walras, 1898, 68 as translated by Hutchison, 1953, 211]

Here we have a clear statement that free competition is an end-state and not a process, that it is something to be brought about one way or another, not the necessary or probable result of a market process. Far from describing something like a "pure theory of the invisible-hand" [Hahn, 1982], Walras was describing a state of affairs whose achievement is the goal of social policy.

Second, neoclassical theory is often taken to represent some sort of idealized capitalism [Mirowski, 1987, 92; Walker, 1989, 1]. As we have seen, Walras was not aiming at "capitalism." He was aiming at "scientific socialism." His involvement with the cooperative movement is well-known as is his scheme for land nationalization. In his *Etudes d'économie appliquée*, Walras even toys with possibilities which look for all the world like market socialism. Speaking of the different possible combinations of private and public enterprise, Walras held that it would not be possible to leave all production to the private sector.

If an absolute solution was necessary it would not be one exclusively of individualism. Strictly speaking, all enterprise *could* be collectivised, while it could not possibly all be left to individual enterprise. Collectivist production is possible, and would not necessarily conflict either with liberty, equality, order, or justice. It is simply a question of social advantage. One thing is certain, even under collectivism where the state was the sole entrepreneur, and *a fortiori* before this condition is reached, the price of labour and personal services, like the rent of lands and the profit on capital, must be determined in the market for services by raising the price where demand exceeds supply and lowering it where supply exceeds demand, just as with the prices of products on the markets for products, and in fact in accordance with the prices of products. [Walras 1898, 272-73 as translated by Hutchison, 1953, 214]

Finally, neoclassical economics has been taken to represent an extreme individualism [Mirowski, 1987, 92; Hodgson, 1989]. But Walras criticized French liberal economists for their extreme individualism. Walras was the great synthesizer. As we saw earlier, he wished to synthesize individualism and collectivism. In the *Etudes d'économie sociale* Walras argues for the reconciliation of individualism and collectivism.

Two things have to be distinguished here: the *general social conditions* and the *particular personal positions*. As to the *positions*, individualism is right and communism is wrong. It is contrary to order that the community should fix individuals' positions, and it is contrary to justice that the community should profit from the position an individual has created. As to the *conditions*, communism is right and individualism is wrong. It is contrary to order that the individual and not the state should fix social conditions and it is contrary to justice that the individual should turn to his exclusive profit the social conditions established by the state. Liberty for the individual and authority for the state, or equality of conditions and inequality of positions, that is the principle of our revolution and the fundamental constitutional formula for social science. . . . The task of our epoch is to bring into equilibrium the rights of the individual and those of the state. [Walras, 1936, 200-201 as translated by Hutchison, 1953, 211-12]

Walras compared individuals to drops of water and the collectivity, which he calls "the State," to the ocean. It is only by abstraction, he argued, that we can conceive of the ocean without drops of water or the drops of water without the ocean. "The individual *in* the State," Walras wrote, "is the sole reality" [1936, 91].

Walras' model represents no market process. His theory does not represent capitalism in even the most stylized way. He explicitly rejected extreme individualism in favor of a synthesis of individualism and collectivism. If Walras was not, in this sense, a neoclassical economist, then our understanding of Walras and his place in the history of economics may stand in need of revision.

CONCLUSION

English-language historians of economic thought have paid scant attention to Walras' philosophical presuppositions and political purposes. This neglect has led them to impute categories of thought to Walras that are sometimes quite alien to his thinking. I have discussed the sort of exegetical difficulties this practice can create. The meaning of Walras' achievement is very much in doubt. It is to be hoped that in the future Walrasian scholarship will address such fundamental questions as the meaning of *tâtonnement* and the significance of the physics metaphor in Walras' theory with a fuller appreciation of the underlying philosophical and political vision which guided Walras from his earliest efforts to the end of his life.

NOTES

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1. Unless otherwise indicated, all translations from the French are my own. All quotes from the *Elements of Pure Economics* are from Jaffé's translation.
2. Walras' notion of a "criterion" seems to be something like Kant's "regulative principle". In any event, a close study of the meaning Walras gave to the term would be a boon to Walrasian scholarship.
3. This statement oversimplifies. Walras distinguished the abstract disciplines of science, art, and ethics from the practice of art and ethics which he called politics. Politics guides action directly and makes concession to such exigencies as time constraints and incomplete information. The ideal perfections that are defined by theory and science are guides to action only indirectly through the intermediation of politics [Walras, 1936, 187-8; Jaffé, 1965 vol.1, 543, letter 385].

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