

Vilfredo Pareto

The Economist in the light of his letters to Maffeo Pantaleoni⁽¹⁾

The publication of Vilfredo Pareto's letters to Maffeo Pantaleoni is a literary and scientific event. The world of science cannot be grateful enough to the Banca Nazionale del Lavoro and to the editor Gabriele de Rosa and his collaborators for the painstaking work done by them in the systematic preparation and annotation of this unique collection of letters which throws new light on Pareto's thought, on his relations with the leading economists of his time, and on the economic and political problems of Italy from 1890 to 1923, and hence are invaluable to the economist, the sociologist, the politician and the historian.

If the scientific correspondence of Pareto with his faithful friend has been preserved in its entirety, this is due to the timely realization by Pantaleoni that he had a partner of genius in Pareto whose letters should be preserved for posterity. Pantaleoni's words about Pareto to Mme. Régis in 1908 (Vol. III, letter 14, appendix) no doubt express his conviction after the first contacts:

"The day will come when Pareto will have an outstanding world reputation, a reputation like that of Pascal, or D'Alembert, or Pasteur. Then, when you have been at his side through his last years, and when you have sweetened them for him, you will be given a place for which you will be envied. You will see that this is so. Moreover, what now seems something to be hidden, and should at present be hidden, will be your glory. You will see this too. Please excuse these remarks. I did not dare to make them to you *de visu* at Céligny. You will see how many people will turn to you one day in order to obtain information about Pareto. You will see that people will write volumes about him" (p. 376).

(1) VILFREDO PARETO, *Letters to Maffeo Pantaleoni, 1890-1923*. Edited by Gabriele de Rosa, 3 Vols. Under the auspices of the Banca Nazionale del Lavoro, Rome, 1960.

Pantaleoni's prophecy has come true. In the pantheon of our scientists, Pareto's monumental work is on a par with that of the few really great men in the economic and social sciences.

It is only from his letters that it becomes quite clear how this work came into being, what difficulties its creator had to overcome in order to be able to proclaim his message which is now generally accepted. No doubt numerous aspects of Pareto's life and of his scientific development were already familiar to us from parts of his extensive correspondence which had previously appeared and been made use of (2). The letters which are now published, however, to which is appended the most complete list hitherto compiled of Pareto's writings, mark a great step forward. Only now is it possible to complete the picture of Pareto's life and work in certain essential respects (3). This is what we have tried to do for Pareto, the economist.

1. The Beginning of the Correspondence

Pantaleoni's correspondence begins on 1 October 1890. Pareto was then 42 years old and had carried out extensive economic studies. He knew the works of the English and French classical economists, Cournot's *Théorie mathématique de la Richesse Sociale* (*Researches into the Mathematical Principles of the Theory of Wealth*) (1838), Walras' *Elements d'Economie Politique pure* (*Elements of pure Economics*) (Lausanne, 1874), Walras' *Théorie mathématique de la Richesse Sociale* (*Mathematical Theory of Social Wealth*), Lausanne, 1883 (published in instalments from 1873 to 1876) and numerous other writings on economic theory and policy. The first edition of Marshall's *Principles* (1890) was not unknown to him either (letter 26, Vol. I, 3 October 1891). In the same way, he was familiar with Cairnes' *Theory of International Trade* and W. Launhardt's *Mathematische Begründung der Volkswirtschaftslehre* (1887), al-

(2) G. SENSINI, *Correspondence of V. Pareto*, Padua, 1948; T. GIACALONE-MONACO, *Pareto-Walras. From an unpublished correspondence (1891-1901)*, Padua, 1960. See also: G. BOUSQUET, *Vilfredo Pareto, Sa vie et son oeuvre*, Paris, 1928.

(3) It is, of course, to be regretted that Pantaleoni's replies to Pareto, apart from a very few of them reproduced in the Appendix, have not been preserved, but Pareto's letters to Pantaleoni make it possible in many cases to reconstruct the latter's answer.

though he could not read German at all and English only with great difficulty (Vol. I, 45, 5 January 1892).

With a solid knowledge of existing material, then, Pareto embarked in 1890 on a correspondence with the nine years younger Pantaleoni who was then teaching at the University of Bari and with whom he was soon to be linked by a friendship that became closer and more intimate with every year (4).

The occasion for the correspondence with Pantaleoni was the latter's work (published in the *Giornale degli Economisti* in 1890: "On the probable total of private wealth in Italy", which was to serve Pareto as a basis for "various estimates that he would have to make on the Italian Economy" (Vol. I, 1, 1 October 1890). He is eager that "the Italians should know these things" (Vol. I, 3, 17 October 1890). "Political economy and the social sciences should be known by all cultivated citizens, whereas those who have some idea of them are as rare as flies in the winter time" (Vol. I, 4, 22 December 1890) (5). But even in fact the ignorance of the so-called expert circles too, occasionally fills him with concern. After the publication of his *Course*, he writes: "I do not know if you have read the article by Erwin Fisher on my book. He has not understood a thing. I am sending you a copy of the letters that I have written him. It would be better if I had not published my book. The very people who would be capable of understanding it, interpret it the wrong way round (Vol. I, 241, 4 December 1896). Indeed, he is later overcome by doubts whether economic science should be taught at all:

"I don't know whether we are doing the right thing in trying to teach economic science. In a hundred years, perhaps, there will be somebody who will be concerned with it; at present, nobody does. Have you seen Irving Fisher's stupid remarks? In every science there is a public, restricted may be, but competent and capable of objective judgements; in political economy, there is no such public. If you write on the Athenian republic of Aristoteles, there are at least a score of people in Europe

(4) From 1 October 1890 to 18 August 1891, the letters address Pantaleoni as "Illustrious Professor, Distinguished Professor" or "Dear Professor". From 23 August 1891, the form of address is changed to "Distinguished friend, Dear friend". On 2 December 1891, he starts using the more intimate form of "Tu".

(5) He complains repeatedly of the ignorance of the public: "The ignorance of the public is always greater than is believed" (Vol. I, 32, 13 November 1891).

who are in a position to say whether you are right or wrong and who will discuss the matter scientifically. If you write on economic science, either they do not understand you, or those who might will talk about everything else but the subject" (Vol. I, 246, 23 December 1896).

"The trouble about economics is that everybody talks of it without understanding a single word about it" (6) (Vol. III, 559, 14 September 1907). For that reason, he was always disinclined to attend congresses.

Over and above the specialist interest that they had in common it was the bond of a common liberal attitude which led Pareto to an exchange of views with Pantaleoni, the joint editor of the *Giornale degli Economisti* whose faithful and valuable collaborator Pareto had already become in the first year of the correspondence (7).

"I would like your journal which defends economic liberties to have the widest possible circulation in Italy and abroad. When I was in Rome, I talked to the Marquis de Viti with a view to sending lots of people little printed sheets containing a résumé of the latest numbers and the objectives of subscribers. Believe me. It would be a good idea to make a little more publicity. Now I have another idea. Would you like me to negotiate with some French journal with whom I am in touch for an exchange of announcements? That is, the French journal would publish an advertisement for the *Giornale degli Economisti* and the latter would publish an advertisement for the French journal. Thus, at no cost to yourself, you would obtain publicity in French. I realize that I may be making myself something of a nuisance with this insistence of mine, but it seems to me to be for a good cause. If we wish to defend economic freedom effectively, we must also go hunting for readers. Moreover, if people publish a journal, they must also be eager to have the greatest possible number of subscribers" (Vol. I, 12, 25 April 1891).

The fight against protection again and again takes pride of place in the letters of the first year. Here are only a few examples:

"I quite realize that protection is an absurdity and a fraud... Auspitz maintains that import duties work in the country's favour.

(6) In this case and subsequently, the underlining of sentences or large parts of a sentence is by the author.

(7) The first four works which Pareto published in 1890 and 1891 in the *Giornale degli Economisti* are on protectionism.

Ah, the German rascal! Molinari was right when he urged me to be on my guard against such people" (Vol. I, 43, 1 January 1892). "Customs barriers are merely a variety of this system [that is, of the prevailing Italian system - note by author] which perverts public life" (Vol. I, 55, 7 February 1892). "There is a real mania on the part of mathematical economists to try and find reasons in support of protection! Cournot, Auspitz, Launhardt, and there are no doubt others whom I don't know. Thus, science is going backwards. On this point, Smith, Mill, Ricardo and Cairnes reason a thousand times better and more precisely than these modern economists"... "As for me, none of all this comes near the lucid and precise exposition of Cairnes on international trade" (Vol. I, 45, 5 January 1892).

Indeed, he goes as far as to write:

"With all due respect for Walras, it seems to me that, if he had sought against protection from his chair in Lausanne, he would have done a more useful job than in providing a more or less conclusive proof that market equilibrium is maintained by increasing prices in step with demand" (Vol. I, 41, 25 December 1891). "I did not say that Walras should become a member of parliament; what I felt was that he as an economist, could study the reasons for the recrudescence of protectionism in Switzerland and show that science can foresee its bad effects" (Vol. I, 44, 4 January 1892). "Just look at the English. I am sure that they do not know the theory of comparative costs, but they have had direct experience of the advantages of free trade, and now nobody would dare to put a tariff on wheat" (Vol. I, 19, 15 July 1891).

Nine months later, the reading of Pantaleoni's *Principi di economia pura* (*Principles of pure economics*) occasioned a new and further exchange of ideas. Curiously enough, this book, which was published in 1889 when the correspondence was starting, was not known to Pareto. On 21 June 1891, he writes to Pantaleoni from Paris:

"I have been to Milan for a few days, and then I came here where I have seen a lot of economists. The comparison with Italy seems to me encouraging for our country. With us at least, new developments in economics are being studied. Here, people are almost unaware of them. They have no translations of German and English economists, and cannot read them in the original! The old economists hardly go beyond Ricardo; they proceed by 'wise saws' and dogmas, and in the end they almost

make me dislike the free trade approach! Fortunately, there are some of the younger men who understand that, whatever one's own opinion, one must at least know about new developments (8). In this connection, Professor Mazzola has told me about a treatise on political economy which you have written. Who is the publisher? I would like to read it, and I am sorry that I have not done so hitherto because I was unaware of its existence. This is our great weakness in Italy, that we do not have complete bibliographies of what is published there" (Vol. I, 15). On 16 July 1891 he informs Pantaleoni of the receipt of his book and says: "I have read with great interest your *Principles of pure economics*, and I am extremely pleased with them. They are clear, precise, and they have resolved some of my doubts that I had derived from more ambitious volumes. It is really a fine book. I still have doubts about this wretched utility. I do not see how it can be measured. But more of this another time" (Vol. I, 17).

For the first time, he here expresses doubts on the usefulness of the concept of utility because it cannot be measured — a question to which he frequently reverts in connection with the concept of marginal utility: "*My doubts are concentrated on marginal utility of which I have not yet found a precise definition*" (Vol. I, 26, 3 October 1891). *On marginal utility, there are still a few points which are draped in mist for me*" (Vol. I, 57, 17 February 1892).

II. Pure and Mathematical Economics

The problems of pure and mathematical economics which formerly occupied him now — until 1910 — take up more and more space in the correspondence. The first great work which deals with the basic ideas of the "new school" appears in 1892-93, in four essays in the *Giornale degli Economisti* under the title "Considerations on the basic principles of pure political economics" (9). From the correspondence, it is clear how he struggled

(8) Elsewhere (Vol. I, 97), he writes: "The French have the grave disadvantage of reading few foreign books. They know the new science through Cournot and through Gide's Journal" [that is, the *Revue d'Economie Politique* (note by author)]. Pareto's article in the *Monde Economique*, to which he was to become a regular contributor, aimed at drawing the attention of the French to mathematical economics" (Vol. I, 28, 7 October 1891).

(9) Reproduced in: V. PARETO, *Scritti teorici (Theoretical Writings)*. Edited by Giovanni Demaria, Milan, 1952.

with the problem of marginal utility, in which connection he repeatedly emphasizes how much Pantaleoni's book has helped him to clarify this issue: "My ideas on this subject have gradually become clearer and have taken shape. You have contributed greatly to my education in this matter; and now, to complete your work, you offer to help me to get to know the Austrian economists" (Vol. I, 28, 7 October 1891). "It is your book which has shed light on many ideas which were obscure to me, and it is thanks to your courtesy that I have obtained books and insight without which I would not have got anywhere" (Vol. I, 33, 15 November 1891).

On 25 December 1891, he writes about the "great article on the principles of the new science":

"I am not pleased with this article because I gather from what you tell me that I have not understood what the writers on the new science really mean. You interpret their ideas differently from me, possibly because of your knowledge of German economists who are unknown to me" (Vol. I, 41). "If the articles which I am now publishing in the *Giornale* have any merit, it is in large part your doing. I borrowed a great many ideas from your book; you gave me the incentive to write; you corrected the first article I wrote which, as you see, in consequence of your observations, I completely rewrote. You will soon see the third, and there are a great many points in it which seem to me to be new" (Vol. I, 74, 8 May 1892).

However great the importance for Pareto of Pantaleoni's works, especially the *Principles*, the real origin, as is quite clear from the correspondence, of his concern with pure economics in their mathematical form is to be found in the works of Léon Walras: "The study of his works was my introduction to the theories of mathematical economics, and lies at the root of my own research" (Vol. III, 38, 16 June 1909, appendix). In this connection, Pantaleoni exercises little or no influence on him.

"It is a great mystery for me, your relation with that science! From what you write and publish you seem to have a thorough grasp of it, and then you hint that you have some difficulty in studying it. I had seen in your book that you said you did not follow Walras for lack of mathematical knowledge, but in the whole of Walras' book I did not see any theory which goes beyond those which you show you possess to the full, so that I had thought that this was merely a courteous way of not getting

into an argument with Walras, and nothing more" (Vol. I, 28, 7 October 1891) (10).

As an engineer, Pareto was quite familiar with the language of mathematics (11), and even his first letters reveal his interest in the mathematical formulation and treatment of economic problems. The reading of Cournot's *Recherches* (1838) no doubt impressed and stimulated him greatly in this connection, but the *decisive* influence came from Walras.

For this very reason, he was anxious to get to know Walras personally in order to discuss with him these questions for which he could find no really expert interlocutor in Italy. The connection was effected through Pantaleoni who knew Walras. Pareto begs his friend for a letter of recommendation, the receipt of which he confirms on 28 June 1891:

"Thank you, too, for your letter for Walras. I will make use of it if I can get to Lausanne. For the present, I am in a sea of uncertainty. My wife is still unwell at Florence, and it is not yet clear when she can travel. Perhaps I will go and wait for her in Switzerland in order to be able to work in the meantime, which I cannot manage here because of the heat. It robs me of all my strength" (Vol. I, 16).

On 26 July 1891, he requests Walras, writing from Spluegen, where he is spending the summer, to agree to receive him:

"I have a letter of introduction for you from my friend, Mr. Pantaleoni, and I propose to bring you it when the heat allows me to come down to the plains from the mountains. In the meantime, I have taken the liberty of sending you a little brochure on the results of protectionism in Italy, which I have published in France. I saw from the papers that you were now going to submit the new tariff in Switzerland to the popular vote. It seems to me that it would be useful to let people know the disastrous effects of protection in Italy, so that other countries do not follow this bad example. Is there a society in Switzerland for the defence of free trade? If you could give me the address, I would gladly send

(10) Later, Pareto offers to coach his friend in mathematics (Vol. II, 270, 21 March 1897; 318).

(11) "I don't know if Mr. Pantaleoni told you that I was an engineer. This fact makes me prefer the language of mathematics, which you handle so well, to all others". (Letter to Walras of 12 September 1891. See T. GIACALONE-MONACO, *op. cit.*, p. 109).

it the two or three remaining copies of my brochure. I look forward to a talk with you about economic theories which are now following the path which you have opened up to them with your works of such capital importance for science. I hope that I will find you at Lausanne this autumn (12).

The fateful meeting takes place on 17 September 1891:

"I am back from seeing Professor Walras who lives in the country near Lausanne. He was very nice and asked me to send you his warmest greetings. We were not able to talk much about political economy because he suffers from a nervous ailment, and had accordingly warned me beforehand that he could not indulge in discussions. We therefore talked only about science in general, without going into detail" (Vol. I, 24).

The first meeting was in a way a disappointment for Pareto. He found Walras one-sided, and thought that Walras rather regarded him as an opponent (13). "He sees no salvation outside the mathematical method" (14). "I think that in the beginning he regarded me rather as an adversary; but, when he saw that I knew his works and was favourable to the mathematical method, he accepted me as an ally" (Vol. I, 24, 17 September 1891).

He regrets that, because of Walras' ill-health, it was not possible to discuss scientific questions with him. "I regret more and more with every day that Mr. Walras' illness deprives me of the chance of discussing with him the principles of his science" (Vol. I, 25, 20 September 1891). And: "Walras' book is an important work;

(12) Cf. T. GIACALONE-MONACO, *Pareto-Walras*, Padua, 1960, p. 107. He writes to Pantaleoni on 8 August 1891: "When the cold drives me away from here, I will go to Lausanne to see Mr. Walras, and also to study the economic system of Switzerland of which I know little" (Vol. I, 21, 8 August 1891 and Vol. I, 22, 18 August 1891).

(13) It is interesting, too, that Walras does not regard the *Giornale degli Economisti* as scientific enough: "Just imagine that he does not consider your journal scientific enough! I pointed out to him that for a journal two things were needed: writers and readers. As to the former, I set him a good example, and sent him an article, as he had asked me for one in his letter; as to the latter, one had to be philosophical, and a journal had to take account of readers' tastes. If a journal contained nothing but mathematical economics, you could count the readers on the fingers of one hand, and of these none would pay the subscription! What is the use of issuing a clandestine journal? We must be content with getting our readers to absorb a little pure science" (Vol. I, 24, 17 September 1891).

(14) Cf. also Vol. I, 28, 7 October 1891: "Walras is exclusive, like all heads of philosophical schools who often have something of the prophet about them. He sees no salvation outside mathematics and is not even indulgent for anyone who uses it".

it does not much matter about the author's other ideas" (Vol. I, 28, 7 October 1891).

These passages bring out clearly a characteristic of Pareto's scientific work: he is free from one-sidedness as regards method. No doubt he feels that sooner or later mathematical economics will become the basis of economics:

"It seems to me that we are almost in agreement as to mathematical theory. I do not deny that certain problems are too complex to be dealt with other than by mathematics. I admit that the graphic method is often the most elegant and simple means of setting out the solution of certain problems. *Far from being opposed to mathematical political economy, I think that sooner or later it will be the basis of economics.* My doubts are concentrated on marginal utility of which I have not yet found a precise definition" (Vol. I, 26, 3 October 1891).

But he makes the emphatic observation "*that the use of mathematics must not be confused with the use of symbols*", and "*that mathematics are one of the ways of ensuring the progress of political economy and not the only way of treating science*" (Vol. I, 97, July 1892).

Immediately after the visit to Walras, at which, he complains, the professor took up a one-sided attitude on method, he writes:

"I do not know why men always wish to look at the truth from one side only, and attack anyone who looks at it from another side. I feel that every method is good if it helps one to approach the truth. If you can do without mathematics, all the better; if not, then make use of it; why should you want to do without it?" (Vol. I, 24, 17 September 1891).

He makes the same point again very distinctly:

"I do not know how long I have been repeating that the use of mathematics is a means, not an end, that I am not in favour of the exclusive use of any method and that discussions as to method are a waste of time. People will not understand me, and therefore I should say nothing, or merely repeat myself. If a thinker does not wish to be understood, it is better for him not to write; if he wishes to be understood, he must explain his attitude and repeat what is not understood" (Vol. III, 559, 14 September 1907).

He also rightly opposes the tendency to identify mathematical economic theory with the theory of marginal utility: "We are entirely in agreement that the question of the usefulness of mathematics in political economy is one thing, and that of the value of the theory of marginal utility is another" (Vol. I, 26, 3 October 1891) (15).

However, he is against mathematical method when it is used "to prove the benefits of protectionism. Thus, he observes in connection with Cournot's *Recherches*, chapter 12: "I was struck by the point in Cournot where he tries to prove the advantages of protection (if I had my books here, I would send him a refutation of his arguments), and I felt that method was dangerous if it led to such conclusions" (Vol. I, 18, 8 July 1891) (16). "These mathematical economists have a real mania for trying to find reasons in favour of protection" (Vol. I, 45, 5 January 1892). And he even, to start with, rejects Walras' theory:

"... because I yielded to an impression of the same kind as that which you have regarding the radicals. *I saw Walras and his friends defending the intervention of the State, and hence I was opposed to all their theories.* And I would perhaps still hold this mistaken belief if I had not met you. It was you who pressed me to look into the matter more closely, and the day came when I realized that I was like the man who would not accept the discovery of universal gravitation by Newton because Newton wrote a commentary on the Apocalypse! Now I am being instrumental in retrieving others from the error in which I found myself" (Vol. I, 96, 27 July 1892).

He accords a certain importance to the graphic method for the treatment of certain problems: "I admit that the graphic method is often the most elegant and simple means of setting out the solution of certain problems" (Vol. I, 26, 3 October 1891). The proper domain of the mathematical method, the field in which it can alone be useful, is, however, in Pareto's opinion that of the problems of

(15) Cf. on this question, Pareto's first article in the *Giornale degli Economisti*: "About an error of Cournot's in treating political economy with mathematics (1892)".

(16) Similarly, in a letter to Walras of 21 September 1891: "I have no doubt about the usefulness of the application of mathematics to political economy. I have on the contrary grave doubts as regards the theory of marginal utility as expounded by the German economists" (cf. T. GIACALONE-MONACO, *op. cit.*, p. 112).

general economic interdependence, which can only be adequately described by a system of simultaneous equations:

"It must be understood that the use of mathematics is a completely secondary affair. Since we have to establish the general conditions of equilibrium, it is convenient to express them by equations; this is how mathematics are introduced" (Vol. II, 261, 19 February 1897).

"The use of mathematics, for example by Marshall, is, in my opinion, of little use in political economy. Mathematics can only be usefully applied when the system of simultaneous equations is considered which determines the equilibrium; and Marshall has never considered this system. I have repeated, I don't know how often, that only the need to resolve this system of equations which expresses the interdependence of the phenomena justifies the use of mathematics" (Vol. III, 561, 15 September 1907).

The idea of total economic equilibrium and of general interdependence was, as he himself says, taken from Walras: "I admit I have taken from Walras the idea of general equilibrium, to which I have added that of successive approximations, in this way removing the over-abstract aspect of Walras' doctrines" (Vol. II, 261, 19 February 1897). He constantly emphasizes that it is in the description of the conditions of general equilibrium of an overall system that Walras' real achievement is to be found:

"I do not defend all Walras' ideas. On the contrary, I find that many of them are wrong. Besides, all these pointless subjective discussions bore me. Time can be more profitably spent in discussions and objective studies. Moreover, Walras has the great merit of having been the first to find a way of representing the economic phenomenon as a whole" (Vol. I, 193, 9 July 1895). "Walras' merit, to my mind, is not in formulating the theorem of the maximum utility (which is at bottom self-evident) but in having been the first to postulate the general equations of economic equilibrium. It is because Walras had worked out these general equations that I was able to understand and explain the economic phenomenon, as I have just said" (Vol. II, 259, 10 February 1897). "Economic equilibrium exists. That is a fact. It is determined by certain conditions (equations). Walras' great merit (perhaps his only one) is to have found these equations" (Vol. II, 261, 19 February 1897). "Then Walras came and had the idea of considering the system as a whole, and not excluding any of the little lead tags on A and B. It is necessary to express the conditions which keep the system in equilibrium. This could

also be done in ordinary language, but, once the conditions are given, no further advance is possible. Thus, for a material system you can obtain the answer at once: you say that the forces operating on every piece of lead must be in equilibrium. But what then? There is nothing more to be added. When, on the contrary, you use a more powerful logical method and write out the equation, you discover that among these infinite movements which the pieces of lead may make there are some simple things which constitute important theorems. We can do the same for economic equilibrium. *This is why Walras' ideas have enabled science to make giant strides forward*" (Vol. I, 189, 17 June 1895, pp. 417-418). "*The great progress accomplished by Walras is the general consideration of equilibrium which he substitutes for partial considerations*". (Vol. II, 313, 12 November 1897).

He is emphatic, however, in stressing the gulf that separates him from Walras' other conceptions and above all from the latter's metaphysical and philosophical patterns of thought (17).

"Walras prints the most incredible things. You are younger than I. When I write things like that, I beg you to warn me to stop it" (Vol. I, 211, 9 June 1896). "Walras is now living in the clouds with his metaphysics, and he is meeting the same fate as the astronomer who fell into a well" (Vol. I, 197, 2 April 1896). "The worthy Walras grows more and more metaphysical. But he does not realize it, and the other day he came and told me that, if I did not agree with him, it was because I was reasoning *a priori*. I burst out laughing, and I am still laughing" (Vol. II, 283, 17 May 1897). "The ceremony for Walras (18) turned out to be somewhat laughable. *Instead of being in honour of the founder of mathematical economics, it proved to be in honour of the social philosopher who (this I did not know) has crowned his work by finding the way to obtain universal peace*" (Vol. III, 596, 17 June 1909).

In spite of these profound differences, the formal relations between Pareto and Walras always appeared friendly and extremely

(17) He means above all the conceptions of Walras which are set out in his *Etudes d'Economie Sociale (Studies in Social Economics)*, Lausanne, 1896. In 1893, Pareto writes: "Walras wishes to publish a treatise on social economics in which he begins by discussing the end of man on earth. Poor us! I have told him quite clearly that there, we part company. It seems to me that he is not at all disturbed at the prospect" (Vol. I, 163, 26 May 1893).

(18) This is a reference to the celebrations on 10 June 1909 in Lausanne on the occasion of Walras' 75th birthday.

courteous (19). It was extremely personal reasons which made him speak out about them:

"Out of personal regard, I have never said that I took the concept of economic equilibrium from Walras only in a particular case (20); that I do not accept in the slightest his metaphysical way of treating science; that I cannot approve his use of the term 'rareté' (scarcity) now in one sense and now in another, thus deceiving the reader; that I do not admit that, as he affirms, there is a rational method superior to the experimental one; that I do not admit that pure economics can show how facts must follow each other whereas the contrary is true; that I do not agree to studying what should be, but on the contrary that I study what is; that it is childish to imagine that one can prove by formulas of pure economics the advantage to the State of buying back lands, setting up bimetalism, etc. etc. Please do not force me to say all this in public. Discuss me briefly or not at all. All I want is to be silent. Only if I am forced to, will I make these disagreements public" (Vol. III, 590, p. 121, 19 December 1908).

Shortly after, however, he writes that it was a mistake "to let Walras off by not criticizing the errors of his mathematical economics and the stupidity of his social economics" (Vol. III, 596, 17 June 1909) (21).

(19) Cf. on this point GIACALONE-MONACO, *op. cit.*, Chapter "The inevitable break". The last letter to Walras addresses him as "dear master" and, on the birthday celebration for Walras, Pareto, who cannot take part in them himself for reasons of health, writes to the Dean of the Faculty in Lausanne: "I am sorry that the very delicate state of my health prevents me from coming in person to testify to the gratitude and affection which I owe my venerated master, Professor Léon Walras. The study of his works initiated me into the theories of mathematical economics and was at the origin of my own research. Thanks to the teaching of this scholar, the name of the University of Lausanne will henceforward have a place of honour in the history of economics. With all my heart I join my colleagues in celebrating and honouring the founder of the theories of economic equilibrium" (Vol. III, appendix 38, p. 429, 16 June 1909).

He writes to Pantaleoni on 21 June 1909: "Hence, if any journal publishes my letter and Walras' speech, I will add a postscript to my letter to say: 'Note that I find mathematical universal peace ridiculous, as also Walras' scientific socialism'" (Vol. III, 597).

(20) By this, he means the limitation of Walras' equilibrium construction to the case of free competition. Pareto thinks that this is a mistake: "It is an error on Walras' part, and one which has its origin in that writer's ethical ideas — the reduction of equilibrium to free competition, which is only a particular case" (Vol. III, 599, 27 September 1909).

(21) The sharpest expression of the opposition between Pareto and Walras, which grew in violence with the years, is in the letter of 8 August 1911 (*i.e.* after Walras' death) which was published by G. SENSINI: "I owe it to Pantaleoni that I have a concrete conception of

III. Pareto versus Marshall

Sooner or later, Pareto was bound to clash with the majority of the other "mathematical economists" of his time, especially the leading Anglo-saxon theoreticians by his belief in the overwhelming importance of general economic interdependence and of the usefulness of mathematical techniques only for the analysis of the problem of general equilibrium. On Marshall's *Principles*, in October 1891, he still writes with appreciation: "Thank you for Marshall. I have read a little of the first edition (at least, I think it is). I will have great pleasure in studying the second. Walras is against Marshall, I have not really understood why" (Vol. I, 26, 3 October 1891). In March 1892, he repeats: "I do not know why Walras dislikes both Edgeworth and Marshall. Perhaps there is an element of rivalry" (Vol. I, 60, 14 March 1892). In May 1893, he writes from

pure economics and to Walras that I have a clear conception of economic equilibrium. Later on, I became a friend of Pantaleoni's and Walras became my enemy because I was unwilling to follow him in his metaphysical phantasies, but I have spoken and continue to speak the truth about friend and foe alike and to proclaim from the housetops what I owed to them. You complain about Pantaleoni's hostility, but what would you have said about Walras' hostility to me? He wrote round Europe stirring up ill feeling against me. He induced Borkiewicz (I have the proofs of this) to write a slanderous review of my *Course*. He wrote to Poincaré distorting the truth and using this distortion to make believe that Poincaré disagreed with me on the conception of quantity. There was nobody to whom he did not speak ill of me. Yet all that did not make me deviate from the line which, out of scientific honesty, I thought it was my duty to take.

When the celebrations in his honour were being held at the University, he said, judging other people by himself that I had been opposed to them or at least that I had kept aloof from them. My colleagues told me that these celebrations would not have been carried out if they were likely to have offended me and why should I have been offended? I replied to this charge: But have I not always and on every occasion praised Walras' mathematical work? Have I not stopped repeating that I owed *him* the concept of economic equilibrium? I was prevented by the state of my health from going to Lausanne, but I wrote a letter in which, if the truth must be told, I praised Walras so highly that he was flabbergasted and could not believe it.

After his death, I wrote his obituary. Look it up, and see if there is a single word hinting at his malpractices towards me. He did everything he could to discredit me; when I went to Paris to lecture on pure economics, he wrote to people in that city to say that lectures would no doubt be 'like Italian music, that is, froth without substance'; but one thing was beyond his power, and that was to make me forget my duties as a scientist. And if I have not forgotten them in respect of someone who was my bitterest enemy, how could I forget them in dealing with a friend?" (G. SENSINI, *Vilfredo Pareto's Correspondence*, Padua, 1948, pp. 61-62; cf. also T. GIACALONE-MONACO, *op. cit.*, pp. 88-89: "The whole of Pareto is in these sentences").

Lausanne: "You should know that you are accused by him [i.e., Walras] of not having come out strongly enough against Marshall, Auspitz, Lieben, etc. who confuse the price curve with the curve of total utility. But your merits acquired in the defence of the new science will protect you this time from being sent to the stake. But be sure you do not relapse into heresy again. You know that the inquisition does not tolerate this sin! But why are almost all highly intelligent people so intransigent? Here is a psychological problem worth studying" (Vol. I, 161, 11 May 1893).

But very soon (1895) Pareto changes his attitude to Marshall and the whole English school:

"It seems to me that Edgeworth is right in saying that there is a great difference between the Cambridge and the Lausanne schools. Marshall has not yet managed to grasp the idea of economic equilibrium. He only translates the old reasonings into mathematical language. Thus he has translated Ricardo's theory of rent. You will see in my course that I have an entirely different concept. I regard Marshall's reasoning as imperfect... Walras' ideas have enabled science to make giant strides forward, while Marshall has added nothing very remarkable to our knowledge" (Vol. I, 189, 17 June 1895).

And on 9 July 1895, he writes:

"Now I say that Marshall arrives at the wrong conclusions. He has not yet understood what economic equilibrium is, and in particular he does not understand the mutual dependence of the phenomena which were clearly set out in Walras' formulas. What is seen and what is not seen (Bastiat) is developed in these formulas. See for example on page 211 of the *Principles*: 'Since the return to the dose on the margin of cultivation just remunerates the cultivator, it follows that he will be just remunerated for the whole of his capital and labour by...'. This is the same mistake as you made for rent. I cannot calculate the remuneration of work and of capital independently of the product. These are things which are linked together. The link can be seen in Walras' equation. But it is not these equations that prove the link. It is facts. Formulas are only the image (however imperfect) of facts! When you want to explain the solar system to boys, you take an orange and you say: 'This is the sun'. Then a pinhead: 'This is the earth', and so on. Walras' equations can give us a similar picture of the economic phenomenon. But they do more. They show that you cannot make the earth revolve round the sun if you suppose that Jupiter is stationary. They show

that you cannot calculate the cost of production independently of the product. Marshall, however, either doesn't understand this or pretends not to understand" (Vol. I, 193).

Later, his utterances become sharper and show an incomprehensible intolerance and onesidedness which come out most clearly in letter No. 561, vol. III of 15 September 1907. This letter, together with letter No. 562 of 28 September 1907, is of such significance in the history of ideas that it is worth quoting here in its entirety except for a few cuts:

"I don't know why you put me together with Marshall. *I have not derived a single idea from him. Where he says black, I say white, and vice versa. I keep on saying this, and people refuse to understand.*

How often one has to repeat things. It is about fifteen years ago that Walras started to quarrel with Marshall and Edgeworth. Walras was dealing with the *general* case of the problem of equilibrium; Marshall and Edgeworth wanted to deal with particular cases.

I took sides with Walras, and, for fifteen years, I have been repeating for the hundredth time every now and then the point on page 7 of my article: 'The first mathematical economists made use, etc.'

Perhaps I was wrong not to write to Marshall in the meantime out of personal considerations. I am in time to put it in a note in the *appendix*, but this will not be much use. When I have repeated in another hundred times, people will continue quoting me with Marshall... and with the Austrian school!

I am on good terms with Walras who was my master, and with Fisher, but not at all with Marshall and not very much with Edgeworth.

Here, I am not discussing whether they are right and I am wrong. I am saying that *I have not, and never have had, any concept of pure economics in common with Marshall.* I say once again that, if he is right, I am wrong, and *vice versa.*

The way in which Marshall uses mathematics is, in my opinion, of little value to political economy. The use is of value only when one is considering the system of simultaneous equations which determine equilibrium, and Marshall has never considered that system.

Time out of number I have repeated that *only the need to solve this system of equations, which expresses the interdependence of the phenomena, justifies the use of mathematics.* It seemed to me that this was clear; I felt that there was no point in adding that Marshall himself is one of those who do not consider that system of simultaneous equations.

since you have merely to look at his works for this to be immediately obvious.

No Sir! Everyone, even Pantaleoni, mingles fire and water, Pareto and Marshall! And all, apart from Pantaleoni, equate the Austrian school with Pareto!

Let us try, then, and repeat for the hundredth time that *they are not together*. And, if someone should say that Pareto is repeating himself, you may reply: 'He shouts as loud as he can so that the deaf will here'.

Goodbye, Yours affectionately,

VILFREDO PARETO

Small divergences between Marshall and Pareto. I quote the 1891 edition of the Principles.

MARSHALL:

p. 83: Social Law.

p. 111: Collective goods.

p. 124 *et seq.*: Capital.

p. 153: Demand schedul[e].

p. 154: Demand curve.

Chapter IV.

WHAT PARETO SAYS:

He repeats that they are uniformities.

This is not so.

Useless discussions by literary economists.

The demand of an individual is dependent on his income and on the prices of *all* the goods which he buys and sells. The use of mathematics makes it possible to take account of this very point; otherwise this use of mathematics *has no value*. I have said this over and over again, and still I am grouped with Marshall!

This is laughable. Is it possible to make people understand that Pareto — whether he is right or wrong — says that this is rubbish? All wrong, because it takes no account of interdependence. *How often must I repeat that in my opinion (whether sound or not) whoever takes no account of interdependence is antediluvian?*

p. 180: The superior nobility (*sic*) of the collective over the private use of wealth.

Sentimental proposition. It has its place in socialist novels which are the delight of the English humanitarians. Anti-scientific stuff. The science of economics has no criterion with which to judge the *nobility* of the use of riches. People cannot do me greater wrong as a scientist than to put me in the same boat as someone who *thinks* that he is writing about science when he puts forward such propositions.

Let the little Cabiatis say that this is a personal outburst. I have no wish to be in the company of the Cabiatis and of the Marshalls, and I don't give a damn about them.

Ancient stuff. It takes no account of interdependence.

Is it possible that, though I always repeat the same thing, people will not understand that for me nothing is economic science that takes no account of interdependence?

You cannot consider as constant the utility of money. And we come back to the old story: in that approach, no account is taken of the interdependence of the phenomena. The Marshalls and the Edgeworths persist in their error because they do not admit that in the debate with Walras they were in the wrong. These English believe that, outside England and Germany, people are all asses. But I say that the English proposition of the constant utility of money is *asinine*.

This proposition is fundamental. If Marshall and Co. are right, I am wrong, and *vice versa*. *And with people who persist in talking such*

The whole mathematical appendix.

Constant utility of money. See also Edgeworth *Theory of Monopoly* in the *Giornale*.

nonsense I certainly have no intention of associating! I cannot speak clearer than this".

It is incredible: Walras and Marshall — fire and water. The conception of the demand curve is ludicrous — this extremely fruitful concept which has become an integral part of our science since Cournot. The whole mathematical appendix to Marshall's *Principles* is prehistoric because general interdependence is not taken account of! For Pareto, the whole of partial analysis is not a science. His violent outbursts are repeated in the following letter, which is clearly an answer to an attempt by Pantaleoni to reconcile him with Marshall:

"Can it be denied that Marshall's work... and that he is fully aware of the general interdependence of the phenomena and *the need to operate with systems of simultaneous equations...*?"

Certainly it can be denied because I deny it, and I repeat, after having said so over and over again, that Marshall *shows* that he knows the need to operate with systems of simultaneous equations. If then he knows this and keeps it locked up in his mind, for me it is the same as if he did not know it, because I have no time to call on a mind-reader to find out what Marshall thinks and does not say.

'He splits up general equilibrium into so many particular equilibria'. This observation of yours is sufficient to prove me right. Is it possible that I have not managed to make myself understood?

I divide economic theories into two categories: (a) theories which, as you say, split the general equilibrium into so many particular equilibria; (b) theories which consider the general equilibrium and do *not* split it up.

I affirm — and I am not discussing here whether I am right or wrong — that progress consists in passing from (a) to (b). I affirm that the use of mathematics is justified only in (b) whereas it is useless, and hence harmful, in (a).

I say that (a) includes the theories of so-called classical economics; and it includes also, on your admission, Marshall's theories. I keep on saying that the theories of classical economics are better than those of Marshall with their mathematical frills.

If, after this, you wish to put me together with Marshall, you are free to do so. On a future occasion, I will put you with Luzzatti.

The English have understood my position perfectly, and therefore they will never (you hear, never) mention my writings without speaking ill of them!

You make me laugh when you say that Marshall never indulges in polemics with me! He never deigns to do me so much honour. He is unleashed against me all his hirelings. Then there is a certain Wicksteed whose specially it is to publish *malevolent, malicious* reviews which *abuse* everything I write.

I read the first reviews because one can learn something useful from one's enemies and get to know one's own defects: but I found them pointless and inconclusive. Now Sensini writes to say that he is again speaking ill of me in the *Economic Journal*. I will probably not read this lucubration; life is short, and I can make better use of my time (...). But, since even a friend of mine like you wrongs me by putting me with people who despise me and whom I despise, I will put in certain notes in my French *Appendix* in order to make clearer than hitherto what I think of the works of the English gentry. You will see that my claws are still sharp. Please excuse me, but I fear that this will be the only effect of your work which deserves a much better fate, since those attending the Parma Congress will not derive any definite profit from it" (Vol. III, 562, 28 September 1907).

Pareto's violent opposition to Marshall is all the more incomprehensible because in 1892, referring to a letter by Walras, he writes: "Walras has written to me. He insists at length on the points separating him from Auspitz and Lieben, because, according to him, one must take account of the price of all goods. *In theory he is right, but in practice it would no longer be possible to solve a single problem*" (Vol. I, 62, 19 March 1892) (22).

(22) On the discussion between Walras and Auspitz and Lieben, cf. L. WALRAS, *Éléments d'Économie Politique pure*, édition définitive, Paris, 1926, appendix II.

In the following letter (Vol. I, 63, 20 March 1892), in connection with the question of the constancy or non-constancy of the marginal utility of money, he notes once again: "Walras is right in saying that in Italy all goods have to be considered. An important consequence of this is that the marginal utility of money cannot be considered as constant! I think that I can give a proof of this theorem; but, since it is poled apart from what was believed up till now, I would like to know what you think about it. In practice, it could be said that in some cases the marginal utility of money varies only slightly, and hence it should be assumed to be constant, with a small error; but in theory a minute variation in the price of any article leads to a variation in the utility of money. This immediately gives equations which indicate that the degree of utility of the last penny spent by an individual should be equal to the utility of the last portions of the article that he acquires.

The same year, he writes to Walras:

"You are doing pure science; I am trying to apply this pure science. This is the main difference between our points of view. In other words: you are like the geometrician who writes a treatise on rational mechanics. I try to apply this science to machines after having learned it from your writings. I think that what you must now submit to the public in order to persuade it of the usefulness of the mathematical method is *applications*" (23).

From this very point of view, he should have shown special interest in the method of partial analysis handled by Marshall with such virtuosity and tried to understand the total system as a nexus of partial connections, and thus seen in partial analysis not an alternative to total analysis but a necessary supplement to, and simplification of, it from the point of view of practical applications.

Umberto Ricci in his admirable essay "Pareto and Pure Economics" (24) in paragraph VI compares the theory of total equilibrium with that of partial equilibria, and expresses the same set of facts in the following way: However much one may recognize the theoretical importance of this grandiose creation of the human mind (that is, the Walras-Pareto theory of total equilibrium):

"It is not possible to avoid restricting its field of application. The whole construction strikes one rather as a magic castle which delights the imagination, but does not help to solve the housing problem. Or, to drop the metaphor, the theory remains abstract and inaccessible. If I may use an expression of which the economists are very fond, in comparing the pleasures of different persons, I would say that there is

(23) Cf. T. GIACALONE-MONACO, *op. cit.*, pp. 114-115, letter 13. But Pareto himself keeps on emphasizing at a later date: "Pure economics, like political economy is general, has no appreciable practical direct utility; it can only have, at least for the moment, a theoretical utility" [Pareto's introduction to the work by A. OSORIO, *Théorie Mathématique de l'Echange (Mathematical Theory of Trade)*, Paris, 1913].

In the *Manuel d'Economie politique* (2nd edition, Paris, 1927) Pareto says: "3) The author may propose solely to look for the uniformities presented by the phenomena, that is to say, their laws, without having in mind any direct practical utility, without being at all concerned with giving recipes or precepts, without even seeking the happiness, utility or well-being of humanity, or of a part of humanity. The aim in this case is exclusively scientific; it is desired to know, to find out, and nothing more. I must warn the reader that the only objective I have in view in this *Manuel* is the third one" (pp. 2-3).

(24) *Giornale degli Economisti*, 1924.

no bridge between the theory of general equilibrium, as it is to be found in the formidable apparatus of formulae in the *Manuel d'Economie politique* and the article in the French encyclopedia of mathematics, and nine tenths of the problems which are usually submitted to economists.

Can a bridge be built when mathematics are more advanced and statistical data more plentiful? Let us hope so. Can single parts of the theory of equilibrium, for example those of individual balance sheets, be developed and exploited for practical purposes in a relatively short time? Let us hope so. In the meantime we can by no means afford to relegate to the attic the theory of particular equilibrium as developed by Marshall and his many followers.

We feel that the theory of general economic equilibrium is more true than the theory of particular equilibria. But we must limit ourselves to deducing from it indications of a generic scope, and *we cannot abandon the other theory, which is less complete but easier to handle*. We must in fact retain both of them. We catch a glimpse of boundless horizons from the theory of general equilibrium, and we can even describe them a little. We should none the less confine ourselves to a surer zone, and limit to it our explorations in depth.

Pareto himself, the most jealous guardian of the theory of general equilibrium, the most biting adversary of literary economics and the less biting but not less resolute opponent of the theory of particular equilibrium, was later obliged to forget complete equilibrium when he wrote his marvellous chapters on applied economics".

IV. Pareto and Edgeworth

Pareto's views on Edgeworth are no less unfavourable than those on Marshall. True, in a letter of the 20 June 1895, he calls Edgeworth an intelligent man. A few days later, however, he characterizes a letter from Edgeworth as "full of sophistries" (Vol. I, 191, 26 June 1895). On 4 July 1895 he writes to Pantaleoni: "I am pleased that to you too Edgeworth's article appeared... what it is. But my reply will be to make fun of it. It is written for the gallery. I will show that I too know how to write for the poor in spirit. Thus, there is no point in making an offprint of an article of this kind, and in sending it to men of science" (Vol. I, 192). From now on, Pareto's attitude to Edgeworth changes:

"Edgeworth's move grates on me because of his desire to be witty when there is no call for wit and I am also annoyed at losing time in

such disputes which serve no useful purpose...". "Without the slightest doubt, it seems to me that the coefficients of manufacture are more suitable. For the same reason that, when you wish to indicate the birthrate, the deathrate and so on, you say: 'For every hundred, so many were born, so many died, and so on', and you do not say: 'For 29,945,872 persons, so many people were born, so many died, and so on. But then, if there is someone who prefers this second method, that is his business. Where on earth did you find in my writings a word criticizing this? And Edgeworth, who attacks me, why I have the audacity to consider how much land is needed per unit of produce!" (Vol. I, 193, 9 July 1895).

On 31 March 1896 — after the appearance of the first volume of the *Course* — he remarks angrily: "I see that Edgeworth gives no sign of writing in his journal about my book. I am sure that he will say nothing about it. In that case, I will not send him the second volume. He can go to the devil" (Vol. I, 196). And on 11 May 1896, he writes: "I hope that you now think I am right about Edgeworth. As you will see, he has not said a single word about my book. But it is better so, as I'll save a copy of the second volume" (Vol. I, 204). And on 18 October 1896 he writes: "I am concerned only about the outrageous nonsense that Edgeworth is producing. That is why I even say: 'What is the point of replying'. Those who understand will read my book; those who do not understand after my reply will know just as much as they did before" (Vol. I, 227). On 13 February 1897, he announces his intention of breaking with Edgeworth.

"As to Edgeworth, I do not intend to have any more contact of any kind with him, and this is the last time that I will quote his name. Life is short, and I have no time to waste with him. He is a real Jesuit, and, instead of concerning himself with science, he wages an underhand war against Walras and then against me. I restrained myself for two or three years. I tolerated his disingenuous review of my book in his journal without saying a word. Now I have had enough. Leave me in peace with your Attic and non-Attic salt. With someone like Edgeworth, the only thing one can say to him is to get out of their way. I have remained friends with people who have been much rougher with me than Edgeworth because I knew they were acting in good faith. Why need you worry about enabling Edgeworth to retreat gracefully or not?"

He is impertinent in affirming that I have indulged in 'personal recriminations', and my answer is that I am not in the slightest interested in him. Thus, we are even" (Vol. II, 260).

Six days later, however, he goes back to his relations with Edgeworth:

"Walras has shown *one* way of approaching reality in *general*. Edgeworth has indicated others which are exceptional. *This problem must not be confused with the preceding one* [Pareto's italics]. To speak the truth, Edgeworth has only indicated the way to solve equations of exchange. These are the only ones he knows.

I do not at all approve of a theory being erroneously expounded in order to ensure its acceptance. Anyone who studies science should be concerned to find the truth. Leave these theoretical arts to third-rate politicians. Nobody is asking you to make a critique of the *differences* between the theories of Edgeworth, Walras and the rest; but, when you expound *my* theory, you should not expound that of another person! It is not at all a good reason, that, because Edgeworth and I use mathematics, we should have the same theories! I have little or nothing in common with Edgeworth and Marshall. From Walras, I admit I have taken the idea of general equilibrium to which I added the theory of successive approximations in order to remove the over-abstract aspect of Walras' doctrine. I do not think I took anything from Edgeworth and Marshall. I have mentioned their names out of modesty and courtesy, but objectively I would be hard put to it to answer any one who asked me what I had in common with them.

I cannot agree with your idea of dividing economists into those who know economics and those who do not. There are economists who know *some things* and those who know *other things*. Walras knows nothing about evolution and Molinari knows all about it. Molinari knows nothing of the general theory of economic equilibrium, nor do Edgeworth and Marshall; Walras had this flash of genius, and now he wastes his time talking nonsense!" (Vol. II, 261, 19 February 1897).

His answer to Edgeworth — the article called: "Final reply to Professor Edgeworth" in the *Giornale degli Economisti* 1897 — was held back on Pantaleoni's advice. On 27 February 1897, he beseeches Pantaleoni: "I keep on repeating to you that I do not want to have anything more to do with Edgeworth; and that I don't give a fig for that Jesuit. Please therefore do not make me waste any more time by proposing modifications" (Vol. II, 262).

Clearly, Pantaleoni was trying hard to prevent him from breaking with Edgeworth; then, on 3 March 1897, he replies:

"In telling you that you need not publish my reply to Edgeworth, I had none of the depraved intentions that you attribute to me. I have never doubted that you would do a great deal for me out of friendship, but much more than publishing a more or less sharp reply; but, for that very reason, I told you that you need not publish, it, and would not thereby cause me the slightest annoyance.

As to Edgeworth and his English friends, for a number of years I have been trying to give soft answers which turn away wrath. But now, I am tired of receiving nothing but rebuffs, and I wish to try a less virtuous approach. On your advice, from 1892 on I sent Marshall what I was publishing without having received as much as a visiting card, without his deigning to mention me. I have made great publicity for Edgeworth, and I have said nothing but good of him; and he for his part has said nothing about me, or, if he has, it was unfavourable. Now I have had enough of kid gloves. I mean to say what I think. You tell me that this will have a bad effect on the public. I do not see why anyone should be blamed when he is termed an ignoramus, and replies to his opponent: 'It is you who is ignorant of the meaning of words'. But, in any case, whatever the effect, I will not have impertinent things said and not reply to them, at least if I feel like replying. Walras has cut off all connections with Edgeworth. So you see, I am not the only one" (Vol. II, 265).

On 3 May 1897, he writes again: "Edgeworth does not need a bridge to enable him to discuss with me. If he comes and calls on me, I will be pleased to discuss matters with him. But, if he thinks that I will run after him, with or without a bridge, he is much deceived" (Vol. II, 279). Finally, on 8 October 1901, the hatchet is buried: "I am not at all at war with him, nor with Flux nor with Sanger. With Edgeworth, peace has been concluded; with the others, I was never at war" (Vol. II, 490). The fight between the two great economists rests, as d'Addario has rightly observed, on a misunderstanding about a particular point, that is, the curve of yield (25). His hostility to Marshall, on the contrary, was based on fundamental differences as to the approach to the theoretical analysis of economic connections as a whole.

(25) See R. D'ADDARIO, "Ricerche sulla curva dei redditi" (*Research on the curve of yield*), *Giornale degli Economisti*, 1949.

V. Pareto and Irving Fisher

Pareto is less aggressive towards Irving Fisher. He comments on Fisher's review of the first volume of the *Course*:

"Fisher's article seems to me to be very poor. I will send it back to you in a few days. I have written to him putting on one side what he says of me, and on the other side the paragraphs of my *Course* which belie his assertions. I have had my letter translated into English by my wife. I believe that excellent man does not understand French, and hence he has not understood a word of my *Course*" (Vol. II, 270, 21 March 1897). "Irving Fisher, with unheard of irresponsibility, has made stupid criticism of me like the one which he has had to admit was unfounded and which stemmed solely from his ignorance of French. In a passage where I had written 'peut ne pas' (need not), he understood 'ne peut pas' (cannot)! Not only so. There is also a certain Moore (26) who, in the *Annals of the American Academy* criticizes me quite as stupidly, if indeed he is not in bad faith. It seems to me, therefore, that it would really be throwing pearls before swine to get into rather complicated discussions with such people" (Vol. II, 285, 29 May 1897).

Irving Fisher's own book *Mathematical Investigations in the Theory of Value and Prices* (1892) which Pareto had received from the author was defined by him as "good work, but I have only glanced through it to see whether there were things in it of the same kind as mine. It seems that there are not, and therefore I can go on reading it" (Vol. I, 113, 1 October 1892). Or a few days later: "Irving Fisher's study is a fine one, but he does not add a great deal to what is already known. It seems to me that we should now stop explaining exchange in so many different ways and that we should try to go ahead and work out new theorems" (Vol. I, 117, 17 October 1892) (27).

(26) The famous American economist, Henry Ludwell Moore.

(27) In spite of the existing disagreements with Auspitz and Lieben (both economists, like Marshall, make use of formal analysis), he takes a benevolent attitude towards those two who are the most frequently quoted German-language economists in the correspondence. Indeed, he even wishes to see them well treated because "those cultivating pure science are so rare!" (Vol. I, 80, 26 May 1892). And again, somewhat further on: "But it is a good thing to show ourselves courteous and to please that gentleman" (Vol. I, 85, 22 June 1892).

The reproduction of "Some notes by Pareto on the Auspitz curve" in the appendix to Vol. III is particularly interesting.

Other German language economists mentioned in the correspondence include: LAUN-

VI. Pareto's call to Lausanne

The correspondence provides valuable details on Pareto's academic career, the reasons for his move to Lausanne and his work at the university there. Lausanne is mentioned for the first time in letter 119, Vol. I of 23 October 1892:

"You are a really excellent friend to have thought at once of a professorship at Lausanne, but first of all I think I am not yet well enough known to be selected. Then I must tell you that I am not at present sure of being able to go there for family reasons. I must know what the family would think of the matter. I will find out. If you are on good enough terms with Walras to write to him about this point, as if it was for yourself, without indicating that I am involved, it might be useful; since I could not at present ask for something which I might then have to refuse. On the other hand, I realize that these are things that it may be necessary to discuss at once. Indeed, who knows whether the chair has not already been filled?"

Walras' answer to Pantaleoni was clearly not unfavourable, for on 7 November 1892 Pareto writes to Walras (28):

HARDT (Vol. I, 45, 15 January 1892), BOEHM-BAWERK (Vol. I, 85, 22 June 1892), BORTKIEWICZ (Vol. II, 386, 4 August 1898), SCHMOLLER and SCHUMPETER. Of Schmoller he says: "He obviously does not know political economy, and it seems that he admits as much himself when he says that it does not exist. How can you know what does not exist?" (Vol. II, 326, 19 January 1898).

"The historical method of Schmoller and company is nonsense" (Vol. III, 547, 2 April 1907). "I have not yet received the proofs of my article in the *Journal des Economistes*. You will see the knocks I give Schmoller and the other ethical theorists! My article is called: Solidarity" (Vol. II, 331, 2 February 1898).

In LAUNHARDT'S "Mathematische Begründung der Volkswirtschaftslehre" (*Mathematical Basis of Economics*) (1885), he is interested in the section on the effect of customs duties (paragraph 17). In letter 45 (Vol. I, 5 January 1892), he criticizes Launhardt's reasoning in great detail.

SCHUMPETER'S "Wesen und Hauptinhalt der theoretischen Nationalökonomie" (*Nature and main content of theoretical economics*) (1908), that was sent to him by the author, was passed on by him to Pantaleoni with the request to tell him what to write to the author: "I am sending you a book that I have received from Dr. Joseph Schumpeter. Please have a look at it, or get one of your disciples to read it, and tell me what I should reply to the author who sent me a very polite letter. As I cannot read German, I do not know what to say to Schumpeter about his book" (Vol. III, 588, 2 November 1908).

(8) See T. GIACALONE-MONACO, *Pareto-Walras, op. cit.*, pp. 116-117.

"My friend Pantaleoni has passed on to me your letter and I am infinitely grateful to you for your kind intervention.

It would certainly be a very great honour for me if I were called to give a course of political economy at Lausanne, and it will call for a great deal of indulgence on the part of my listeners who have heard a master like you. I have only one merit — that of following in your footsteps.

But this idea of a course at Lausanne is so much of a surprise that I do not know whether I can come at once should it be decided to invite me to deliver this course. It is perhaps better not to talk of these circumstances, but I would wish to be quite frank to you about them.

I have a number of commitments here. Among others, I have agreed to attend the monetary conference at Brussels as secretary of the Italian delegate Mr. Simonelli, M.P. The Italian Government must really have been hard put to it to have had to fall back on me. But, however incredible the fact, that is the position. Mr. Simonelli has my word, and, if he goes to Brussels, I must accompany him. Only if he does not go will I be given back my freedom of action.

Then the trial period, which incidentally I find perfectly fair, may result in my return to Italy. I must therefore manoeuvre in such a way that I do not completely give up my affairs here and thus be able to resume them when I come back. If it was a definite proposition, I could easily make myself free. But something that lasts for six months or a year raises difficulties which you will easily appreciate.

However, I hope to surmount them. Besides, I must not count my chickens before they are hatched. It might well be that, as you yourself say, steps have already been taken to dispose of your chair. If they have not been taken, and if your kind intervention on my behalf is successful, the time will have come for me to think of means of disengaging myself here as soon as possible."

On 12 November 1892, Walras reveals to him that he may be called to the chair, which would be come free through Walras' retirement. He answers Walras on 14 November 1892 (29):

"I have your letter of the 12th, and I am really touched and embarrassed at all the trouble you are taking on my behalf. To be appointed straight away full professor to a chair that you have occupied is too great an honour for me. I feel that it will be ample if I am appointed professor extraordinary. No doubt, if the appointment as full professor

(29) Cf. T. GIACALONE-MONACO, *Pareto-Walras, op. cit.*, pp. 117-118.

were possible, it would smooth out a great many difficulties that I have here.

As to the moral commitment to stay in Lausanne for some time, I have no objection, for, if I am appointed, my intention is to settle permanently there, and, if these gentlemen raise the matter with you, you can tell them so.

I give up the fight for economic theories in Italy. My friends and I are obtaining absolutely no results, and we are losing time what could be better employed in research.

For some time I had planned to settle in some little town in Switzerland or England, and to busy myself exclusively with pure science. If I am appointed to Lausanne, I will merely advance the date of this plan, which would in any case have been carried out sooner or later.

I hope that people will be pleased with my teaching. Everybody who has heard me speak in public in French has told me that I spoke clearly and fluently.

As I have told you, I leave tomorrow for Paris, and probably for Brussels. I say 'probably', because I am still wondering how the Italian Government could have appointed me secretary to a delegate of the monetary conference. They must have had absolutely nobody else to whom they could turn.

For the time being, you can always write to me at Fiesole. Your letters will be forwarded to me. I will give you my address at Paris when I have settled in there".

On 13 November 1892, he writes to Pantaleoni: "As to Lausanne I think that I can fix things up here; but, as you will see from Walras' letter which I am sending you, it is at Lausanne that things look none too promising. Well, we must be philosophical and wait to see what happens" (Vol. I, 125). On 15 November 1892, he speaks of good news from Walras. On 27 November 1892, however, he has doubts whether Walras will succeed in carrying out his intentions: "But my trip to Lausanne is very uncertain; it seems to me that it will be difficult for Walras to obtain what he wants: these gentlemen must have other plans" (Vol. I, 129). On 4 December 1892 he again expresses his uncertainty about the position in Lausanne:

"Walras writes me that he has not yet had a reply either from the Dean of the Faculty, or from the Head of the Department of Education.

It is strange that he has not better relations with these people after so many years as professor in Lausanne, and I fear that his support will not be of much use. I have written to him asking him if he thought that there was any point in my going to Lausanne or in my writing direct. But it seems to me that I need think no more of this. I know nobody else at Lausanne but Walras, and the situation is that he who ought to have a decisive say in this matter is unfortunately on bad terms with the people who will decide on the chair. I could easily understand a refusal, but the fact that they do not deign to answer Walras shows that relations between them and him cannot be good. Given all these uncertainties, it is improbable that I will be able to stop at Turin" (Vol. I, 130) (30).

On 7 March 1893, he again refers to the "sea of troubles" in which he is swimming:

"If they had given me a definite 'no' from Lausanne, I would write for two or three years, and I could easily find a place that would give me refuge. But Walras keeps on saying that there is hope, that it will come off, and thus I have not the courage to make longterm commitments here" (Vol. I, 148).

On 24 March he writes: "At present, no news from Lausanne. I am sorry because I would have been very pleased if it had been feasible" (Vol. I, 152).

In addition, he is afraid of losing his Italian nationality if he were to go to Lausanne without the permission of the Italian Government:

"Apropos, I have seen in the legal code that any Italian who accepts a post with a foreign government without the permission of the Italian Government loses his nationality. I imagine that the Italian Government would not dream of granting me that permission. I do not even know how one applies for it, but I will find out if ever the affair comes off. But I would like to be appointed, and then I could not care less what comes after. I would ask for the permission. If they gave me it, fine. If not, that would be all right too!" (Vol. I, 152).

(30) Cf. *ibidem*, letter 21, p. 119.

In a letter to Walras, he explains his fear of the Italian Government. This letter is so informative that it is reproduced here in full (31):

"I have your letter of the 11th inst., and I thank you for your demarches and for your information.

You ask me why I am keen on the University of Lausanne. This is why. I am not particularly eager about Lausanne, but I wish to have a chance of expounding my ideas. The articles that I write for the *Giornale degli Economisti* are read by 4 or 5 persons at most! That seems to me almost a waste of time. If on the contrary I could teach political economy somewhere, I would have a new audience every year. Added to this, it seems that I can explain matters clearly; at least, that is what everybody says who attends my lectures. I would therefore like to make the most of this capacity which I happen to possess, in order to spread my ideas.

Here, that is forbidden me. I wanted to deliver a course on mathematical political economy — gratis, naturally. The Government would have none of it! Every citizen is allowed to hold as many lectures as he wants, but they must not follow each other as in a course! It is not for me to buy the good will of the Italian Government by prostituting science in its service. I cannot therefore hope to express my ideas except abroad.

The year I saw you in Switzerland Mr. Chennevière of Geneva had proposed to me that I should give a series of lectures on political economy. It appears that this is customary at the University of Geneva. I did not at the time accept, because I could not afford to rent a house here and another for the winter at Geneva. But I would perhaps have done well to seek some way of spending at least a winter in Geneva. This is something which I might still do if I have to give up hope of Lausanne.

I have the means to live from the material point of view, but not enough to afford the luxury of publishing my scientific works at my expense. If I can lecture somewhere on economics, I will have the means to spread my ideas more effectively than if I remain cooped up in a villa in Italy. If I were wealthy, I would go to Paris, and I would carry out propaganda from that great centre. But my resources are too modest for me to do that.

If Mr. Ruffy has asked for information about me at Paris, he must have been satisfied with it. It is only Mr. Block who is opposed

(31) Cf. *ibidem*, pp. 122-124.

to me for the simple reason that he is fiercely opposed to the application of mathematics to economics.

In Italy itself, he would obtain good information from Mr. Bodio. But, if the Italian Government and its friends and accomplices were to find out that I am after a chair in Lausanne, they would be certain to do everything in their power to thwart my plans.

You have seen that they would not rest until they had forced Mr. Pantaleoni out of his university post! These worthy people have tried to harm me in Paris, too, but my friends laugh in their faces.

I am fairly pleased with the prospect of having Guillaumin publish a book on the new theories, but everybody keeps assuring me that I can persuade people best if I talk. Just imagine! For as arid a subject as mathematical economics, I found quite a number of people who *begged* me to give the course which the Government would not allow!

It seems to me that we are not as far away from the question of agio as would at first appear. You deal with the general question. I deal with *the main part* of a particular case but, in order to explain this matter to them, one must have recourse to mathematics. I plan to deal with this question in the rest of my articles in the *Giornale degli Economisti*..., provided that when I get so far, the journal is still alive! It keeps going only thanks to the financial sacrifices of its directors — Messrs. Pantaleoni, De Viti etc... Can you imagine! The Government has gone so far as to issue a circular to the chambers of commerce forbidding them to go on subscribing to the *Giornale degli Economisti*! To do well in this country, you must be a thief or a friend of thieves. So I am very keen to leave it. I hope to find suitable accommodation for six months, and thus to keep the future open".

On 18 April 1893, he at last reports: "The Head of the Department of State of the Canton of Lausanne and the Rector of the University are coming here tomorrow to reach agreement with me, says Walras. We will see what will be the outcome of this conference, and I will tell you all about it. It seems to me that this trip is somewhat singular" (Vol. I, 157). On 19 April, he informs Walras:

"I have just seen Messrs. Ruffy and Grenier, and we have settled the matter of the course on economics. I accept the appointment as professor extraordinary, but Mr. Ruffy has given his word that he will be guided only by the results of my course as to the appointment to full professor, and that a decision should be taken on this matter by Easter 1894. In other words, if the results of my course are satisfactory, I should

be appointed full professor. These gentlemen wish me to begin my course at once. I will therefore come to Lausanne at the beginning of May. It is not very pleasant for me to have two rents to pay in this way — one here, and one at Lausanne. If these gentlemen had taken a decision a few days ago, I would have avoided this loss! However, I am being patient and hope that at last I will be able to do something useful for learning. If your health permits, I will have great need of your advice for the programme of the course on pure economics which I am now to deliver. I am very anxious to follow in your footsteps. The course which you have published must — it seems to me — be much longer than can be given in thirty lessons or so. This number has been suggested to me by Mr. Grenier, and I fear that, if I begin only after the first week of May, it will be still further reduced" (32).

On 21 April 1893, he writes to Pantaleoni that he will go to Lausanne in the first days of May. Pantaleoni congratulates him on his appointment, and Pareto thanks him as follows: "My warmest thanks for your affectionate words which I very much appreciate. The good turn that events are now taking for me are in large part your doing, and I am most grateful" (Vol. I, 159). At the same time he begs Pantaleoni not to mention the appointment in the *Giornale degli Economisti*:

"My wife has received your telegram, and she is writing to thank you. But I beg you to say little or nothing about me, firstly because by nature I am opposed to anything that may appear personal vanity, and also because I am afraid that it may harm me in Lausanne. I know our friendship, and I would not wish that, in reading the *Giornale*, people might think that it is a vain and proud man who is going to Lausanne. You know that first impressions tend to stick, and I am very anxious that the first impression made by me should be as modest and humble as possible. I need add nothing more to put you on the right lines.

Please therefore say nothing or, if you wish, simply announce that one of your collaborators has been called to succeed Professor Walras at Lausanne. Speak as little as possible about my affairs. Anyway, there is little to say. I have not published very much. You know that, in addition to your *Giornale*, I have collaborated with the *Journal des Economistes*, *La Revue des Deux Mondes* and *Le Monde Economique*, that I have submitted various works to the Georgofili, and that is all. Unless

(32) T. GIACALONE-MONACO, *op. cit.*, letter 28, pp. 124-125.

you wish to refer to the mathematical article which you have. The one thing of which I can boast is to have defended economic liberty from the days of the Adam Smith Society founded at Florence by Peruzzi, Ferrara and the rest. And I boast of that because I have remained at my post, while Magliani and others who were in the Society deserted the banner of economic liberty.

But I repeat, not from the false modesty of one who is fishing for compliments, but because this is really what I think, do me the favour of speaking of me as little as possible. This is what I always recommended at Milan to whoever was to introduce me at lectures. I told them: 'If you praise me, you do me harm, not good. The public gets annoyed if it hears somebody praised; and if the man then makes a good showing, they will say: we expected better!'

It would be the same at Lausanne. They read your *Giornale* there. If you praise me, whatever I then do will seem little. If I make a very modest *entrée*, hardly will I have done anything decent than I will have acquired the good will of the public.

Here, people were thunderstruck at the news of my appointment to Lausanne. Do you know what they say? That I could have the same post in Italy! How clever! And from whom? The example of Martello seems to me sufficient to show that I, who am so much more hated than he, had nothing to hope for here" (Vol. I, 159).

Pareto left for Lausanne on 4 May 1893 (33).

VII. Pareto at Lausanne University

On 11 May 1893, he sends Pantaleoni his first report from Lausanne:

"I was received here with the greatest courtesy, and tomorrow I will give my first lecture. Everyone, including Walras, urges me to put as little mathematics as possible in my course. And I will take this advice. Walras has had the great kindness to prepare for me the course that has to be given, divided up into lectures. I am most grateful to him, and I have thanked him warmly, but I also told him that I would like to make some changes, and I seemed to have convinced him. I would like to begin with individual economics, and I mean to speak of economic goods of different orders, on which, who knows why, Walras says noth-

(33) Cf. T. GIACALONE-MONACO, *op. cit.*, letter 30, p. 126.

ing. I told him that I wish to call the fundamental equation of pure economics the Walras Equation, and this has naturally pleased him greatly.

You should know that you are accused by him of not having been sufficiently firm in combatting Marshall, Auspitz and Lieben, and so on who confuse the price curve with the curve of total utility. But your merits in the defence of the new science are such that this time you will not be sent to the stake. But be sure you do not relapse. You know that the Inquisition will not tolerate this sin! And why are almost all highly intelligent men so intransigent? This is a psychological problem worth studying. I am without books here, and so I am unhappy, and my unhappiness will end only when I have my library. The people here would like me to give a lecture at the University on free trade, the banks and so on. As to free trade, I can talk about it till the cows come home, even without books. I know so much stuff by heart that I can bore everyone in sight" (Vol. I, 161).

A few days later, on 22 May 1893, he tells his friend that Walras' recommendations had done him harm in the negotiations for his appointment:

"I have learned that Walras' recommendations had in the end done me harm! It seems impossible, and yet it is so. This is why. The worthy Walras had ended up with only six students at his lectures. The Department of Education was afraid that I would give lectures like him which could only be understood by a handful of people. It was a good thing I was recommended by my friends in Paris, and specially by the article in the *Revue des Deux Mondes*. You see in what a mess I was in when I got here. But now things have turned out well. I observe the obscurity which I think is due to Walras and never stop praising him, but then I explain things in such a way that anyone can understand me.

At present, I have 22 students. Let us see whether I keep them.

Walras seems pleased. He himself advised me to be sparing with mathematics so that I pretend only to follow his advice.

It is certain that mathematical economics will never be any good for someone who does not *wish* to study mathematics. In future years, I propose to have two courses: one of few lessons for the *mathematicians*, and the other without mathematics for the small fry" (Vol. I, 162).

He has in mind to deliver the special course for two or three students (!) (Vol. I, 219, 23 August 1896). He gives some details of

this special course on 3 November 1896: "At present, I have a few students for the special course, but I think that they will not stay on. If they do not, so much the better. It will be one less course for me" (Vol. I, 231).

As to the capacity of his students, he frequently complains, as for example in the letter of 3 June 1896: "Just imagine! My students of mathematics do not know a thing, and they have no wish to know much about economics. Only what is needed for the examination, and not a whit more! The producer must furnish the goods which the consumer wants" (Vol. I, 209). "The teaching of economics in the Faculty of Lausanne can only be very elementary. In a high school of social sciences, the real science of economics could be taught. You will have received my programme. It is very elementary, and yet even that is too much for my students!" (Vol. I, 211, 9 June 1896).

As to the library position in Lausanne, he reports: "There is a library here where the most recent work on economics is Mill's book!!! They tell me that, as a new professor, I could have two or three volumes bought. My feeling is that I will need to buy dozens of them! (Vol. I, 162, 22 May 1893).

As to the way in which Pareto understands his teaching duties in Lausanne, the letter of 22 July 1893 is most enlightening:

"I was sent here to teach, like my predecessor: 1) Pure Economics; 2) Applied Economics; 3) *Social Economy*. As for the third subject, I refused emphatically, if only because the word *might* make people think of socialist tendencies which are certainly not mine. I therefore said: 'I will teach the first two, but not the third, which does not exist for me.' That being so, how can I distinguish between the first and the second?"

My criterion was very simple. I call *pure economics* the body of doctrines which can be deduced from the hedonistic postulate with *few or none* of the other properties of the human psyche. Pure economics studies the *homo oeconomicus* who is guided only by the desire to obtain the greatest utility with the minimum effort. Applied economics adds to this main utility of the economic psyche all the other qualities known to us.

But, for my part, I do not think much of this classification. Another classification would do just as well. All that is important is to teach the relations between things. I will need to have not one half year but two

to teach applied economics. I quite realize that I will not exhaust the subject. And what if I do not? One should teach what one can in terms of the time available.

Pure economics is not banned from applied economics. For example, international trade. One can teach pure theory which will *not* be that of Marshall; then I can *describe* what follows and is followed in the world. I can show as always that, when governments have tried to regulate trade, they have harmed it. Then I can give an idea of the present state of international trade. I can show how protection gives rise to corruption and so on. When I deal with 'population,' I encroach on the field of statistics too, and I give some information on the average length of life, and so on. If I do not teach these things to the students, nobody will. And it is useful for the students to know them. Besides, how can you say where precisely political economy ends and statistics begins?" (Vol. I, 169).

His theories, which he would like to be regarded as only "germs of theories" (34) find expression during these years in his *Course* which is mentioned in the correspondence for the first time on 17 June 1895 (Vol. I, 189). He is happy to be able to devote himself to his studies in Switzerland with complete liberty: "I am increasingly happy to live in Switzerland instead of Italy. Provided I teach economics well, it does not occur to the Government of the Canton of Vaud to ask me for anything else. I sell lessons; they buy them. And then both sides are free. But the monarchical government of Italy does not look at things that way. It wants to buy not only lectures, but the conscience as well. It is understood moreover that whoever sells it every day supposes that it is a kind of marketable good for everyone (Vol. I, 204, 11 May 1896). "I am living happily in Switzerland. In Italy, I never had a moment when things went well. I realize that the day will perhaps come when things will go badly for Switzerland if the socialists triumph. If I am still alive, I will then transport my household goods to England. But I hope to be dead by the time that happens" (Vol. II, 269, 17 March 1897).

(34) "All the theories that I have put forward are nothing but the germ of theories. Economists who like Barone have knowledge, culture and intelligence should develop these theories and seek out new truths" (Vol. I, 211, 9 June 1896).

It is interesting to note that he thinks of publishing a *Revue internationale des applications des mathématiques aux sciences sociales* (Directors: the two of us. Collaborators: Walras, Edgeworth, Irving Fisher, Perozzo, Barone, etc. etc.)... A review of this kind is lacking in the world, and it will be useful for anyone wishing to publish works on mathematical economics, statistics, and so on (Vol. II, 350, 12 March 1898). Nothing came of the plan, however.

In 1898 — that is, five years after he had moved to Lausanne! — he intends to give up his professorship in order to be able to devote himself entirely to research and to spreading his ideas. On 12 April, he writes:

"If I have not written much about economics when I was an engineer, it is because, after having worked for ten hours a day in that profession, I did not have much time left for anything else. At Fiesole on the contrary, I worked a great deal on economics. Not only was it then that I was able to write the articles on mathematical economics, but I also prepared the material which later came in useful in publishing my *Course*. Now I have exhausted my stock, and the work which I have to do for my lectures robs me of the time to acquire a new one. This is the reason why I cannot write my treatise on sociology. Thus, the main reason for ceasing to be a professor is to have time for that work... On 31 December of this year, I will give up my professorship. Up till now, I have not yet talked about it and, as I told you, the matter should be kept secret. However, my mind is firmly made up. They still have to find a liberal successor for me. Please think about this, and see who would do. I will do everything I can to ensure that my chair is filled by a liberal economist. If that is not possible, we will have to be philosophical. You would be very ill-advised to leave Geneva in order to go back to Italy. *I admit that you have very good chances of success in Italy, which I do not have.* But I tell you that you have even better chances at Geneva. You too, moreover, should try to have fewer hours of lecturing so as to be able to do scientific work. But I think that it will not be difficult for you to manage that. Now, however, you should write your *Manual*. Do not wait indefinitely for a Paris publisher. If you find him, well and good. If you don't, address yourself to Rouge. Once the *Manual* is finished, you should make a start on some other book. You are young, and you still have time to produce a lot. I, on the contrary, have hardly time to write my treatise on sociology" (Vol. II, 355) (35).

(35) He even thinks of leaving Lausanne.

In these circumstances, Pantaleoni tries to win him over to Geneva — Pantaleoni was teaching at Geneva at that time — but Pareto declined.

"I cannot think of teaching in that University; the gratitude which I feel, and which I should feel for the Government of the Canton of Vaud stands in the way of my taking that course. I might well stop teaching here, but I cannot go and teach in a rival university... I do not know how I will manage to get away from this University. And yet, sooner or later, that is what I must do; if I must go on giving three hours of lectures a week, I shall never be able to write my treatise on sociology. Enough of this. We will see how things turn out, and I will write to you about them... *In Italy, my dear friend, there is nothing doing either for you or for me. You can count the people with our views on the fingers of one hand* (Vol. II, 358, 16 May 1898).

On 25 May 1898, he announces that he will perhaps stay on in his chair to the end of 1899. But then he wanted to give up once and for all "giving lectures. I want to have time to write my *Sociology*" (Vol. II, 360). But: "If I managed tomorrow to hook a liberal, I would hand in my resignation that very day" (Vol. II, 362, 28 May 1898). On 6 October 1898, he talks of Jersey as a possible haven: "They tell me that Jersey is not a bad place. I feel like going and seeing if it would suit me to settle in that island. Poor little Switzerland cannot stand up to the colossi round about it" (Vol. II, 395) (36). In 1900, he comes down in favour of the Canton of Vaud. He acquires a house in Céligny to which he retires, free from his teaching duties that have never interested him (37), in order to devote himself from now on entirely to research. A student of his, Vittorio Racca, takes over his lectures from June 1900 (Vol. II, 430, 19 November 1899), but obviously not quite so satisfactorily that Pareto can give up teaching completely. "It seems that things will finally be settled in such a way that I will come in once a week from Céligny to lecture. It is a great sacrifice for me. If this man Racca could be quick and at least acquire a reputation such as to allow me to retire for good!" (Vol. II, 471, 1 November 1900).

(36) Cf. also Vol. I, 355, 12 April 1898.

(37) "I am pleased that I no longer need to lecture; at bottom, it is so much lost for learning. You will see how well I will work now that I am free" (Vol. II, 467, 24 September 1900).

On 6 January 1901, he refers for the first time to "my Boninsegni". "My Boninsegni... is making good progress in the study of mathematical economics, and says that he derives great pleasure from it. I will have to make him come to Céligny every now and then to follow the course that I will give him. He is now teaching Racca mathematics" (Vol. II, 476). From now on, Boninsegni comes more and more into the foreground, and becomes in fact his assistant. "Boninsegni is lecturing very well in my place" (Vol. II, 519, 22 July 1904). In a subsequent letter (Vol. II, 525, 29 June 1905), he talks of him as "my replacement". Pareto trains him systematically, obviously with the idea that the young man will take over from him: "Boninsegni is working hard, and I hope that he will be successful in mathematical economics" (Vol. II, 489, 28 September 1901). "Boninsegni is becoming a fine mathematical economist. He is full of good sense and is studying very thoroughly" (Vol. II, 509, 8 May 1902). "Boninsegni keeps working round pure economics, and is coming on well. I have advised him to become a free lecturer here" (Vol. II, 515a, 8 February 1903).

On 30 November 1906, he announces that at the end of the term he will definitely give up teaching, that is, he will not even give his weekly lecture: "At the end of this term, I am definitely retiring from teaching. I have only agreed to deliver every year a short course on sociology for three months — that, and nothing else!" (Vol. II, 536). "Do you know why I am retiring from the University of Lausanne? So as to go to Rome — just as Freydet went to Paris — to court the Lincei" [a famous Roman Academy] (Vol. II, 537, 9 December 1906). He proposed Boninsegni as his only possible successor:

"Boninsegni is doing well. The students like him, and he could therefore, as I have proposed, go on giving the courses he has to a great extent given in previous years. I have said, because it seems the truth, that, since he has a good grasp of mathematics, Boninsegni can teach pure economics, and that I know of nobody else, among those willing to go to Lausanne, who could do so. I would add that it seems to me that Lausanne would be stupid, if, after so many years in which pure economics has been taught at the University by Walras and me, it was decided to stop teaching it. But, if they want to appoint some

humanitarian socialist, who substitutes declamation for the teaching of science, I could not care less. I will be very sorry for the harm that it does to Boninsegni, but I have no call to worry about the harm that the people of Lausanne will be doing to themselves, since I have warned them beforehand, as was my duty" (Vol. II, 536, 30 November 1906).

The proposal obviously met with some resistance. "It seems to me in the interest of the University of Lausanne that it should continue to teach scientific economics and, among those willing to go to Lausanne, I see nobody but Boninsegni capable of imparting this instruction; that is why I favour him. Besides, he has never been incorrect with me. Those who are fighting him should really fight my teaching, for which they would like to substitute another — humanitarian and metaphysical — approach; and, since they lack the courage to attack me directly, they manage to get at me through Boninsegni. As they cannot beat the horse, they beat the saddle" (Vol. II, 537, 9 December 1906).

On 20 December 1906, the decision is finally taken in favour of Boninsegni, but on condition that Pareto gives three months of lectures:

"The Faculty Council and the University Commission have both unanimously accepted a combination of Boninsegni and me; and, since the Government was already favourable, this matter may be said to be settled. To say the truth, I would not have been upset if they had not accepted a proposal to make me give three months of lectures every year, since even these three months will be a serious drag on me; but I must be very grateful to these gentlemen for their considerateness. It is a great privilege, and one which really goes a good deal beyond any merit I may have if they keep a professor in a university for only three months of lectures at the time of year which suits him best. This is all the more reason why I am touched and grateful for the goodwill shown to me here, especially when I think of the illwill towards me and directed at me in Italy. However, having made this comparison, I dismiss it, precisely because I have no need of the goodwill of the Italian braggarts; I have a wonderful life here, and these gentlemen, as far as I am concerned, simply do not exist" (Vol. II, 539) (38).

(38) Pantaleoni seems to have adopted a reserved and cautious attitude towards Boninsegni: "All the same, be on your guard but prudent as regards that rascal Boninsegni.

On 25 December 1906, he writes:

"I will go on being a pure economist. The Head of Department was proposing to make me honorary professor and to make me responsible for pure economics and sociology. The Faculty would prefer me to remain full professor of political and social science which of course includes pure economics as well. As far as I am concerned, I do not mind one way or the other" (Vol. II, 540).

In 1907, he finally retires, in order to devote himself exclusively to scientific work, especially his sociological studies: "This is the last term (of six months) that I will do. Thereafter, I will give only a short term (of three months) a year (Vol. III, 542).

VIII. The Manual of Economics

The correspondence gives an interesting insight into the development of the ideas that led to the *Manual of Economics*, Pareto's second great economic work. His occupation with the *Manual* is mentioned for the first time on 19 November 1899: "I am writing a treatise on mathematical economics in which I develop the idea to which I have already referred in my article: "How should the problem of economics be posed?" And I formulate the basic conclusion without using marginal utility, or utility, or even prices. I hope that I can get ahead with it when Racca takes over from me in January" (Vol. II, 430). What he meant by the observation "without using marginal utility or utility, or even prices" is explained in detail in a letter of 28 September 1899 in which, for the first time, the meaning of indifference curves in Pareto's thinking and the points that separate him from Edgeworth are discussed. This letter is so important for the history of ideas that it must be reproduced in full:

I do not know what he can do. You do not know either. The only thing to be desired is that he will go his way and we ours. If he felt threatened in his post at Lausanne, he would attack and would take revenge as soon as he had a chance. If he keeps quiet, that means that he is prudent too. It follows, for example, that you should not speak ill of him to Roguin. It would become known at once if you did. Excuse me for this advice, Madame" (Vol. III, appendix, pp. 375-376. Letter from Pantaleoni to Mme. Régis).

"Here are the replies to your questions:

1. Let us dwell only on the method of presenting the theory of pure economics without using marginal utility or any other similar entity; in other words, on the method of avoiding the disadvantages arising from the use of entities which people did not know how to use or could not measure.

Let us drop the curve of yield. You can be sure that nobody ever thinks about it. With the possible exception of Sorel, nobody has ever taken the trouble to read even what I have written in the *Course* about it. The chapters that I have sent you are the only two in their final form, or almost; the others are on the stocks; it is too early to talk about them. There would be many other important things to say about *transformations*, but all that will be explained in due time and place.

2. There is a note in which it is recalled that the name of the preference curve was given it by Edgeworth. We need another note to say that the designation of indifference curve was also given to it by Edgeworth. And that is all. It is not necessary, whenever something is referred to, to mention everything that other people have said about it!

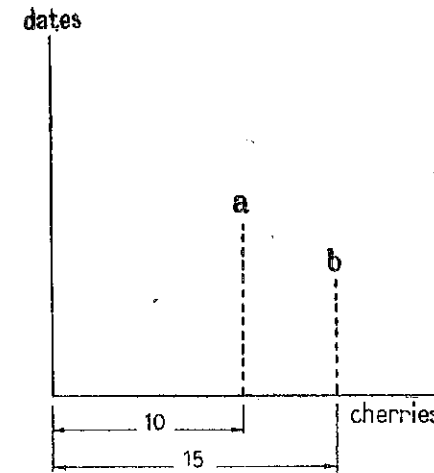
Edgeworth and the rest *start* from the concept of marginal utility and *arrive* at the determination of indifference curves (which by the way is what I myself did in the articles in the *Giornale*). Now I am leaving marginal utility completely aside, and am *starting* from the indifference curves. That is the only new departure. It is strange that such a step has not been taken before. The reasons are, I believe: 1) The mania of always trying to go *beyond* experienced; 2) science began by considering marginal utility: everybody has continued on these lines. I do not think that the first motive had any influence on me when I wrote the articles in the *Giornale* which, as it happened, discussed indifference curves. It is probably the second motive which has been operative.

Lastly, however that may be, the principles of pure economics have hitherto been based on marginal utility — scarcity, utility, etc. Well, there is no point in that. One can start from the indifference curves *which are a direct result of experience*.

3. This point which you regard as secondary is on the contrary fundamental. What you say shows me how wise it was not to start by speaking about prices. You who are an expert on the new doctrines have not freed yourself from that concept. You can imagine the situation the others are in!

You must realize clearly that, in the first stage, we are discussing neither exchange, nor prices, nor transformation. Here is a child. I ask

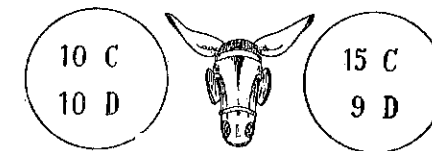
him: 'Which would you rather have? Ten cherries and ten dates, or 9 dates and 11 cherries?'



'I would prefer the first combination.' 'What would you say to 9 cherries and 15 dates?' 'It is the same to me as 10 dates and 10 cherries.' Now I have two points *a* and *b* of the indifference curves. Other points could be found by the same method.

Here nobody is discussing either transformations, or reasons for transformations, or prices. I am not considering a person who has dates and cherries and who transforms the second into the first, or *viceversa*.

I put cherries and dates on two plates: on to the first 10 cherries and 10 dates, and on to the second 15 cherries and 9 dates. Then I put Buridan's ass between them, and see what happens. If it chooses one



of the two plates, I have made a mistake. If, as Buridan's ass, he cannot decide for the plate on the right or for the plate on the left, I have guessed right. These two combinations form part of an indifference curve.

Naturally, the same things may be expressed in different terms. Thus: 'The above ass does not care whether he transforms one date into 15 cherries.' But this is a terminology which I do *not* adopt. Anyhow,

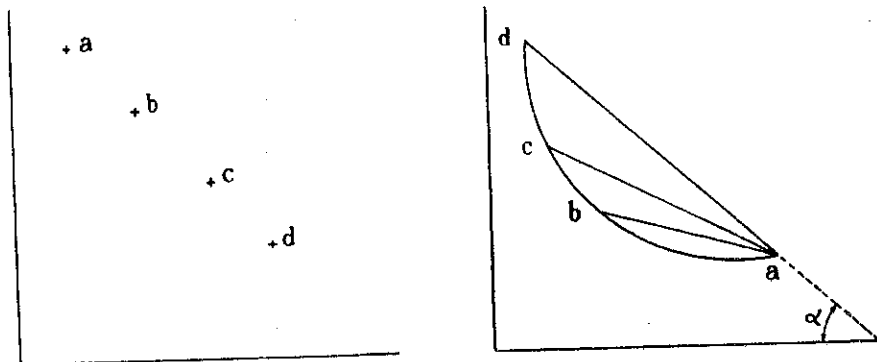
it would not be correct for animals who certainly do not know what exchange is or the transformation of goods, whereas indifference curves may exist for animals.

In short, I am concerned only with the fact that living beings (man, ass or ant), placed between combinations AB and CD, cannot decide which to choose, and turn neither to the left nor to the right; placed between CD and EF, ditto; placed between EF and GH, ditto, and so on. I then say that AB, CD, EF, GH... are combinations forming part of an indifference curve.

Since all that we need to ascertain is whether the living being turns to the left or to the right, takes AB or CD or remains perplexed between the two, there is no longer any psychological analysis. Even a machine can have indifference curves. For a pair of scales, equal weights give indifference curves.

I am not out to discover *why* the man remains uncertain between AB and CD. I merely note the *bare* facts.

All this is essential. We must not let the metaphysical entities, driven out through the door, come back in at the window. I had not completely freed myself from them in my study: *Comment se pose le problème de l'économie pure? (How should the problem of pure economics be posed?)*. There are three different degrees in the reasoning: 1) The reasoning of all the economists, including my own in the *Course*. The whole theory is subordinated to a concept of an entity: pleasure, marginal utility, scarcity, utility; 2nd level, marked by the little work to which I have just referred: I start by freeing myself from these entities, but I do not put them completely aside; 3rd level: they disappear completely, and all that is left is the *fact*. I offer a living being, or a machine, AB and C'D'; C'D' is taken; I therefore rule it out. I offer AB and C''D''; AB is taken; I also exclude C''D'''. I offer AB and CD; neither



the living being nor the machine moves. They take neither AB nor CD. I have found what I wanted: AB and CD form part of an indifference curve.

Note that it is not even necessary for these to be things which can be measured. Only in cases which are measured the reasoning is longer, and hence a science is created.

Note that it is not necessary for there to be variations by imperceptible degrees. Instead of a curve, I may have a series of points *a*, *b*, *c*, and *d*, which indicate the combinations between which the choice is indifferent.

Let us leave all this for a moment and, going back to your figure, note carefully that on an indifference curve the reason of the exchange (the price) or of the transformation varies incessantly. When you move from *a* to *b*, the reason for the transformations (tang.) is different from the one when you move from *a* to *c*, from *a* to *d*, and so on. *One cannot possibly reason absolutely about a transformation at constant ratios.*

I will send you the third chapter. I did not send it to you before: 1) Because there is a lot of mathematics in it, but all the same here and there you will be able to glean something; 2) because it is better at this stage not to discuss it in the *Giornale*. It would of necessity be an imperfect review since the work is not complete.

It seems to me unnecessary to review the complete book (since anyway it is not yet composed); but only a special point need be discussed, that is, how one can dispose of the objections raised because it is *not* possible to measure marginal utility, scarcity, etc. The point is that it is *not* necessary to measure them.

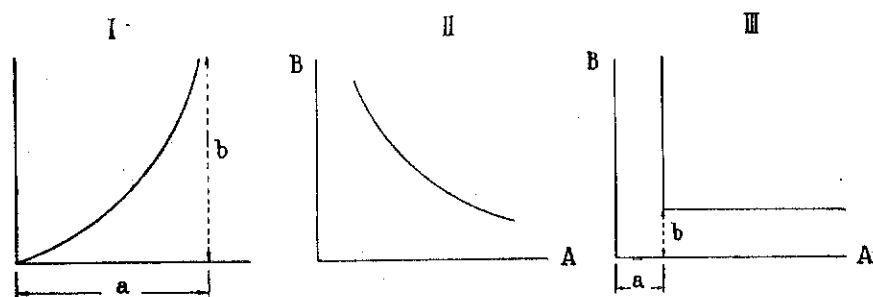
Goodbye, Yours affectionately,

VILFREDO PARETO

P. S. The role of pure economics in sociology is explained in my articles in the *Rivista di Sociologia* and in the short work *Comment se pose etc.* (I am sending you another copy of this).

The difference curves do *not* have the form of I, since that would indicate that it does not matter whether you have *O* of A and *O* of B, or *a* of A and *b* of B. They have the form of II, where an increase in A is offset by a decrease in B, and *viceversa*. A curve like III would indicate that, provided he has *b* of B, a person does not care whether he has any quantity whatever of A greater than *a*. For example, when the rich man has as much bread as he can consume, he does not care whether

he has more, etc. This is all in the part of chapter II which you have not got. And you haven't got it... because it is not yet written. *La plus*



jolie fille du monde ne peut donner que ce qu'elle a (39). [The prettiest girl in the world can only give what she has] (Vol. II, 438 and 438a).

Yours affectionately,

VILFREDO PARETO

The manuscript of the Italian edition was finished in July 1904: "If ever you have time to read it, you will see that I have completely changed my technique of explaining economics" (Vol. II, 519, 5 July 1904). The work was published in 1906. In the following year, A. Bonnet began the French translation which gave Pareto an opening for numerous improvements and explanations, and especially a chance of adding the important mathematical appendix.

In his letter of 2 April 1907 (Vol. III, 547), he explains what he regards as the real new aspect of the *Manual*:

"In my opinion, the defect of economic theories up till now has been that they have tried to explain concrete cases, but have not taken account of similar facts. If you remain in the abstract, with pure science, you must not take account of them, but you must also warn people that you are treating an abstract case and not a concrete one. When you are dealing with a concrete case, you must take account of all these facts as far, of course, as possible. The novelty of my *Manual* lies precisely in the fact that I have insisted on this point".

(39) DE MUSSET, *Carmosine*, act III, scene 3.

He thus expresses what is today taken for granted — that theory alone cannot solve a concrete question, but also that no concrete question can be solved without theory.

IX

When one reads Pareto's letters and follows the path he took as it is mirrored in them, one cannot help being moved by the tragic element in his life — a tragedy which also darkened the life of his great teacher. Just as his teacher, Walras, could find no place in his native country and had to operate abroad, because he was ahead of his time, Pareto, too, had to leave Italy which he loved with all his being, just as Walras loved his native country. In spite of his very violent attacks on the tradition-bound economic science in Italy at that time and of the bitterness which he often shows towards the Italian Government, he was always deeply attached to his Italian homeland. Many of his letters reveal his longing for Italy and his reverence for the achievements of its great minds in the past and also for the promising works of the emerging writers. But he loved France, too, where, though his father was Italian, he was born of a French mother. General Gallieni called him for that reason a "Frenchman but also an Italian", while Schumpeter thinks he would have defined himself as "an Italian, but also a Frenchman". However that may be, he was above all a really great representative of Latin culture (40). The clarity of the Latin spirit which shines in his works is also visible in this unique correspondence.

ERICH SCHNEIDER

Kiel

(40) Cf. also G. H. BOUSQUET, *op. cit.*, p. 218.