The Collaboration between J. M. Keynes and R. F. Kahn from the *Treatise* to the *General Theory*

Maria Cristina Marcuzzo

> There is no greater satisfaction than in the exchanging of ideas between minds which have truly met, leading to further discoveries and a shift of view in response to difficulties and objections.
>
> —John Maynard Keynes

Of all the economists in John Maynard Keynes's circle, Richard Kahn was perhaps closer to him than any other when he was working on the *General Theory*. However, the precise contribution he made to the development of the ideas that were to become the *General Theory* is still much debated.

On the one hand we have Donald Moggridge (1994, 109; 1992, 532 n), who argues that in subsequent reconstructions Kahn credited himself and the "Circus" with a decisive role in the evolution of Keynes's theory, although the writings offer no evidence or documentation to support the claim. On the other hand we have Joseph Schumpeter (1954, 1172), who saw the collaboration with Kahn as something very close to "co-authorship," while Roy Harrod (1951, 451) described Kahn as Keynes's "main pillar support" in the work on the book.

Most interpretations have tended to place considerable stress on the difficulty of assessing the exact nature of the collaboration between

Correspondence may be addressed to Maria Cristina Marcuzzo, Dipartimento di Scienze Economiche, Università degli Studi di Roma "La Sapienza," Via A. Cesalpino, 12/14-00161 Rome, Italy. An earlier and much incomplete version of this essay was published in Italian in Marcuzzo and De Vecchi 1998. I benefited from criticism and discussions with Marco Dardi, Annalisa Rosselli, and Fernando Vianello, and from comments by two anonymous referees.

History of Political Economy 34:2 © 2002 by Duke University Press.

Keynes and Kahn. "Kahn's role has provoked intermittent speculation," writes Peter Clarke (1988, 249). Robert Skidelsky (1992, 449) observes that "the nature of Kahn's contribution to Keynes's thinking is much disputed." And Don Patinkin (1993, 652 n. 5) refers to "the perennial question of Richard Kahn's role in the writing of the *General Theory*."

In this essay I take a new look at the question in light of the correspondence between Keynes and Kahn, with the aim expressed in the title of this article: to read the transition from the *Treatise* to the *General Theory* as a history of collaboration.[1]

Keynes's "Favourite Pupil"

Kahn met Keynes as a student at King's College for weekly supervision in the year when—having achieved somewhat modest results in the natural science tripos—he still had a further year's scholarship available and set about studying for the economics tripos, which he passed with brilliant results in June 1928.

As we know, Keynes was struck by the student's flair from the very outset. Keynes wrote in the margin of a paper by Kahn of 4 November 1927 that "I think you have a real aptitude for Economics" (RFK XI/3).[2] A few months later, on 27 April 1928, his comment on another essay ran: "Very good—almost a perfect answer" (RFK XI/3). Two days later he wrote to his wife, Lydia, "Yesterday my favourite pupil Kahn wrote me one of the best answers I ever had from a pupil—he must get a first class" (JMK PP/45/190:4).[3]

In fact, the correspondence as we have it now begins with the letter Keynes sent Kahn on the publication of the tripos results: "My dear Kahn, very warm congratulations that all was, after all, well in the exams—though, as you know, I expected it" (15-6-1928; RFK 13/57:1).

The thesis Kahn wrote between October 1928 and December 1929 to obtain a fellowship at King's was again the happy outcome of initial

1. The correspondence includes 611 letters—written between 1928 and 1946—of which about 60 have been published in the *Collected Writings of John Maynard Keynes* (henceforth *CW*, followed by the volume and page numbers). See Marcuzzo 2001. My thanks are due to the Provost and Fellows of King's College, Cambridge, for permission to quote from unpublished letters by Keynes and to D. Papineau for permission to quote from unpublished letters by Kahn.

2. *RFK* stands for the papers of R. F. Kahn. The classification number is given according to the catalog, King's College, Cambridge.

3. *JMK* stands for the papers of J. M. Keynes. The classification number is given according to the catalog, King's College, Cambridge.

failure—this time to gain access to the Midland Bank's monetary statistics. According to Kahn (1989, x), Keynes "at that time was still a staunch believer in the Quantity Theory of Money as an expression of causation" and thought that the data could offer good material for his pupil's dissertation. Since the data could not be used, Kahn's account continues, "Keynes then left me to choose my own subject. Under the influence of Marshall's *Principles*, I chose the *Economics of the Short Period*. In making my choice I was encouraged by Shove and Piero Sraffa. Keynes happily acquiesced. Neither he nor I had the slightest idea that my work on the shorter period was later on going to influence the development of Keynes's own thought" (xi).

The dissertation Kahn presented on 29 December 1929—and which secured him election as a fellow of King's on 15 March 1930—consists of an analysis of the coal and cotton industries during the 1920s' depression, with a detailed study of cost conditions and the degree of capacity utilization. Kahn demonstrated that in the short run the average cost curve could be represented as an inverted L, meaning that the average cost remains constant up to a point corresponding to the maximum level of production obtainable. Given this form of the cost curve, the only way to determine the level of production at which the firm maximizes profits is by postulating imperfect competition, or in other words a downward-sloping demand curve facing the firm. Kahn explains why the degree to which productive capacity is exploited by all existing firms during a period of depression falls below full capacity. His account tallied with the empirical evidence, which revealed that all the firms in question worked full-time for some days of the week to suspend production for the rest, but clashed with the theory of perfect competition where it stated that only firms surviving the competitive struggle would be able to continue production, and in any case at a level corresponding to full capacity (Marcuzzo 1994).

Again, it was Keynes who gave Kahn the news about his election: "My dear Kahn, . . . the election went through with ease and certainty, everyone recognising that it was an exceptionally distinguished thesis. . . . I have permission to show you the Reports" (16-3-1930; RFK 13/57:3).

The report by A. C. Pigou, to the committee awarding the fellowship, was highly favorable—"when one remembers that the whole dissertation is the result of only 9 months' work by a man who only started on Economics two and a half years ago, the result is to me quite astonishing"

(RFK XI/6)—although somewhat critical of the use Kahn made of the L-shaped curve (Marcuzzo 1996a).

Evidently the lectures and the supervision by Shove and Sraffa[4] had afforded the right context to tackle the subjects of the dissertation; the correspondence contains no reference to discussions with Keynes on the subject, which bears out Kahn's own later remark that "there are no traces of Keynesian thought in the dissertation itself" (Kahn 1989, xi).

Kahn and the *Treatise*

Reconstructing the events fifty years later, Kahn wrote, "Keynes did not want to divert me from writing my dissertation, and it was only after December 1929 that he started giving me for comments the proofs of the *Treatise*" (Patinkin and Leith 1977, 148). A few years later he again asserted: "I came on the scene in January 1930" (Kahn 1984, 175). Nevertheless, Kahn's reconstruction seems to clash with the evidence contained in two documents available to us. The first is the rough draft of the preface to the *Treatise*, which bears the date 1 September 1929 and includes the following remark: "I owe the discovery of innumerable mistakes and muddles to Mr F. P. Ramsey, Mr P. Sraffa, and Mr R. F. Kahn, all of King's College, Cambridge, and especially to Mr Kahn, whose care and acuteness have left their trace on many pages" (*CW*, 13:83).[5]

The second piece of evidence demonstrating that Kahn must have discussed parts of the *Treatise* before concluding the dissertation comes in his reply to the letter Keynes wrote to tell him of his election as fellow. Kahn writes, "Some strong stimulus must have been at work, and I suspect that this originated in the contact which your proofs provided me with the working of your own mind" (JMK L/K:28).

In fact Kahn wrote to Keynes on 29 September 1929 telling him he had read the proofs but adding that he had neither the time to set out his comments on them nor much to say, confining himself to remark that "the modification in the treatment of the Fundamental Equations that you have now introduced right at the outset carry, so it appears

4. The RFK papers include the notes Kahn took during Sraffa's lectures in the academic year 1928–29 (RFK 3/3:359-81).

5. The version Keynes passed for publication on 30 September 1930 is without thanks to Ramsey and Sraffa, but for Kahn the same phrasing was preserved with the addition of further thanks for compiling the index.

to me, big advantages" (*CW*, 29:4).[6] It was only two months later, in mid-December, that Kahn finished writing his dissertation and was able to send his comments to Keynes in the form of six discussion points (*CW*, 13:120–21).

The discrepancy between Kahn's later comment and the documents at our disposal can easily be accounted for with Kahn's different assessment of the importance of the kind of help he had given Keynes before and after completing work on the dissertation. Moggridge (1992, 532 n) came up with a very different interpretation: "[Kahn] deliberately (and mistakenly) distanced himself too much from the *Treatise* and thus overly highlighted his own role in the new ideas that were later to emerge."

What it seems to me does emerge from the correspondence prior to the publication of the *Treatise*—much of which Keynes rewrote in 1929 and which was published on 31 October 1930—is that *before* completing the dissertation Keynes engaged Kahn in a discussion of problems of monetary theory rather than problems more closely concerning Kahn's work.[7] It was only *after* he finished the dissertation that Kahn began to give Keynes suggestions as to how he might develop the theory in other directions. The letter of 17 December 1929 is particularly interesting here, containing as it does two points where Kahn asks:

> Do you think that any attention ought to be devoted to the effect of short-period influences in the trade cycle, i.e. the effects of limited capacity and of surplus capacity on prices and profits?
>
> It has just occurred to me that a short treatment of Germany's inflation on your new lines would be very helpful. The common explanation in terms of velocity of circulation always seems very difficult to understand. (*CW*, 13:121)

The first point—short-period analysis—is clearly a result of work on the dissertation (Marcuzzo 1996b).[8] The second point has to do with the

6. A statement that, it seems to me, does not lend itself to the interpretation of Moggridge (1994, 108) as proof that Kahn "worked on Keynes's revisions of the fundamental equations in September 1929."

7. For example, in December 1928 Kahn produced a summary for Keynes—who knew little German—of Schumpeter's monetary theory presented in the article "Das Sozialprodukt und die Rechenpfennige" for comparison of their respective approaches to the purchasing power of money (JMK L/K:3-7).

8. In a letter to Keynes on 1 April 1933 Robertson referred to "your and Kahn's s[hort] p[eriod] method" (*CW*, 29:17) as the framework in which the new book was being written.

role Kahn never failed to attribute to himself in the final abandonment of the quantity theory of money in the *General Theory*. In fact, in a letter to Patinkin dated 19 March 1974, Kahn wrote that one of the most significant upshots of the article on the multiplier was that of "finally disposing of the idea that the price level is determined by the quantity of money" (Patinkin and Leith 1977, 147).[9]

Kahn's reconstruction was on various occasions borne out by Keynes, who wrote immediately after publication of the *General Theory* that "it was Mr Kahn who first attacked the relation of the general level of prices to wages in the same way as that in which that of particular prices has always been handled, namely as a problem of demand and supply in the short period rather than as a result to be derived from monetary factors" (*CW*, 5:400 n).[10]

We have also evidence, however, that Keynes was not fully persuaded of the idea that he had for so long been such a convinced supporter of the quantity theory of money.[11] Nevertheless, the *Treatise* states that "[these equations] resemble all other versions of the quantity theory" (*CW*, 5:125), and a letter to Pigou dated 15 May 1931 shows quite clearly that Keynes's position on the relation between the fundamental equations and the quantity theory of money was just as Kahn described it.[12]

9. Again, years later, we read the following: "Keynes' long struggle over a period of six years to produce a version of the *Treatise* worthy of publication was directed partly to an escape from the stranglehold of the Quantity Theory of Money in its crude form. . . . Nevertheless, Keynes seems to have been so much under the spell of the Quantity Theory that he could write about his Fundamental Equations as though they were 'versions' of the Quantity Theory" (Kahn 1984, 56).

10. Again, in the preface to the French edition of the *General Theory* in February 1939 we read: "The following analysis registers my final escape from the confusions of the Quantity Theory, which once entangled me. I regard the price level as a whole as being determined in precisely the same way as individual prices; that is to say, under the influence of supply and demand. . . . The quantity of money determines the supply of liquid resources, and hence the rate of interest" (*CW*, 7:xxxiv–xxxv).

11. In May 1940, the year after publication of the preface to the French edition, we find him writing to Kahn: "I enclose as a specimen the letter I wrote on Christmas Eve, 1917, which is interesting for two reasons— . . . (ii) the fact that even then I was thinking in terms of supply and demand and not of the quantity theory of money!" (RFK 13/57:460).

12. Keynes writes: "The misunderstanding has been due, I think, to your supposing that I held my equations [i.e., the fundamental equations in the *Treatise*] to be in some way inconsistent with the 'Cambridge Equation.' That I certainly do not" (*CW*, 13:217).

Misgivings about the Fundamental Equations

Kahn saw the fundamental importance of the article on the multiplier—conceived in the summer of 1930 but rewritten between late 1930 and the spring of 1931—in that it provided an alternative to the "fundamental equations" of the *Treatise* and, a fortiori, of the quantity theory of money in determining the prices of consumption goods (and subsequently prices in aggregate).[13]

Let us recall that in the *Treatise* the price level of consumption goods is set as equal to the sum of two terms, the first being the cost of production, the second being the difference between the current cost of production of investment goods (I') and saving (S), the latter being defined as the difference between earnings and expenditure on consumer goods. When the difference is nil, the production decisions made by entrepreneurs on quantities of consumption and investment goods correspond to (are compatible with) the decisions made by the public as a whole to allocate their incomes between consumption goods and savings. When the second term is positive (or negative)—according to whether the cost of the new investment is greater (or less) than the current saving—there will be extra profits or losses accruing to the producers of consumption goods.

On the other hand, the price level of investment goods—by which Keynes meant both capital goods and securities—is determined jointly by the decisions made by the public on how to allocate their savings between bank deposits and securities, and by the decisions of the banking system on whether or not to create new deposits with the purchase or sale of securities. The price of the securities, and thus of the investment goods produced, is then determined by the demand for securities by the public and the supply of them by the bank system as a whole. Also in this case, a positive difference between the value of the new investment goods (I) and their cost of production (I') means extra profits for the producers of investment goods, or losses should the difference prove negative.

The point Keynes stressed was that the forces underlying the determination of the two price levels are different and in particular that "the price level of consumption goods is entirely independent of the price level of investment goods" (*CW*, 5:123).

13. See Kahn's letter to Patinkin of 11 October 1978: "I claim that I brought the theory of value into the GENERAL THEORY in the form of a concept of the supply curve of output as a whole and that this was a major contribution" (quoted in Patinkin 1993, 659).

This point was contested by Kahn,[14] who sought to persuade Keynes that variations in the price level of consumption goods (P) and investment goods (P'), as defined in the *Treatise*, are not independent, and that his statement therefore had little ground to stand on in the face of the criticisms also raised by Robertson, Pigou, and Sraffa.

Kahn's criticism is summed up in a letter of 15 August 1931 in the course of his comments on the rough draft of Keynes's reply to Robertson (subsequently published in the *Economic Journal* in September 1931), where he wrote, "If one clears the decks of your special definitions, it is surely clear that P and P' are directly related except in the extreme case when no part of profits is devoted to consumption" (*CW*, 13:219).

Kahn had reached this conclusion imagining—as he wrote in a letter to Keynes on 17 April 1931—to draw "a cordon" (*CW*, 13:206) to separate the sector producing consumption goods from the rest of the economy and doing the same for the sector producing investment goods. The monetary expenditure channeled into the consumption goods sector—by the entire economy—is equal to the monetary expenditure channeled into the rest of the economy by the consumption goods sector. Similarly, the monetary expenditure going into the investment goods sector equals the monetary expenditure flowing from the investment goods sector into the rest of the economy.

Let us suppose, Kahn continued, that there is a fall in savings equal to a; this means a rise, equal to a, in the monetary expenditure in the consumption goods sector and a corresponding fall in the monetary expenditure in the investment goods sector. The expenditure on investment goods by the producers of consumption goods increases by a, while the inflow into the investment sector remains unchanged (the extra monetary expenditure coming in from the consumption goods sector exactly offsets the initial fall in saving). In principle, there is no reason why the price of investment goods should change. However, if the price of the investment goods were to increase, the expenditure on consumption goods would further increase by a corresponding amount (say b), so that total expenditure on consumption goods would increase by $a + b$. Given that an increase (or decrease) in the expenditure by one sector always

14. See the letters of 5 April 1931 in *CW*, 13:203–6; of 17 April 1931 in *CW*, 13:206–7; of 7 May 1931 in *CW*, 13:212–13; and of 15 August 1931 in *CW*, 13:218–19.

implies an increase (or decrease) in the demand for the goods produced in the other sector, the two price levels are always connected.[15]

J. R. Hicks (1967) made the same point thirty-five years later. He rewrote the "fundamental equations" in terms of the propensity to save out of income and profits, as defined according to the *Treatise*:

$$P = \frac{(1 - s_1)E + (1 - s_2)Q}{R}$$

$$P' = \frac{s_1 E + s_2 Q}{C}$$

where

P = price level of consumption goods
P' = price level of investment goods
Q = "extra" profits
s_1 = propensity to save out of income
s_2 = propensity to save out of profits
R = consumption goods at equilibrium prices
C = investment goods at equilibrium prices
E = earnings of the factors of production ("income").

For given "propensities" to save out of income and of profits, the two price levels are not independently determined.

By September 1931, Keynes had accepted Kahn's point (*CW*, 13:225) and it had become clear that the "fundamental equations" approach needed revision.

The Role of the Circus

How much of the "sloughing off the skin" of the *Treatise* can be attributed to the discussion with Kahn and within the Circus?[16] This question

15. See the letter by Kahn to Keynes of 7 May 1931: "My view is that the two price levels are directly connected in the sense that if one is higher the other is also higher" (*CW*, 13:213) and "what you still appear to fail to take into consideration is that 'savings' depend on P'" (213).

16. As is well known, the Circus was the informal group that met between late 1930 and the spring of 1931 to discuss the *Treatise*, including not only Kahn, James Meade, Piero Sraffa, and Joan and Austin Robinson, but also some of the most brilliant economics students of the next generation.

has turned out to be difficult to answer, because scant written material has survived to document the group's activities, later reconstructions being based on the individual and collective recollections of the participants. This may explain why we come up against a number of contrasts in the interpretations of how things really went.[17]

In the literature, the Harris Foundation lectures given by Keynes in June 1931—after the Circus dissolved—have been used as a test to document the influence of the Circus and Kahn's multiplier article (published in June) on Keynes's new ideas. Moggridge's view was that "[they] saw Keynes giving much more attention to changes in output, rather than in price levels, and giving hints of the idea of less than full employment equilibrium" (Moggridge 1973, 79). According to Dimand (1988, 143), however, "[in the Harris lectures] the argument was still largely that of the *Treatise*, with no mention of Kahn's relation between primary and secondary employment." K. A. Ertürk (1998, 177–78) notices that in these lectures Keynes no longer makes "a distinction between the market value of new investment goods, *I*, and the cost of producing them" (*CW*, 13:363). On the contrary, E. A. G. Robinson (1985, 57) wrote, "Certainly, by the time he was writing his Harris Foundation lectures in June 1931, he had already absorbed some of the ideas Richard [Kahn] was taking to him and was moving on again."

Certainly, in the Harris Foundation lectures the possibility of less-than-employment equilibrium is argued out. Starting from an equilibrium position, a decrease in investment relative to saving brings a reduction in profits, which in turn brings a reduction in output. Eventually, a

17. In his analysis of the period Patinkin (1976, 71) remarked that "though Kahn's article [Kahn 1931] clearly constituted a major step toward the *General Theory*, and though in retrospect we see that the theory of the multiplier can be formulated in a way which is logically equivalent to the theory of effective demand, I doubt very much if this equivalence was seen by the actors of our drama in 1931." See also Patinkin 1982, 29, and 1994, 1144. Kahn (1984, 105) did not share Patinkin's views on the role played by the Circus: "Don Patinkin disputes the importance commonly attributed to us [the Circus] in assisting Keynes to write the *General Theory*. In so far as he relies on documents, he is fully entitled to make his case. Others can judge. For my own part I feel myself unable to arouse any feeling of passion over events which took place so long ago." Robert Skidelsky (1992, 448), on the other hand, writes, "Much more important than the Circus's collective contribution to Keynes's progress was Kahn's personal contribution," while Moggridge (1994, 111) remarks that "Kahn's accounts of the 'Circus' . . . taken together with those of other participants, provide valuable grist for the mills of historians of economics." A short review of the literature on the role of the Circus can be found in Prasch 1994, 28–29.

level of profit is reached at which entrepreneurs are no longer inclined to continue production and variations in output no longer occur. This level of output, Keynes argues, "represents a kind of spurious equilibrium" (*CW*, 13:356).[18] As to the question of how profits are related to output, Keynes is reported as saying:

> The analysis I shall try to outline is not merely my own; it is due to a young English economist, Mr R.F. Kahn. . . . let us consider the totality of industries. You have over a short period something of the nature of a supply curve which tells you that for a given level of prime profit [i.e., the difference between gross receipts and prime costs] there will be a given level of output, that if you have a certain amount of prime profit, that would be sufficient to bring a certain quantity of potential output over the prime cost level. Every increase in aggregate prime profit will enable somebody to expand, because he will just get over the price cost point, and every diminution will knock someone out, so if you have a supply curve which is valid over the short period only, so that for every quantity of aggregate prime profit you have a given quantity of output, you could only increase employment and output by increasing prime profit. (*CW*, 13:368)[19]

And in a seminar following the Harris lectures, debating with H. Schultz the short-run equilibrium conditions for a single firm, Keynes stated, "You then aggregate all the [cost] curves and you can get a supply curve for industry as a whole in which the output is unequivocally related to aggregate excess receipts over prime costs. . . . If you then aggregate, you get a formula by which you can relate the excess of saving to the volume of investment" (*CW*, 13:372).

In his multiplier article Kahn (1972, 5–6) postulated a supply curve relating price and output of consumption goods. Moreover, in his lectures on the economics of the short period (held since the winter term of 1931) this relation was extended to aggregate output in the form of an aggregate supply curve plotted in relation to expected earnings (RFK

18. In keeping with his view that the birth of Keynes's "new" theory did not occur until 1933, Patinkin ventured to say that the above sentence "maybe . . . does not quite mean what it at first sight seems to" (Patinkin and Leith 1977, 125).

19. This quotation is from minutes of a roundtable debate following Keynes's lectures. I cannot therefore agree with Dimand's remark that "Keynes made no use in those lectures of . . . the other contribution of Kahn's paper, the supply curve for output as a whole" (Dimand 1988, 144–45).

4/13:4-14).[20] In my view, the Harris Foundation lectures show Keynes shifting emphasis from the *Treatise* analysis of aggregate profits as the difference between investment and savings, as affecting the level of prices, to Kahn's short-period analysis of aggregate profits as the difference between gross receipts and prime costs, as affecting the level of output.[21]

In the months following the Harris Foundation lectures, Keynes set himself to the task of finding out how the equilibrium level of total output is determined. The mechanism he submitted to Kahn in a letter of 20 September 1931 may be outlined thus: an increase in investment (I) raises profits (Q), part of the increase in profits going into savings (S); at the same time, an increase in profits raises output (O) along the aggregate supply curve and thus brings about a further increase in savings. However, the profit per unit of output (Q/O) declines as output increases, since profits fall as savings rise. Keynes's conclusion was that "if Q/O reaches zero before O reaches maximum, we have 'long-period unemployment,' i.e. an equilibrium position short of full employment" (*CW*, 13:374).

Kahn was not totally convinced, however, writing, "As it appears to me at the moment, the *only* condition necessary for reaching a new position of equilibrium is that S increases as E [earnings] increases. But that is not quite accurate, because on top of that there is some condition necessary for equilibrium to have been possible at all i.e. that a small reduction in O (or E) will cause expenditure to increase" (*CW*, 13:375).

At this stage the solution still looks a long way off, and Kahn seems to take the responsibility for it, concluding, "I am sorry to be so useless" (375).[22]

20. We have also a summary of their main content, written by L. Tarshis, on the basis of the notes Tarshis took when attending Kahn's lectures during the 1932 Michaelmas term (RFK 4/15). See Tarshis 1979.

21. In the typescript of the Mattioli Lectures there is the following statement by Kahn: "I regard the most important part of my article as being quite different from the view normally taken of it. I dealt with the effect of a higher level of demand on the price-level of consumption-goods by introducing the concepts of the supply curve, and demand curve, of consumption-goods as a whole. This is symptomatic of the *new method*, to be introduced by Keynes eventually in the early drafts of the *General Theory*, of determining price-levels of 'output as a whole,' or rather consumption-goods and capital-goods as a whole, in terms of demand and supply" (quoted in Patinkin 1993, 659 n. 17; emphasis added).

22. Patinkin (Patinkin and Leith 1977, 87; Patinkin 1982, 29) interprets this exchange as indication that Kahn did not quite understand Keynes's argument, suggesting once again that Kahn did not play a substantive role in developing the main point of the *General Theory*.

As a result of various difficulties, at the end of the summer 1931, Keynes decided that he had to postpone his Cambridge lectures; as he wrote to E. A. G. Robinson on 28 September 1931, he felt that a "theoretical clean up" was needed before he could "re-lecture stuff which is available in print."[23]

A few months later, in March 1932, as a result of much rethinking, Keynes accepted ("I have now bowed the knee" [*CW*, 13:275]) the ordinary sense of income as including profits (E') and that the amount of savings "is not independent (*cet. par.*) of the amount of the community's expenditure on goods which are consumed" (*CW*, 13:278).[24]

The Road to the *General Theory*

The *General Theory* took shape in 1932.[25]

Already in the lecture of 2 May 1932 we find Keynes's "new" argument: "Fluctuations of output and employment for a given community over the short period . . . depend almost entirely on the amount of current investment. . . . This . . . is the result of taking account of the probable effect on saving of a *change* in the amount of investment" (*CW*, 29:41). The new conditions for equilibrium are spelled out in one fragment of the 1932 drafts:[26] "Provided ΔS and ΔE have the same sign, and that

23. E. A. G. Robinson Papers, Marshall Library, box 9. See also the letter to Robertson of 6 October 1931: "My treatment in the *Treatise on Money* is not as thorough as it should be, and I have been more thorough in my own reflections subsequently" (*CW*, 13:273); and the letter to Nicholas Kaldor of 9 December 1931: " I am now endeavouring to express the whole thing over again more clearly and from a different angle; and in two years' time I may feel able to publish a revised and completer version" (*CW*, 13:243). Keynes postponed the lessons he was to have held in the 1931 Michaelmas term to April–May 1932.

24. On 22 March he wrote to Robertson, "I have been trying recently . . . to get back to the beginning in restating the point of view which I seem to have put inadequately in Book Three of my *Treatise* [the fundamental equations]" (*CW*, 13:275). See also "Notes on Fundamental Terminology," a fragment from which—according to Moggridge—Keynes appears to have lectured on 25 April 1932: "I admit that my departure from common usage in this respect [in the definition of income] has caused confusion" (*CW*, 29:37 n).

25. The documents by Keynes attesting to its evolution are as follows: (1) two fragments of the 1932 Easter term lessons, which still bore the title of "The Pure Theory of Money" from which Keynes appears to have lectured on 25 April 1932 and 2 May 1932 (*CW*, 29:35–42); (2) some fragments of drafts of chapters of the new book with tables of contents (*CW*, 13:380–407); and (3) two fragments of the 1932 Michaelmas term lessons, titled "The Monetary Theory of Production," from which Keynes appears to have lectured on 10 October and 14 November (*CW*, 29:50–57).

26. According to Moggridge (*CW*, 13:380), this is the "earliest" of the fragments from the period of writing during 1931–32. Moggridge's dating of these fragments was questioned by

investment does not change, *any* level of output is a position of stable equilibrium. For any increase of output will bring in a retarding factor, since ΔS will be positive and consequently I being assumed constant, ΔQ will be negative; whilst equally any decrease of output will bring in a stimulating factor, since ΔS will be negative and consequently ΔQ positive" (*CW*, 13:386–87).[27]

As a consequence, the relation between saving and investment was seen in a new perspective: "It might be truer to say that the amount of saving over a period of time depends on the amount of investment, than the other way round" (*CW*, 13:388).

Some commentators hold that it was after reading the article by Jens Warming published in the *Economic Journal* in June 1932 (Warming 1932) that Keynes and his immediate entourage properly appreciated the role of the savings function in determining the equilibrium level of income (Cain 1979, 109; Skidelsky 1992, 451–52; Dimand 1988, 145).[28]

Patinkin (1975, 1993). "Moggridge states that the fragment reproduced on pages 381–96 of JMK XIII is the earlier one, and that the fragment reproduced on pages 397–405 is 'from slightly later work, although still before the end of 1932' [*CW*, 13:380]. To me, however, the correct order seems to be the reverse" (Patinkin 1975, 252 n. 1). I do not see enough evidence supporting Patinkin's claim.

27. In the draft of what—according to Moggridge—was the material from which Keynes seemed to have lectured on 14 November 1932, the same concept is repeated: "The decline in output may be itself one of the factors which had, by reason of its retarding effect of saving, produced the new equilibrium, so that the fact of the level of output being below the optimum may be in itself one the conditions of the maintenance of equilibrium" (*CW*, 29:57). Patinkin questions "the November 1932 dating of a fragment reproduced on pp. 54–7 of this volume [29]" and maintains that "this part of the fragment [containing a description of the equilibrating role of changes in output] does not appear in the November 1932 lecture notes [Rymes 1989]. . . . Additional evidence in support of this view has recently been provided by Moggridge [1992, 562 n. h], who points out that the term 'propensity to spend' which appears in this fragment was not used by Keynes until later" (Patinkin 1993, 655 n. 13; the same argument is given in Patinkin 1980, 18–19). However, in the draft reproduced on pages 381–96 of volume 13, we already find the concept, although not the wording, of the propensity to spend ("response of individual spending"; see *CW*, 13:388). I do not therefore see enough evidence for rejecting the initial conjecture by Moggridge that this fragment was written in 1932.

28. Kahn (1984, 99) recognized that the article on the multiplier—which also included the findings of Meade (Meade 1993)—was incomplete: "what we had done—but *failed completely to realise*—was . . . to establish the identity of saving and investment" (emphasis added); and that it was rather with the article "The Financing of Public Works," published in September 1932, that he finally abandoned the *Treatise* definition of savings (retained in the multiplier article). If, in fact, savings are defined "in the ordinary sense of the aggregate of the excess of individuals' receipts over their expenditure on consumption[,] savings are *always and necessarily* equal to investment" (Kahn 1932, 494).

Be that as it may, it seems to me that before the summer 1932 a new element came in to help to clinch the argument.

In the spring of 1932, Kahn and Austin and Joan Robinson followed Keynes's lessons and on that occasion they signed a "manifesto" on one aspect of Keynes's theory, presenting an "alternative" (as Keynes put it) or a "complementary" (as Robinson had it in her subsequent correspondence) solution. The point under discussion was Keynes's "proof" that the variation in investment (ΔI) had the same sign as the variation in output (ΔO). Keynes's proof rests on two initial hypotheses: (1) $\Delta E'$ (the variation in the entrepreneurs' earnings, i.e., the monetary value deriving from sales of the current output of goods and services) has the same sign as ΔO; (2) $\Delta E' - \Delta F$ (ΔF is the change in spending, and thus the difference between the change in the entrepreneurs' earnings and the change in spending accounts for the change in their savings) has the same sign as $\Delta E'$.

Since $\Delta E' - \Delta F = \Delta I$, it follows that ΔI and ΔO have the same sign.

The objection raised here by the manifesto authors was that condition (2)—that spending does not rise as much as income—actually demonstrates not that the variation in investment has the same sign as the variation in output, but "to ensure that there shall be stable equilibrium. If expenditure were to increase by more than income, equilibrium would be unstable and any small increment in investment would cause output to rise either to infinity or to a point where condition (b) [i.e., (2)] came into operation, whichever happened first" (*CW*, 29:43).

Moreover, the manifesto authors went on, were an increase in spending to bring about a considerable increase in the costs of production, then output would fall instead of rising and condition (1) would no longer apply. It was at this point that an alternative to Keynes's proof was proposed:

> The problem seems to us to be susceptible to treatment by method of Supply and Demand. For the truth of the proposition that an increase in I will lead to an increase in O, the two following conditions appear to us to be sufficient, though not necessary:
>
> (a) That an increase in I will lead *per se* to a rise in the demand for consumption goods, i.e. that the demand for consumption goods on the part of the producers of capital goods will increase when the value of their output increases;

> (b) That the conditions of supply of consumption goods are not affected by change in I.
>
> When these conditions are fulfilled, an increase in I will lead to a rise in the demand curve for consumption goods without raising the supply curve, and so must lead to an increase of output of consumption goods, and *a fortiori* to an increase in total output. (*CW*, 29:43–44)[29]

The point made by the "Trumpington Street School," as Joan Robinson jokingly called it (from the name of the street where she lived with her husband Austin and where Kahn was a frequent visitor), was summarized by her almost fifty years afterward, in reviewing volume 29 of Keynes's *Collected Writings*, where the manifesto is published:

> At the Circus, we had got used to the idea that investment determines saving both in a static and in an incremental sense. When production is exhaustively divided into investment-good and consumption-good sectors, the excess of the income of the investment sector over its own saving, that is, its consumption, is equal to the excess of income of the consumption sector over its own consumption, that is, its savings. An *increase* in the rate of expenditure on investment, beginning at a particular moment, quickly brings about an equal increase in the flow of saving, through the mechanism of the multiplier. . . . Keynes, in his lectures, was still using the cumbersome *Treatise* definitions, which turn on a difference between saving and investment, but he was using them to get the same results. . . . Much later (volume VII, p. 400, [*CW*, 7:400]) Keynes explained that he got from Kahn (for better or worse) the concept of "the short-period supply curve of output as a whole," which was the issue here. (Robinson 1980, 391)

Keynes's resistance "to scrap all my present half-forged weapons" (*CW*, 13:378), as he wrote to Joan Robinson in the correspondence about

29. According to Rymes (1989, 37–39), the authors of the manifesto misinterpreted Keynes on two points: first, on the role of profits in ascertaining whether expenditure or consumption could increase more rapidly than income (= earnings + profits); second, on the dynamic of the correlation between investment and profits. Indeed Keynes was still adhering to the causal sequence in which profits were the "main spring of change" and was concerned with the two-way relationship between investment and profits, while, on the other hand, the authors of the manifesto were thinking in terms of a static framework of demand and supply schedules. Within the latter framework, an autonomous increase in investment leads to an increase in the demand for consumption goods. Since, by assumption, supply conditions are independent from changes in demand, the determination of the equilibrium level of income ($= C + I$) is straightforward.

the manifesto, was short lived. In fact, the lectures of autumn 1932 showed Keynes taking up the "method" of the Trumpington Street school, using the expression "demand as a whole relatively to supply as a whole" (*CW*, 29:53).[30]

In those lectures, windfall profits are still the signals that induce entrepreneurs to revise their production decisions, but whether or not entrepreneurs are making profits is now made dependent on whether disbursements (i.e., expenditures) are greater than earnings. According to his new terminology (Rymes 1989, 57), unlike the *Treatise*, total income, E'', includes profits, being defined as:

$$E' = E + Q,$$

while E retains its old meaning of earnings. Moreover, the "new term" (Rymes 1989, 57 n) disbursement, D, is defined as the sum of investment, I, and expenditure on consumables, F, which are made equal to income. Then we have:

$$D = I + F = E' = E + Q$$

and

$$Q = I - (E - F).$$

Hence

$$Q = I - S.$$

Parallel to the change in the definition of income, a new concept of saving was introduced, which Keynes labeled "surplus," retaining S (= $E - F$) for saving:

$$S' = S + Q.$$

Equality is said always to exist between investment and surplus, the adjustment mechanism being provided by the price of consumables (Rymes 1989, 62). However, saving is still described as "something that has to occur to make more investment possible at the existing price level" (Rymes 1989, 61); clearly it was not yet fully integrated as dependent variable in the output adjusting mechanism.

30. See also "Second Lecture: 17 October 1932" in Rymes 1989, 55.

Kahn's Visit to America

On 21 December 1932 Kahn boarded the *Majestic* to set sail for the United States, where he was to remain until early May 1933 with the support of a grant from the Rockefeller Foundation. This did not mark a complete break in his Cambridge life, however, since these months also saw him correcting the proofs of Joan Robinson's *Economics of Imperfect Competition* and keeping Keynes informed on American economic policy and the state of monetary theory in the various North American universities (Chicago, Toronto, Montreal, Harvard) and official circles (New York, Washington) he frequented.[31]

Soon after he arrived in America, Kahn presented a paper titled "Public Works and Inflation" to the American Statistical Association of Cincinnati in December 1932, making explicit use of the expression "the demand of output as a whole" and the "supply of output as a whole" (Kahn 1972, 28–30), thus pursuing the line of exposition favored in the manifesto.[32]

The interesting aspect about the collaboration between Keynes and Kahn during this period is their joint and independent work to verify multiplier analysis with the new statistics on the national income. On reading Colin Clark's *The National Income 1924–1931* during the 1932 Christmas holidays, Keynes wrote to him: "There is one interesting possibility suggested by your tables in the last chapter. You will remember that Kahn suggested that secondary employment might be about as large as primary employment, i.e. that additional investment x increases output by 2x. If one tries this hypothesis on your figures, it works surprisingly well" (*CW*, 29:58).

31. The correspondence of 1933 (nineteen letters to Keynes, of which only seven have been published) is particularly interesting where Kahn gives his opinion on the dominant influence of the quantity theory of money in the United States. For instance, he wrote to Keynes that "I am thinking that the only way to save humanity is to lead a campaign against the Quantity Theory" (JMK L/K:36). And in a paper he read to the Political Economy Club he added that "the scourge which goes by the name of the Quantity Theory of money has swept the country" (RFK/3/18/3:15); "my visit to the United States inclines me to ascribe most of the ills of the world to the Quantity Theory of Money" (RFK/3/18/3:16).

32. According to Dimand (1994, 1140), Kahn "first used a marginal propensity to save out of income" in a paper delivered in Cincinnati in December 1932 (Kahn 1933), prior to Keynes's usage in *The Means to Prosperity*. However, the expression "marginal propensity" is not in Kahn's article. Furthermore, the wording "propensity to save" was used by Keynes earlier, in the fragment from which he lectured (according to Moggridge) on 2 May 1932 (*CW*, 29:41). Kahn uses it in a letter to Keynes dated 14 April 1933 (JMK L/K:65).

Kahn's reaction was equally enthusiastic, replying to Keynes on 1 January 1933, "The figures are really beautiful. I had completely missed the possibility of confirming the thing in this simple way. I do feel that the point ought to be brought to the notice of the public" (*CW*, 13:412–13).

In fact, the opportunity arose very soon afterward, when Keynes, mindful of the changed political climate, decided to write four articles for the London *Times* (published between 13 and 16 March 1933) to relaunch a plan for public spending. These articles were subsequently published as a pamphlet, *The Means to Prosperity*.[33] A further contribution came with the article "The Multiplier" (where the term later to become familiar made its first public appearance) published in the *New Statesman* of 1 April 1933, and thus announced to Kahn in a letter of 24 March 1933: "I am now engaged in trying to write out for 'The Times' . . . a really detailed, but nevertheless popular, account of the relation between primary and secondary employment. I hope I don't make any bloomers,—I wish you were here to look over my shoulder" (*CW*, 13:413).

Moggridge (1992, 564), unlike Patinkin, is persuaded that by the time of the multiplier article, the "penny had firmly dropped for the theory of effective demand."

The Conception of Effective Demand

On the basis of the evidence in the lectures of Michaelmas term 1933 and the contemporary fragments[34] of versions of the *General Theory* that came to light in the "laundry hamper" of Keynes's house at Tilton, most commentators (Dimand 1988, 167; Moggridge 1992, 562; Patinkin 1976, 79; 1982, 33; 1993, 656) agree that by that time the conception of effective demand had been accomplished.

In "an early typed and hand-written draft of what eventually became chapter 5 of the second 1933 draft table of contents" (*CW*, 29:68), Keynes presented again "our fundamental equations"; the only changes

33. Keynes seemed worried about not being able to submit the text of the articles for Kahn to check over: "I was frightfully annoyed about the slip in the first article, which I had to correct in the second,—one which would never have occurred if you had been in the neighbourhood" (RFK 13/57:19).

34. In fact, there is no evidence on whether the fragments corresponding to the first and second drafts from 1933 of the tables of contents (*CW*, 29:63–75) were written during the summer, but it is a plausible inference.

of notation (from the lectures in the previous year) are C for F, consumption expenditure, while Y, income, makes its first appearance:

$$Y = E + Q = C + I = D$$

or

$$Q = D - E = I - (E - C).$$

Facing once again the task of accounting for the change in the definition of saving from the *Treatise*, Keynes presented the following:

$$S = Y - C = E + Q - C$$

and then explained that he had decided to retain the notation, S, and the word *saving* for $Y - C$ and to define S', corresponding to the definition of saving in the *Treatise*, as *economizing* (*CW*, 29:69). The fundamental equations had by now (Rymes 1989, 109) become

$$Y = E + Q = C + I = D$$
$$S = E + Q - C = Y - C$$
$$\Delta S = \Delta Q + \Delta(E - C) = \Delta I$$
$$\Delta S' = \Delta(E - C).$$

Hence

$$\Delta Q = \Delta S - \Delta S'$$

and

$$\Delta Q = \Delta I - \Delta S'.$$

When ΔQ is positive, because investment is increasing faster than the community is economizing (Rymes 1989, 110–11), firms increase output. Unlike the previous formulation, the role of profits had changed, since now the level of output was made dependent on *prospective* rather than *actual* magnitude.[35] In fact, in the fragment corresponding to the first 1933 draft table of contents, Keynes (*CW*, 29:64) wrote that the level of output depended "on the amount by which the sale proceeds of output as a whole are expected to exceed their variable cost."

35. While in the lecture of 13 November Keynes redefined Q as expected quasi-rents, in the lecture of 6 November he seemed to be referring to the previous (*Treatise*) sense of windfall (realized) profits. See Dimand 1988, 162.

Moreover, the output adjustment mechanism presented in one of the fragments, corresponding to the last index of 1933, is dressed in a particular form: "Each firm calculates the prospective selling price of its output and its variable cost in respect to output on various possible scales of production. Its variable cost per unit is not, as a rule, constant for all volumes of output but increases as output increases. Output is then pushed to the point at which the prospective selling price no longer exceeds the marginal variable cost" (*CW*, 29:98).

The new element in this passage is Keynes's use of marginal analysis in determining the equilibrium level of output, which is used in the 1933 Michaelmas term lessons (see, for instance, Rymes 1989, 103–4). The use of marginal analysis—totally absent in the *Treatise*—is another instance of Keynes's increasing acceptance of the Marshallian apparatus in presenting his ideas. According to Patinkin (1982, 148), full grasp of the marginal was never accomplished by Keynes, who in 1933 would not yet "have a full and precise understanding of the difference between two kinds [marginal and average] of cost."[36] On the contrary, Kahn was at the time fully versed in the marginal approach, and working together with Joan Robinson he developed a clear mind about its importance and usefulness.[37] In fact, on leaving for the United States in December 1932, Kahn took with him an article titled "Imperfect Competition and Marginal Principle"[38]—probably written a few months earlier[39]—that summarizes the main findings of his joint work with Joan Robinson, centered on the distinction between marginal and average magnitudes.

36. Patinkin (1982, 146) argues that the distinction is still not clear in the third proofs of 1935 and that the confusion was carried over in the final version of the *General Theory*, as shown by the "implicit identification of the aggregate supply curve with the total variable cost curve (GT, Fn., p.55)." For a contrary view, see Tarshis in Patinkin and Leith 1977, 62.

37. The collaboration with Joan Robinson on the general theory of competition and monopoly had started in 1930 and the typescript of *The Economics of Imperfect Competition* was sent to Macmillan in November 1932.

38. See RFK 13/90. The paper is still unpublished in English. The Italian translation can be found in Marcuzzo and Pasinetti 1999.

39. In a letter of 11 February 1933 to Kahn, Joan Robinson made the following comment about that article: "Austin [Robinson], who has yet only just glanced at it, is very keen that it should be published as the first manifesto of the Trumpington Street School (After reading it he repeats this view)." See RFK 13/90. The "Trumpington Street School" was indeed the way in which Kahn, Austin, and Joan Robinson signed the 1932 manifesto, arguing in favor of the "*method of supply and demand*" *to prove Keynes's proposition that variation in investment had* the same sign as variation in output.

It seems to me that in adopting the "method" of the Trumpington Street school, Keynes was driven toward the marginal approach, which indeed became the language in which parts of the *General Theory* were written.

"Supervising" Keynes

By the end of 1933, Kahn's role seemed now more of a mentor than of a pupil, as the following passage from a letter by Keynes to his wife Lydia, dated 15 October 1933, reveals: "Alexander [the name Lydia gave Kahn to distinguish him from another fellow of King's, Richard Braithwaite] has just been to give his criticism on the latest version of my first three chapters—I got off much lighter than usual" (*CW*, 29:62).

The collaboration between Kahn and Keynes progressed steadily. On 19 February 1934, Keynes wrote to Lydia: "Alexander has proved to me that 'my important discovery' last week is all a mistake" (*CW*, 29:120). Four weeks later, Kahn reacted apologetically: "I am feeling very distressed that I have not found time to read very much of your book. I seem this term to have got myself completely bogged. It is a rotten way to treat you (and the subject which you, at least, are so anxious to 'do full justice' to)" (JMK PP/45/161:1). But again on 20 March 1934, Kahn spotted another blunder: "It is surely clear that so long as you define the difference between income and investment as the *actual* value of consumption, they cannot *both* be independent of *actual* prices at which consumption takes place" (*CW*, 29:120).

However, the following day, in announcing his visit to Tilton for 23 March, Kahn was encouraging: "It is clear that I shall worry you with trivialities. I really do feel that you have got home" (*CW*, 29:122). Finally, after "a stiff week's supervision from R.F.K" (*CW*, 13:422), Keynes reported enthusiastically that "[Kahn] is a marvellous critic and suggester and improver—there never was anyone in the history of the world to whom it was so helpful to submit one's stuff" (*CW*, 13:422).

Eventually, on 13 April 1934 Keynes was able to send Kahn "[the] beautiful and important (I think) precise definition of what is meant by effective demand" (*CW*, 13:422).[40]

40. "The fundamental assumption of the classical theory, 'supply creates its own demand,' is that $OW = OP$ [W = marginal prime cost of production when output is O; P = expected selling price of this output; OP = effective demand] *whatever* the level of O, so that effective

From this period we have the versions of chapters 6–12 of the index to the book, which now bore the title *The General Theory of Employment, Interest, and Money*, written before Keynes's journey to the United States in June 1934, and the provisional versions of chapters 8–9 written over the summer. Kahn was later to recall that he spent a lot of time with Keynes at Tilton during that summer of 1934. Of this long visit, Keynes wrote to his mother "as usual he [Kahn] was extraordinarily helpful" (*CW*, 13:484), and in late September he announced to Kahn, "I am getting towards the end of the re-writing which you led me into" (*CW*, 13:485). By the autumn of that year Keynes was now using chapters 2–14 of the first proof versions of the *General Theory* for his lectures. Again he wrote to Lydia, on 4 November 1934, "And there Alexander sits too, trying to understand everything more clearly than is possible" (Skidelsky 1992, 514).

Revision of the new book went ahead for the whole of the following year. On 15 January 1935 Keynes wrote to Kahn: "I have done two more chapters for you, if you have time to look at them" (*CW*, 13:525), and correspondence on various other aspects of the book continued until that summer.

In June 1935 Keynes sent the second set of proofs to Harrod, Hawtrey, Kahn, and Joan Robinson. Unfortunately, we now have only part of the correspondence with Kahn subsequent to the dispatch of the proofs, but we do have Kahn's comments on the second and third proofs, which Keynes corrected in September, and they contain a particularly interesting passage; Kahn considered it important for Keynes to demonstrate that the adjustment of saving to the given level of investment did not depend on a particular definition of income:

> I do not like you saying that saving and investment are "different names for the same thing." They are *different* things (that is the whole point)—they are certainly different acts—but they are equal in *magnitude*. I still hold that the simple-minded proof that saving = investment, appropriate for those who cannot grapple with user cost, etc. is called for—not only for the sake of the simple minded, but to prevent

---

demand is incapable of setting a limit to employment which consequently depends on the relation between marginal product in wage-good industries and marginal disutility of employment. On *my* theory, $OW \neq OP$ for *all* values of O, and entrepreneurs have to choose a value of O for which it *is* equal;—otherwise the equality of price and marginal prime cost is infringed. This is the real starting point of everything" (*CW*, 13:422–23).

> the obvious retort that all your stuff depends on your peculiar definitions. What is wrong with saying that *however* income is defined,
>
> income = value of output = consumption + investment
> also income = consumption + saving
> ∴ saving = investment
>
> This truth is far too important (and far seldom recognised) to be concealed in a mist of subtle definition. (*CW*, 13:637)

Keynes accepted the suggestion, as a comparison between the final version (*CW*, 7:63) and the third set of proofs (*CW*, 14:424) reveals, and it was in fact Kahn's formulation that found a place in the *General Theory*, which Keynes finished in late December 1935, to be published in February 1936.

Conclusions

The aim of the present essay was to recount the collaboration between Keynes and Kahn, dwelling upon the nature of relations between them during the period when the *General Theory* was coming to light, drawing upon and collating the correspondence, writings, unpublished material, and later reconstructions offered by the protagonists themselves. On the evidence of all this material, it seems to me incontrovertible that relations between Keynes and Kahn were strong, continuous, and fertile, with an apparently paradoxical "inversion" of roles: it was the pupil who intervened to correct, tidy up, and sound out the master's rationale.

Any actual demonstration as to whether Kahn's contribution was or was not decisive—in the sense that without it the book would not have set out the same theory—is, as the literature tackling the question in these terms seems to confirm, an impossible task.

On the other hand, we certainly can single out the aspects independently worked on by Kahn that Keynes subsequently incorporated, adapting them to his aims and *forma mentis* and which eventually became part of the *General Theory*, readjusting the framework upon which the *Treatise* had rested. The major points here are short-period analysis and the application of aggregate demand and supply to determine price levels and equilibrium quantities. Within this framework, the multiplier principle and the "supply schedule for output as a whole" were tools that proved particularly productive in building the "new theory." The influence of Shove and Sraffa and the collaboration with Joan Robinson during the writing of the *Economics of Imperfect Competition* had fully persuaded Kahn of the need to recover, rather than to discard, Marshall's apparatus. The task—as he saw it—was to transform certain concepts into precise analytical tools and apply them to Keynes's new ideas to obtain logically coherent results.

The methodological framework of the *Treatise* was different, and one may of course argue that the framework Kahn provided—the aggregate demand and supply curves—had the eventual effect of taking the presentation of the *General Theory* in directions that departed from Keynes's original inspiration or at any rate of restricting its scope. However, it is an argument that only brings further confirmation to the conclusion I have come to: progress from the *Treatise* to the *General Theory* was not a solitary path, but a story of collaboration.

References

Cain, N. 1979. Cambridge and Its Revolution: A Perspective on the Multiplier and Effective Demand. *Economic Record* 55:108–17.

Clarke, P. 1988. *The Keynesian Revolution in the Making*. Oxford: Clarendon Press.

Dimand, R. W. 1988. *The Origins of the Keynesian Revolution*. Aldershot, U.K.: Edward Elgar.

———. 1994. Mr. Meade's Relation, Kahn's Multiplier, and the Chronology of the *General Theory*. *Economic Journal* 104:1139–42.

Ertürk, K. A. 1998. From the *Treatise* to the *General Theory*: The Transformation of Keynes's Theory of Investment in Working Capital. *Cambridge Journal of Economics* 22:173–85.

Harcourt, G., ed. 1985. *Keynes and His Contemporaries*. London: Macmillan.

Harrod, R. F. 1951. *The Life of John Maynard Keynes*. London: Macmillan.

Hicks, J. R. 1967. *Critical Essays in Monetary Theory*. Oxford: Clarendon Press.

Kahn, R. F. 1932. The Financing of Public Works: A Note. *Economic Journal* 42:492–95.

———. 1933. Public Works and Inflation. *Journal of the American Statistical Association, Supplement: Papers and Proceedings* 28:168–73.

———. 1972. *Selected Essays on Employment and Growth*. Cambridge: Cambridge University Press.

———. 1984. *The Making of Keynes's* General Theory. Cambridge: Cambridge University Press.

———. 1989. *The Economics of the Short Period*. London: Macmillan.

Keynes, J. M. 1971–89. *The Collected Writings of John Maynard Keynes*. Edited by D. Moggridge. London: Macmillan.

Marcuzzo, M. C. 1994. R. F. Kahn and Imperfect Competition. *Cambridge Journal of Economics* 18:25–40.

———. 1996a. Alternative Microeconomic Foundations for Macroeconomics: The Controversy over the L-Shaped Cost Curve Revisited. *Review of Political Economy* 8:7–22.

———. 1996b. Joan Robinson and Richard Kahn: The Origin of Short Period Analysis. In *The Economics of Joan Robinson*, edited by M. C. Marcuzzo, L. Pasinetti, and A. Roncaglia. London: Routledge.

———, ed. 2001. Economists in Cambridge. The Letters among Keynes, Kahn, Kaldor, Robinson, Harrod, Hayek, Sraffa: 1921–1946. Working paper no. 37, Dipartimento di Scienze Economiche Università di Roma, La Sapienza.

Marcuzzo, M. C., and N. De Vecchi. 1998. *A cinquant'anni da Keynes: Teorie dell'occupazione, interesse e crescita*. Milan: Unicopli.

Marcuzzo, M. C., and L. Pasinetti, eds. 1999. *Concorrenza, occupazione e moneta*. Bologna: Il Mulino.

Meade, J. 1993. The Relation of Mr Mead's Relation to Kahn's Multiplier. *Economic Journal* 103:664–65.

Moggridge, D. 1973. From the *Treatise* to the *General Theory*: An Exercise in Chronology. *HOPE* 5:72–88.

———. 1992. *Maynard Keynes: An Economist's Biography*. London: Routledge.

———. 1994. Richard Kahn as an Historian of Economics. *Cambridge Journal of Economics* 18:107–16.

Patinkin, D. 1975. The Collected Writings of John Maynard Keynes: From the *Tract* to the *General Theory*. *Economic Journal* 85:249–71.

———. 1976. From the *Treatise* to the *General Theory*: The Development of the Theory of Effective Demand. *HOPE* 8:64–82.

———. 1980. New Materials on the Development of Keynes' Monetary Thought. *HOPE* 12:1–28.

———. 1982. *Anticipations of the* General Theory? *And Other Essays on Keynes*. Oxford: Blackwell.

———. 1993. On the Chronology of the *General Theory*. *Economic Journal* 103:647–63.

———. 1994. Mr Meade's Relation, Kahn's Multiplier and the Chronology of the *General Theory*: Reply. *Economic Journal* 104:1143–46.

Patinkin D., and J. C. Leith, eds. 1977. *Keynes, Cambridge, and the* General Theory. London: Macmillan.

Prasch, R. E. 1994. Edward Amadeo's Contribution to the Interpretation of Keynes' Economics. In *The State of Interpretation of Keynes*, edited by J. B. Davis. Boston: Kluwer.

Robinson, E. A. G. 1985. The Cambridge "Circus." In *Keynes and His Contemporaries*, edited by G. C. Harcourt. London: Macmillan.

Robinson, J. 1980. Review of *The General Theory and After—A Supplement*. Vol. 29 of *The Collected Writings of John Maynard Keynes*, edited by Donald Moggridge. *Economic Journal* 90:391–93.

Rymes, T. K. 1989. *Keynes's Lectures, 1932–1935*. Ann Arbor: University of Michigan Press.

Schumpeter, J. A. 1954. *A History of Economic Analysis*. New York: Oxford University Press.

Skidelsky, R. 1992. *The Economist as Saviour, 1920–1937*. Vol. 2 of *John Maynard Keynes*. London: Macmillan.

Tarshis, L. 1979. The Aggregate Supply Function in Keynes's *General Theory*. In *Essays in Honor of Tibor Scitovsky*, edited by M. J. Boskin. New York: Academic Press.

Warming, J. 1932. International Difficulties Arising out of the Financing of Public Works during Depressions. *Economic Journal* 42:211–24.