lifetime. Written at the behest of his sometime patron, Tycho Brahe, the *Tract against Ursus* defended Tycho against a charge of plagiarism, but Kepler used the occasion to address broader issues. In preparing a translation and commentary, Nicholas JARDINE argues that this is a key not only for understanding Kepler's mature works, but important for the light it sheds on the emergence of modern assumptions about the nature of science and scientific progress; hence he has called it "the birth of the history and philosophy of science". Concentrating more squarely on the plagiarism issue, ROSEN (1986) considered the three successive Imperial Mathematicians in Prague (Ursus, Tycho, and Kepler) and produced a useful compendium of translated sources.

The rich fabric of Kepler's contribution becomes even clearer by examining additional minor works, several of which now have translations and informative analyses. For example, Kepler was the first astronomer of note to comment on Galileo's new telescopic discoveries, and his "conversation" with the *Sidereus nuncius* has been translated into English by Edward Rosen (1967) and into French, with a very scholarly and extensive set of notes, by PANTIN; a whimsical and brief New Year's offering, a theoretical explanation of why snowflakes have six corners, is considered a pioneering work in crystallography; Kepler's *Dioptrice* gave the first optical theory of the telescope and proposed a new arrangement of lenses that was soon widely adopted; and his *Stereometria* is a foundation work in the prehistory of the calculus. A science fiction work of Kepler's later years (propagandizing for the Copernican arrangement), the *Somnium*, has had more than one translation, of which the best is ROSEN (1967).

Perhaps it is as a result of his multifaceted personality and contributions, which might prove daunting to scholars, that no major biography of Kepler has appeared in nearly half a century. A modest but steady stream of doctoral dissertations and articles attests to a lively interest in Kepler's role in early modern science, and with the completion of the collected works, which has so far taken nearly seven decades, the time is ripe for a fresh consideration of this remarkable genius.

OWEN GINGERICH

See also Astronomy: general works; Copernicanism; Scientific Revolution

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British economist

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John Maynard Keynes is historically important mainly as one of the two or three most highly respected economists of the 20th century. Nevertheless, he also deserves some attention for his influence on government policies and, to a lesser degree, as a member of the culturally significant Bloomsbury Group.

The distinguished mainstream Keynesian economist HARROD wrote the first major biography of Keynes. Harrod's biography has been supplanted by more recent work, and is now mainly of interest for its early contribution to the promotion of Keynesian doctrines. Some critics of the work note that it omits personal information that might be viewed as unfavorable to Keynes. Keynes's nephew, Milo KEYNES, has edited a useful collection of essays by distinguished scholars that supplements the Harrod biography in a variety of directions. As might be expected, the essays, except for Harry Johnson's, present a favorable picture of Keynes. Another account written by a friend, is by Sir Richard KAHN, who was one of Keynes's students and later, during the period of the writing of the General Theory, a collaborator. Kahn emphasizes the importance of Keynes's growing role as a practical policy adviser for the development of his views. He also suggests that Keynes's disputes with his Cambridge colleagues were less acrimonious than many have believed.

SKIDELSKY has written the most readable, complete and useful biography; it emphasizes Keynes's personal life and his involvement in the world of policy and culture. Skidelsky's work is unsurpassed for sheer detail on Keynes's personal life, but this has led some critics to argue that such detail obscures Keynes's main claim to fame – his contributions to economics. MOGGRIDGE's book covers much the same territory as Skidelsky, but with a drier style, somewhat less emphasis on personal matters and somewhat more emphasis on economics. Moggridge incorporates insights he has learned in his years of co-editing the collected works of Keynes. Moggridge's volume covers all of Keynes's life, while Skidelsky's second volume (of a projected three) concludes with 1937, the year following the publication of the General Theory.

Within the economics profession there have been lively and continuing debates on the nature of Keynes's central message in his General Theory. The mainstream view uses mathematical apparatus, such as the IS-LM equilibrium graphs, of the Nobel prize winner Hicks to clarify what Keynes really meant. Hicks's simple diagrams, analogous to supply and demand diagrams in neo-classical price theory, have the advantage of simplicity, policy relevance, and fruitfulness in leading to additional research. In addition, they provided an interpretation of Keynes that was most compatible with the existing body of neo-classical theory. An early summary of the mainstream view (and one that was partially responsible for its popularization) is HANSEN. Two main non-mainstream lines of interpretation have garnered considerable attention: the first, explored by LEIJONHUFVUD and Clower, emphasizes the inter-temporal disequilibrium aspects of Keynes's message, while the other non-mainstream interpretation emphasized the impact that expectations (both rational and irrational) have on the economy. This interpretation was advocated by Joan Robinson, the later Hicks, and perhaps in its most extreme form by SHACKLE.

PATINKIN also entered the interpretative fray in order to discover the accuracy of the usual view that the Keynesian revolution was a case of multiple co-discovery, with Keynes's theory having been independently discovered by one or more of Michal Kalecki, Erik Lindahl, Gunnar Myrdal, Bertil Ohlin or Knut Wicksell. Patinkin marshals evidence to conclude that Keynes's "central message" was his Theory of Effective Demand, and goes on to conclude that the alleged co-discoverers did not have the Theory of Effective Demand as their "central message" and hence cannot be considered to have been co-discoverers. Patinkin's interpretation of Keynes's central message has been adopted by many Keynes scholars, including Moggridge and Skidelsky.

The most famous opponent of Keynes, the Nobel prize-winner Milton FRIEDMAN, in one of his most celebrated works, criticized Keynes's view that the poor consume a greater percentage of their income than the rich. This claim was used by some Keynesians to justify redistribution to the poor in order to stimulate the economy. Contrary to Keynes's view, Friedman found evidence that when income is properly interpreted as "permanent income" nearly all income groups consume roughly the same percentage of their income (about 90%). Encouraged by the Keynes-refuting stagflation of the 1970s, the Nobel prizewinner LUCAS and other "new classical economists" elaborated a rational expectations theory that criticized the role Keynes gives to irrational expectations in influencing macroeconomic magnitudes, such as the rate of unemployment.

Keynes's influence on policy has been much discussed and documented. From an emphasis on original sources and reports, HOWSON & WINCH analyze Keynes's dominant role in the 1930s on Britain's Economic Advisory Council, and its successor organization, the Committee on Economic Information. The authors suggest that the policy problems that Keynes faced in his dealings with the Council help to explain his movement from his orthodox neo-classical views in his *Treatise on Money* to his revolutionary views in the General Theory.

In a stimulating and well-documented book, STEIN contradicts the commonplace view that Keynes's General Theory influenced the depression-era economic policy of the Roosevelt administration in the United States. Stein does not deny, however, that Keynes, and especially the mainstream Keynesians, were an important influence on United States policy after World War II.

ARTHUR M. DIAMOND, JR

Klein, Melanie 1882–1960

Austrian-born English psychoanalyst

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Melanie Klein's position as a highly influential and, at times, controversial figure in the development of psychoanalytic theory and therapy has been unassailable since the 1920s. She is considered one of the most innovative thinkers after Freud, a pioneer in the field of child-analysis, whose theories place emphasis on the first few months of psychic life. However, it is only relatively recently that her work has begun to be seriously discussed outside the boundaries of her discipline.

Segal and Mitchell both supply useful overviews of Klein's work and are a good place to start. SEGAL is a self-professed follower of Klein and, as such, provides an "authorised" version of her theories. While clear and concise, the book is nevertheless somewhat misleading, precisely because it provides a reading of Klein's work that is overly neat, and almost