ROTHBARD'S INTELLECTUAL ANCESTRY

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MURRAY ROTHBARD is a prominent spokesman for neo-Austrian economics, yet the economics profession has not taken him seriously enough to investigate his claims. He and his disciples invite this neglect by treating the Rothbardian corpus more as creed-to-be-adhered-to than as theory-to-be-tested-and-improved-on. The profession's neglect is nonetheless unwise. Even if neo-Austrian economics turns out to be unsound, it should be taken seriously because of the growing number of intelligent people who identify themselves as Austrians.

Rothbard's methodology is crucial to the soundness of his approach. It must be defended if he is to exempt himself from the formal and statistical standards of the rest of the profession. In several locations, Rothbard sets down the basic principles of his method,[1] but nowhere in enough detail to satisfy the unconvinced. Instead, he refers to eminent figures from the past in whose works will presumably be found the missing links in his own exposition. To take Rothbard seriously, then, amounts to taking seriously his account of his intellectual ancestors. A critique of his account is not just of value for the light shed on his standards of historical research; more importantly, since Rothbard relies on his ancestors to fill in his methodological gaps, it may shed light on the strength of the methodology on which he proposes to erect the neo-Austrian alternative.

Rothbard claims that praxeology, which he identifies with "the axiomatic-deductive method" in economics,[2] has a long tradition. At the beginning of that tradition he locates Jean-Baptiste Say, for whom praxeology "was the basic method." He goes on to state that Say was "perhaps the first praxeologist."[3] However, contrary to these claims, Say's *Treatise on Political Economy* lends itself only grudgingly to identification with Rothbardian praxeology. Consider in evidence the following passage:

> In political economy, as in natural philosophy, and in every other study, systems have been formed before facts have been established; the place of the latter being supplied by purely gratuitous assertions. More recently, the inductive method of philosophizing, which, since the time of Bacon, has so much contributed to the advancement of every other science, has been applied to the conduct of our researches in this. The excellence of this method consists in only admitting facts carefully

Reason Papers No. 5 (Winter 1979) 15–26.
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> observed, and the consequences rigorously deduced from them; thereby effectually excluding those prejudices and authorities which, in every department of literature and science, have so often been interposed between man and truth.[4]

Surely here we have a sympathy with Baconian inductivism, which is incompatible with praxeology.

Unfortunately, the limits of space do not permit a consideration of the lesser figures such as Cairnes and Senior whom Rothbard places next in the praxeological movement.[5] He maintains that several decades later, "during the 1870's and 1880's, . . . the praxeological method was carried on and further developed by the Austrian school, founded by Carl Menger of the University of Vienna."[6] Menger is a major figure in anyone's history of thought, so it is worth considering whether he, more than Say, is a consistent proponent of the praxeological method. In this regard the following lines from Menger are illuminating:

> Nothing is so certain as that the results of the exact orientation of theoretical research appear insufficient and unempirical in the field of economy as in all other realms of the world of phenomena, when measured by the standard of realism. This is, however, self-evident, since the results of exact research, and indeed in all realms of the world of phenomena, are true only with certain presuppositions, with presuppositions which in reality do not always apply. . . . There is scarcely need to remark that the above presuppositions in real economy all hold only in rare cases and that therefore as a rule *real* prices deviate more or less from *economic* ones (those corresponding to the economic situation). In the practice of economy people in fact endeavor only rarely to protect their economic interests *completely*. Many sorts of considerations, above all, indifference to economic interests of lesser significance, good will toward others, etc., cause them in their economic activity not to protect their economic interests at all in some cases, in some cases incompletely. They are, furthermore, vague and in error concerning the economic means to attain their economic goals; indeed, they are often vague and in error concerning these goals themselves. Also the economic situation, on the basis of which they develop their economic activity, is often insufficiently or incompletely known to them. Finally their economic freedom is not infrequently impaired by various kinds of relationships. A definite economic situation brings to light precisely *economic* prices of goods only in the rarest cases. *Real* prices are, rather more or less different from *economic*.[7]

Note that Menger is advocating what would today be called model building—working out the consequences of a set of presuppositions that are often lacking in reality. In this respect, though of course not in some others,

Menger is closer to the methodology of Milton Friedman[8] than to that of Rothbard. Unlike other economists who either claim that "man is rational" is true but empty or who apologetically claim that it is false but empirical, the praxeologist claims that it is *both* true *and* empirical. Thus, in this vital respect Menger is no praxeologist.

Contemporary praxeologists without exception acknowledge a methodological and substantive debt to Ludwig von Mises. He was both an advocate of the word *praxeology* and an exemplar of what it means. Mises was explicitly a Kantian in that he believed that important theoretical statements in economics are synthetic a priori and can be justified along Kant's line for justifying such statements. That line consisted mainly of providng a "transcendental deduction" of the twelve categories of thought (chief among them was "causation"—"action" was not included). The two versions of the deduction are among the most difficult reading in philosophy and have earned the gratitude of professors by providing an inexhaustible source of paper topics. What the deductions purport to do is to show that the categories are necessary presuppositions of our having any propositional knowledge at all. When the categories, so deduced, are applied to "the manifold of space and time" (which is, roughly, sense data or the given), the result is synthetic a priori statements, among the most notable examples of which are the axioms of Euclidean geometry.

Lord Macaulay said of Kant's *Critique of Pure Reason* that "I tried to read it, but found it utterly unintelligible, just as if it had been written in Sanscrit. Not one word of it gave me an idea except a Latin quotation from Persius. It seems to me that it ought to be possible to explain a true theory of metaphysics in words that I can understand."[9] Apart from its obscurity, Kant's position can be criticized on three main grounds. First, Kantians have never been able to agree on how many categories there are and on what they are. Second, Kant's prime example of synthetic a priori truths has been refuted. It was not just the development of non-Euclidean geometries by Lobachevsky and Riemann that caused the problem. The fatal blow came when Einstein found that the Reimannian geometry is compatible with relativity theory whereas Euclidean geometry is not.[10] The third criticism of Kant's position is that it results in transcendental idealism. Although Kant claimed that his idealism is unobjectionable, it is difficult to see how it differs from the more mundane variety. Both claim that men can have no knowledge of things-in-themselves, and both are hard put to avoid the absurd reduction to solipsism.

Of the criticisms of Kant, only the third seems to have carried much weight with modern praxeologists.[11] Even von Mises was concerned enough by the charge of idealism to produce a defense against it: "Only those groups could survive whose members acted in accordance with the right categories, i.e., with those that were in conformity with reality and therefore—to use the concept of pragmatism—worked."[12] Thus, for von Mises natural selection

ensures that our synthetic a priori knowledge is realistic. Ingenious as this defense is, it is apparently not ingenious enough to convince Rothbard and most other praxeologists to accept Kantianism as the philosophical underpinnings of praxeology.

Unfortunately, however, there is no account in Rothbard, comparable in scope and detail to von Mises's, of what the *true* underpinnings are. Occasionally Rothbard declares that he is an Aristotelian, but he only gives hints of what it is in Aristotle that he thinks relevant. In addition, he never considers whether in the relevant respects Aristotle's position may be subject to serious objections. Here, an attempt will be made to isolate and evaluate the aspects of Aristotle relevant to praxeology. Before doing this, however, it makes sense to examine three other methodologists whom Rothbard quotes approvingly: Weber, Schutz, and Croce; for it may be that in the work of one of them will be found insights as to how Aristotle's philosophy is to relate to praxeology.

Rothbard says that "the Austrians were endeavoring to construct a '*verstehende*' social science, the same ideal that Max Weber was later to uphold."[13] The central concept of Weber's verstehende social science is the "ideal type." Weber provides this account of its characteristics:

> An ideal type is formed by the one-sided *accentuation* of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent concrete individual phenomena, which are arranged according to those one-sidedly emphasized viewpoints into a unified *analytical* construct (*Gedankenbild*). In its conceptual purity, this mental construct (*Gedankenbild*) cannot be found empirically anywhere in reality. It is a *utopia*. Historical research faces the task of determining in each individual case, the extent to which this ideal-construct approximates to or diverges from reality, to what extent for example, the economic structure of a certain city is to be classified as a "city-economy." . . . It is possible, or rather, it must be accepted as certain that numerous, indeed a very great many, utopias of this sort can be worked out, of which *none* is like another, and *none* of which can be observed in empirical reality as an actually existing economic system, but *each* of which however claims that it is a representation of the "idea" of capitalistic culture. *Each* of these can claim to be a representation of the "idea" of capitalistic culture to the extent that it has really taken certain traits, meaningful in their essential features, from the empirical reality of our culture and brought them together into a unified ideal-construct. For those phenomena which interest us as cultural phenomena are interesting to us with respect to very different kinds of evaluative ideas to which we relate them. Inasmuch as the "points of view" from which they can become significant for us are very diverse, the most varied criteria can be applied to the selection of the traits which are to enter into the construction of an ideal-typical view of a particular culture.[14]

As was the case with Menger,[15] Weber is best seen as advocating what would today be called model building.[16] Thus, as with Menger and Friedman, economic theory may contain important elements that are unrealistic. In an almost instrumentalist way, theories are to be judged by their relative applicability to the empirical facts, not on their strict truth or falsehood. For, strictly speaking, all ideal types are empirically false. Thus, Weber's ideal types are inconsistent with the claims that are made for the praxeological method. This is not to say that in actual fact von Mises and Rothbard do not in their economics use constructs that function as ideal types. In fact, the "evenly rotating economy" is a perfect example of such a construction. Of this ideal type von Mises says:

> These insoluble contradictions, however, do not affect the service which this imaginary construct renders for the only problems for whose treatment it is both appropriate and indispensable: the problem of the relation between the prices of products and those of the factors required for their production, and the implied problems of entrepreneurship and of profit and loss.[17]

But the use of ideal types by Austrian economists does not alter the fact that such constructs cannot consistently be part of the praxeological method. The praxeologist who saw this most clearly was von Mises himself in an early section of *Human Action* entitled "On Ideal Types."[18]

The second methodologist whom Rothbard quotes approvingly is Alfred Schutz. In a discussion of our knowledge of human action Rothbard says:

> Alfred Schutz pointed out and elaborated the complexity of the interaction between the individual and other persons, the 'interpretive understanding' or *Verstehen*, upon which this universal, prescientific knowledge rests. The common-sense knowledge of the universality of motivated, intentional human action, ignored by the positivists as 'unscientific,' actually provides the indispensable groundwork on which science itself must develop.[19]

The following shows Weber's ideal type to be at the core of Schutz's position:

> It is one of the outstanding features of modern social science to have described the device the social scientists use in building up their conceptual scheme, and it is the great merit of (Durkheim, Pareto, Marshall, Veblen, and) above all Max Weber, to have developed this technique in all its fullness and clarity. This technique consists in replacing the human beings which the social scientist observes as actors on the social stage by puppets created by himself, in other words, in constructing ideal types of actors.[20]

It has already been shown that the Weberian ideal type is a nonpraxeological concept. But Schutz tries to do more than just reiterate Weber's theory. He seeks to elaborate and secure it by applying to it the phenomenological analysis of Edmund Husserl. Husserl sought to get to the true essence of phenomena by "bracketing out" all the common beliefs of everyday life. After the philosopher had succeeded in systematically ignoring all of our everyday beliefs, he then would be able to intuit the essence of phenomena in their unpolluted purity. Consider what Husserl would have us bracket out:

> The whole world as placed within the nature-setting and presented in experience as real, taken completely "free from all theory," just as it is in reality experienced, and made clearly manifest in and through the linkings of our experiences, has now no validity for us, it must be set in brackets, untested indeed but also uncontested. Similarly all theories and sciences, positivistic or otherwise, which relate to this world, however good they may be, succumb to the same fate.[21]

The question, of course, is how with all this in brackets anything intelligible can be said about what is left. Jeff Bedrick of the Chicago Philosophy Department tells the story of how as a boy Husserl had been given a knife. He decided that he wanted to get it really sharp, so he got a whet-stone and started grinding. Never satisfied that he had gotten the knife sharp, he kept grinding until he had nothing left. Later in life Husserl said that he sometimes felt that he had done the same thing with his philosophy.

To the extent that Schutz is Weberian, he is nonpraxeological; to the extent that he is Husserlian, he is at best obscure.

The final methodologist to be considered before focusing on Aristotle is Benedetto Croce. He had, according to Rothbard, "his own highly developed praxeological position."[22] Among the more illuminating of Croce's comments on economics are those following his endorsement of the similarity of mechanics and economics:

> Mechanics are nothing but the complex of formulae of calculation constructed on reality, which is Spirit and Becoming in Metaphysic, and may be abstracted and falsified in Science, so as to assume the aspect of Force or a system of forces, for the convenience of calculation. Economy does the same thing, when it cuts off from the volitional acts certain groups, which it simplifies and makes rigid with the definition of the "economic man," the laws of "least means," and the like. And owing precisely to this mechanicizing process of economic Science, it is ingenuous to ask oneself why ethical, logical, or aesthetic facts are not included in Economy, and in what way they can be included. Economic science is the sum of abstractive operations effected upon the concept of Will or Action, which is thus *quantified*.[23]

This passage bears out the summary of Croce's position on economics that is presented by H. S. Harris:

> In spite of Croce's insistence that the "utility" of the economists is a fundamental philosophical category, his logic does not allow the admission of economics itself as a genuine philosophical science. The work of economists, like that of all other scientists, belongs to the category of utility itself, not to that of truth. "Economic man" is a paradigm case of a pseudo concept [24]

Since the praxeologist wants to consider economic theorems not just useful but also true, Croce is not a praxeologist.

It had been hoped that by looking at other methodologists of whom Rothbard approves, it might be possible to gain an insight into the sense in which he considers himself an Aristotelian. Unfortunately, this hope has not been fulfilled. So it is necessary to look directly at Aristotle to see if he was in any respect a proto-praxeologist.

The first difficulty that arises is the well-known apparent inconsistency between Aristotle's theory of science in the *Organon* and his actual practice of it in such works as the *Historia Animalium*. In the theory, Aristotle saw science as demonstrative, while in practice he relied much more on induction. The distinction is not clear-cut, however, since even in the *Organon* Aristotle saw a role for induction, problematic though that role may be.[25] Various attempts have been made to reconcile theory and practice, one of the most plausible of which claims that Aristotle saw the syllogistic only as the most effective method of teaching the truth, while careful observation is the proper method of arriving at it.[26] But this reconciliation could not be accepted by a praxeologist, for he wants to claim that deduction is *more* than a teaching device, being at the very least a method of justification and, thereby, of arriving at the truth. So the praxeologist must choose between two Aristotles, opting of course for the Aristotle of the *Organon*. This is the Aristotle of the demonstration, for whom, as Ross notes, "demonstration is scientific syllogism."[27] In the actual work of praxeologists not even the basic theory of demand has been formalized syllogistically. But if Aristotle is to be brought into the praxeological camp, the praxeologists will have to admit that such formalization is possible and, for the sake of demonstrative rigor and clarity, *desirable*. Whether Rothbard, at least, would be willing to make this admission is doubtful. He comes out against formalization in terms of modern symbolic logic, opting instead for what he calls "verbal logic."[28] This "verbal logic" might mean the syllogistic, but it probably does not, since Rothbard seems to think that he and the praxeologists have *already* achieved all the necessary rigor.

If Aristotle is not to be followed in his syllogistic method, then perhaps the aspect of his philosophy that is to support praxeology is his justification of

first principles. Rothbard has claimed that the first principle of praxeology —"man acts"—is self-evidently true.[29] He believes that there is a specific sort of argument in Aristotle that can be used to demonstrate the self-evidence of this principle.[30] Aristotle had argued that the man who denies the law of noncontradiction contradicts himself since, by making an assertion, he presupposes the validity of the law.[31] Similarly, Rothbard argues:

> A . . . self-contradiction faces the man who attempts to refute the axiom of human action. For in doing so, he is ipso facto a person making a conscious choice of means in attempting to arrive at an adopted end: in this case the end, or goal, of trying to refute the axiom of action. He employs action in trying to refute the notion of action.[32]

This argument is persuasive, but it is important to be clear on exactly how much or how little it proves. The axiom "man acts" is vague in many respects. Does it assert that all men act, or only some? Does it assert that each acting man acts all of the time, or does it allow for nonacting behavior? Most importantly of all, what meaning of the word *action* does it presuppose? The meaning and implications of this concept are notoriously difficult to pin down, as evidenced by the number of recent books that have attempted, without reaching consensus, to do so.[33]

What is sought from the wide range of possible interpretations of the action axiom is the strongest one provable by the Aristotelian argument. Now a person who denies the action axiom is *himself* intentionally doing something at a *particular* time. So he does not contradict himself if he either denies that *all* men sometimes act or that any man *always* acts. In short, what the Aristotelian argument proves is the following: the statement "some men sometimes do things intentionally" cannot be consistently denied. *This* statement is in turn a formal tautology, since it depends for its truth upon a "denial" being defined as an intentional action. Whether from this base anything of interest can be inferred (all of economics, say) is another question.

The results of this paper may be summarized briefly. First, Rothbard's account of his intellectual ancestry is inaccurate or subject to much qualification. Second, there are good grounds for doubting that a sound philosophical defense of Rothbard's praxeology can be given. On the latter point, much more can be said, but here only a final caveat is in order. A refutation of Rothbard's methodology should in no way detract from the insights and substantive work of other economists who identify themselves as Austrians. Israel Kirzner's analysis of entrepreneurship, Gerald O'Driscoll's treatment of credit cards, F. A. Hayeks's business cycle theory, Laurence Moss's research on the history of economic thought, and Mario Rizzo's work on crime[34] all deserve further attention.

*I am thankful for the time given by Alan Stockman, Martin Cook, David Mitch, and Mario Rizzo in criticizing an earlier draft. This paper bears little resemblance to that draft except that both are concerned with the status of praxeology. Since writing this paper, a valuable, though not always clearly written, critique of Rothbard's praxeology has come to my attention: Claudio Gutierrez, "The Extraordinary Claim of Praxeology," *Theory and Decision*, 1971, pp. 327–36. Gutierrez shows that, motivated by empirical considerations, Rothbard routinely redefines terms in the course of his "deduction" of theorems from the fundamental action axiom. Walter Block has written a reply to this article: "A Comment on 'The Extraordinary Claim of Praxeology' by Professor Gutierrez," *Theory and Decision*, 1973, pp. 377–87. But Block's reply fails to face squarely, let alone refute, Gutierrez's main thesis.

1. See Murray N. Rothbard, *Man, Economy, and State* (Los Angeles: Nash Publishing, 1970), pp. 63–66; "Praxeology: Reply to Mr.Schuller," *American Economic Review*, Dec. 1951, pp. 943–46; "In Defense of 'Extreme Apriorism,'" *Southern Economic Journal*, Jan. 1957, pp. 314–20; "Praxeology as the Method of Economics," *Phenomenology and the Social Sciences*, vol. 2, ed. Maurice Natanson (Evanston, Ill.: Northwestern University Press, 1973), pp. 311–39.

2. Rothbard, "Praxeology: The Methodology of Austrian Economics," in *The Foundations of Modern Austrian Economics*, ed. Edwin G. Dolan (Kansas Ctiy: Sheed Andrews & McMeel, 1976), p. 21.

3. Ibid., pp. 19, 25.

4. Jean-Baptiste Say, *A Treatise on Political Economy* (Philadelphia: Grigg & Elliot, 1834), p. xix.

5. Rothbard, "Praxeology: The Methodology of Austrian Economics," pp. 26–27. Rothbard is joined in his praise for Cairnes by Milton Friedman, who in class used to laud him for being the first economist to make predictions and then go back and check how they turned out. Specifically, in 1859 Cairnes predicted the consequences of the Australian gold discovery. When he reprinted his predictions in 1873 he appended a postscript evaluating their accuracy. J. E. Cairnes, "The Austrialian Espisode" and "Postscript," in *Essays in Political Economy* (London: Macmillan, 1873), pp. 20–52.

6. Rothbard, "Praxeology as the Method of Economics," p. 330.

7. Carl Menger, *Problems of Economics and Sociology* (Urbana: University of Illinois Press, 1963), p. 69.

8. See Milton Friedman, "The Methodology of Positive Economics," in *Essays in Positive Economics* (Chicago: University of Chicago Press, 1953), pp. 3–43.

9. Quoted in Brand Blanshard, *On Philosophical Style* (Bloomington: Indiana University Press, 1967), p. 1.

10. For a brief and simple review of the issues, see Stephen F. Barker, s. v. "Geometry," in *Encyclopedia of Philosophy*.

11. See Rothbard, "Praxeology: The Method of Austrian Economics," p. 24, and "Praxeology as the Method of Economics," p. 315. It should be noted that another issue, the status of geometry, played a significant role in the early, much-neglected, dispute between praxeologist Harro Bernadelli and positivist Felix Kaufmann. Bernadelli, "What Has Philosophy to Contribute to the Social Sciences, and to Economics in Particular?" *Economica*, Nov. 1936, pp. 443–45; Kaufmann, "Do Synthetic Propositions *a Priori* Exist in Economics—a Reply to Dr. Bernadelli," *Economica*, Aug. 1937, pp. 337–42. For a further contribution to the exchange that does not discuss the geometry issue, see also Lionel Robbins,

"Live and Dead Issues in the Methodology of Economics," *Economica*, Aug. 1938, pp. 342–52.

12. Ludwig von Mises, *The Ultimate Foundation of Economic Science* (Princeton, N.J.: D. Van Nostrand, 1962), p. 15. In this work, pp. 12–14, von Mises also briefly attempted to deal with the problem of non-Euclidean geometries.

13. Rothbard, "Praxeology as the Method of Economics," p. 332.

14. Max Weber, " 'Objectivity' in Social Sciences," in *The Methodology of the Social Sciences* (New York: Free Press, 1949), pp. 90, 91.

15. For a passage in Menger that closely anticipates Weber's ideal-type theory, see Menger, *Economics and Sociology*, p. 36. For an account of Menger's impact on Weber, see Thomas Burger, *Max Weber's Theory of Concept Formation* (Durham, N.C.: Duke University Press, 1976), pp. 150–53 and passim.

16. Burger, ibid., treats ideal-types in this way himself and documents how common this interpretation has been among other writers (pp. 212–13). For Rothbard's condemnation of model building, see Rothbard, "The Mantle of Science," in *Scientism and Values*, ed. Helmut Schoeck and James W. Wiggins (Princeton N.J.: D. Van Nostrand, 1960), p. 166.

17. Ludwig von Mises, *Human Action* (Chicago: Henry Regnery, 1966), p. 248. In part of a long discussion of the evenly rotating economy (ERE) Rothbard says: "In sum, rather than being in some sense more persistent and more real than the actual market, the 'long run' of the ERE is not real at all, but a very useful theoretical construct that enables the economist to point out the direction in which the market is moving at any given time—specifically, toward the elimination of profits and losses if existing market data remain the same. Thus, the ERE concept is especially helpful in the analysis of profits and losses as compared to interest. But the market data are the only actual reality." *Man, Economy and State* (Los Angeles: Nash Publishing, 1970), pp. 306–7.

18. Von Mises, *Human Action*, pp. 59–64.

19. Rothbard, "Praxeology as the Method of Economics," p. 316.

20. Alfred Schutz, "The Social World and the Theory of Social Action," in *Collected Papers*, vol. 2 (The Hague: Martinus Nijhoff, 1964), p. 17.

21. Edmund Husserl, *Ideas*, as partially reprinted in *Philosophy in the Twentieth Century*, vol. 3, ed. William Barrett and Henry Aiken (New York: Harper & Row, 1971), p. 101.

22. Rothbard, "Praxeology as the Method of Economics," p. 333.

23. Benedetto Croce, *Philosophy of the Practical* (London: Macmillan, 1913), pp. 374–75.

24. H. S. Harris, s.v. "Croce, Benedetto," in *Encyclopedia of Philosophy*.

25. For a brief mention of some of the problems, see W. D. Ross, *Aristotle* (London: Methuen, 1937), pp. 38–41.

26. See Jonathan Barnes, "Aristotle's Theory of Demonstration," in *Articles on Aristotle*, vol. 1, ed. Barnes et al. (London: Duckworth, 1975), p. 85.

27. Ross, *Aristotle*, p. 43.

28. By the way, Rothbard's rejection of logistics is unjustified, since he rests it on the claim, "If the logistic array of symbols were used, each proposition would not be meaningful." *Man, Economy and State*, p. 65. Consider, for example, the symbolic formalization of the syllogism:

(1) All men are mortal.
(2) Praxeologists are men.
(3) Praxeologists are mortal.

One way to formalize this would be to use three predicates: M = manhood, F = finite-lifehood (mortality), P = praxeologisthood. Then the syllogism would be formalized as:

(1) $(x)\ [M(x) \supset F(x)]$.
(2) $(x)\ [P(x) \supset M(x)]$.
(3) $(x)\ [P(x) \supset F(x)]$.

Contra Rothbard, each proposition in the above formalization is meaningful. Symbolic formalization of a verbal deduction is merely translation from one language into another. Its value rests in exhibiting more clearly the structure of complicated arguments so that their rigor can be more easily evaluated. For a detailed examination of the relation between modern and Aristotelian logic, see Jan Lukasiewicz, *Aristotle's Syllogistic from the Standpoint of Modern Formal Logic* (London: Oxford University Press, 1957).

29. Rothbard, "Praxeology: The Methodology of Austrian Economics," p. 28; see also, idem, "In Defense of 'Extreme Apriorism,' " *Southern Economic Journal*, Jan. 1957, p. 317.

30. Rothbard, "Praxeology: The Methodology of Austrian Economics," p. 28.

31. Aristotle, *Metaphysics* 4. 3. 1006a–1009a, in *The Basic Works of Aristotle*, ed. Richard McKeon (New York: Random House, 1941), pp. 737–43. For a detailed examination of this argument, see R. M. Dancy, *Sense and Contradiction: A Study in Aristotle* (Dordrecht, Holland: D. Reidel, 1975). See also Douglas B. Rasmussen, "Aristotle and the Defense of the Law of Contradiction," *Personalist*, Spring 1973, pp. 141–62.

32. Rothbard, "Praxeology: The Methodology of Austrian Economics," p. 28.

33. See, e.g., Richard Taylor, *Action and Purpose* (New York: Humanities Press, 1973); Alvin Goldman, *A Theory of Human Action* (Englewood Cliffs, N.J.: Prentice-Hall, 1970); Robert Binkley et al., eds., *Agent, Action, and Reason* (Toronto: University of Toronto Press, 1971); and Myles Brand, ed., *The Nature of Human Action* (Glenview, Ill.: Scott, Foresman, 1970).

34. Israel Kirzner, *Competition and Entrepreneurship* (Chicago: University of Chicago Press, 1974); Gerald P. O'Driscoll, Jr. "The American Express Case: Public Good or Monopoly?" *Journal of Law and Economics*, April 1976, pp. 163–75; Friedrich A. Hayek, *Monetary Theory and the Trade Cycle* (Clifton, N.J.: Augustus Kelley, 1975); idem, *Prices and Production* (New York: Kelley, 1967); idem, *Profits, Interest and Investment* (Clifton, N.J.: Augustus Kelley, 1975); Laurence S. Moss, "Isaac Butt and the Early Development of the Marginal Utility Theory of Imputation," *History of Political Economy*, Fall 1973, pp. 317–38; idem, "The Economics of Adam Smith: Professor Hollander's Reappraisal," *History of Political Economy*, Winter 1976, pp. 564–74; idem, *Montifort Longfield, Ireland's First Professor of Political Economy* (Ottawaa, Ill.: Green Hill, 1976); Mario Rizzo's work is in an unpublished doctoral dissertation done at the University of Chicago.