Nicholas Rescher
Studies in 20th Century Philosophy

NICHOLAS RESCHER COLLECTED PAPERS

Volume I

Nicholas Rescher

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PREFACE

This book collects together studies offering a new perspective on various aspects of 20th century philosophy. Written over the past dozen years or so, these essays involve developments in which I have been personally involved as a participant. The organizing principle employed here reflects the intensity of this involvement, increasingly moving as the book progresses, from what is more general to what is the more autobiographically specific in relation to myself. After all, the book is not a general account of 20th century philosophizing but merely a sketch of some episodes in which I was in some way involved.

One brief explanatory apology. In a few instances some redundancy in the discussion will be unavoidable where the same persons or issues recur in different and distinct contexts. Such repetition is the price of self-contained readability.

I am grateful to Estelle Burris for her able and efficient help in putting this material into publishable shape.

Nicholas Rescher
Pittsburgh, PA
June 2005

Chapter One

AMERICAN PHILOSOPHY AT THE CENTURY'S END

1. BACKGROUND

Philosophizing in the United States has developed apace over the past century and has never been in as flourishing a condition as today, with philosophy firmly established as a subject of instruction in thousands of institutions of higher learning. However, the nature of the philosophical enterprise is changing, with the earlier heroic phase of a small group of important thinkers giving way to a phase of disaggregated production in a scattered industry of diversified contributors.

Already in Colonial times there were various writers who treated philosophical subjects: theologians like Jonathan Edwards and philosophically inclined statesmen like Benjamin Franklin or Thomas Jefferson. But such talented amateurs exerted no influence on other identifiable philosophers. More systematic developments had to await the growth of the university system in the 19th Century, when academic philosophy was imported from Europe, with idealists dominant at Harvard and Scottish thought dominant at Princeton, while Kantians were prominent in Chicago, Hegelians in St. Louis, and Thomists at the Catholic institutions. But even late into the 19th century America's most significant philosophers operated outside the academic system, where eccentric thinkers like R.W. Emerson, John Fiske, C.S. Peirce, and Orestes Brownson never managed to obtain a secure foothold. However, with the rising importance of the natural sciences, philosophy became the linch-pin that linked them to the liberal arts. The Harvard of James and Palmer and such distinguished imports as Santayana and Münsterberg, was a first harbinger of this, with philosophy here closely joined to psychology. The influx of the scientifically trained philosopher refugees who crossed the Atlantic after the rise of Nazism greatly intensified this linkage of philosophy to the sciences.

The era between the two world wars saw a flourishing in American academic philosophy, with people like John Dewey, C.I. Lewis, R.B. Perry, W.P. Montague, A.O. Lovejoy, Ernest Nagel and many others making substantial contributions throughout the domain. And after the second World War there was an enormous burgeoning of the field. Numerous important contributors to philosophy were now at work in America, and the reader will find individual articles on dozens of them in this Companion.

However, no characteristically American school or style of philosophizing has developed, excepting one, namely pragmatism as originated by C. S. Peirce and popularized by William James. The pragmatists saw the validity of standards of meaning, truth, and value as ultimately rooted in consideration of practical efficacy—of "what works out in practice." Though highly influential at home, this approach met with a very mixed reception abroad. Bertrand Russell, for example, objected that beliefs can be useful but yet plainly false. And various Continental philosophers have disapprovingly seen in pragmatism's concern for practical efficacy—"for success" and "paying off"—the expression of characteristically American social attitudes: crude materialism and naive democratic populism. Pragmatism was thus looked down upon as reflecting a quintessentially crass American tenor of thought—a philosophical expression of the American go-getter spirit with its success oriented ideology and a manifestation of a populist reaction against the chronic ideological controversies of European philosophizing—epistemological rationalism vs. empiricism, ontological materialism vs. idealism, etc. (Americans, de Toqueville wrote, seek to *echapper à l'esprit de système*.)

2. MATTERS OF SCALE

Perhaps the most striking feature of professional philosophy in North America at the close of the 20th century is in scope and scale. The historian Bruce Kuklik entitled his informative study of academic philosophy in the U.S., *The Rise of American Philosophy: 1860-1930,* even though his book dealt only with the Department of Philosophy of Harvard University.[1] This institution's prominence on the American philosophical scene in the early years of the century was such that this parochial-seeming narrowing of focus to one single department—with its half-dozen or so philosophers—was not totally absurd for the period at issue. But today it would certainly be so.

[1] Bruce Kuklik, *The Rise of American Philosophy: 1860-1930* (New Haven: Yale University Press, 1977).

The American Philosophical Association, to which most U.S. academic practitioners of the discipline belong, has over 8,000 members, and the comprehensive *Directory of American Philosophers* lists well over 10,000 philosophers affiliated to colleges and universities in the USA and Canada. Admittedly, this profession is small potatoes compared with other academic enterprises; the Scientific Research Society *Sigma Xi* currently has a membership of more than 100,000 scientists, the Modern Language Association has more than 32,000 members. All the same, a small town of not inconsiderable size could be populated exclusively with contemporary North American academic philosophers. To be sure, its demographics would be rather unusual. Only just under twenty percent would be women, and Blacks, Hispanics, and Asian-Americans would (each) constitute just over one percent of the population. And its political orientation is decidedly liberal and capital-D Democratic. (Yet the fact remains that the condition of the American philosophy professoriate is still very much a matter of live white males teaching about dead ones.[2]) The social classes above and below the middle are underrepresented in this community, and a disproportionate fraction of its members come from families of professional status. Moreover, for reasons that require a deeper sociological analysis than can be attempted here, the profession attracts a disproportionately larger fraction of Catholics (generally practicing ones), of Jews (generally nonpracticing ones), and of immigrants. In general, American philosophers of the present era in general do not come from home backgrounds where the high matters of literacy or artistic interests played a significant role, and their own intellectual formation is more often that of a humanistic academic technician than that of an intellectual of the traditional European type.[3]

In an academic discipline of American philosophy's present size, two different—and sometimes opposed—tendencies are at work to create a balance of countervailing forces. The one is an impetus to separateness and differentiation—the desire of individual philosophers to "do their own

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[2] Of the three top "Ivy League" institutions (Yale, Harvard, and Princeton), none presently has more than one female full professor in its philosophy department. And this state of affairs is in general rather the rule than the exception.

[3] See D. D. Karnos and R. G. Schoemaker (ed.), *Falling in Love With Wisdom: [62] American Philosophers Talk about Their Calling*. From this interesting anthology one must conclude that while American philosophers are driven, surprisingly many are not driven by that curiosity and wonder which, as Aristotle has it, lies at the core of philosophizing.

thing," to have projects of their own and not be engaged in working on just the same issues as everyone else. The other is an impetus to togetherness—the desire of philosophers to find companions, to be able to interact with others who share their interest to the extent of providing them with conversation partners and with a readership of intellectual cogeners. The first, centrifugal tendency means that philosophers will fan out across the entire reach of the field—that most or all of the "ecological niches" within the problem-domain will be occupied. The second, centripedal tendency means that most or all of these problem-subdomains will be multiply populated—that groups or networks of kindred spirits will form so that the community as a whole will be made up of sub-communities united by common *interests* (more prominently than by common opinions), with each group divided from the rest by different priorities as to what "the really interesting and important issues" are. Accordingly, the most striking aspect of contemporary American philosophy is its fragmentation. The scale and complexity of the enterprise is such that if one seeks in contemporary American philosophy for a consensus on the problem agenda, let alone for agreement on the substantive issues, then one is predestined to look in vain. Here theory diversity and doctrinal dissonance are the order of the day, and the only interconnection is that of geographic proximity.[4] Such unity as American philosophy affords is that of an academic industry, not that of a single doctrinal orientation or school. Every doctrine, every theory, every approach finds its devotees somewhere within the overall community.[5] On most of the larger issues there are no significant majorities. To be sure, some uniformities are apparent at the localized level. (In the San Francisco Bay area one's philosophical discussions might well draw on model theory, in Princeton possible worlds would be brought in, in Pittsburgh pragmatic themes would be prominent, and so on.) But in matters of

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[4] See the essay by Bruce Kuklick "Does American Philosophy Rest on a Mistake?" in Marcus G. Singer (ed.), *American Philosophy* (Cambridge: Cambridge University Press, 1985; Royal Institute of Philosophy Lecture Series, No. 19), pp. 177-189.

[5] The scattershot nature of recent American philosophy is illustrated—among innumerable examples—by the 1970 volume entitled *The Future of Metaphysics* edited by Robert E. Wood (Chicago, Quadrangle Books). Not only are the seventeen contributors disagreed as to the future of metaphysics, they are in dissensus about its past as well: what the definitive tasks of the field are, which practitioners afford the best role-models, and which approaches have proved to be the most promising.

method and doctrine there are many different schools and tendencies, and few, if any, all-pervasively dominant trends. Balkanization reigns supreme.

The centrifugal tendencies are, however, in a way counterbalanced by the centripedal ones. North American philosophers appear to be exceedingly gregarious by standards prevailing anywhere else. Apart from the massive American Philosophical Association, there presently exist some 120 different philosophical societies in the USA and Canada,[6] twenty-three of which claim over 500 members. In the main, these societies are of three types: subdisciplinary (for example, Metaphysical Society of America, Philosophy of Science Association), geographic (for example, Minnesota Philosophical Society, Virginia Philosophical Association), and person-oriented (for example, Leibniz Society of North America, C.S. Peirce Society). These societies provide the lifeblood of interpersonal interaction among American philosophers. Their aggregate effect is a vast network of meetings and conferences that keep colleagues of common interest in ongoing interaction with one another. Even the most energetic and affluent of persons would find it next to impossible to attend all the professional conferences and symposia that would be of interest to an even modestly versatile philosopher. Some of the bigger of these societies adhere to large international bodies such as FISP (the International Federation of Philosophical Societies) or IUHPS (the International Union of History and Philosophy of Science). However, the activities of these UNESCO sponsored umbrella organizations have little impact on American philosophers and none on American philosophy.

3. THE AGENDA

The extent to which significant, important, and influential work is currently produced by academics outside the high-visibility limelight has not been sufficiently recognized. For better or for worse, in the late twentieth century we have entered into a new philosophical era where what counts is not just a dominant elite but a vast host of lesser mortals. Great kingdoms are thus notable by their absence, and the scene is more like that of medieval Europe—a collection of small territories ruled by counts palatine and prince bishops. Scattered here and there in separated castles, a prominent individual philosophical knight gains a local following of loyal vassals or

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[6] See the *Directory of American Philosophers* published annually by the Philosophical Documentation Center of Bowling Green, Ohio, pp. 176-91.

dedicated enemies. But no one among the academic philosophers of today manages to impose their agenda on more than a minimal fraction of the larger, internally diversified community. Given that well over ten thousand academic philosophers are at work in North America alone, even the most influential of contemporary American philosophers is simply yet another—somewhat larger—fish in a very populous sea.

The fact is that those bigger fish do not typify what the sea as a whole has to offer. Matters of philosophical history aside, some of the salient themes and issues with which American philosophers are grappling at the present time are

- applied ethics: ethical issues in the professions (medicine, business, law, etc.);
- computer issues: artificial intelligence, "can machines think?", the epistemology of information processing;
- rationality and its ramifications;
- social implications of medical technology (abortion, euphanasia, right to life, medical research issues, informed consent);
- feminist issues;
- social and economic justice, distributive policies, equality of opportunity, human rights;
- truth and meaning in mathematics and formalized languages;
- the merits and demerits of scepticism and relativism regarding knowledge and morality;
- the nature of personhood and the rights and obligations of persons.

None of these issues were put on the problem-agenda of present concern by any one particular philosopher. None arose out of a preoccupation with fundamental aspects of some already well-established issue. None arose out of one particular philosophical text or discussion. They blossomed forth like the leaves of a tree in springtime appearing in various places at

once under the formative impetus of the Zeitgeist of societal concern. The nature of American philosophy today is such that for the most part new ideas and tendencies have come to prominence not because of the influential impact of some specific contribution worker but because of the disaggregated effects of a host of writers working across a wide frontier of individual efforts. Philosophical innovation today is generally not the response to the preponderant effort of pace-setting individuals but a genuinely collective effort that is best characterized in statistical terms.

Agenda-enlargement is one of the most striking features of contemporary American philosophy. The pages of its journals and the programs of its meetings bristle with discussions of issues that would seem bizarre to their predecessors of earlier days and to present-day philosophers of other places. The fact that those many hundreds of philosophers are looking for something to do that is not simply a matter of re-exploring familiar ground has created a substantial population pressure for more philosophical Lebensraum.

The result of this agenda enlargement has been a revolutionizing of the structure of philosophy itself by way of taxonomic complexification. The current picture of taxonomic lay of the land in North America philosophy is thus vastly more complex and ramified than anything that has preceeded it. The taxonomy of the subject has burst for good and all the bounds of the ancient tripartite scheme of logic, metaphysics and ethics. Specialization and division of labor runs rampant, and cottage industries are the order of the day. The situation has grown so complex and diversified that the most comprehensive recent English-language encyclopedia of philosophy[7] cautiously abstains from providing any taxonomy of philosophy whatsoever. (This phenomenon also goes a long way towards explaining why no one has written a comprehensive history of philosophy that carries through to the present-day scene.[8]) Philosophy—which ought by mission and tradition

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[7] *The Encyclopedia of Philosophy*, ed. by Paul Edwards (London and New York: Macmillan, 1967).

[8] John Passmore's *Recent Philosophers* (La Salle, 1985) is as close as anything we have, but—as the very title indicates—this excellent survey makes no pretentions to compehensiveness. In this direction an earlier multi-person survey went somewhat further, exemplifying what is the best and most that one can hope to obtain: Roderick M. Chisholm et. al., *Philosophy: Princeton Studies of Humanistic Scholarship in America* (Englewood Cliffs, NJ: Prentice Hall, 1964). Yet not only does this book attest to the fragmentation of the field—but it conveys (from its Fore-

to be an integration of knowledge—has itself become increasingly disintegrated. The growth of the discipline has forced it beyond the limits of feasible surveillance by a single mind. After World War II it becomes literally impossible for American philosophers to keep up with what their colleagues were writing.

The rapid growth of "applied philosophy"—that is, philosophical reflection about detailed issues in science, law, business, social affairs, computer use, and the like—is a striking structural feature of contemporary North American philosophy. In particular, the past three decades have seen a great proliferation of narrowly focussed philosophical investigations of particular issues in areas such as economic justice, social welfare, ecology, abortion, population policy, military defense, and so on. This situation illustrates the most characteristic feature of contemporary English-language philosophizing: the emphasis on detailed investigation of special issues and themes. For better or for worse, Anglophone philosophers have in recent years tended to stay away from large-scale abstract matters of wide and comprehensive scope, characteristic of the earlier era of Whitehead or Dewey, and nowadays incline to focus their investigations on issues of small-scale detail that relate to and grow out of those larger issues of traditional concern. The turning of philosophy from globally general, large-scale issues to more narrowly focused investigations of matters of microscopically fine-grained detail is a characteristic feature of American philosophy after World War II. Its flourishing use of the case-study method in philosophy is a striking phenomenon for which no one philosopher can claim credit—to a contemporary observer it seems like the pervasively spontaneous expression of "the spirit of the times."

4. MATTERS OF ORIENTATION

So much for the problem agenda. But what of methodology and style? Pragmatism and applied philosophy apart, all of the dominant styles of American philosophy in the 20th century—analytic philosophy, scientistic and logicist philosophizing, neo-Kantianism, phenomenology and "Continental" philosophizing at large—have all originated in Europe. As far as philosophical approaches are concerned, Emerson's idea of an America moving beyond the dominance of European tendencies and traditions of

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word onwards) the defeatist suggestion that whatever larger lessons can be extracted from an historically minded scrutiny of the substantive diversity of the contemporary situation are destined to lie substantially in the eyes of the beholder.

thought has not been realized and—given currently pervasive intellectual globalization—may never be. The extent to which American philosophy rests on European antecedents is graphically reflected in the great divide in the American Philosophical Association between the "Analysts" *and* the "Pluralists." To all intents and purposes this split mirrored the opposition in the Germany of the 1920's between the followers of Reichenbach and Carnap on the one side and those of Heidegger and Gadamer on the other, the one looking for inspiration and example to science (especially mathematics and physics) and the other to humanistic studies (especially literature and philology)—a duality of perspective which itself had deep roots in the philosophizing of 19th Century Germany with its opposed allegiances, respectively to the Naturwissenschaften (Fries, Balzano, Haeckel) and the Geisteswissenschaften (Schleiermacher, Nietzsche, Dilthey).

Outside the instructional context, philosophy also plays some role in various research centers that are affiliated to major universities, such as the National Humanities Center in the Research Triangle of North Carolina, the Center for Values and Social Policy at the University of Colorado, and the Center for Philosophy of Science at the University of Pittsburgh. Apart from colleges and universities, American philosophy gets a (very modest) slice of the academic research support pie through such U.S. federal programs as the National Endowment for the Humanities and the National Science Foundation. Moreover such privately funded providers of research support as the Guggenheim Fellowship Program or the MacArthur Foundation's "Creative Genius" Program also on occasion support the work of philosophers. In North America, philosophy is securely entrenched in the academic scheme of things. Nevertheless, the share of philosophy-and-religion is less than two percent of the college book market in the US, less than one quarter of that of psychology.[9] (In America, Freud and Co. have clearly won a signal cultural victory.)

One feature that distinguishes present-day activity in American academic philosophy from the situation at any earlier stage is the rise of historical studies. For in North America, research in the history of philosophy is currently in a remarkably active and flourishing state. Several hundred specialized books are published in this area each year—many of them of a level of technical expertise rarely attained in American contributions of an

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[9] These (somewhat outdated) figures come from Fritz Machlup, et al, *Information Through the Printed Word*, Vol. I (New York: Praeger, 1978), p. 238. There is no evidence that philosophy's situation has improved since.

earlier era. There exist some dozen specialist journals in the field (including *Ancient Philosophy*, *Medieval Studies*, *Hume Studies*, *History of Philosophy Quarterly* and the *Journal of the History of Philosophy*, among others). And there are also some dozen specialist societies, most of them dedicated to the work and thought of a single great thinker of former times, including Leibniz, Hume, Hegel, Kant, Kierkegaard, Nietzsche, Whitehead, and Santayana. One third of American philosophy Ph.D theses produced these days relate to historical issues.

It is, of course, possible and indeed necessary to distinguish between philosophers and philosophy professors—between those who are active contributors to the intellectual resources of the discipline and those who provide academic instruction in the field. But the fact is that in recent years the latter have largely become incorporated into the former group—that a growing professionalism based on more rigorous formal training and a "publish or perish" ethics in the academy has meant that the teaching staffs in American colleges are increasingly populated by people who are productive philosophers. For the fact is that American philosophers are quite productive. They publish well over 200 books per annum nowadays. And issue by issue they fill up the pages of over 175 journals. Given that almost 4,000 philosophical publications (books or articles) appear annually in North America, and a roughly similar number of symposium papers conference presentations and the like, the line between teaching and substantive contribution is anything but hard and fast. To be sure, the aggregate published output of philosophers—some 120,000 pages per annum—does not match that of other branches of the academic profession. (In 1987 alone, American scholars in English literature published 544 articles on William Shakespeare, 215 on John Milton, and 132 on Henry James.[10]) But even without such scholarly overkill, the productivity of American philosophy is an impressive phenomenon—though one could certainly debate the quality of this production. (This is not due to defective skill—the technical ability of philosophers seems better than ever—but rather to a penchant for concentrating on philosophically peripheral, nay often trivial issues whose main attraction is that they also preoccupy other philosophers.

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[10] Edward B. Fiske, "Lessons," *The New York Times* (August 2, 1989), p. B8. At this rate, the annual output of Shakespearian scholarships is over six times as large as the collected works of the Bard himself.

Marshall McLuhan to the contrary notwithstanding, the book is still the key artifact of philosophizing. It continues to make a major impact, with works like W. V. Quine's *Word and Object*, Thomas Kuhn's *Structure of Scientific Revolutions*, John Rawls' *Theory of Justice*, and Richard Rorty's *Philosophy and the Mirror of Nature* casting large ripples across the pond. Nevertheless, even monographic books are declining in import, with collections of a particular author's essays or lectures often exerting an influence no less substantial. (Donald Davidson's *Essays on Actions and Events* [Oxford, 1980] or Saul Kripke's *Wittgenstein on Rules and Private Languages* [Oxford, 1982] are illustrations of this phenomenon.) And in the background looms the fact that the vast and diffuse journal literature is a formative force in present-day American philosophizing just as potent as the domain of books.

5. THE PROFESSION

What is distinctive in American philosophy today is less a matter of *product* than one of *process*. For it seems appropriate to characterize contemporary American philosophy as a substantial *industry*—with thousands of operatives, many hundreds of worksites (college departments), scores of training institutes (universities), and a prolific and diversified range of products, including not only classes but books, journals, congresses, conferences. Throughout, a high degree of scholarly competency and professionalism pervades the enterprise. Considering the quantity of philosophical writing that sees the light of print, its overall quality is respectably high—at any rate if one's standard gives weight to the technical dimension. (Depth of insight is another matter.) At any rate, the day of the philosopher as isolated thinker—the talented amateur with an idiosyncratic message—is effectively gone. (For better or for worse, an outsider along the lines of a Spinoza or a Nietzsche would find it near to impossible to get a hearing in the North American philosophical world of today.)

The recent statistics of Philosophy doctorates bring some interesting facts to light. The total number of doctorates awarded by institutions of higher learning in the USA has been relatively stable at around one-hundred thousand over the last years. But the production of philosophy doctorates has declined substantially (along with that of humanities Ph.D's in general). The proportionally increasing prominence of women among the new philosophy Ph.Ds has been a noteworthy phenomenon. But whatever victory this percentage gain represents for women seems a Pyrrhic

one, seeing that they are in process of securing a somewhat larger share of a profession that is declining probably in status and certainly in economic terms. (In the American context those factors are seldom far apart.)

Employment opportunities within the philosophy industry are reasonably good for those who meet its elaborate entrance qualifications. But as regards remuneration, the position of philosophers is typical of that of humanists in higher education. It is ironic that in a period when the real cost of higher education has risen dramatically, the average real pay of those who staff the activity has declined dramatically. (The reason lies in the fact that the size of the professoriate has expanded faster than the size of its undergraduate clientele, with a negative impact both on its pay and on its status.)

The growth of the profession, the massification of the system of higher education, and the eroding economic status of the professoriate all combine to make philosophy less of an elite endeavor than it used to be. This decline in elitism in American philosophy is illustrated in a graphic way when one considers the production of Ph.Ds in the departments of high prestige universities. Of the five principal "ivy league" institutions (Yale, Harvard, Princeton, Columbia, and the University of Pennsylvania) only one (viz. Columbia) currently figures on the roster of North American philosophy departments most productive of Ph.Ds. From the standpoint of Ph.D. training, the most prominent contribution is made by the big U.S. state universities (Michigan, Minnesota, New York, Texas, and Wisconsin), and by the large Catholic institutions. However, the biggest single producer of philosophy Ph.Ds in North America is the University of Toronto. The main shortcoming of our flourishing *system* of higher education in philosophy lies in its very nature as such, which accentuates quantity over quality. Graduate programs are in general not inclined to judge competence by technical skill applied to minutiae rather than demanding actual contributions to the subject as such. As military academies produce managers rather than warriors, so philosophy programs produce problem solvers rather than philosophers.

The very size of the academic industry is intimidating and engenders humility. For the individual professional confronts the sobering thought: "Consider a thought experiment. Excise from American philosophy everything that is near and dear to you—every author and book and journal you actually read, every lecture you go to hear, every colleague you interact with. The result is still a large and thriving enterprise that has a healthy and active life of its own, irrespective of such an excision. The amputation

would make a difference, but nowise a fatal one. The process as a whole would proceed much as before."

The size and scope of the academic establishment exerts a crucial formative influence on the nature of contemporary American philosophy. In the philosophical environment of the past, the role of the great figures was more prominent, and the writings of philosophers established a balance of indebtedness to "big names" as against "modest contributors" that was much more favorable to the former category than is the case today, when philosophical writers who make use of "the literature" are destined to take far more notice of the smaller fry simply because there are so many more of them.[11] In the past, the philosophical situation of academically developed countries could be described by indicating a few "giants" whose work towered over the philosophical landscape like a great mountain range, and whose issues and discussions defined the agenda of the philosophizing of their place and time. Once upon a time, the philosophical stage was dominated by a small handful of greats. Consider German philosophy in the 19th century, for example. Here the philosophical scene, like the country itself, was an aggregate of principalities—presided over by such ruling figures as Kant, Fichte, Hegel, Schelling, Schopenhauer, and a score of other philosophical princelings. But in North America, this "heroic age" of philosophy is now a thing of the past.

6. TENDENCIES

Until around 1914, it was religion that exerted the dominant influence on philosophers writing in America. During the 1914-1960 era natural science served as the prime source of inspiration. But over the past generation the sources of inspiration have become greatly diversified. The stimulating essay by Richard Rorty on "Philosophy in America Today" (in *Consequences of Pragmatism* [Minneapolis, 1982], pp. 211-230) both describes and celebrates the post-war era's shift from a scientific model of philosophizing to a political model where "literary culture" is what matters most, and people proceed in "the sense that nature and scientific truth are largely

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[11] The process at issue relates to the principle known in the social sciences as Rousseau's Law, maintaining that in a population of size *n* the number of high-visibility members stands as the square root of *n*. Compare the author's, *Scientific Progress* (Oxford, 1978), pp. 96ff. On its telling, in a profession of 10,000 we would expect to find some widely recognized contributors.)

beside the point and that history is up for grabs" (pp. 228-9). But this tendentious account envisions an unrealistic uniformity. The fact is that at present philosophy is a garden where 100 flowers bloom. In recent years the source of influence has fragmented across the whole academic board. Some look for inspiration to psychology (especially to Freud), others to economics (from Marx to von Neumann), yet others to literature, or to law, or to . . . The list goes on and on. Contemporary American philosophy does not have the form of a histogram with a few major trends; it is a complex mosaic of many different and competing approaches.

Prominent examples of currently fashionable approaches are found in certain programmatic tendencies:

—to explicate the meaning of certain philosophical concepts by means of "truth" conditions—for example, free agency, or linguistic understanding,

—to explain human capacities (e.g., for knowledge or for understanding) in terms of models or analogies from computing machines and "artificial intelligence" considerations,

—to explain human rule-following practice in terms of social policies and norms,

—to explain human capacities (eg., for knowledge or for understanding) on the basis of evolutionary theories and Darwinian natural selection.

Each such program sets the stage for a diversified multi-participant effect—a little "cottage industry" as it were. Often as not, they result from the provocation of some individual's or school's exaggerated claim along some such lines as that "all evaluations simply express people's attitudes" or "all communicatively significant features of human linguistic performances roots in social norms."

For better or for worse, we have entered into a new philosophical era where what counts is not just a dominant elite but a vast host of lesser mortals. Principalities are thus notable in their absence, and the scene is more like that of medieval Europe—a collection of baronies. Scattered here and there in separated castles, a prominent individual gains a local following of loyal friends or enemies. But no one among the academic philosophers of

today manages to impose their agenda on more than a minimal fraction of the larger, internally diversified community. Even the most influential of contemporary American philosophers is simply yet another—somewhat larger—fish in a very populous sea.

However, while a different situation may prevail in other areas like science or mathematics or economics, in philosophy many American professors continue to look to Europe for role models and for inspiration to a degree that would doubtless annoy R. W. Emerson who looked for a declaration of intellectual independence to succeed the political one. American philosophy is strikingly open to influences from abroad. With ideas as with consumer goods, Americans are eager to import while European philosophy is generally eager to enter the export business. (Which is not to say that a marked provincialism is not at work in other regards: In America, as elsewhere, domestic stars of the third magnitude are far more likely to have their work noted by fellow countrymen than foreign stars of the second.)

An interesting—and unexpected—aspect of contemporary American philosophy relates to the fate of "pragmatism." The high priests of this quintessentially American tendency of thought—C.S. Pierce, William James, John Dewey, and C.I. Lewis—while entertaining rather different conceptions of the doctrine at issue, were all agreed on the central point that there is a cogent *standard* for assessing the merit for cognitive products (ideas, theories, methods)—a standard whose basis of validity reaches outside the realm of pure theory into the area of practical application and implementation. For them the ultimate test of our intellectual artifacts lay in seeing them as instrumentalities of effective praxis—in their ability to serve the communal purposes for whose sake and publicity available resources are instituted. But in recent years many philosophers who have laid claim to the label of "pragmatism" have subjected the traditional doctrine to a drastic sea-change. Where the classical pragmatists sought in applicative efficacy a test of objective adequacy—an individual-transcending reality principle to offset the vagaries of personal reactions—the pseudo-pragmatists turn their backs in the pursuit of objectivity and impersonality. For traditional pragmatism's communal concern with "what works out *for us* (humans in general)" they have perversely substituted an egocentrism of "what works out *for me* (or *for you*)." The defining object of the pragmatic tradition—the search for objective and impersonal standards—is shattered into a fragmentation of individual impressions in the parochial setting of a limited culture context. We have a total dissolution—that is, destruction—of the classical pragmatic approach that saw the rational validity of intel-

lectual artifacts to reside in the capacity to provide effective guidance in the successful conduct of our extra-theoretical affairs—in matters of prediction, planning, successful intervention in the course of nature, and other such-like aspects of the successful conduct of our practical activities.

The large ongoing response to writers such as Heidegger, Derrida, and their epigones clearly shows that there is more academic hay to be made nowadays by debunking metaphysics and epistemology as traditionally conceived than by practicing them. In this light, one of the striking and paradoxical features of American philosophy today is the widespread assault by a disaffected *avant garde* against the discipline as standardly practiced. On many fronts a *fin de siècle* disillusionment with the enterprise is coming to expression and a distaste for actual scholarship is widely manifest among the *avant garde*. Some argue—be it on the basis of scepticism or relativism or scientism—that we have entered a "post-philosophical era," where philosophy as traditionally conceived is no longer viable. Others argue on neo-Marxist grounds that interest (not necessarily economic but also cultural or social) is what determines all and that old-style would-be rational philosophy is simply a covering for sexist, racist, or culturalist prejudices. Traditional philosophizing is viewed as mere ideology that should be dismissed as the prejudicial vaporings of dead white males, and the politically correct thing to do is to abandon philosophy as a venture in inappropriate elitism.[12] Other critiques of philosophizing issue from a philosophy-external basis. Followers of the "critical studies" trend of literacy analysis propose to deconstruct philosophical discourse to a point of a variety that renders rational deliberation unrealizable.[13] From the vantage point of such a "postmodernist" disdain for reason, traditional philosophy's commitment to the methodology of reflective analysis and impartial reasonableness continues to earn for it the sort of opposition encountered by

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[12] Cornel West, for one, regards the reluctance of American philosophers to abandon classical issues and methods as betokening the fuddy-duddy adherence of "an American male WASP cultural elite loyal to an older and eroding European model of culture" and as a resistance to taking the plunge into the invigorating atmosphere of a "prophetic . . . form of American left thought and action in our postmodernist moment." (*The American Evasion of Philosophy* [Madison, WI: University of Wisconsin Press, 1989]; see pp. 238-39.)

[13] To be sure, that does not trouble them, since they see rationality itself as a form of political oppression, given the hyperdemocratic consideration that while everyone *feels* only some of us trouble to *think.*

Socrates at the very outset of the enterprise. However, the fact that any critical examination of the scope and merits of philosophy will itself form part of the philosophical venture at large—that metaphilosophy is a part of philosophy—continues to assure the discipline with a lively future despite all such critical opposition.[14]

If one looks to such currently widespread ideological tendencies of American philosophy as analytic philosophy, neo-positivism, Wittgensteineanism, hermeneutics, and Heideggerianism, and the like, then one notes that virtually all of them—neo-pragmatism apart—have roots in European thinkers. (Europe, after all, is the home of ideologies.) But much of American philosophy—like much of American politics—is refreshingly free of ideological involvements. It addresses palpable problems by whatever means lie to hand, relying on the power of *intellectual* technology to carry the day. And it looks to help whenever it can be found—and not necessarily only in the works of the "big names," at least as far as the domestic science is concerned.

As regards those "big names," the fact is that those bigger fish do not typify what the sea as a whole has to offer. Matters of philosophical history aside, some of the salient themes and issues with which American philosophers are grappling at the present time include: ethical issues in the professions, the epistemology of information processing; the social implications of medical technology (abortion, euthanasia, right to life, medical research issues, informal consent), feminist issues, distributive justice, human rights, truth and meaning in mathematics and formalized languages, the merits and demerits of relativism regarding knowledge and morality, the nature of personhood and the rights and obligations of persons, and many more. None of these topics was put on the problem-agenda of present concern by any one particular philosopher. They blossomed forth like the leaves of a tree in springtime, appearing in many places at once under the formative impetus of the Zeitgeist of societal concern. Accordingly, philosophical innovation in America today is generally not the response to the preponderant effort of pace-setting individuals but a genuinely collective effort that is best characterized in statistical terms.

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[14] The enthusiasm with which philosophers co-opt the issue of the infeasibility of philosophizing is illustrated in the recent anthology edited by Avener Cohen and Marcelo Descal under the title: *The Institution of Philosophy: A Discipline in Crisis* (La Salle, IL: Open Court, 1989).

Sometimes, however, what at first sight looks like a large-scale phenomenon is only the large shadow cast by a smallish object. This seems to be the case with feminist philosophy in North America. At present there are only two journals in the field (*Feminist Studies*, *Hypatia*) and only two societies (*Society for Analytical Feminism*, *Society for Women in Philosophy*). As far as philosophy goes, academic feminism, however prominent elsewhere, is at present still no more than a statistically minor blip. (To be sure, the shift from nothing to something is always a big one.)

Insofar as American philosophers collect themselves into ideological groupings of (comparatively) substantial size, this conformation is based not on factors of substance (of doctrinal agreement) but in factors of style (of methodological commonality). One major grouping—the "Analysts" as they have come to be called—adopts a scientific model of philosophizing and looks to the sort of detailed investigation by logico-linguistic methods of analysis that was introduced into Anglo-American philosophy in the era of G.E. Moore and Bertrand Russell. The other major affinity grouping—the "Pluralists"—look to Continental models of philosophizing through reappraisals of the grand tradition of Western philosophy in the manner prominent in German philosophy in the era from Dilthey to Heidegger. Different culture-heroes are at issue, and different modes of procedure. The one "school" seeks to use the machinery of logic and formal semantics to extract philosophical juice from science and common sense, the other employs the methodology of historical and humanistic studies to extract lessons from the materials of cultural and intellectual history. The upshot is a difference in the substance of philosophizing that roots in a difference in the style of philosophical practice engendered by looking to rather different models of philosophizing. (However, the recent trend towards specialization and the division of labor is just as prominent among the pluralists as among the analysts.) Analysts often as not focus upon doctrines rather than writers. They generally discuss intellectual artifacts in the manner of the introduction, "I take a realist to be someone who endorses the following three theses . . ." where no actual person has ever propounded those theses together in exactly that form. By contrast, "Continental" style philosophizing addresses the real (or supposedly real) views of identified philosophers—with different writers having somewhat different ideas about membership in the list of canonical authorities, each having a personal register of the good and the wicked.

And so, while in the past, the philosophical situation here could be described by indicating a few "big names" whose work towered over the phi-

losophical landscape like a great mountain range, and whose issues and discussions defined the agenda of the philosophizing of their place and time. But this "heroic age" of philosophy is now over. One sign of this is that the topical anthology has in recent years gained a position of equality with, if not preponderance over, the monographic philosophical text. Another sign is that philosophers nowadays are not eccentric geniuses working in obscure isolation but workaday members of the academic bourgeoisie (even if not, as in Continental Europe, civil servants).

"But I really want to know what those bigger fish are thinking and teaching." Good for you! This interest of yours is perfectly appropriate—and laudable. But in pursuing it you must not deceive yourself into thinking that the information you obtain provides a satisfactory picture of American philosophy. For what you will be getting is no more than a pastiche of some philosophizing done by some Americans. To see this as somehow representative and possessed of some broader cultural significance—as usefully informative about the philosophical lay of the land in America at large—would be profoundly erroneous. Even a full account of the philosophical work of the two or three dozen of most influential American philosophers would not yield a faithful portrait of the present state of American philosophy at large, as reflected in the thematic structure of the present literature, the make-up of instructional curricula, or the constitution of conference programs.

7. STYLE

In line with the increasing specialization and division of labor, American philosophy has become increasingly technical in character. Philosophy historians are increasingly preoccupied with matters of small-scale philosophical and conceptual microdetail. And philosophical investigations make increasingly extensive use of the formal machinery of semantics, modal logic, compilation theory, learning theory, etc. Ever heavier theoretical armaments are brought to bear on ever smaller problem-targets in ways that cause to wonder whether the important principle that technicalities should never be multiplied beyond necessity has been lost sight of. There is little doubt that the increasing technicalization of philosophy has been achieved at the expense of its wider accessibility—and indeed even to its accessibility to members of the profession. No single thinker commands the whole range of knowledge and interests that characterizes present-day American philosophy, and indeed no single university department is so

large as to have on its faculty specialists in every branch of the subject. The field has outgrown the capacity not only of its practitioners but even of its institutions.

8. IMPACT

Do American philosophers exert influence? Here, of course, the critical question is: Upon whom? First consider: upon *other philosophers*. We have already remarked that the extent to which even "the leading philosophers" manage to influence others is highly fragmentary—in each case only a small sector of the entire group being involved. Turning now to *the wider society at large*, it must be said that the answer is emphatically negative. American philosophers are not opinion-shapers: they do not have access to the media, to the political establishment, to the "think tanks" that seek to mould public opinion. Insofar as they exert an external influence at all, it is confined to *academics* of other fields. Professors of government may read John Rawls, professors of literature Richard Rorty, professors of linguistics W. V. Quine. But, outside the academy, the writings of such important contemporary American philosophers exert no influence. It was otherwise earlier in the century—in the era of philosophers like William James, John Dewey, and George Santayana—when the writings of individual philosophers set the stage for at least some discussions and debates among a wider public. But it is certainly not so in the America of today. Philosophers (and academics in general) play very little role in the molding of an "informed public opinion" in the USA—such work is largely done by publicists, film-makers, and talk-show hosts. American society today does not reflect the concerns of philosophers but the very reverse is the case—where "relevant" at all, the writings of philosophers reflect the concerns of the society.

Many philosophers are not enthusiastic about this. For American philosophers by and large see themselves, accurately enough, as cultivating one academic specialty in contrast to others—as technicians working in the realm of ideas. And this means that they generally write for an audience of their fellow academics and have little interest in (or prospect of) addressing a wider public of intelligent readers at large. (This is another significant difference between the philosophical situation in North America and in continental Europe.) American philosophy is oriented to academia and academics. By contrast, European—and especially French—philosophy is oriented to the wider culture-complex of an intelligent readership through a

concern with currently controverted issues. On this basis "political correctness," which has become a hotbed of controversy on various American campuses, has made comparatively little impact among philosophers—unlike the situation with practitioners of such fields as legal or literary theory. Outside of rather limited circles, philosophers in America are still expected to give reasons for their contentions, rather than painting those who dissent with the brush of fashionably attuned disapproval—let alone by calling names. The high degree of its technical professionalism has tended to countervail against the pervasive politicization of the field.

The prominence of specialization gives a more professional and technical cast to contemporary American philosophizing in comparison to that of other times and places. It endows the enterprise with something of that can-do spirit that one encounters in other aspects of American life. There is something of an optimistic confidence in the power of technique to resolve the problems of the field. In this respect American philosophizing has little use for a pessimism that contents itself with a melancholic resignation to human inadequacies. Confined to the precints of higher education, contemporary American philosophy cannot easily afford sending messages that the young are not prepared to hear.

All the same, its increasing specialization has impelled philosophy towards the ivory tower. And so, the most recent years have accordingly seen something of a fall from grace of philosophy in American culture—not that there was ever all that much grace to fall from. For many years, the *Encyclopedia Britannica* published an annual supplement entitled *19XY Book of the Year*, dealing with the events of the previous year under such rubrics as World Politics, Health, Music, etc. Until the 1977 volume's coverage of the preceding year's developments, a section of philosophy was always included in this annual series. But thereafter philosophy vanished from this scene—without so much as a word of explanation. Seemingly the year of America's bicentennial saw the disappearance of philosophy from the domain of things that interest Americans. At approximately the same time, *Who's Who in America* drastically curtailed its coverage of philosophers (and academics generally). And during this same time period, various vehicles of public opinion—ranging from *Time Magazine* to *The New York Times*—voiced laments over the irrelevance of contemporary philosophy to the problems of the human condition and the narcissistic absorption of philosophers in logical and linguistic technicalities that rendered the discipline irrelevant to the problems and interests of nonspecialists.[15] It is remarkable

that this outburst of popular alientation from philosophy's ivory-towerishness came at just the time when philosophers in the U.S.A. were beginning to turn with relish to the problems on the agenda of public policy and personal concern. The flowering of applied ethics (medical ethics, business ethics, environmental ethics, and the like), of virtue ethics (trust, hope, neighborliness, etc.), of social ethics (distributive justice, privacy, individual rights, etc.) and of such philosophical hyphenations as philosophy-and-society—and even philosophy-and-agriculture! —can also be dated from just this period. By one of those ironies not uncommon in the pages of history, philosophy returned to the issues of the day at virtually the very moment when the wider public gave up thinking of the discipline as relevant to its concerns.

The fact is that philosophy has little or no place in American popular (as opposed to *academic*) culture, since at this level people's impetus to global understanding is accommodated—in America, at least—by religion rather than philosophy. Philosophical issues are by nature complicated, and Americans do not relish complications and have a marked preference for answers over questions. The nature of the case is such that philosophers must resort to careful distinctions and saving qualifications. And in this regard Americans do not want to know where the complexities lurk; they yearn for or the proverbial one-armed experts who do not constantly say "on the other hand." We are a practical people who want efficient solutions (as witness the vast market for self-help books with their dogmatic nostrums).

However, while philosophy nowadays makes virtually no impact on the wider culture of North America, its place in higher education is secure. To be sure, of all undergraduates in American colleges and universities, only about half of one percent *major* in Philosophy (compared with nearly three percent for English and over fifteen percent for Business and Management).[16] But owing to philosophy's role in meeting "distribution requirements" it has secured a prominent place in the curricula of post-secondary education. Unlike the United Kingdom, where post-World War II philosophers held a very technical and narrowly conceived idea of what the job of

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[15] See *TIME Magazine*, *Time* Essay: "What (If Anything) to Expect from Today's Philosophers," vol. 87 (January 7, 1966), pp. 24-25.

[16] Data from Carnegie Foundation for the Advancement of Teaching, entitled *Carnegie Survey of Undergraduates, 1986*, as reported in *The Chronicle of Higher Education*, Feb. 5, 1986, pp. 27-30.

philosophy is—with the result of effectively assuring the discipline's declining role in the educational system—in America philosophy has managed not only to survive but to thrive in higher education. It has done so in large measure by taking a practicalist and accomodationist turn. American philosophers have been very flexible in bending with the wind. When society demands "relevancy to social concerns" a new specialty of "applied philosophers" springs forth to provide it. When problems of medical ethics or of feminist perspectivism occupy the society, a bevy of eager young philosophical spirits stands ready to leap into the breach.

9. PROSPECTS

It should occasion no surprise that philosophical activity flourishes on the American academic scene in a way that reflects wider social concerns. Of the forty-five thematic sessions on the program of the American Philosophical Association's Eastern Division in 1991, six were devoted to feminist themes and two to issues relating to blacks.[17] This dedication of some fifteen percent of program space to these issues prominent on the agenda of present-day U.S. politics is clearly not accidental, but it does not reflect a comparable prominence of these topics in the current journal literature of the subject, where (as the *Philosopher's Index* entries indicate) the aggregate space occupied by these themes is diminutive. To a cynic, it might seem that American philosophers are seeking to offset the underrepresentation of women and blacks in their ranks by throwing words at the issues involved. (In this regard philosophers are akin to politicians, a consideration that invites second thoughts about Plato's philosopher-kings.)

Insofar as this descriptive survey admits of an overall interpretation, it is somewhat as follows. A century ago, the historian Henry Adams deplored the end of the predominance of the great and the good in American politics and the emergence of a new order based on the dominance of masses and their often self-appointed representatives. Control of the political affairs of the nation was flowing from the hands of a cultural elite into that of the unimposing, albeit vociferous, spokesmen for the faceless masses. In short, democracy was setting in. And just this same transformation from the preeminence of great figures to the predominance of mass movements is now, one hundred years on, the established situation in even so intellectual an

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[17] *Proceedings and Addresses of the American Philosophical Association*, vol. 65, no. 2 (October, 1991), pp. 11 ff.

enterprise as philosophy. In its present configuration, American philosophy indicates that the "revolt of the masses," which Ortega y Gasset thought characteristic of our era, manifests itself not only in politics and social affairs but in intellectual culture also and even in philosophy.[18] A cynic might characterize the current situation as a victory of the troglodytes over the giants.[19] The condition of American philosophy today is a matter of trends and fashions that go their own way without the guidance of agenda-controlling individuals. This results in a state of affairs that calls for description on a statistical rather than biographical basis. It is ironic to see the partisans of political correctness in academia condemning philosophy as an elitist discipline at the very moment when philosophy itself has abandoned elitism and succeeded in making itself over in a populist reconstruction. American philosophy has now well and truly left "the genteel tradition" behind.

If such a perspective is indeed valid, certain far-reaching implications follow for the eventual historiography of present-day American philosophy. For it indicates a situation with which no historian of philosophy has as yet come to terms. In the "heroic" era of the past, the historian of the philosophy of a place and time could safely concentrate upon the *dominant* figures and expect thereby to achieve a certain completeness with respect to "what really mattered." But such an approach is grossly unsuited to the conditions of the present era. Those "dominant figures" have lost control of the agenda. To accommodate the prevailing realities, the story of present-day American philosophy must be presented in a much more aggregated and statistically articulated format. And insofar as single individuals are

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[18] Where Ortega himself did not expect it: "Philosophy needs no protection, no attention, no sympathy, no interest in the part of the masses. Its perfect uselessness protects it." (*The Revolt of the Masses* tr. by Anthony Kerrigan [Notre Dame: University of Notre Dame Press, 1989], p. 73.) Ortega did not reckon with "applied philosophy."

[19] The General Editor of a first-rate survey of American humanistic scholarship wrote in the Foreword to the volume on philosophy: "Not many of the names mentioned in these pages are recognizable as those of great intellectual leaders, and many are unknown even to an old academic hand like myself who has a fair speaking acquaintance with the various humanistic disciplines in America." (Richard Schlatter in Roderick Chisholm et. al., *Philosophy: Princeton Studies of Humanistic Scholarship in America* (*op. cit.*), p. x.

dealt with as such, it must be done against such an enlarged background—they must now be seen as *representative* rather than as *determinative* figures, with the status of the individual philosopher selected for historical consideration generally downgraded into a merely exemplary (illustrative) instance of a larger trend. The historian of American philosophy in its present-day configuration accordingly faces a task of selection entirely different in nature and scope from that which prevailed heretofore. If the development of American philosophy continues along its present path, the role of the individual in the historiography of the future will be as the subject of a footnote illustrative of the diversified general trends and tendencies of thought to which the main body of the text will have to be dedicated.

And so, there is no question that philosophy is alive and well in America today. As long as it maintains its place in collegiate education with at least two or three competent representatives at each of those several thousand institutions that grant baccalaureate degrees, it will continue as an active and productive venture.

American philosophy, then, is very much alive. But is it also well and healthy? Should one welcome or deplore the confused and dissonant scene we find about us? Should the circumstance that present-day American philosophers almost invariably write for other philosophers rather than addressing a wider public of intelligent lay readers not be seen as a substantial a demerit of the enterprise?

The fact is that there is little point in lamenting what cannot be helped: one must accept the inevitable. And in the present case the structure of the situation allows no alternatives. Ten able thinkers of varying background, experience, instruction, and prejudices are surely not going to reach consensus on major ideological issues—let alone ten thousand of them. Nor, in a society that prioritizes the pursuit of happiness and divides its ideological inclinations between life's practicalities on the one hand and pie-in-the-sky idealism on the other, will philosophy's half-way house ever be genuinely popular. American philosophers must take their readership where they find it, and this will not be among the wider public but rather among their colleagues—and also, of course, among that captive audience, their students. Accordingly, American philosophy today is characterized not by uniformity and cohesion but by a luxuriant diversity that offers something to suit most every taste. This pluralistic character of American philosophy repre-

sents a realistic and effective accommodation to its environing circumstances and conditions. And that, after all, is what health is all about.[20]

[20] This chapter is a slightly revised version of an essay initially published in *The Review of Metaphysics*, vol. 46 (1993), pp. 717-45.

Chapter Two

WHO HAS WON THE BIG BATTLES OF TWENTIETH CENTURY PHILOSOPHY?

1. THE STRIFE OF THINKERS

Like many another era, the 20th century has witnessed vigorous conflicts among rival philosophical schools and movements. Now victory in intellectual battles is not a matter of persuading opponents—that rarest of phenomena among intellectuals!—but rather of prevailing with the uncommitted bystanders through attracting the allegiance of the wider group. Such victory is a statistical phenomenon, and it is thus by looking to the community of philosophers at large that one can most securely achieve impartial information about which side has won the principal battles of recent philosophy.[1]

How, then, did it all come out? What can be said of "the state of philosophy-at-large" as this century ends? To answer these questions we must proceed statistically by looking to the situation of "the community as a whole"—that aggregate of many thousands of professional philosophers at work in academia nowadays. (The *Directory of American Philosophers* lists somewhat over 10,000 academics in the field.) And the best way we have of assessing *their* position regarding the interest and importance of issues is to look to their collective writings—to the extent of the attention their published works give to various and sundry philosophical topics, theories and individuals. Specifically, let us look at the Table of Contents, as it were, to the collective works of the philosophical community by way of *The Philosopher's Index*. (See Appendix A.) For various instructive lessons emerge from such an examination of the big philosophical book produced by the community during that year—a megabook of which the roughly 120,000 aggregate pages of philosophical text, produced in over

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[1] *The Philosophers Index* indicates that some 12,000 professional philosophers are currently at work in academia in North America alone.

200 books and over 175 journals, constitute so many chapters and paragraphs.

The big battles between the rival movements and schools of philosophy often focus on issues not so much of doctrine as of values and priorities. The bone of contention is a matter not of doctrinal adherence as one of evaluative allegiance in terms of what is deemed important, significant, and interesting. To be sure the two issues are interrelated. The philosopher whose doctrinal position is (say) that ethical issues lie outside the sphere of rational deliberation is unlikely to devote extensive and detailed attention to moral philosophy. The positivist who sees metaphysics as a matter of the futile speculations of a deluded era lying safely in the distant past is thereby unlikely to write extensively on metaphysics. A great deal is also revealed about an individual philosopher when one proceeds not doxographically—with a view to the theses he defends—but rather thematically with a view but to the questions he discusses, and to those on which he is silent. Thematic analysis of the agenda and its constitution can be both an illuminating exercise in itself and moreover is ultimately relevant to issues of doctrine themselves owing to the synoptic mandate of philosophical inquiry.

In such matters of value, philosophers vote—as ever—with their pens, but they do in two ways: both in what they say and in the amount of space and effort they devote to the saying of it. Certain things are deemed not worth discussing while others are viewed as transcendently important and deserving of elaborate and extensive consideration. And in the latter regard there is not only the proceeding of individual philosophers but also that of the community as a whole.

2. SPACE ALLOCATION

Let us then consider in the light of Appendix A, the stance of the philosophical community at the end of the century regarding some of the big ideological conflicts that have figured on the century's philosophical agenda.

1. *Science vs. Religion*. This battle is part of the heritage of the 19th century, a vestige of the assault on religiosity from the scientistic perspective encouraged by positivism, "scientific socialism," and evolutionism. Here the balance of entries in our tabulation stands at Religion 12 (plus Christianity 2, God 6, Theology 2.5) as against Science 17.5 (plus Rationality 7.5, Reason 4). These figures suggest

that the growing prominence of science has certainly not annihilated philosophical concern with and interest in religion and theism. Verdict: a draw.[2]

2. *Positivism vs. Metaphysics*. Positivism sees no place for metaphysics. Its adherents take the line that if it is worth saying then science will say it. And here the statistic of Science 17.5 vs. Metaphysics 26 (plus religion 12) indicates that the adherents of scientism have lost the battle for the allegiance of the philosophical community. Verdict: Metaphysics has not only survived the onslaught of Scientism but is actually thriving.

3. *Positivism vs. Value Theorists*. Positivists see matters of value as devoid of "empirical meaning" and lying outside the realm where rational deliberation could achieve substantial results. In this regard, the statistic of Aesthetics 9.5, Ethics 37, Moral Theory and Morals 6.5 (with Ethics as easily largest tabulated entry) speaks for itself. Verdict: Value Theorists have won a clear victory.

4. *Theoretical vs. Applied Philosophizing*. Applied topics—Business Ethics, Education, Feminism, Health Care—have indeed gained a place that contrasts strikingly with their improminence in (or even absence from) earlier stages of the field. Nevertheless, the abstract and theoretical issues of Epistemology, Metaphysics, continue in a place of predominant prominence. (However, Social-and-Political Philosophy might constitute an exception that could, if counted on the "applied side" do something to resolve the balance.) Verdict: Theoretical philosophy prevails, but is increasingly yielding room to substantive and applied discussions.

5. *Formal vs. Substantive Philosophizing*. How has "the linguistic turn" fared? Have issues of the technical formalities of logic and language pushed substantive concerns aside? Comparing Language 10, Logic, 16, Meaning 3, Semantics 3.5 with Metaphysics 26, Science 17.5, Social Philosophy 14.5, or Political Philosophy (10.5), it becomes clear that the Formalists do not have it all their own way here. Ver-

[2] To be sure, raw numbers are not by themselves conclusive here, for the discussions of a given subject ought be largely or predominantly outlined. But even a cursory look at the details suffices to indicate that this is not the case in the present context.

dict: a draw.

6. *Revolution vs. Evolution.* The dialectic between tradition and radical innovation marks an every-continuing struggle for the agenda of philosophy. And it is clear that new topics of philosophical concern have surfaced. (Critical Theory 1, Death and Dying 1, Environment 2, Feminism 2.5, Gender 1, Multiculturalism 1, Structure 1, Women 1.5). Yet the sum-total of these innovations (11) is exceeded by such single traditionalistic themes as logic (16) or Religion (12).

7. *Postmodernism vs. Traditional Philosophy*. The statistics clearly indicate that the postmodernist assault on the traditional philosophical concerns epistemology, ethics, metaphysics, etc. has to be an abyssal failure. Nor have post-modernism's redirection of concern from the more exact branches of science towards literature or sociology had much visible impact upon philosophy. Verdict: a decided defeat for postmodernism.

8. *Analytic vs. Continental Philosophy*. The statistics of Appendix B indicates that the philosophical mainstays of the Continental school are far ahead in the citation race. In the conflict between the Analysts and the Continentals the latter have won the place of pride for their doctrinal heroes on the philosophical scene. Verdict: a decided victory for the Continentals.

9. On the other hand, *methodologically* the analysts with the emphasis on logico-linguistic clarification (as opposed to the speculative antiquarianism and pseudo etymologies) seem to have made very substantial headway. For the literature indicates a predominance of analytical methods—often even where the themes and topics are of Continental provenience.

The overall conclusion of such a statistical survey has to be that traditional philosophical themes and topics have proved remarkably tenacious. Even in this era of scientific-technological emphasis, metaphysics and value theory in particular are thriving. And as far as the community as a whole is concerned the postmodernist assault on the bastions of classical rationality in science, logic, and epistemology appears to have proved unavailing.

3. REVOLUTION OR EVOLUTION?

All this bears crucially on the biggest battle of them all—the struggle of philosophy, as traditionally conceived, for its very survival. One after another the main philosophic movements of the century have sought to do away with traditional philosophy and philosophizing as such. The positivists and their scientistic coadjutors wanted to replace philosophy by the study of the sciences, analytic philosophers sought to substantiate the study of language, Marxists opted for sociopolitical studies, postmodernists preferred literary and psychological paradigms, still others opted for culturological studies based on literature or sociology or yet other alternatives. But all of the century's promised "revolutions" of philosophy that were to see its replacement by some markedly different form of learning have signally failed to achieve their objective. For despite the assault on traditional philosophical concerns launched by positivists, existentialists, deconstructionists, neo-pragmatists, and the like, the items on philosophy's historic agenda continue to occupy a place of prominence. Upon the whole, thematic traditionalism has prevailed and in this respect and philosophy-as-a-whole has tenaciously refused to yield up any part of its historic terrain.[3] Whether this makes philosophers hopeless old fogeys or admirably dogged defenders of traditional intellectual values is something that readers must decide for themselves.

Appendix A

This tabulation indicate the *number of columns*—wherever this is at least one—for the listings under various headlined topics in the 1999 volume of *The Philosopher's Index* (Bowling Green: Philosopher's Information Center, 1998-99).

Action	1.5	Aesthetics	9.5
Algebra	1	American	1
Ancient Philosophy	1	Aquinas	2
Argument	1	Aristotle	5.5
Art	4		

3 This essay is a slightly revised version of a piece originally published in the *American Philosophical Quarterly*, vol. 36 (1999), pp. 159-63. I am grateful to Richard Gale for constructive comments.

Behavior	1	Being	2.5
Belief	2.5	Bioethics	2
Biology	1.5	Body	1.5
Business Ethics	1.5		
Causation	1	Children	1
Chinese	1.5	Christianity	2
Communication	1.5	Community	1.5
Concept	1	Consciousness	2
Content	1	Cosmology	1
Critical Theory	1	Culture	5.5
Death	1		
Democracy	4	Derrida	1
Descartes	2	Dialectic	1
Ecology	1		
Economics	2	Education	9.5
Empiricism	1	Environment	2
Epistemology	15	Ethics	37
European thought	1	Evil	1
Evolution	2	Existence	1.5
Experience	2	Explanation	1
Faith	1.5		
Feminism	2.5	Fichte	1
Freedom	3		
Game Theory	1	Gender	1
German Philosophy	1.5	God	6
Good	1		
Habermas	1.5	Health Care	1
Hegel	4.5	Heidegger	3.5
Hermeneutics	1.5	Historiography	1
History	10	Human	2
Hume	1	Husserl	2
Idealism	1.5		

Identity	2	Individual	1
Information	1	Interpretation	1
Judgment	1	Justice	3
Kant	5.5	Knowledge	7
Language	10		
Law	3	Laws	1
Leibniz	1	Liberalism	3
Liberty	1	Life	1
Linguistics	1.5	Literature	2
Logic	16		
Meaning	3	Medicine	2
Medieval	1	Metaphors	1
Metaphysics	26	Methodology	2
Mind	3.5	Model	3.5
Modern	1	Modernity	1.5
Moral Theory	2.5	Morality	3
Multiculturalism	1	Music	1
Naturalism	1		
Nature	3	Nietzsche	4.5
Ontology	1.5		
Perception	1.5		
Phenomenology	4.5	Philosophy	10.5
Physics	2	Plato	4
Pluralism	1.5	Poetry	1
Political Philosophy	10.5	Politics	6.5
Popper	1.5	Postmodernism	1.5
Power	1.5	Proof	1
Psychology	2		
Rationality	2.5	Rawls	1.5
Realism	2.5	Reason	4
Religion	12	Representation	1
Research	1.5	Responsibility	1.5

Rights	2.5		
Sartre	1	Science	17.5
Self	2.5	Semantics	3.5
Skepticism	1	Social Philosophy	14.5
Society	3	Soul	1
Space	1.5	State	1.5
Structure	1		
Teaching	1.5	Technology	3
Theology	2.5	Theory	1
Thought	1	Time	2
Transcendence	1	Truth	3.5
Value	2	Virtue	1
Will	1	Wisdom	2.5
Women	1.5	World	1.5

Appendix B

This tabulation indicates the *number of entries* for some major philosophers from *The Philosopher's Index* for 1998 (Bowling Green: Philosopher's Information Center, 1998-99).

Analytic Figures		*Continental Figures*	
B. Russell	32	F. Nietzsche	224
W. V. Quine	44	M. Heidegger	180
D. Davidson	45	J. Habermas	66
L. Wittgenstein	31	J. Derrida	58

Chapter Three

THE RISE AND FALL OF ANALYTIC PHILOSOPHY

1. THE INSPIRATIONS OF ANGLO-AMERICAN ANALYTIC PHILOSOPHY

As it developed in the first half of the twentieth century, Anglo-American analytic philosophy has come to constitute not so much a philosophical position as an approach to the issues, an ideology regarding how work in the field is properly to be done. At its basis lay a view about the appropriate way to conduct philosophical inquiry and a pre-vision of the results of this way of proceeding. Perhaps the best way to understand doctrinal stance is through a consideration of the particular theses and theories that provided its initial impetus. A series of particular studies were especially influential in existing a formative influence with respect to the analytical approach. Let us begin by examining some of the highlight of this process.

Russell on nonexistents. In his classic 1905 paper on "On the Logic of Denotation," Bertrand Russell maintained that it is a fundamental mistake to project an ontology of nonexistent objects—as Alexius Meinong, for example, had endeavored to do. Russell insisted that *the present king of France* is not a nonexistent object of some sort, but rather that all there is is the *expression* "the present king of France" which functions in a certain particular way in sentential contexts—a way that led to the consequence that *all* predicational statements of the type "The present king of France is bald" are false. The idea that we are here dealing with an *object* of some rather peculiar sort is a linguistic (rather than *optical*) illusion that totally mistakes the nature of certain putatively referential expressions.

G. E. Moore on goodness. Moore's deliberations about the "meaning" of goodness led to the conclusion is that "the good" is an idea that must be understood on its own terms. The meaning of this expression cannot be captured by a redefinitional formula of the format: "The good is that which

. . . (is happiness promoting, conducive to the greatest good of the greatest number, or the like). For a definitional clarification of "the good" is predestined to futility. The philosophical quest (going back to Socrates) for the definition of this and similar terms is totally misguided. To be sure, this check is not a complete defeat for the clarificatory project. For we must distinguish between *definitions* and *explanations*. Explaining what "the human good" comprises as a viable project—friendship, enjoyment, etc.—is one sort of thing. But defining what "the human good" as such means is something quite different—and indeed something that is infeasible. By failing to be sufficiently mindful of the linguistic properties, philosophers have fruitlessly addressed the wrong issue. Moore saw this upshot as an intrinsic of a "paradox of analysis inherent in the dilemma that a proposed analysis simply either *re-states* (in which case it is otiose) or *mis-states* (in which case it is incorrect). The attempts of philosophers to provide definitional clarifications thus often (perhaps always) issue in mistakes that a closer heed of the appropriate use of language can and should avert.

Einstein on space-time. The decidedly philosophical aspect of Einsteinian special relativity also brought grist to the analytic philosophers' mill. Given the substantiable fact that no signal (and no natural process) could travel any faster than the velocity of light, there can be no way of implementing the idea of absolute simultaneity. And without simultaneity, Einstein's classic thought experiment of measurement by "travelling along a light ray" means that we are driven to a reliance on physical transmission processes (such as the motion of a light ray) in determining epistemological relations. This led to the conclusion that space-time is not a physical container with a shape and structure of its own but simply a structural feature of natural occurrences. And this in turn substantiated the view that traditional science and philosophy have misunderstood the nature of something so basic as space and time and that an appropriate conceptual/scientific analysis can rectify so fundamental a (mis)conception.

Wittgenstein (early) on logical form. The prime object of Wittgenstein's *Tractatus* was to clarify the nature of factual claims regarding matters of existence. The *Tractatus* has it that all meaningful factual propositions basically have a format (a "logical form") that can be *exhibited* (exemplified, instantiated) but not *explained* (definitionally encapsulated in some descriptive formula). As the early Wittgenstein saw it, philosophers have mistakenly thought they could explain the logical features of claims

about the world's ultimate constraints. But these are matters where we can only show and not tell, and "whereof one cannot speak one must be silent."

Ramsey on Truth. Philosophers have thought that they could explain the nature of truth. But —so F. P. Ramsey insisted— rational analysis of the matter shows that no definitional characterization is possible. To claim the truth of an assertion is neither more or less than to offer that assertion itself. A logically informed scrutiny of the issue shows that a definitional meaning restatement is infeasible. All that we can manage is to only show how the conception of truth works—via a "redundancy account" that roots in the equivalence: "*p*" is true iff *p*. To pursue the idea of an explicative analysis of "the meaning of truth" (as a matter of accord with fact, or of coherence, or of assertoric, utility, or some such) is to chase an illusion. Traditional philosophical theories of truth (correspondence, coherence, etc.) have barked up the wrong tree. At this point, no profitable philosophical theorizing is possible.

Wittgenstein (late) on "meaning." Philosophers have sought to provide definitional formulas for the fundamental concepts of philosophical concern. But as the older Wittgenstein saw it, this project is doomed to futility. The phenomena at issue in this conceptual sphere are simply too complex and variegated to admit of capture in a most definitional net. Consider the conception of a "game." With games there simply is no uniform (essentialistic) commonality. All we have is a set of *family resemblances* among various sorts of games. No definitional characterization is possible; no philosophical theorizing is profitable. We have to disenchant philosophers from the captivity of procrustean theories of meaning. It is a mistake to see "knowledge" as a particular sort of commodity ("the *facts* that we appropriately recognize as such"). Rather, to know something is *to treat it* in a certain sort of way, namely to use it in one's own thinking and to stand prepared to convince others of it.

Austin on Knowledge. To try to discern and specify the "nature of knowledge" is a mistake. The idea of knowledge is not an ideational resource with a conceptual core identity of some sort. Once again, knowledge is not so much a theoretical claim as a practical commitment. To claim that "I know *p*" is to make a commitment, to issue a promissory note: "you can rely on me, take my word for it, count on my being able to make good." (Hence "I know but may possibly be wrong" is simply absurd.) Philosophy elucidates nothing and explains nothing with respect to matters of fact—it simply describes the realities of existing language use.

These teachings—and many others of the same general sort—provided the philosophical models towards which the philosophers of the analytic tradition looked in forming their view of the proper way in which work in this field should be conducted.[1]

2. THE DOCTRINAL VIEWS OF ANALYTIC PHILOSOPHY

The analytic manner of conducting philosophical inquiry that is exemplified in the various studies surveyed in the preceding section was taken by adherents to the analytical movement as substantiating a series of doctrinal lessons regarding the nature of philosophy:

1. *The enchantments of language*. Philosophical theses and theories in general reflect misconceptions and misunderstandings that arise out of linguistic misunderstandings. In fact, entire philosophical theories (doctrines) are often and perhaps even generally predicated on an insufficient appreciation of the linguistic proprieties and sophistications. Even where there is a single word (knowledge, truth, or whatever) at issue, there simply is not, in general, any such item at issue that one can appropriately wax philosophical about. The linkage between language and the real world is far more tenuous than philosophers have believed.

2. *Linguistic analysis as a philosophical anodyne*. The distress of philosophical perplexity and puzzlement can be removed by logico-linguistic analysis. A heed of the logical and linguistic realities will solve or dissolve our philosophical problems by doing away with the objects of concern.

3. *Reduction to scientific residues*. After logico-linguistic misunderstandings have been removed from a domain of a philosophical preoccupation, and philosophical misconceptions have been cleared away, whatever residual problems remain are scientific (formally or

[1] The best account of the emergence and development of analytic philosophy is provided in the relevant chapters of John Passmore's excellent history of *A Hundred Years of Philosophy* (London: Duckworth: 1957). As this book began to circulate, Hegel's Owl of Minerva—that harbinger of academic mortality—was just commencing its overflight of analytic philosophy's domain.

factually substantive) in nature. Thus where appropriate analysis does not *dissolve* a philosophical problem, such analysis will reduce it to a residue that can and should be *resolved* by scientific means.

4. *The prioritizing of science*. In the final analysis, the only knowledge we (can) have that is significant (in both of this term's senses of *meaningful* and *worth knowing*) is scientific knowledge—either formal (logic, language-theoretic, mathematical) or factual (i.e. geared to the several natural and social sciences).

5. *The end of philosophical theorizing*. Accordingly, no characteristic substantive mission remains for philosophy as such. The turn to analysis brings philosophy as heretofore generally understood and practiced to a dead end. Traditional philosophy is based on misunderstandings that will either be dissolved through appropriate analysis or else are transformed into issues that appropriately belong to the formal or factual sciences. All those time-worn philosophical disputes can be laid to rest in the light of analytical clarification of the relevant issues. Traditional philosophical theorizing comes to an end as a distinct cognitive enterprise. It is a mistake to conceive of philosophy as a discipline—a sector of cognitive inquiry and theorizing. Its mission is altogether negative: the task of philosophy is not to provide understanding of what is—that is the exclusive province of science. Rather, it is the removal of misunderstandings.

* * *

Thus as the ideologies of the analytical school saw the matter, the only proper procedure in philosophizing is one of analysis issuing in the elimination (by way of dissolution or solution) of traditional philosophical problems as such. The analytical task is to deploy the instruments of logico-linguistic clarification to unmask philosophical issues either as the misunderstandings or as conceptual (rather than optical) illusions regarding what are actually scientific issues. Language analysis leads to the *solution* of philosophical problems through their *elimination* as such. The analysts accordingly saw themselves as iconoclasts using a new methodology—that of logic-linguistic analysis—to transform our understanding of philosophical issues in such a way as either to unravel them into the nothingness of linguistic misunderstanding or to transmute them into factual/scientific issues

masquerading in a different and problematic disguise. In this way, analytical philosophy looked to the dawning of a new day in the domain.

As is so often the case with philosophical doctrines, its prospect and teaching is most usefully clarified by considering the views and doctrines that it opposes. In this light, it is instructive to note that the analytic movement saw its principal opponents as follows:

1. *System builders*. Those philosophers who defended large-scale theories and systems, who were concerned for the production of big pictures rather than letting the larger scene simply emerge from a plethora of minutely detailed studies—those who demanded large scale (global) rather than small scale (local) explanations.

2. *Philosophical autonomists*. Those who see philosophy as a substantive cognitive enterprise distinct from, and perhaps even co-equal with, the (formal and substantive) sciences—who take philosophical issues to be sufficiently independent of scientific ones as to endow the enterprise with the capacity to provide important information supplementary to the teachings of science. Those who see philosophy as a substantively informative rather than conceptually clarificatory enterprise.

3. *Respecters of history*. Those who think that the work of the great philosophers of days past conveys important insights into the truth of things; who do not see the present as discontinuous with the past in affording a new turning that makes all philosophizing that antedates the discovery of "the true method" obsolete and useless (apart from some occasional anticipations of contemporary insights).

4. *Sentimentalists*. Those traditional humanists who concede cognitive utility and probative authority to sentiment, feeling, tradition—indeed to anything outside the realm of the specifically conceptual and evidential sphere. Those who give a place of pride and prominence to the affective side of human experience and objective impersonal observation to coordinate (and perhaps even subsidiary) place on the priority scale of philosophical significance and importance.

5. *Edificationists*. Those who think that a major task of philosophy is to deal with issues of *wisdom* (i.e. with the question of "How to

live?") as constituting something no less significant than the issues of knowledge (i.e. with the question of "What to think?").

What the analysts hoped to accomplish was to *épater les professeurs*, to discomfit the wooly-headed old-line philosophy professors who regarded themselves as guardians of a distinctive humanistic tradition. In deploying the tools of the formal sciences (logical and linguistic), the analysts saw themselves a delivering into the hands of hard-headed scientists a secure and permanent victory in their perennial struggles with the humanists (the practitioners of the mere *Geisteswissenschaften*). Analytic philosophy thus inclined towards a positivistic bias that regarded knowledge as the sole legitimate guardian of intellectual culture. As the movement's major adherents saw it, the pivotal task is usher in a post-philosophical era that does away with philosophizing as traditionally conceived and at last puts philosophy onto "the secure high-road of a science."

3. SHOCKS TO THE ANALYTICAL VISION

The basic building blocks of the program of the analytical "movement" were put in place by the philosophers of the first third of the century (Russell, Moore, Wittgenstein, Ramsey). Its working out of its development into a full-fledged program was the task of their successors in the second third of the century. It is easy to name *some* of the major contributors here (Ryle, Austin, Urmson, and Strawson in Britain and in the U.S.A, Quine, C. I. Lewis, Frankena, Chisholm). But this is only the top of the tip of the iceberg. The movement became too popular and diffuse to admit of any compact register of its developers, who in fact were legion—and it also became intermingled with the logical positivists and the epistemologists of science.[2]

But as the program evolved, certain insights came to light with increasing clarity that gave rude shocks to main doctrinal views which had provided analytic philosophy's originative impetus.

1. *The fuzziness of the fundamental ideas at issue in analytic philosophy itself.* The infeasibility—largely elucidated in the work of Wittgenstein, Popper, Hempel, Quine, and Davidson—of achieving any

[2] Regarding these developments see John Passmore, *Recent Philosophers* (La Salle: Open Court, 1985).

clear distinctions in such analytically fundamental contrasts as science/nonscience, analytic/synthetic, formal/factual, meaningful/meaningless. Indeed even such fundamental concepts as "philosophy," "language," "meaning," and their congeners resist all attempts at explanatory specification of what is at issue and dissolve into "loose clusters," "family resemblance groups," "essentially contented conceptions," or the like. The very terms of reference by whose means the philosophical analysts proposed to carry on their work seemed to dissolve into thin air as to elude their grasp. Take, for example—

2. *The complexity of knowledge.* While insisting that we cannot provide a redefinitional specification of the nature of knowledge, analytic philosophers authorized us to hope and expect to achieve some analytical clarification of the use-conditions for assertions of the form "*X* knows that *P*." One promising suggestion that is as old as the suggestion in Plato's *Thaetetus* of the formula:

   > "*X* knows that *P*" iff *P* is true & *X* believes that *P* & *X* has good grounds for believing that *P*.

   But as the extensive discussion of the Russell-Gettier counterexamples to this formulation have shown, all of the promising attempts to provide such a use-condition specification soon come to grief. More and more epicycles of complexity had to be introduced into the analysis which even then never proved satisfactory. The envisioned analysis becomes a labor of Sisyphus that has no attainable end.

3. *The fragmentation of logic.* The proliferation of logical systems was another stumbling block. The diversification of logical instruments and the diversity of their modus operandi creates a corresponding diversity of linguistic systems. Range of options can no longer appropriately speak in the singular of the proper analysis of a certain concept or statement or linguistic usage. Given the diversity of thought-mechanisms, the complexity that Wittgenstein envisioned with respect to philosophical *concepts* holds also for philosophical *analyses*. And diverse instruments yield diverse products. Analysis does not provide the guideposts of a fixed conceptual pathway. There are vir-

tually as many modes of analyses as there are analysts. How—after all—can we hope to achieve a uniquely "correct" logico-linguistic analysis of anything when there are so many different logico-linguistic systems?

4. *The recalictrance of value*. In soon became apparent that no amount of clarification (analysis) of value language can reduce issues of right/wrong, just/unjust, important/unimportant to matters that are simply factual/scientific issues without any residue of issues that are themselves clearly evaluative. The endeavors to analyze value concepts—be they successful or otherwise—just do not address the substantive issues that are at stake in this domain.[3] Specifically, we confront—

5. *The bankruptcy of meta-ethics*. Philosophical analysis itself stresses and clarifies the gap between what is and what ought to be (between facts and values). But any meta-ethical analysis of how our ethical talk (or right/wrong, good/bad, honest/dishonest) describe facts of usage. And this affords us no gap in substantive ethical issues. But in the end, what actually interests us here is what *is* right and not what people *say* is right. Analytical meta-ethics exclusive focus on the explication of usage leaves us with the grim choice between sidelining our ethical concerns.

In this way, the historical course of developments within the evolution of analytic philosophy itself unfolded in its own dialectic in a way that produced a series of bitter lessons for the program's adherents:

(1) *Analytic clarity produces complexification.* When we analyze the issues in philosophy, we find that the situation is not simplified/resolved. Instead, the issues when seen in greater detail, come to be seen more complex and variegated than was ever expected. Analysis does not dissolve or resolve the issues but makes them more complex and sophisticated. It does not lead to resolutement but to fragmentation and proliferation. We thus face a—

[3] The logical positivists saw this clearly enough but drew the eminently problematic conclusion that the value domain should simply be sidelined as unsuited to rational deliberation.

(2) *Conservation of problems*. The old issues are neither dissolved by analysis nor reduced to settleable scientific questions. They survive the analytical process in a modified, transformed, more subtle and sophisticated form. They simple take on a renewed and restored—if somewhat complicated—guise. All those vexing problems readapt, chameleon like, to the conditions of the new conceptual environment.

(3) *The plasticity and flexibility of language*. The fluidity of our linguistic resources precludes the suggestion of any single, unique, universal "analysis." The analytical process can improve no uniformity of problem resolution. The diversity of analytical alternatives comes to fruition as part of the problem where philosophical issue resolution is concerned, which is and is not part of the solution.

(4) *The deep disanalogy with science*. In natural science, the impact of experimentation upon theories blocks proliferation by eliminating alternatives. The observations we make in experimental situations serve to adjudicate conflicts in favor of some alternatives over others. With philosophical issues, by contrast, analysis simply highlights and fortifies disagreement and does not settle (dissolve or resolve) issues.

The overall upshot of such considerations is that logico-linguistic analysis, far from affording us a problem-resolving instrument, simply provides a magnifying glass that reveals the complexities in greater detail. The analytical program thus became self-destructive. The further it was developed and extended, the less substantiation it provided for the doctrines it was designed to validate. Those traditional issues were not dissolved or resolved but instead reemerged in more sophisticated, intricate and subtle forms. Analysis simply proved impotent as a problem slayer and issue-resolver in philosophy.

What thus proved to be the undoing of the analytical enterprise was thus not a refuting criticism from without but an unravelling from within. As its adherents pressed the analytical program forward with ever-intensifying dedication and energy, they were impelled into a range of findings that made a mockery of the program's initial motivating doctrinal commitments.

4. DEATH AND TRANSFIGURATION

As happens so often in the history of philosophy, a programatic vision was brought to grief not by external criticism but—ironically—through the contradictions brought to light through its internal development. Analytic philosophy was not killed off by its opponents; its demise was self-inflicted—in effect, the program's development unravelled its own presuppositions.

To be sure, either way the result is the same: dead is dead. Musing in 1990 on his earlier survey of analytic philosophy, Richard Rorty writes: "The controversies which I discussed with such earnestness in 1965 already seemed quaint in 1975. By now (1990) they seem positively antique."[4] And Bernard Williams writes somewhat disdainfully of "'linguistic analysis', that now distant philosophical style."[5] The philosophers of the 1990's are prepared to consign analytic philosophy to the history books and to move on to seek their philosophical inspirations elsewhere—not in deliberations about logic and language, but in history, in science, in the mathematics of computing and computers, in artificial intelligence, in literature, in Oriental mysticism, or whatever.

What does it mean for philosophy at large that analytic philosophy has faded from the Anglo-American academic stage where it only yesterday played so dominant a role? Does it mean a return to the *status quo ante*, with business as usual and a return to doing things the way the were before?

By no means! For analytic philosophy has made a great difference and left a vast heritage.

The fact is that analytic philosophy has two substantially separable aspects. On the one hand, there is its doctrinal stance—its ideological vision

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[4] Richard Rorty, *The Linguistic Turn: Essays—Philosophical Method—With Two Retrospective Essays* (Chicago: University of Chicago Press, 1992), p. 371. Rorty's book is still the best and most comprehensive anthology of the theory and practice of analytic philosophy.

[5] Bernard Williams, "The Need to Be Sceptical," *Times Literary Supplement*, February 16-22, 1990), p. 163.

of a post-philosophical era brought to realization by either disolving the traditionary problems of the philosophical domain or by reducing them to empirical factualit. All of this iconoclastic effort has indeed come to grief. But the analytical project also had another important aspect. For apart from its doctrinal predispositions, there was also the methodological dimension of analytical technique and *modus operandi*. This related to the program's procedural (rather than doctrinal aspect, encompassing such methodological injunctions as: Strive to inject precision and clarity into your philosophical work. Do not be content with hazy ideas and unexamined assumptions but try to render your philosophical commitments as clear and explicit as possible. Develop and reform the instruments of logico-linguistic analysis and then make the maximal use of them to endow the activation and substantiation of your views with as much clarity and cogency as the circumstances of the situation admit of. Do not content yourself with vague generalities and broad vistas: carry out detailed investigations of the concrete aspects of the issues you examine. Do not content yourself with unsubstantiable hunches and intuitive insight but strive for objectivity in conception and interpersonal cogency in argumentation.

These various maxims were not unique to the analytical movement. They are implicit in the practice of a stream of philosophers going back to Aristotle in antiquity. But analytic philosophy gave them a revivified unity and cohesive cogency. No doubt, people spoke grammatically before the grammarians and philosophized analytically before the analysts. But it was the analysts who—like the grammarians—give formal systematic articulation to the methodological praxis at issue.

Now the crucial consideration for present purposes is that (1) this *methodological* or procedural side of analytic philosophy is separable from its *ideological* or doctrinal side, and (2) that its influence is very much alive and is at work all around us in the philosophical realm. In this respect analytic philosophy has made an ongoing contribution to philosophy that was to prevail in its Anglo-American setting (and well beyond). For its methodological sector has had a life of its own, apart from the doctrinal/ideological. And while analytic philosophy has made only transitory impacts on the sorts of positions philosophers hold, it has made an immense and lasting impact on the way in which they (or at any rate very many among them) do their work. Analytic philosophy's insistence on conceptual clarity and probative cogency—and the processes by which such desiderata are to be pursued—are factors that are very much alive and stirring on the contemporary philosophical scene. As a doctrinal program

analytic philosophy has been something of a dead-end. But as a methodological resource it has proven itself immensely fertile and productive and its beneficial influence can be felt in every area of contemporary philosophy.

What we owe to analytic philosophy—viewed not as a failed doctrinal program but as a methodological resource—is a great toolbox of useful methods, conceptions, and distinctions—to say nothing of devastating and informative critiques of earlier arguments and positions which have lifted the study of the history of philosophy to an entirely new level of depth and sophistication.

Even as the logical empiricism (or "logical positivism") of the inter-war era died off leaving in its wake an immensely fertile domain of history-and-philosophy of science (HPS), so the collapse of analytical philosophy has left in its wake a heritage of logico-linguistic sophistication that has transformed the way in which many academics nowadays do their work not only in philosophy but also in linguistics, historical studies, etc. Both of these philosophical positions—both logical positivism and the analytical movement—have enjoyed (or suffered) a very similar fate. In both cases we have seen the demise of the positive doctrinal program accompanied by the ongoing vivacity of an eminently productive methodological heritage.

And it is interesting to contemplate the future in this light. Insofar as the situation of analytical philosophy and logical empiricism may be seen as paradigmatic for ventures in "exact" philosophizing, this may foreshadow the fate that awaits the currently fashionable programs of "scientific" philosophy (based on the inspirations of artificial intelligence, formal linguistics, computational theory, virtual reality, and the like). Here too we may plausibly expect an analogous course of developments, with such "movements" ultimately disappearing from the scene as viable doctrinal/ideological positions, but nevertheless leaving in the hands of working philosophers certain methodological instruments and intellectual resources that represent a permanent gain for the discipline.[6]

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6 This chapter is a revised and expanded version of a paper originally presented to a colloquium at Washington and Jefferson University in the autumn of 1992.

Chapter Four

WHAT'S ON THE AGENDA?

1. UNEXAMINED ISSUES AND AGENDA FORMATION

The agenda of philosophy has undergone a massive transformation in the course of the 20th century. But philosophers themselves have taken little note of this. It seems that they have been so preoccupied with philosophizing that they have seldom looked to see the ground shifting under their feet.

Any domain of information deliberation or discussion gives rise to two major sectors: the procedural and the substantive. The former consists most prominently of the *agenda*, the range of problems, questions and issues that are addressed. The later consists primarily of its range of answers, the views, theses, doctrines that are proposed with respect to these issues. Both sectors are crucial to the overall enterprise, but the former question-oriented realm is, if anything, even more so because one only reaches the second, answer oriented realm through its mediation. This generally pervasive state of affairs obtains in philosophy as decidedly as everywhere. For in the back of any philosopher's doctrines and contentions (duly supported by reasons and arguments, as the nature of the subject demands) there lies the matter of the range of problems and issues addressed.

Aristotle's extensive writings have little to say regarding the philosophy of history and the epistemology of historiography. Descartes tells us nothing about the proper organization of the state and the constitution of a just society. Various philosophical issues simply do not figure in the writings of certain philosophers.

This, of course, will occur for very different sorts of reasons, among which the following are prime prospects:

- in the philosopher's day the issue had not yet been invented as a topic for philosophical discussion. (Political philosophy prior to the Sophists.)

- the philosopher lacked time or interest, regarding other issues as being

of higher priority. (Kant and the philosophy of medicine, e.g., the ethics of cloning.)

- the philosopher believed that the issue does not deserve consideration, being pointless, meaningless, or otherwise inappropriate. (Hume and traditional metaphysics.)

In the work of individual philosophers, particular issues can accordingly be unrecognized (unseen), unprized (discounted), or dismissed (abandoned).

The first mode of issue neglect is the least interesting since its rationale is wholly extra-philosophical, entirely rooted in the contingencies of history. It is all too obvious that an issue, like an artifact, cannot be manipulated before it is invented. But the other two—discounting and dismissal—are philosophically more interesting. For they stand in need of defense. They would, ideally at least, call for taking an explicit and deliberate stance on the part of a conscientious inquirer. The question of just what is to figure on the agenda and what the relative priority of these items should be is itself clearly an appropriate, nay ultimately inevitable subject of philosophical deliberation.

Perhaps the most radical position with respect to the institution of philosophy's agenda is that of classical skepticism. Since the days of Sextus Empiricus in classical antiquity, skeptics have taken the line that philosophy simply has no proper agenda at all—that philosophical issues are totally and altogether improper, illegitimate, intractable. David Hume's position was similar though not quite as radical. Settling questions of matter of empirical fact and formal issues relating to mathematics and logic apart, he regarded the remaining discussion of the philosophers as pointless twaddle that should be consigned to the flames. Philosophy's only proper job is to explain why this is so—to delineate and account for the powers and limits of the human understanding.

One of the most problematic and controverted issues regarding the agenda of philosophy is that of its boundaries with science. Some theorists take the view that philosophy is out of the picture once factual considerations enter in. As they see it, philosophy operates only in the realm of the a priori: whenever questions require factual materials for their satisfactory resolution, then addressing them is "no longer doing philosophy." Bertrand Russell in one of his frequent puckish moods described the situation of philosophy as follows:

> As soon as definite knowledge concerning any subject becomes possible, this subject ceases to be called philosophy, and becomes a separate science. The whole

> study of the heavens, which now belongs to astronomy, was once included in philosophy; Newton's great work was called "the mathematical principles of natural philosophy." Similarly, the study of the human mind, which was a part of philosophy, has now been separated from philosophy and has become the science of psychology. . . . Those questions which are capable of definite answers are placed in the sciences, while those to which, at present, no definite answer can be given, remain to form the residue which is called philosophy.[1]

Russell's perspective projects an interesting prospect. In the eighteenth century "natural philosophy" (= physics) emigrated; in the nineteenth century "political philosophy" (economics); in the twentieth century "mental philosophy" (= psychology) and "linguistic philosophy" (= semantics). Perhaps epistemology, ethics, and the other branches of present day philosophy will eventually join the ranks of "definite knowledge" until philosophy comes to be out of a job altogether because all the problems will have been handed over to the positive sciences. Such a view of the situation in terms of an ongoing separation has it that philosophy's agenda is subject to a continual contraction that will ultimately reduce it to the vanishing point.

But this outcome seems unlikely because theory and fact—philosophy and science—intermingle and interpenetrate in their bearing upon the big philosophical issues that arise within natural science, political philosophy, psychology, and other fields. After all, questions about the range and limits of our knowledge regarding the nature of physical reality, about the basis of authority of the state, about the nature of and requisites for human happiness, and the like—were put on the agenda in classical antiquity and are still with us, calling now, as ever, for the philosophical elucidation of fact-laden issues. In general, philosophical problems relate to matters of interpretation which the scientific facts pose rather than resolve.

A characteristic feature of philosophical agendas deserves notice and indeed stress. For with respect to any item there are always two questions: Is it or is it not on the agenda? And if it is on the agenda, with what priority rendering does it occur there? For there is, of course, a difference—indeed

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[1] Bertrand Russell, *The Problems of Philosophy* (Oxford: Clarendon Press, 1912), p. 240. Émile Boutroux similarly remarked earlier (in 1911) that once we have found a definitive resolution to a problem we thereby show, retrospectively as it were, that it was not a *philosophical* problem at all—it is the persistence of philosophical problems that marks them as such. Quoted in Franz Kröner, *Die Anarchie der philosophischen Systeme* (Leipzig: Ausg. Photomechan. Nachdr, 1929; rpt. Graz: Akadem. Druck- u. Verlagsanst, 1970), p. 185.

a noteworthy and portentous difference—between the priority items that figure high up on the agenda and the less significant items that occur further down. An agenda is not only a collection of items but an ordered list that prioritizes some over others. And where distinct rankings are concerned there is no way to compromise by "splitting the difference." Either A is given a place prior to and more prominent than B or it is not. It may be possible to effect a *compromise* where different priority positions are concerned, but it lies in the nature of things that one cannot find a coordinative *combination* of them. Like oil and water, different priority schedules just do not mix.

Two rather different factors are at work in the matter of setting priority: importance and interest. The *importance* of a philosophical issue is evaluated in terms of how much is lost by not having a correct answer to it—the difference that this absence makes in the larger scheme of things. Clearly, a great deal more turns on issues regarding the nature of rationality that hinge on matters in the philosophy of humor or of sport.

A problem's *interest*, in contrast to its importance, merely reflects the personal or collective inclinations of those who concern themselves with the issues involved. Interest hinges on the personal—and potentially idiosyncratic—concerns of people; importance is something more objective and impersonal, something that involves making a real difference in the larger scheme of things. Still, the fundamentally evaluative issue of the criteria property to be used in measuring this difference is—by its very nature—an indelibly philosophical question. And so in this regard too, determining the agenda of philosophy has to be seen as part and parcel of the subject itself.

2. THE RECENT SCENE

The concern of philosophers for the subject's agenda is vividly illustrated by the early 20th century's penchant for agenda-reducing positions. Indeed most of the century's major movements proposed reducing the agenda to nil. Logical positivism set out to eliminate virtually all of traditional philosophy and substitute natural science in its place. Analytic philosophers and deconstructionists alike agreed with eliminationism, but opted for different replacements—the study of language in the former case and that of literature in the latter. Other schools, by contrast, were prepared to leave the subject more or less intact but fought for control of the agenda in ways that prioritized them in particular range of concern. Pragmatists—social concerns; feminists—woman's issues; etc.

However, apart from such doctrine-infused views as to how the agenda of philosophy *ought* to be constituted there stands the doctrine-external issue of how the business of the subject *is in fact* being pursued by the wider community of philosophical writers at large. What is at issue here is not the philosophically doctrinal perspective of "what constitutes proper philosophizing" but a descriptively bibliographic perspective regarding what philosophers are actually doing. It is, accordingly, not evaluatively normative but a factually descriptive issue that belongs in the hands of the students of philosophy rather than in those of the philosophers themselves.

When we look at the issue of agenda formation from this descriptive point of view, what most strikingly comes to view is the fact of agenda explosion—an enlargement that has engendered a revolutionizing of the structure of philosophy itself by way of taxonomic complexification. It is clear, for example, that the current (1990s) picture of taxonomic lay of the land in North America philosophy is thus vastly more complex and ramified than anything that has preceded it. The taxonomy of the subject has burst for good and all the bounds of the ancient tripartite scheme of logic, metaphysics and ethics. Specialization and division of labor runs rampant, and cottage industries are the order of the day. The situation has grown so complex and diversified that the most comprehensive recent English-language encyclopedia of philosophy[2] cautiously abstains from providing any taxonomy of philosophy whatsoever. (This phenomenon also goes a long way towards explaining why no one has written a comprehensive history of philosophy that carries through to the present-day scene.[3]) Philosophy—which ought by mission and tradition to afford an integration of knowledge—has itself become increasingly complex to the point of disintegration.

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2 *The Encyclopedia of Philosophy*, ed. by Paul Edwards (London and New York: Macmillan, 1967).

3 John Passmore's *Recent Philosophers* (La Salle, 1985) is as close as anything we have, but—as the very title indicates—this excellent survey makes no pretentions to compehensiveness. In this direction an earlier multi-person survey went somewhat further, exemplifying what is the best and most that one can hope to obtain: Roderick M. Chisholm et. al., *Philosophy: Princeton Studies of Humanistic Scholarship in America* (Englewood Cliffs, NJ: Prentice Hall, 1964). Yet not only does this book attest to the fragmentation of the field—but it conveys (from its Foreword onwards) the defeatist suggestion that whatever larger lessons can be extracted from an historically minded scrutiny of the substantive diversity of the contemporary situation are destined to lie substantially in the eyes of the beholder.

This situation illustrates the most characteristic feature of contemporary English-language philosophizing: the emphasis on detailed investigation of special issues and themes. In particular, the rapid growth of "applied philosophy"—that is, philosophical reflection about detailed issues in science, law, business, social affairs, computerized information processing, and the like—is a striking structural feature of contemporary North American philosophy. In particular, the past three decades have seen a great proliferation of narrowly focused philosophical investigations of particular issues in areas such as economic justice, social welfare, ecology, abortion, population policy, military defense, and so on. For better or for worse, Anglophone philosophers have in recent years tended to stay away from large-scale abstract matters of wide and comprehensive scope, characteristic of the earlier era of Whitehead or Dewey, and nowadays incline to focus their investigations on issues of small-scale detail that relate to and grow out of those larger issues of traditional concern. The turning of philosophy from globally general, large-scale issues to more narrowly focused investigations of matters of microscopically fine-grained detail is a characteristic feature of American philosophy after World War II. Its flourishing use of the case-study method in philosophy is a striking phenomenon for which no one philosopher can claim credit—to a contemporary observer it seems like the pervasively spontaneous expression of "the spirit of the times."

In line with the increasing specialization and division of labor, Philosophy has become increasingly technical in character. Philosophy historians are increasingly preoccupied with matters of small-scale philosophical and conceptual microdetail. And philosophical investigations make increasingly extensive use of the formal machinery of semantics, modal logic, compilation theory, learning theory, etc. Ever heavier theoretical armaments are brought to bear on ever smaller problem-targets in ways that journal readers will occasionally wonder whether the important principle that technicalities should never be multiplied beyond necessity have been lost sight of. There is certainly no doubt that the increasing technicalization of philosophy has been achieved at the expense of its wider accessibility—and indeed even to its accessibility to members of the profession. The growth of the discipline has forced it beyond the limits of feasible surveillance by a single mind. After World War II it becomes literally impossible for American philosophers to keep up with what their colleagues were writing. No single thinker commands the whole range of knowledge and interests that characterizes present-day American philosophy, and indeed no single university department is so large as to have on its faculty specialists in every branch of the subject. The field has outgrown the capacity not

only of its practitioners but even of its institutions.

It is, accordingly, one of the ironies of twentieth century philosophy that while the first half of the century saw a proliferation of movements that sought to reduce the agenda, the second half of the century in fact witnessed an explosive expansion in the range of philosophical concerns.

3. METAPHILOSOPHY A PART OF PHILOSOPHY ITSELF

Interestingly enough, this agenda-oriented issue of how the problem-field of philosophy is constituted is itself a decidedly philosophical question. And philosophy is almost unique in this respect. For here—and here virtually alone—the problem of how the discipline is constituted is one that belongs to the discipline itself. What the problems and issues of physics are is not a physical question (although, of course, only physicists can profitably deal with it). Nor is the question of what constitutes the subject-matter of grammar itself a grammatical question. But—unlike these cases—the question of what philosophy's problems in fact are is a philosophical question. What the proper mission of philosophy is in fact one of the definitive and most significant issues of the field. And this means that metaphilosophy is a part and parcel of philosophy itself. The fact is that the make-up of its question agenda is one of the definitive aspects of any philosophical position, seeing that its agenda of questions is every bit as characteristic of such a position as is the body of its contentions.

It is not only the substantive theses, theories, and doctrines that afford insight into the make-up of a philosophical position, but no less important and determinative are its views about the questions and issues—its conception of the make-up and priority structure of the philosophical agenda. And this question of what the agenda of philosophy properly is—should actually be—is itself one of the crucial items on philosophy's agenda. Metaphilosophy, after all, is a component of philosophy, and what philosophy is all about and how it works (its nature, composition, methods, etc.) is itself an important part of philosophy. This helps to explain why philosophers commonly proceed from a certain view of philosophical methodology—as consisting in logico-linguistic analysis, factual reduction, hermeneutic appraisal, etc.—to insist that issues not amenable to treatment by this technique simply do not belong on the agenda. (This in part is why no philosopher can feel altogether comfortable saying something like "Such and such an issue is really not very important in the larger scheme of things; it just happens to be something I am interested in.")

In fact, however, two different agendas are at issue: the *normatively* de-

fined agenda of issues that philosophy ought to consider, and the *descriptively* defined agenda of issues that philosophers do in fact consider. And in general the two go off in rather different directions. Indeed only for someone of the Hegelian persuasion that "the real is rational"—that what does happen in contexts of this sort is ipso facto normatively appropriate so that actuality here serves to determine propriety—will the two have to coincide. And such a coincidence would, clearly, itself simply reflect a certain particular philosophical position.

Descriptive metaphilosophy is not a part of philosophy at all. At this level we are dealing with a ranch of *factual* inquiry—with the history of philosophy and perhaps its sociology. It is a matter of the observational scrutiny of a certain enterprise within the wide framework of human intellectual endeavor. And this is primarily a branch of *historical* studies, not fundamentally dissimilar in spirit from that of characterizing the historical development of the conduct of warfare or of techniques of communication.

However, issues of how philosophy *should* be done—of significant *questions*, adequate *solutions*, and *good* arguments—is something very different.[4] And, obviously, this *normative* metaphilosophizing regarding the *correct* or *appropriate* problems, methods, and theses of philosophy is always a part of philosophy itself. That a certain way of doing philosophy is appropriate, successful, effective, superior, or the like—that philosophy is *properly* done in a certain way—is patently a philosophical thesis. And this sort of substantive philosophical contention itself turns on matters of cognitive evaluation and is thus bound to be every bit as controversial as any other issue of the field. What philosophy might "really" be is resolvable only within the framework of a philosophical position and cannot be settled extraphilosophically.[5] As Franz Kröner cogently put it: "The dialectic of 'intraphilosophical' and 'extraphilosophical' and of 'theoretical' with 'atheoretical' shows that given a finger philosophy at once takes the whole hand. It is an autonomous whole that provides its own boundaries."[6] The character of *genuinely* philosophical questions and the character of ~~*successful* philosophica~~l problem-solutions are thus themselves always

[4] This point is forcibly argued by Robert Nozick: "A metaphilosophy will be part of a total philosophical view rather than a separate neutral theory above the battle" (*Philosophical Explanations* [Cambridge, Mass: Harvard University Press, 1981], p. 19).

[5] This is the burden of Franz Kröner's dictum that "there is no such thing as philosophy *überhaupt*" (*Die Anarchie*, op. cit., p. 59).

[6] Ibid., p. 273.

cessful philosophical problem-solutions are thus themselves always potentially controversial issues of substantive philosophy.

The normative agenda represents a particular position's view of the matter. But philosophy-at-large is of course something greater than any particular position: it has to include the whole gamut of such positions. And so its view of the agenda is bound to be larger. But "its view" of course here means "its view as constituted from the *descriptive* standpoint." Philosophy-at-large does not—cannot—have any normative position. The taking of a doctrinal stance is—or thus as on any substantive philosophical issue—the exclusive prerogative of particular doctrinal positions. Philosophy-at-large takes no positions—only particular philosophical doctrines are able to do so. In philosophy as in politics there are only individual positions not collective ones—the community as a whole is too diversified, too balkanized for doctrinal coherence. We can say what philosophers teach, but not what philosophy teaches.

It is important to note that there is no possibility of reducing philosophy's (normative) agenda to zero. For the question of what philosophy's agenda should be is always there. Even maintaining that it should be annihilated will—as long as not done dogmatically but rationally, i.e., philosophically—paradoxically will yield an issue (viz. that of how philosophy is properly constituted) that figures upon philosophy's agenda. The fact that metaphilosophy is part of philosophy itself—and, specifically, that the question of the sort of questions that philosophy should be asking is itself a philosophical question—means that the philosophical agenda will never be entirely empty.

Even the most agenda-restrictive of philosophers must—just exactly because they have taken the issue of agenda reduction in hand—preoccupy themselves with philosophical issues. A radical philosophical scepticism—of the sort that appealed to the Pyrrhonist theory sceptics of classical antiquity—is a self-defeating position because it allows itself no locus stand for the rational defense of its pivotal own stance. In endeavoring to support its own position by reasons and arguments it vitiates its own thesis that reasoning and argumentations are always futile and unproductive in such theoretical matters. However reluctant agenda-reductive thinkers may be to acknowledge the meaningfulness of philosophical problems, they have no rationally viable alternative but to acknowledge and confront at least some of them.

4. THE POLITICAL DIMENSION: A STRUGGLE FOR OWNERSHIP

The business of agenda setting in philosophy is by nature an ownership dispute—a battle for precedence or "right of way" of sorts when it comes to philosophical issues themselves. Controlling the agenda is a way of asserting a territorial claim in philosophy—of addressing the question: "Which doctrine's devotees can assert dominance—to whom does the discipline property belong?" The natural bias to philosophers to shape—to gerrymander, if your prefer—the agenda so as to fit their own pet theories and give priority and precedence to those issues that it views as doctrinally central. The long and short of it is that struggle for control of the agenda is itself one of the prime modes of philosophical conflict.

What constitutes successful philosophizing is accordingly a matter of (perfectly legitimate) philosophical dispute. Theses about the *appropriate* nature, issues, methods, standards, and goals of philosophy are always philosophical themselves. This, in fact, is one of the characteristic features of the field as perhaps the only intellectual discipline the question of whose own nature itself constitutes one of its key problems.[7] Philosophy thus finds itself in a state of a virtually *permanent* "foundation crisis" (*Grundlagenkrise*). There is always dispute and controversy about fundamentals. Neither method nor any other alternative resource provides a "neutral" Archimedean fulcrum for the weighing of philosophical issues. In particular there is no way of conjoining or combining philosophical agendas. For what is at issue is a matter of different principles and different value assessments. And there is no way to *contrive* the view that A outranks B with one which has it that B outranks A.

The fact is that this sort of communal agenda is in fact incoherent. For given the plausibility and diversity of opinions within the community at large, the questions that will constitute its "agenda" will be based on incompatible presuppositions.

No register of question that comprises incompatibilities like:

- Since man's mind is a machine, how is it that the illusion of free will can arise?

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[7] See Arthur Danto, *What Philosophy Is* (New York: Harper & Row, 1968), p. 2; also Richard Rorty, *The Linguistic Turn*, op. cit., (Chicago: University of Chicago Press, 1967), pp. 1-2.

- How does the fact that moral judgment are objectively valid demonstrate the necessity of free will?

can figure in a meaningful agenda in inquiry. The question register of philosophy at large is not a coherent agenda but a mere catalogue.

The most striking feature of the community's situation is disagreement on the issues, lack of substantial conclusive means that it does not offer an answer to the questions but a plurality of different and discordant answers. For the community need not (and will not) "make up its mind" among conflicting alternatives. This, however, is something the individual must do. The weight of rationality—of consistency and coordination—bears down upon the individual in a way that the community in its aggregate totality cannot and will not reflect.

The situation here is distinctly reminiscent of that of politics, and the fact is that philosophy at large exhibits a certain "political" aspect because the struggle to set philosophy's question agenda is in effect a dispute for territorial dominance, a "turf war" of sorts. Philosophizing thus has an inescapable "political" (as it were) dimension. Philosophers would fain be in a position to dictate the agenda, taking the line (however discretely or even tacitly) that "My issues are the ones that have top priority." To articulate a philosophical position is to engage in an imperialism of sorts. For half the battle, so to speak, lies in managing to set the agenda, to be in a position to determine the rules of conflict by delimiting the shape of the battlefield. Its declaration regarding some discussion that "This just isn't really doing philosophy (as it should be done)" is in general deeply revelatory about the substance of any philosophical discussion.

5. THE SYSTEMIC DIMENSION

To be sure, philosophers do not like being reminded that the question of the agenda is itself out there as an object of concern. They like the comforting feeling that their own substantial position has already managed to settle all that. To have to defend not only its overt substance but also its implicit metaphilosophy is a task they do not welcome. But of course they cannot on good conscience avoid it, seeing that the inherent coordination between substance and agenda obviously renders such a tactic as of very doubtful legitimacy.

Philosophizing is an inherently reflective discipline. Here, if anywhere, we have to be concerned about what we are doing in the conscientious en-

deavor to provide a cogent rationale for doing it our way. And seeing that metaphilosophy is inescapably a part of philosophy itself—posing such concludes such synoptic issues as the mission of the enterprise and its overall question agenda—the conscientious philosopher has no alternative but to proceed systematically to assure the consonance of practice and theory, of doctrinal substance and methodological procedure.

This facet of the situation constitutes yet another valid reason why philosophy has to be developed systematically. The fully adequate development of any philosophical position has to take into view the holistic issue of how its own deliberations fit into the larger scheme of things. They should make manifest how its practice exemplifies rather than contradicts its proceedings and how its presuppositions manage to do justice to those issues, which, or their own telling, are the most crucial. This business of showing how its own deliberations fit into a proper understanding of the nature of things is a crucial part of philosophical systematization. Any philosophy that neglects it—that fails to provide a suitable rationale not only for its own doctrines but for its own modus operandi—does so at the price of its own adequacy.[8]

[8] This chapter draws upon an essay of the same title in the author's *Philosophical Reasoning* (Oxford: Blackwell, 2000), pp. 33-44.

Chapter Five

THE TAXONOMY OF PHILOSOPHY AND ITS FATE

1. THE SHAPE OF PHILOSOPHY: SOME ANCIENT VIEWS

From classical antiquity on, theorists have concerned themselves with the taxonomic structure of philosophy orienting their deliberations not just to the substance of philosophical discussions but to the organizational format of the subject itself. An examination of the history of this project throws instructive light on the development of philosophy over the years. The present chapter will accordingly deal with philosophical taxonomy—the shape and structure of the subject itself—with a view to extracting useful lessons regarding the nature of philosophy and its development over the centuries.

An early and enormously influential taxonomy of philosophy is represented by the organization of the Aristotelian corpus as canonized by its Alexandrian editors. This taxonomy—depicted in Display 1—established the traditional and clearly plausible approach of classifying philosophy's components according to the nature of the *objects* at issue in the thematic orientation of the questions under consideration. It envisioned a tripartite partition of the field, according as the deliberations at issue relate to thought, to nature, or to human agency. (No *separate* place was allocated to theology in Greek antiquity because the divine was viewed as an aspect of nature itself—a force operative within it.) Unlike Plato, Aristotle placed mathematics outside philosophy.

Display 1

THE "ARISTOTELIAN" CONFIGURATION OF PHILOSOPHY

LOGIC: instrumentalities of thought

- terms: *theory of categories*
- propositions: *hermeneutics* (a logical grammar of sorts)
- syllogistic and "scientific" inference: *analytics*
- informal reasoning: *topics* (and *rhetoric*)

PHILOSOPHY OF NATURE: the world's ways and means

- philosophy of matter: animate (*psychology* and *biology*) or inanimate (*physics*)
- metaphysics: philosophy of the immaterial or divine ("first philosophy")

ETHICS/POLITICS: human action and interaction

- the individual: *ethics* proper (moral philosophy)
- the group: *social and political philosophy*

NOTE: Aristotle himself never drew such a map of philosophy. The source of this classification is the Aristotelian corpus itself, in the form given to it by its Alexandrian editors.

A reductive transformation of this way of organizing the subject is reflected in the Stoic characterization of philosophy as depicted in Display 2. The Stoics had already adopted and adapted the tripartite pattern of organization inherent in the Aristotelian scheme, taking philosophy to consist of *logic* (dealing with the rules for validating the truth of statements), *physics* (which depicts nature in the light of these rules), and *ethics* (which considers the harmonization of intelligent agents with nature).

Display 2

THE STOIC CONFIGURATION OF PHILOSOPHY

LOGIC

- terms and propositions: *grammar/semantics*
- inferences: (propositional) *logic*

PHYSICS

- material objects (animate or otherwise): *physics* proper (including *biology* and *psychology*)
- the gods: (seen as parts or aspects of material nature—its *tenos* or binding force): *theology*

ETHICS

- individuals: *ethics* proper

SOURCE: P. P. Hallie, "Stoicism," in *The Encyclopedia of Philosophy*, ed. by P. Edwards, Vol. 8 (New York and London, 1967), pp. 19-22.

However, the Stoics introduced some important departures from the "Aristotelian" picture, by:

- Simplifying logic in replacing the Aristotelian syllogistic by Stoic propositional logic.

- Dismissing the theory of *informal* reasoning, ejecting it altogether from the domain of logic (and philosophy).

- Abolishing psychology in line with a materialism that makes it plausible to subsume psychology (and epistemology) under physics, and also to absorb the whole of metaphysics into physics.

- Abolishing social ethics (or politics) in line with a materialistic individualism or nominalism that saw no need to look beyond the level of concrete individuals.

The Stoic program of philosophy was thus significantly reductive in its relation to the Peripatetic approach.

The contrast between the Stoic and the Aristotelian configuration of the subject is highly instructive. It illustrates the important fact that a philosopher's or a philosophical school's substantive doctrine crucially shapes and canalizes their view of the nature of the discipline. When a philosophical position does away with a certain category of objects, it automatically abolishes a certain (purported) sector of the subject as well. Thus, as the Stoic precedent illustrates, an individualistic nominalist, who denies to the "body politic" an independent existence of its own, has no significant place for the theory of social aggregates and political complexes represented by political philosophy along its traditional lines.

In *De Finibus*, Cicero offered a restated version of the Peripatetic position, a fourfold scheme that separates politics from ethics as a significant category in its own right:

- Logic (*disserendi ratio*);
- Physics (*cognitio naturae*);
- Ethics (*de summo bono*);
- Politics (*civilis* = civics; *de re publica et de legibus*).

Cicero's four-part scheme brings politics to the forefront, reflecting his sensible objection against the Stoics' neglect of this subject.[1] In a sharp reaction against the Stoic approach, the theory of human action at the *social* level was, for him, just as important and interesting as that of human action at the *individual* level.

Boethius bequeathed to the medievals the division of the philosophical sciences set out in Display 3. Again a comparison with the Aristotelian scheme is instructive. Logic is now firmly categorized as an *instrument* of

[1] Cicero, *De Finibus*, IV, iii, 7.

Display 3

THE CLASSIFICATION OF PHILOSOPHICAL DISCIPLINES ACCORDING TO BOETHIUS (ca. AD 480-525)

(METHODOLOGICAL PROPADEUTIC: *Logic*)

SPECULATIVE PHILOSOPHY

- *Mathematics* (material bodies considered apart from matter and motion)
  - geometry
  - arithmetic
  - astronomy
  - music
- *Physics* (material bodies in motion; so that *Psychology* is included)
- *Theology* (changeless, immaterial things, i.e. *Metaphysics*)

PRACTICAL PHILOSOPHY

- Ethics
  - moral philosophy (individual ethics, “monastics”)
  - “familial” ethics (“domestics”)
  - social ethics (“politics”)

SOURCE: Boethius, *De trinitate* in *The Theological Tractates*, tr. by H. F. Stewart and E. K. Rand (Cambridge, MA: Loeb Classical Library, 1973), pp. 8-10. Compare James A. Weisheipl, “The Nature, Scope, and Classification of the Sciences” in D. C. Lindberg (ed.), *Science in the Middle Ages* (Chicago, 1978), esp. p. 471.

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philosophy rather than a *part* of it, having no characteristic subject-matter of its own. Physics swallows up psychology—as with the Stoics. Theology annexes the whole of the Aristotelian metaphysic of immaterial and

changeless existence. (Philosophy is entering the Christian era.) The ethics of groups becomes divided as between family and society. The most characteristic aspect of this scheme, however, is its neo-Platonic re-elevation of mathematics into a place of separate and special prominence, reflecting a highlighting of the *mathematica* that came to constitute the medieval *quadrivium*. (The *logica* of the medieval *trivium* with its division of logic into the grammar, dialectics and rhetoric, goes back at least to Flavius Cassiodorus (ca. AD 550).) With Boethius we are well enroute into the thought-world of the middle ages.

2. THE MIDDLE AGES AND EARLY MODERN TIMES

While retaining the essentials of the Boethean scheme, the medievals insisted on restoring logic to its old place of pride as a distinct branch of philosophy. Thus, in the *Eruditio didascalia* (or *Didascalicon*) of Hugh of St. Victor, we find the classification of philosophical sciences set out in Display 4.

Display 4

THE CLASSIFICATION OF PHILOSOPHICAL SCIENCES ACCORDING TO HUGH OF ST. VICTOR (1096-1141)

LINGUISTIC SCIENCE (*scientia sermocinalis*: "Logic" broadly construed)

- *Grammar*
- *Dialectics* ("Logic" narrowly construed)
- *Rhetoric*

SPECULATIVE OR THEORETICAL SCIENCE (*scientia naturalis*)

- *Mathematics*
  - geometry
  - arithmetic
  - astronomy
  - music
- *Physics* (including *Psychology*)
- *Theology*/*Metaphysics*

PRACTICAL OR ACTIVE SCIENCE (*scientia moralis*)

- *Ethics*
  - ethics of the individual (morals proper)
  - ethics of the family (economics)
  - ethics of the state (politics)

SOURCE: James A. Weisheipl, "The Nature, Scope, and Classification of the Sciences," in D. C. Lindberg (ed.), *Science in the Middle Ages* (Chicago, 1978), p. 474.

In general, this scheme is a fusion of the Aristotelian and Boethian taxonomies of the philosophical sciences, supplementing the latter taxonomy with the logical disciplines stressed by the former. (When asked the ques-

tion "Is logic an *instrument* of philosophizing or a *part* of philosophy?" most schoolmen responded with the sensible reply that it is both—philosophy *embraces* the study of its own methods of thought.) Note that Hugh's classification accommodates the whole of the medieval arts curriculum—the propadeutic trivium (grammar, logic, rhetoric) and quadrivium (arithmetic, geometry, music, astronomy) followed by philosophy proper. Having evolved from the Aristotelian taxonomy, it is small wonder that such a scheme was able to accommodate the reintroduction of Aristotelian learning in the 12th century renaissance.

The eventually standard scholastic classification of the sciences appeared as in Display 5. The result is a reshuffle of Hugh of St. Victor's theoretical classification designed to meet the curricular demands of the medieval academy, which placed theology into a faculty of its own, outside the domain of the "arts."

Display 5

THE SCHOLASTIC CLASSIFICATION OF SCIENCES

TRIVIUM (Logic)	QUADRIVIUM (Mathematics)	PHILOSOPHY (proper)
• Rhetoric	• Music	• Ethics
• Dialectic	• Astronomy	• Metaphysics
• Grammar	• Arithmetic	• Physics
	• Geometry	

SOURCE: See C. W. Shields, *Philosophia Ultima or Science of the Sciences*, Vol. II (New York, 1889), p. 58.

"In philosophy," says Bacon, "the contemplations of man do either penetrate unto God, or are circumferred to nature, or are reflected and reverted upon himself; out of which several inquiries there do arise three knowledges, divine philosophy, natural philosophy, and human philosophy or humanity."[2] The prime objects of philosophy are accordingly three: God, nature, and man; and the resultant picture of philosophy consists of *doctrina de numine*, *doctrina de natura*, and *doctrina de homine*. An essen-

[2] Francis Bacon, *The Advancement of Learning*, Bk. II.

tially tripartite scheme recurs once again but in a decidedly altered form. Apart form the neglect of traditional logic natural to the author of the *new* Organon, there still remains the Aristotelian spectrum of philosophical themes, partitioning the subject according to the topic of concern:

- God: *theology* (natural and revealed)
- Nature: *physics*
- Man: *ethics* and *politics*

However, the whole of logic (with its word-mongering and "logic chopping" so anathematized by renaissance thinkers) has been jettisoned. All the same, the Aristotelian scheme survives intact as late as Locke's *Essay*, where philosophy is divided into *semantical philosophy* (the "doctrine of signs" and especially "logic"), *natural philosophy* (or "physics"), and *practical philosophy* (especially "ethics").

Christian Wolff's encyclopedic conception of philosophy is depicted in Display 6. Projected in the late 1600's, it too is thoroughly conservative in its fundamentally Aristotelian view of the subject. Where the Stoics departed from Aristotle by absorbing metaphysics into physics, Wolff reversed the position and subsumed all of natural philosophy under metaphysics. Metaphysics is now taken (in the still standard way) to concern itself not only with immaterial existence, but with existence in general. To all intents and purposes, Wolff's scheme simply replicates that of Boethius, except for expelling mathematics and physics into the realm of the special sciences, retaining only their specifically metaphysical involvements.

Display 6

THE TAXONOMY OF PHILOSOPHY IN CHRISTIAN WOLFF (1679-1754)

METHODOLOGICAL PROPADEUTIC

- *Logic*

METAPHYSICS OR THEORETICAL PHILOSOPHY

- *Ontology* (or "First Philosophy")
- (Rational) *Cosmology* -- in contrast to physics
- (Rational) *Psychology* -- in contrast to empirical psychology
- (Rational) *Theology* -- natural in contrast to revealed theology

PRACTICAL PHILOSOPHY

- *Ethics*: Philosophy of individual agents
- *Economics*: directed at families and social groups
- *Politics* (and *Philosophy of Law*): directed at entire states and societies

SOURCE: The organization of Wolff's writings themselves.

The Wolffian picture prevailed for some hundred years in the German philosophical orbit, until its revision in the wake of Kant's influence. It too pays tribute to the far-reaching and perduring influence of scholasticism.

In the Age of Reason, we find that the view of philosophy of the *Encyclopédie*, as given in Display 7, is still highly conservative in nature. Here natural philosophy (i.e. natural *science*) is still firmly entrenched as a department of philosophy proper, contrary to the German fashion of a move to greater academic specialization.

Display 7

THE TAXONOMY OF PHILOSOPHY IN THE *ENCYCLOPÉDIE*

ONTOLOGY

- *General Metaphysics*: science of being in general

SCIENCE OF GOD

- *Theology* (in its various branches)

SCIENCE OF MAN

- *Pneumatology* (psychology)
  - rational
  - sensitive
- *Logic*
  - art of thinking
  - art of remembering
  - art of transmitting
- *Ethics*
  - general ethics (moral philosophy)
  - particular ethics (science of laws or jurisprudence)

SCIENCE OF NATURE

- *Corporeal Metaphysics* ("general physics")
- *Mathematics*
- *Particular Physics* (specialized branches of natural science)

SOURCE: Jean le Rond d'Alembert, *Preliminary Discourse* (to the *Encyclopédie* of Diderot), tr. with intro. and notes by R. N. Schwab (Indianapolis and New York, 1963), pp. 144-45.

By the nineteenth century, philosophers had abandoned all claims to theology, and natural philosophy in general (and cosmology in particular) had emigrated to physics, which itself was now expelled into a separate "scientific" sphere. Moreover, the post-Kantian era had consolidated an interest in technical epistemology as a specialty in its own right. Accordingly, the picture of philosophy shown in Display 8 emerged—in England at any rate.

On the Continent, however, the situation was rather more complex. The impetus of Fichte, Schelling and Hegel created a great stirring in whose wake the philosophy of knowledge (in the broad sense of *Wissenschaft*), the philosophy of history, and the philosophy of religion came into prominence. With Dilthey, moreover, the philosophy of culture (including the philosophy of philosophy itself), came to the fore. A flourishing philosophical interest in man and his works came into prominence in the development of Continental philosophy in the post-Kantian era. And this, as will emerge below, revolutionized the taxonomic situation of philosophy.

Display 8

THE VIEW OF PHILOSOPHY IN LATE NINETEENTH CENTURY ENGLAND

LOGIC

METAPHYSICS or FIRST PHILOSOPHY

- *Ontology* (preeminently)

MENTAL PHILOSOPHY

- *Psychology*
- *Epistemology*
- *Aesthetics*

MORAL PHILOSOPHY

- *Ethics* (personal morality)
- *Economic Philosophy* ("Political Economy")
- *Social Philosophy*

  - Political Philosophy
  - "Sociology" or Social Philosophy

SOURCE: Various surveys influenced by the workings of Herbert Spencer.

A classificatory structuring of philosophy that was influential in the Anglo-American orbit in the first part of the 20th century is that of the 11th (1910-1911) edition of the *Encyclopaedia Britannica*—the "six fields" scheme of Display 9—which results from a somewhat tidier reshuffle of the taxonomy of Display 8, with the "Hegelian" additions of philosophy of religion and philosophy of history. (The sequence of written tests that constituted the marathon, five-day, five-part "general examination" required for doctoral candidates in philosophy at Princeton in my own student days in the late 1940's was still based on exactly this scheme, with aesthetics and psychology deleted, and "history of philosophy" introduced as an added item.) It is further worthy to note that this "six-field" classification

still carried forward into the twentieth century the ancient tripartite division of philosophy, albeit in a somewhat variant form.

Display 9

THE "SIX FIELDS" SCHEME OF PHILOSOPHY (ca. 1890-1920)

PHILOSOPHY OF KNOWLEDGE

- *Logic* (deductive and inductive)
- *Epistemology*

PHILOSOPHY OF EXISTENCE

- *Metaphysics* (including Philosophy of Nature and Philosophy of Religion)
- *Psychology*

PHILOSOPHY OF VALUE

- *Aesthetics*
- *Ethics*
  - Moral Philosophy
  - Social and Political Philosophy (including Philosophy of History)

SOURCE: Based on the topical scheme of the 11th Edition (1910-1911) of the *Encyclopedia Britannica*, Vol. 29 (Index Volume).

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3. TAXONOMIC DYNAMICS

The purpose of the ensuing discussion is to elucidate and explain one significant phenomenon. It is that while every 19th century discussion of the philosophy and methodology the sciences addressed the issue of the taxonomy of the domain, no 20th Century discussion has done likewise. And similarly while up until WWI every discussion of the nature and mission of philosophy discussed the overall taxonomic structure of the field—its division into branches, and subspecialties and problem areas—no discussion after that date has done so. The resulting phenomenon that might be characterized as *taxonomy avoidance* by recent students of philosophy.

Display 10

PROCESSES OF CLASSIFICATORY CHANGE

I. ELIMINATIVE PROCESSES

- *Expulsion*. Eliminating a category by exporting it from the classification at hand into some other scheme.
- *Annihilation*. Eliminating a category by maintaining it to be empty (vacuous), thus doing away with it altogether.

II. ORIGINATIVE PROCESSES

- *Introduction*. Originating a wholly new category, be it by importation from without or by creation *de novo*.
- *Fission*. Originating a category by dividing a preexisting one into several.
- *Fusion*. Originating a category by uniting several pre-existing categories into one.

III. REDISTRIBUTIVE PROCESSES

Shifting existing categories to different positions in the taxonomic scheme. As apart from simple *relocating*, we also have, in particular, the prospect of

- *Upgrading*. Advancing a category from a subordinate position to a higher-order taxonomic status.
- *Downgrading*. Degrading a category from a higher-order position to one of a more subordinate taxonomic status.

NOTE: The *replacement* of one category by a totally new one can be seen as a combination of elimination and origination.

Is there a good rational explanation for this phenomenon? In considering these issues, it is useful to go back to the basics of taxonomic development. In general, viewed abstractly from the theoretical point of view, a classificatory scheme can be changed in the various sorts of ways canvassed in Display 10. All of these processes are at work in the development of philosophy where each era, and to some extent even each philosopher who addresses these issues, takes a characteristic view of the constitution of the subject, perhaps deeming certain fields eliminable, perhaps dividing others in a novel and idiosyncratic way. As the history of philoso-

phy amply demonstrates, taxonomic change is a prominent feature of the subject's development. Quarrel about the subject's *shape* is every bit as common as quarrel about its *contentions*—indeed they are part and parcel of the same issue.

This substantive, doctrine-reflective aspect of philosophical taxonomy means that *this taxonomical enterprise is also itself a part of philosophy*. The question of the *proper* shape of philosophy is itself bound to be a philosophical question. This is graphically illustrated in the recurrent phenomenon of agenda abridgement that is encountered throughout the history of philosophy. The Stoics' inclination towards materialism led them to eliminate psychology as a branch of philosophy separate from physics at large. Spinoza held that issues of value have no place in philosophy. The ancient sceptics and their latter-day Humean and positivistic successors sought to invalidate the entire subject of philosophy—or at any rate those parts of it not concerned with clarifying the methods of human knowledge and establishing its limits. Time and again, philosophers maintain that only certain of the field's putative issues actually belong to it—that only certain particular, doctrinally restricted ranges of discussion can be considered a matter of "doing philosophy." In sum, structural taxonomy and substantive doctrine are inextricably interconnected: form must follow content here.

4. THE POST-KANTIAN TRANSFORMATION

In place of the substantive, object-directed orientation of the metaphysicians of the old school, Kant substituted an analysis of the range and credentials of our *concepts* of things. And the philosophers who followed him were quick to exploit this stress on the conceptual nature of philosophy's concerns. With Kant and Hegel, they adopted the view that philosophy's prime concern is not with *objects* as such—philosophy, strictly speaking, does *not* deal with such items as God, nature, people, actions, etc. Instead, the focus of its concern—as they saw it—is with *concepts* (ideas, conceptions). Its mission is to study, analyze and systematize people's *ideas* about God, nature, people, actions, rather than dealing with those items themselves. On this view, philosophy is a second-order enterprise; it does not deal with the world's furnishings as such, but with people's conceptions (ideas, beliefs) about them. Accordingly, philosophy is a matter of the analysis and synthesis of *concepts* rather than the examination directly of

things or *objects* of some sort. Carried to ultimate conclusion, this tendency reduces philosophy to the theory of knowledge.[3]

However, this seemingly radical reorientation of philosophy is not as drastic as it seems. Certainly, it appears to reduce its objects of consideration to concepts alone. But when one looks at it more closely, this "conceptual revolution" is less radical than it at first seems to be since one cannot successfully distance things from our conceptions of them. "Tell me about *X*'s, but be sure to do so without imparting to me your conception of them" is nonsense—and so is its converse. The principle of truth as *adaequatio ad rem* means that our (purportedly accurate) concepts and (purportedly true) beliefs about things reflect our best efforts to say what they are actually like. We cannot drive a wedge between our views of things and our conceptions of them. These second-order concerns cannot ever be sharply and totally separated form the first-order substantive issues. It is not, in the end, possible cultivate the philosophy of *X*—the philosophy of science, law, art, whatever—without a substantive concern with *X* itself.

It deserves note in this connection that one's view of the relation of philosophy to other fields can also have major repercussions on the taxonomy of the discipline. As with Wolff's ejection of mathematics, it can lead to losses not through *annihilation*, but through *emigration*, through setting up various subdisciplines of philosophy (as formerly constituted) as enterprises belonging to a different domain. Theology and natural philosophy (i.e. physics) so emigrated in the 17th century; political economy in the 19th century; psychology only in the 20th.[4] Impressed by this phenomenon, Bertrand Russell wrote:

> As soon as definite knowledge concerning any subject becomes possible, this subject ceases to be called philosophy, and becomes a separate science. The whole

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[3] "In modern usage, Philosophy is the general term to include Mental Philosophy in all its divisions; still wider application, which placed mental philosophy in contrast with natural philosophy having been generally abandoned. . . . Restricted to the mental sphere. . . . it is a Theory of Knowledge (Epistemology), and concerned with existence as a whole . . . ." William Fleming's *Vocabulary of Philosophy*, 4th ed., (London, 1887), p. 310.

[4] Here and there a few departments of "Philosophy and Psychology" still survive in American colleges and universities. At Harvard, the separation led to a battle-royal in the 1920s, which is vividly sketched in Bruce Kuklick, *The Rise of American Philosophy* (New Haven and London, 1977).

> study of the heavens, which now belongs to astronomy, was once included in philosophy. . . . Similarly, the study of the human mind, which was, until very lately, a part of philosophy has now been separated from philosophy and has become the science of psychology. . . . Those questions which are already capable of definite answers are placed in the sciences, while those only to which , at present, no definite answer can be given, remain to form the residue which is called philosophy.[5]

We arrive at the engaging (but quite unrealistic) picture of a field gradually eroded away through progress of knowledge with philosophy increasingly emptied through the emigration of all its issues into the special sciences.

In fact, however, the predominance of the post-Kantian transformation to a concept-oriented construction of philosophy has in recent days importantly countervailed against the ongoing emigration of disciplines from the realm of philosophy. For while such fields as theology, "natural philosophy," political economy, and psychology have indeed all emigrated from philosophy in the course of time, nevertheless the prospect of dealing with concepts and concept-manipulative processes (methods) means that philosophy can always retain a residue after such emigration. And so philosophical theology, philosophy of science, philosophy of economics, and philosophical psychology have all continued as flourishing enterprises, even after these subjects left philosophy's fold to set up shop on their own. In principle, the emigration or exportation of a theme is never a final loss because its concept-oriented cousin always remains behind to take its place. Emergence of "the way of ideas," means that eliminations from philosophy are never taxonomically final. Even when the substantive issues of a field fall into other hands, its conceptual and methodological issues will remain behind to preoccupy the philosopher.

5. TAXONOMIC PROLIFERATION

Is nature or artifice responsible for our taxonomies? Are natural kinds discovered of made? Are they man-made artifacts or nature-made divisions? The answer is both and neither. For what is at issue is a collaborative effort. Ideas and concepts are man-made: "trees", "deciduous trees" viewed as classifactory ideas are of course artifacts. But of course "only God can make a tree." The real objects that answer to this kind as instances—and also the real things that do not—are of course natural: it is

[5] Bertrand Russell, *The Problems of Philosophy* (London, 1912), p. 240.

nature and not we humans who are responsible for (a) the things that answer to our classifications and (b) the features they have in virtue of what they do (or do not) answer to these classifications. In sum, we ourselves make kind-distinctions but of course discover (and thus do not make) the difference that provide their rational. In sum, while we ourselves are in the driver's seat of classification production, once a classification is in place as such, how it fits to its domain's realities—and indeed whether it does so at all—are issues over which we have no further control.

Display 10 above makes it clear that the nature of taxonomic change does not by itself constrain proliferation. There is no reason of abstract principle why fission should predominate over fusion in philosophical development. But historical reality decrees otherwise.

Taxonomy is driven by phenomenology—by the volume and the variety of the phenomena at issue. And in general these go hand in hand—more items in number stand correlative with more items in kind. The phenomena that concern us are seldom of such a sort that more is simply more of the same. In matters of cognitive qualitative proliferation goes hand in hand with qualitative variations. In virtually every field of intellectual endeavor an expansion of the literature of the subject brings taxonomic proliferation in its wake. And this is certainly the case with philosophy as well.

Herbert Spencer's picture of evolutionary development prevails. Evolution, he said, is a matter of passage "from a relatively indefinite, incoherent homogeneity to a relatively definite, coherent heterogeneity,"[6] This may or may not hold for *biological* evolution, but it unquestionably does hold for *philosophical* evolution when it is the discipline at large that we keep in view. Here, with increasing understanding of conceptual detail and analytical division of labor the general picture of philosophy at the overall communal level is destined to grow more and more complex in the course of time. It rolls along like an enlarging snowball, gathering in ever more material. Once introduced, new issues remain part of the "permanent record"—demanding their place in libraries, textbooks, and educational curricula. A philosopher may have a simple picture of the subject—the discipline as he himself views its proper constitution may have a structure of the most austere economy. But the communal picture grows ever more luxuriant—ever more complex and ramified.

Philosophy, like other scientific and scholarly disciplines, is in fact involved in an ongoing proliferation of units and subunits. For here as elsewhere, specialization and division of labor confront us at every turn.

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[6] Herbert Spencer, *First Principles*, 6th ed. (London, 1862), para. 144.

Driven by the dialectical nature of the discipline—the ongoing discussion proceeds through controversy, by way of objections and replies—there is a need for ever more fine-grained distinctions and details. The dialectical structure of thesis—objection—response that characterizes a scholastic treatise, and the exponential growth of controversial exchanges of the type at issue in the Leibniz-Clarke correspondence, afford examples. One must acknowledge the importance of the insight that led Melvil Dewey to devise the endlessly refineable Dewey Decimal System of bibliographic classification: that an adequate taxonomic scheme for any area of inquiry—philosophy included—must provide for continuing ramification and sophistication, for ongoing exfoliation from within.

6. THE CONTEMPORARY SITUATION

In most fields of learning—philosophy decidedly among them—a natural dialectic of cognitive progress moves matters first towards taxonomic complexification and then ultimately to taxonomic disintegration. The mere discourse and distinction with which one begins are ongoingly destabilized as complex "borderlines" come increasingly to view. The inherently convenient maps of the cognitive terrain become hodge-podge in the wake of the emergence of increasingly fine-grained detail. The pattern of interconceptions becomes more elaborate and diversified. Cross connections emerge: themes and issues come into existence in increasingly rationale patterns. Increasing detail obscures the oversimplification of the prevailing envisioned order. Varied and complexity structured phenomena preclude neat and tidy distinctions and divisions. And they thereby create complex problem domains that disallow elegant and accurate taxonomies. Where our distinctions lack decisive accuracy, our taxonomies cannot achieve this desideratum either.

It is clear that throughout the history of philosophy there has been a continual growth in the taxonomic refinement of domains of inquiry. Specialization and division of labor proceed hand in hand. An impressive feature of modern philosophy that matches its passion for detail is the ongoing expansion of the horizons of philosophical concern. Clearly, it is a mistake to think of philosophy as something fixed and given—formed and frozen for the ages. Not only do new issues, questions, distinctions, etc. spring up

in philosophy, but entire new branches emerge.[7] The history of the discipline, seen as a whole, manifests an ongoing development in the range and scope of its concerns, and in particular, an increasing humanization—an ongoing preoccupation with the activities and works of man.

In particular, the rapid recent growth of "applied philosophy"—philosophical reflection about detailed issues in science, law, business, social affairs, etc.—has been a striking structural feature of contemporary philosophy. In particular, the past three decades have seen an amazing proliferation of narrowly focussed philosophical investigations of particular issues in areas such as economic justice, social welfare, ecology, abortion, population policy, military defense, and so on. In general, it should be noted that there has also been a substantial *internal* development within each of these various subdisciplines. Every category has seen the exfoliation of an internal structure of substantial complexity. The turning of philosophy from globally general, large-scale issues to narrowly focussed inquiries into highly specific matters of microscopically fine-grained detail is a characteristic feature of 20th century philosophy that also illustrates this phenomenon. This flourishing use of the case-study method in Anglo-American philosophy is a striking phenomenon for which no one philosopher can claim credit—to a contemporary observer it seems like the pervasively spontaneous expression of "the spirit of the times."

The current picture of the taxonomic lay of the land in philosophy is thus vastly more complex and ramified than anything that has preceded it. Display 11 gives an overview of the situation, which reflects the burgeoning of philosophical study and writing after World War II. The ongoing complication of the subject has burst the bounds of the ancient tripartite scheme for good. The situation has grown so complex and diffuse that the most comprehensive recent English-language encyclopedia of philosophy[8] cautiously abstains from providing any taxonomy of philosophy whatsoever.

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[7] It is surprising how little historians of philosophy have dealt with this aspect of the development of the subject. There is virtually no trace of concern with it in Lucien Braun's splendid *Histoire de l'histoire de la philosophie* (Paris, 1973).

[8] *The Encyclopedia of Philosophy*, ed. by Paul Edwards (London and New York, 1967).

Display 11

THE SUBDIVISIONS OF PHILOSOPHY (ca. 1980)

Object of Consideration	Branch of Philosophy
God	Philosophy of Religion/ Philosophical Theology
Nature(“the physical world” and “the biological world”)	Metaphysics/Philosophy of Nature
Mankind	
• “the human condition” in general	Philosophical Anthropology
• the human mind and its operations	Philosophy of Mind/Philosophical Psychology
Society (community): social Organization and policy	Social Philosophy/Political Philosophy/Philosophy of Organizations
Individuals	
• re. action and interaction in their ethical dimension	
— at large	Ethics (personal)/Moral Philosophy
— in special contexts	Applied Ethics Medical ethics Business ethics Professional ethics Bioethics (others)
• re. thought	(See the rubric *Artifacts* below)
Artifacts: Processes (Mechanisms/Methods/Methodology)	
Cognitive	Theory of Knowledge/ Epistemology

	Methodology of Inquiry
	Theory of Everyday Knowledge/General Epistemology
	Theory of Experience (Phenomenology)
	Theory of Evaluation (Value Theory, Axiology)
	Theory of Demonstrative Inference (Deductive Logic)
	Theory of Inductive Inference (Inductive Logic)
	Theory of Scientific Method
	Theory of Rational Discourse (Dialectics)
	Theory of Probabilistic and Plausible Reasoning
	Theory of Interpretation (Hermeneutics)
	Theory of Learning (Philosophy of Education)
	(Others)
Behavioral	
Linguistic	Philosophy of Language
	Philosophy of Communicative Processes
Non-Linguistic	Theory of Action (Praxiology, Action Theory, Decision Theory, Theory of Rational Choice and Preference, etc.)
	Philosophy of Sport
Artifacts: Products	Philosophy of Natural Science (with subdivisions by special sciences)
	Philosophy of the Social Sciences
	Philosophy of Economics
	Philosophy of History/ Historiography
	Philosophy of Law (jurisprudence)
	Philosophy of the Formal Sciences
	Philosophy of Logic
	Philosophy of Mathematics
	Philosophy of the Humanities (of the “Arts”)

Cultural Studies and Critique
Philosophy of Art (Aesthetics)
Philosophy of Literature
(including "Critical Studies")
Philosophy of Philosophy
(Metaphilosophy)
Philosophical History of
Philosophy
Philosophy of Physical Production
(of the "Crafts")
Philosophy of Work
Philosophy of Technology

SOURCE: A survey of courses of instruction in universities and of the topical coverage of specialized journals in the field.

This survey of the current situation clearly exhibits the workings of a certain general process in the formation of philosophical subfields. For every mode of human activity (throughout the entire range from science, industry, business, medicine, and law, to art and even such recreations as sports or games of chance) we can, in principle, theorize philosophically regarding:

- the process of the activity (its methodology and praxis);
- the products of the activity and their place in the larger scheme of things;
- the ethics of the activity.

This circumstance has resulted in the recent explosion of philosophical subdivisions. And there is no reason why it cannot be extended further. (For example, there seem at present to be no philosophical treatments of the ethics of education, an analogy with the currently flourishing areas of medical ethics and business ethics—though in principle such an enterprise could certainly exist.)

The current (1990s) picture of taxonomic lay of the land in North American philosophy is thus vastly more complex and ramified than anything that has preceded it. The taxonomy of the subject has burst for good and all the bounds of the ancient tripartite scheme of logic, metaphysics

and ethics. Specialization and division of labor runs rampant, and cottage industries are the order of the day. The situation has grown so complex and diversified that the most comprehensive recent English-language encyclopedia of philosophy[9] cautiously abstains from providing any taxonomy of philosophy whatsoever. (This phenomenon also goes a long way towards explaining why no one has written a comprehensive history of philosophy that carries through to the present-day scene.[10]) Philosophy—which ought by mission and tradition to be an integration of knowledge—has itself become increasingly disorderly.

And such taxonomic complexification has two aspects:

(I) *Taxonomic Proliferation*: Within any given taxonomic scheme there is expansion on (1) the number of items at any given level multiply, and (2) the number of levels themselves increase (albeit only additionally).

And for better or worse this engenders:

(II) *Taxonomic Disintegration*. The number of relevant taxonomic schemata needed for the adequate cognitive accommodation of any range of phenomena themselves multiply in the course of cognitive progress. There is an ongoing demand for increased taxonomic-variation that reflect different from considering and classifying the phenomena.

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9 *The Encyclopedia of Philosophy*, ed. by Paul Edwards (London and New York: Macmillan, 1967).

10 John Passmore's *Recent Philosophers* (La Salle, 1985) is as close as anything we have, but—as the very title indicates—this excellent survey makes no pretentions to compehensiveness. In this direction an earlier multi-person survey went somewhat further, exemplifying what is the best and most that one can hope to obtain: Roderick M. Chisholm et. al., *Philosophy: Princeton Studies of Humanistic Scholarship in America* (Englewood Cliffs, NJ: Prentice Hall, 1964). Yet not only does this book attest to the fragmentation of the field—but it conveys (from its Foreword onwards) the defeatist suggestion that whatever larger lessons can be extracted from an historically minded scrutiny of the substantive diversity of the contemporary situation are destined to lie substantially in the eyes of the beholder.

The growth of the discipline has forced it beyond the limits of feasible surveillance by a single mind. After World War II it becomes literally impossible for American philosophers to keep up with what their colleagues were writing. It seems problematic to class someone as an "ethicist" or a "logician" who knows only a small fraction of the subject and follows only a small fraction of its research literature. But just this is the sort of position in which most academics actually find themselves.

The expansion of the discipline has produced a situation where no university has a Department of Philosophy large enough to have specialists in even half of the major subdivisions of the domain. Institutional philosophy has become unable to represent philosophy itself. This phenomenon also goes a long way towards explaining why no one has written a comprehensive history of philosophy that carries through to the contemporary scene—and also why the traditional biographical approach to philosophical historiography is increasingly unsatisfactory.

Against this background, it is clear that the course of time has seen a gradual transformation in the very nature of philosophical taxonomy. For most of its history, the aim of the enterprise was to aid *students of philosophy* to gain a coherent overview of the members of the subject—a map of the domain over which their study of the subject had to investigate. But once the scale and scope of the descriptive bust beyond the bounds of learnability, a very different sort of objective came to prevail—one that answers to the needs and interests not of the student but of the librarian who has to put all the mass of material into some sort of manageable order.

And the matter goes well beyond this point. The reality of it is that information develops in extent and in depth, it is no longer feasible to impose any one taxonomy on it, so that classification will blossom out in different directions. In philosophy, for example, we can classify the materials of the subject by:

- topic
- period of origin
- culture of origin
- mode of treatment/methodology
- school of thought and doctrinal orientation

- and so on

What is in effect happening is that the idea of a single all-purpose taxonomy of philosophy is unravelling and that what is in process of replacing it is a diversified spectrum of different special-purpose taxonomies. These are differentiated along the following purpose

- information-storage and retrieval (librarianship)
- popular enlightenment and edification (bookstore displays)
- the structure of progress of academic instruction (course programming)
- historical exposition and investigation (historiography)
- substantive investigations (research)

Each of these proposed contexts require distinctive perspective on the subject and thereby different approaches to the organization of its materials. Where philosophical taxonomy is concerned there is no longer (as there once was) the prospect of a one-size fits all taxonomy.

It thus seems plausible to say that the traditional project of specifying *the* taxonomy of philosophy has reached its natural end with the ongoing development of the subject itself. The growth of the discipline and its complexification has destabilized the taxonomic situation and created the need for a diversified spectrum of special purpose taxonomies which themselves have been getting increasingly complex.[11]

[11] This discussion draws upon an essay on “Philosophical Taxonomy as a Philosophical Issue,” in the author's *Forbidden Knowledge* (Dordrecht, 1987), pp. 211-34.

Chapter Six

PHILOSOPHY AT THE TURN OF THE CENTURY—A RETURN TO SYSTEMS?

1. THE HERITAGE OF THE 19TH CENTURY

The characteristic style of nineteenth century philosophizing consisted in the articulation of ambitious systems of thought, whose leading ideas generally centered around a single, grandiose organizing principle. For while a "big picture" was being attempted, the position being expounded was nevertheless almost always one whose core could be represented epigrammatically by a compact and pithy but all-revealing slogan. In metaphysics, for instance, we find such examples as the idealism of Hegel and Fichte for which "Reality is the product of Reason (or of Mind)," the doctrine of Schopenhauer for which "Reality is the product of the interaction of Will and Idea," while the scientific materialism of Ernest Haeckel, or the dialectical materialism of Engels and Marx also represented positions that could be encapsulated in analogous epigrams. The style of approach is the same throughout. Every such doctrine represented the development of a far-reaching theory above principle components pivoted on a single leading idea capable of a neat and compact articulation. And the generative impetus of the whole was itself provided by a unitized cardinal principle that could be sketched more or less adequately, in a single sentence—or paragraph at most. Systematization was the watchword, with everything tightly focused and compactly unified around the ideational core of some ruling principle.

In nineteenth century ethics we find exactly the same phenomenon. Here we encounter a plethora of *summum bonum* positions such as the personalistic theory of the good as that which best fosters people's personal development, the hedonistic theory of the good as that which maximally facilitates human pleasure, the evolutionary theory of the good as that which conduces to the well-being of the species, and the like. And then in political philosophy we have such positions as the Hegelian doctrine that right action is that which optimally expresses the demands of the Zeitgeist,

or the utilitarian theory of right action as that which redounds to the greatest good of the greatest number. Here, once again, everything is pivotal upon and organized around a neat single predominating principle.

And so, quite in general, the style of nineteenth century philosophizing—not just in metaphysics and ethics but all across the board—was to endeavor to resolve far-reaching philosophical issues on the basis of a small centralized cluster of rather straightforward and compact principles. And at the end of the period, the turn-of-the-century philosophers still reflected this heritage, with versions of this centralizing style of philosophizing exemplified in the intuitionism of G. E. Moore, the neutral monism of Bertrand Russell, the vitalism of Henri Bergson, or the pragmatism of William James. The philosophies of this era were usually still engaged in articulating various relatively compact central-principle theories which, nevertheless, were sufficiently ambitious to claim a capacity to "do it all."

2. THE REVOLT AGAINST SYSTEM (SYSTEM-DISMISSIVE ANTISYSTEMS)

However, this nineteenth-century vision of the philosophical enterprise received a harsh treatment at the hands of the twentieth century. Here, as elsewhere, World War I provided a great ideological watershed. In producing a pervasive disillusionment with the aggrandizingly imperialistic political systems of the past, it also engendered a cultural attitude manifesting a comparable disdain for the centralizing philosophical systems of the past. The aftermath of the war thus saw unfolding in Europe and America a negatively, skeptical climate of thought that rejected the doctrines and dogmas of the pre-war era and dismissed with contempt the whole process of system building and systematization. The consensus view of this period insisted that the time when metaphysical deliberation is a viable enterprise is past, and that nothing meaningful and sensible can be said about such issues, so that silence is the best policy—just as the early Wittgenstein maintained. Alike with positivists, nihilists, phenomenologists, Hermeneuticists—the major new tendencies of philosophical thought of the post-World War I era all maintained that philosophical systematization of the traditional type must be abandoned, and something very different substituted in its place.

To be sure, distinctly diverse doctrinal tendencies came to the fore regarding the nature of this substitution. The logical positivists of the Vienna Circle school proposed to take a science-is-all line. As they saw it, the entire project of speculative philosophy—and metaphysics in particular—is a

matter of fraud and delusion. Insofar as meaningful questions going beyond the formalities of logic and language are at issue, natural science can resolve them. A different approach was taken by cultural relativists, who were inspired by the social rather than natural sciences. They relegated all philosophizing to the level of mere opinion and nailed their flag to the mast of psychology and sociology rather than physics and chemistry. As they saw it, there is no objectively determinable fact of the matter regarding issues of the sort with which philosophy has traditionally dealt. It is all simply a question of what people happen to think. Again, adherents of the analytic school insisted that philosophy as traditionally conceived must be abandoned in favor of exegesis of the use of language. We should not—must not—investigate what such things as truth and justice and beauty inherently are and involve, but should instead examine how the expressions such as "truth," "justice," "beauty" are ordinarily used when such matters are discussed. And, rather similarly, the philosophically skeptical Martin Heidegger of his later period also insisted that metaphysical issues of the traditional sort cannot be addressed meaningfully. Instead we must, so he held, focus our philosophical concerns on the prosaic matters of ordinary life and everyday affairs, and preserve a stance of relaxed and disdainful indifference (*Gelassenheit*) towards those fruitless speculations in which speculative philosophers have traditionally indulged.

In ethics, and moral philosophy we find much the same situation. The ethicists of the analytical school wanted to abandon concern for the substantive issues of the domain in favor of a meta-ethical preoccupation with how language functions in discussing such matters. Other ethical theorists took a positivistically sociological line, and sought to replace ethics with the study of people's attitudes regarding right and wrong conduct, substituting the study of mores for moral theory as such. Still others deemed it best to view ethics in terms of the rhetoric of promotion and persuasion. What is at issue, they maintained, is just a matter of recommending certain attitudes and actions on the basis of personal predilection. And so, while different thinkers thus took very different lines, nevertheless all these tendencies of the post-1920 generation agreed in rejecting substantive ethics with its traditional goal of providing a theoretical framework for right action—either altogether, or in favor of some less strongly normative, more experientially based observational/empirical endeavor that forswore any aspirations in the direction of a systematic theory of morality.

A unified over-all picture emerges from such a survey of the situation. The principal thinkers of the post-war period took a close look at nineteenth century epigrammatically systematic philosophy and decided they

wanted no part of it. Instead, they proposed to reform our understanding of the world by shifting its basis from philosophically geared principles to factually oriented disciplines—in natural science, in cultural studies, in language and logic, in everyday-life contexts, or whatever. All across the board, the most influential tendencies of thought of this era shared a common negativism towards classical systemic philosophizing. They regarded the world's factual arrangements (as portrayed in science or in ordinary life) as being final and self-sufficient without requiring—or even admitting of further philosophical grounding or substantiation.

3. THE SHIPWRECK OF INTER-BELLUM NEGATIVISM

This negativistically skeptical climate of thought dominant in intellectual circles after World-War I, was itself consumed in the flames of the great anti-totalitarian crusade that culminated in World-War II. In post-war reaction against the paroxysm of dictator-imposed horrors people were now no longer all that willing to abandon the quest for meaningful harmony with its absorption in normatively substantive concerns. Increasingly a consensus emerged that it was totally inappropriate to dismiss efforts to provide theoretical validation for normative distinctions like true/false, right/wrong, and just/injust. The ethos of the new age was increasingly reluctant to throw such rationale-oriented justifactory projects on the trash heap of outmoded styles of thinking. Questions of validation, justification, and evaluation began to emerge into prominence once more, and philosophers once again showed signs of nurturing systematic aspirations.

The fact is that many people were put off by the negativistic modes of anti-philosophy of the inter-bellum era and their positivistic or language-analytic expressions. After World War II, many among the best and the brightest of the younger generation simply turned away from academic philosophy altogether (especially in Britain, where professional philosophers stayed attached to inter-bellum negativism). Young people who were drawn to philosophical interests now often looked outside the Anglo-Saxon mainstream. Some turned to Eastern philosophies and others to the literally or sociologically or psychoanalytically inspired modes of cultural speculation that had increasingly become a substitute for philosophy in France. Still others turned to ideology, either religious (as with the Catholic theoreticians who hijacked the hermeneutical movement) the anti-religious (as with the ideologists who yielded to the siren call of an atheistical ideology inspired by such theorists as Nietzsche or Marx). However, many professional philosophers themselves also reacted against the current—not by

way of this sort of abandonment of the historical productions of the discipline, but rather by returning to the tradition and endeavoring to rehabilitate and reassert classical positions. Increasingly, the post-war rejection of the negativism of the inter-war era led philosophers to look with deepening interest and sympathy to the positions of the past.

There was now a great revival of preoccupation with the philosophy of the traditional mainstream and a revulsion against both the dismissive attitudes of the logical positivists and the know-nothing approach of the ordinary language philosophers. This phenomenon occurred not only in metaphysics but also—and especially—in ethics and moral philosophy. Reacting against the unspeakable brutality of the Stalin and Hitler regimes—and particularly in the wake of catastrophic developments in the old French Indo-China—American philosophers in particular once again returned increasingly to substantive and normative issues. Thus old-line normatively prescriptive ethics made a noteworthy come-back, as people once more sought to establish formative guidelines as between good and bad, right and wrong. This phenomenon was especially manifest in the growth of "applied ethics"—the study of moral issues arising in professions such as medicine, business, or public service. Such issues as the protection of human life, people's rights and freedoms, the claims of future generations, and the like, began to be argued on old principles (contractarianism, natural rights, neo-Kantian deontology), duly fitted out with new wrinkles. And even in matters of science and mathematics, philosophers increasingly sought to achieve a systematic and holistically rationalized understanding of the processes involved. The stage was now set for philosophy again to proceed in a more positive and constructive direction.

4. THE BURNED BRIDGES

However, those concerned for the revival of the substantive philosophical aspirations at issue in the systems of the earlier era had to come to terms with the cultural disinclinations towards those earlier teachings. After all, it is never comfortable to occupy a home that was constructed with a view to conditions very different from those of one's own situation and one's own needs. Accordingly, any straightforward restoration was rendered impracticable by several major factors:

1. *The knowledge explosion* marked by a vast increase in the number of scholars and scientists, of books and journals, of students and teachers, of laboratories and institutes, etc.—an expansion that swiftly

brought entire new branches of science to the fore and vastly enlarged the framework of ideas with which philosophy had to contend.

2. *The proliferation of approaches* in the formal sciences. In mathematical analysis we nowadays have an intuitionism, finitism, "fuzzy arithmetic." In geometry we have the proliferation of non-Euclidean systems. In logic we have a whole gamut of non-stretched systems. In computation theory we have a whole line of moral approaches. The formal sciences are no longer monolithic wholes, but have come to encompass a vast profusion of alternatives.

3. *The diffusion of complexity* in the wake of the rise of the new physics with its drastic revision of our picture of the universe, its dematerialization of matters in subatomic physics, its complexification of causality in quantum physics, the emergence of scientific cosmology, the rise of neo-Darwinism evolutionary theorizing, the development of scientific physiological psychology, the emergence of artificial intelligence, etc.

4. *The realization of cognitive finitude* engendered by forced recognition that our knowledge cannot plumb the ultimate depth of things. Our mathematical systems cannot encompass the whole of arithmetic (Gödel). Our languages cannot encompass the whole of truth (Tarski). Our particle accelerators cannot push particles to the speed of light, nor can our cooling apparatus attain absolute zero.

As regards the explosion of knowledge, consider just one illustration: the emergence of a heretofore undreamt of complexity of knowledge reflected in the process of taxonomic proliferation. In the 11th (1911) edition of the *Encyclopedia Britannica*, physics is described as a discipline composed of 9 constituent branches (e.g. "Acoustics" of "Electricity and Magnetism") which were themselves partitioned into 20 further specialties (e.g., "Thermo-electricity" of Celestial Mechanics"). The 15th (1974) version of the *Britannica* divides physics into 12 branches whose subfields are—seemingly—too numerous for comprehensive listing. (However the 14th 1960's edition carried a special article entitled "Physics, Articles on" which surveyed more than 130 special topics in the field.) When the U.S. National Science Foundation launched its inventory of physical specialties with the National Register of Scientific and Technical Personnel in 1954, it

divided physics into 12 areas with 90 specialties. By 1970 these figures had increased to 16 and 210, respectively. Substantially the same story can be told for every field of science. The springing up of new disciplines, branches, and specialties is manifest everywhere. And as though to counteract this tendency and maintain unity, one finds an ongoing evolution of interdisciplinary syntheses—physical chemistry, astrophysics, biochemistry, etc. The very attempt to reduce fragmentation produces new fragments.

Herbert Spencer argued long ago that evolution is characterized by von Baer's law of development "from the homogeneous to the heterogeneous," and manifests an ever-increasing differentiated "definiteness" and complexity of articulation. This may or may not be correct for *biological* evolution, but it assuredly holds for *cognitive* evolution. As the 20th Century unfolded, the increasingly clear realization of the complexity of the task of knowledge extension and the finitude of our means for its achievement has created a new sensibility that stresses the acknowledgment of limits. And this sensibility has rendered it impossible to return to the comparatively simple certainties of the old-style monolithic philosophical systems.

All this has meant that philosophy's traditional concern a systemic understanding able to elucidate "what it all means" faced a new cognitive scene of amazing scope and complexity. And so, those not prepared simply to abandon philosophy in favor of something altogether different were now impelled towards a new philosophical style—a new mode of philosophizing. The ruling idea of the time was that of the dictum "Something positive, yes—but nothing that smacks of those grandiose but oversimple systems of our grandfather's day." And in the circumstances such an attitude was only natural. After all, how can philosophy possibly stay simple in an awesomely complex world? How can our philosophical view of the world remain between the covers of a single book when our libraries are bursting beyond their four walls?

5. THE RISE OF PARTICULARISM

In addressing the increasingly manifest complexity of the real world—and thus also of the world of learning—the philosophical style that now came into vogue may, for want of a better name, be characterized as *particularism*. Its salient features were as follows:

1. *Specifiacty tropism*: Adopting a case-study methodology by addressing concrete cases and specific situations. Turning away from general theories and broader speculations to examine particular small-

scale issues.

2. *Preoccupation with discourse*: Concern for linguistic micro-detail regarding the use of particular words and expressions; the interpretation of particular sentences; nature of particular arguments and lines of reasoning.

3. *Preoccupation with matters of detail*: Dealing with concrete matters of minute detail, with questions so small-scale—and thereby so remote from the classical "big question" of philosophy—as to have the aspect of virtually legalistic quibbles.

4. *Concern for technique and the triumph of the technical*. Preoccupation with those aspects of the issues that can be addressed by means of the machinery of logical and linguistic analysis.

5. *Possibility mongering*. Preoccupation with hypothetical cases and situations. Concern not just with the reality of things but with virtual reality as well.

Philosophical inquiry now added a new-style disaggregation and proceeded to deal with questions of local rather than general issues, focusing in a micro-explanatory fashion on highly detailed questions in such contexts as:

- to explicate the meaning of philosophical concepts by means of "truth" conditions of language usage,

- to explain human capacities (e.g., for knowledge or for understanding) in terms of models or analogies from computing machines and "artificial intelligence" considerations,

- to explain human rule-following practices in terms of social policies and norms,

- to explain human capacities (e.g., for knowledge or for understanding) on the basis of evolutionary theories and Darwinian natural selection.

Increasingly, specialization and technicalization have come to the fore.

In the Anglo-American context above all, the post-war generation of 1945-75 saw a new emphasis on the development and deployment of for-

mal techniques of analysis suitable for elucidating not large-scale, global issues but rather for minor-issues of small-scale, localized detail. Concern for small-scale micro-issues examined with the powerful magnification of new tools of logical and linguistic analysis—was now the order of the day. The writings of such major mid-century English-language philosophers as John Austin in Britain or Nelson Goodman in the U.S.—and even Ludwig Wittgenstein, a figure of an earlier time whose influence only then became prominent—were of such nature as to seem to the uninitiated as little more than an aggregation of logic-chopping quibbles and nit-picks.

The turning of philosophy from globally general, large-scale issues to more narrowly focused investigations of matters of microscopically fine-grained detail now became a strikingly notable phenomenon. In particular, the past three decades have seen a great proliferation of narrowly focused philosophical investigations of particular issues in areas such as economic justice, social welfare, ecology, abortion, population policy, military defense, and so on. In this context, the rapid growth of "applied philosophy"—that is, philosophical reflection about detailed issues in science, law, business, social affairs, information management, problem solving by computers, and the like—is an especially striking structural feature of the contemporary North American scene

And philosophical investigations now made increasingly extensive use of the formal machinery of semantics, modal logic, computation theory, learning theory, etc. Ever heavier theoretical armaments were painstakingly developed and brought to bear on ever smaller problem-targets—to such an extent that sometimes lead readers of the professional literature came to wonder whether the important principle that technicalities should never be multiplied beyond necessity had been lost sight of.

Moreover, agenda-enlargement is yet another of the notable features of the period. The pages of its journals and the programs of its meetings bristle with discussions of issues that would seem bizarre to their predecessors of earlier days and to present-day philosophers of other places. For example, the overall program of the annual meeting of the Eastern Division of American Philosophical Association in December of 1991 included papers on "Is it Dangerous to Demystify Human Rights?", "Difference and the Differend in Derrida and Lyotard," "Animal Rights Theory and the Diminishment of Infants," "On the Ecological Consequences of Alphabetical Literacy," "Is Polygamy Good Feminism?", "The Ethics of the Free Market," "Planetary Projection of the Multiple Self on Films," "The Moral Collapse

of the University," and "The Construction of Female Political Identity."[1] Entire professional societies are dedicated to the pursuit of issues now deemed philosophical that no-one would have dreamt of considering so a generation ago. (Some examples are the societies for Machines and Mentality, for Informal Logic and Critical Thinking, for the Study of Ethics and Animals, for Philosophy and Literature, for Analytical Feminism, and for Philosophy of Sex and Love.) Most of the discussions of the present-day professional conferences and the current literature of the field would have struck our philosophical predecessors of 50 years ago as dealing with matters outside the boundaries of the subject.

In this context, the rapid growth of "applied philosophy"—that is, philosophical reflection about detailed issues in science, law, business, social affairs, information management, problem solving by computers, and the like—is an especially striking structural feature of contemporary philosophy. In particular, the past three decades have seen a great proliferation of narrowly focused philosophical investigations of particular issues in areas such as economic justice, social welfare, ecology, abortion, population policy, military defense, and so on. The turning of philosophy from globally general, large-scale issues to more narrowly focused investigations of matters of microscopically fine-grained detail became an especially striking feature of American philosophy after World War II.

This agenda enlargement made for a revolution in the structure of philosophy itself by way of taxonomic complexification. The recent period accordingly represents a flowering of philosophical study and writing in the wake of a vast expansion of the American system of higher education after World War II. (There are currently in excess of 10,000 professional philosophical academies in North America.) Specialization and division of labor now began to run rampant, and cottage industries became the order of the day. The situation has grown so complex and diversified that one comprehensive recent English-language encyclopedia of philosophy[2] cautiously abstains from providing any taxonomy of philosophy whatsoever. (This phenomenon also goes a long way towards explaining why virtually no accounts of the subject in its present configuration exist.)

In consequence of these developments, philosophy—which ought by its

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1 *Proceedings and Addresses of the American Philosophical Association*, vol 65, no. 2 (October, 1991), pp. 13-41.

2 *The Encyclopedia of Philosophy*, ed. by Paul Edwards (London and New York: Macmillan, 1967).

historic mission and tradition to seek an integration of knowledge—has itself become increasingly disintegrated. No single thinker can any longer command the whole range of knowledge and interests that characterizes present-day concerns of philosophy. After World War II it became literally impossible for philosophers to keep up with what their colleagues were writing. For there can be no doubt that the increasing technicalization of philosophy has been achieved at the expense of its wider accessibility—and indeed even to its accessibility to members of the profession. No single thinker commands the whole range of knowledge and interests that characterizes present-day philosophy. The field has outgrown the capacity not only of its practitioners but even of its training institutions: no single university department is so large as to have on its faculty specialists in every currently active branch of the subject.

6. A VISION OF WHOLENESS

However, this preoccupation with particularistic detail came to leave many thoughtful people deeply dissatisfied with its resulting fragmentation and dissonance. And so there come to the fore once again philosophers who cared for the big picture and yearned for a vision of wholeness.

Like fashions in clothing or hair styling, intellectual fashions also come and go. They run their course and are replaced by something else, something theretofore unexpected because substantially opposed to the prevailing order of things. The Law of the Swinging Pendulum also obtains with regard to particular emphases and tendencies in intellectual culture: a movement towards one extreme comes to be succeeded by one that moves towards the opposite extreme, with action in one direction succeeded by a reaction in the other. And often as not the reaction is an overreaction. All this holds not just in matters of style, politics, and the like, but for philosophical movements as well. And so by way of reaction against the post-war generation’s concern for discrete, local, and, as it were, technical issues, their successors came to yearn for a restoration of the Leibnizian (or Hegelian) vision of a philosophy that is synthetic, systemic, synoptic—in sum, one that provides for larger vistas.

To be sure, the urge towards seeing things whole has never been totally lost in philosophy. However unpopular it may be for a time, the lure of the idea of system has never disappeared altogether from the scene. It stretches through the history of modern philosophy from Leibniz to Hegel, Lotze, Peirce, cropping up even in the hostile environment of the 20th Century via such then rather unfashionable philosophers as Ernest Cassirer and A. N.

Whitehead. But as inter-bellum negativism receded ever further into the historical past, philosophers of the younger generation increasingly came to look with favor and fondness on the project of systematization. So many trees were growing that people came to insist once more in having a look at the forest. The yearning for coordinative syntheses, for unifying integrations—for an approach that is holistic rather than particularistic—began to make something of a comeback as the 20th century approached its end. The lure of the idea of system has once again come to the fore.

7. THE NEW ORDER: A REVIVAL OF SYSTEMATIC PHILOSOPHY

However, the task facing the project of philosophical systematization in the *fin de siècle* era was something distinctly new and different. The old-style reliance on monolithic central principles has become untenable, there being no real possibility of return to the simplistic systematizations of the beginning of the present century. Those neat "25 words or less" definitions and central-principle formulations beloved by writers of handbooks and textbooks are no longer seen as viable. The era of formulaic philosophy has had to be consigned safely to the unrecoverable past. The context within which present-day philosophizing must proceed exhibits characteristic features that separate it from the styles of systematization that characterized nineteenth century philosophizing. Slogans of the order of "Truth is correspondence with reality," "Justice consists of acting so as to make for the greatest good of the greatest number," or "Knowledge is true justified belief," have come to be deemed unable to accommodate the presently acknowledged complexities of the relevant issues. What has emerged, clearly and for all to see, is a new mode of complex systematization suited to an era of complexity. ("Complex systems for a complex age" would now seem to be the methodological watchword.)

And so, while the current style of philosophizing is involved in a return to systematic concerns, it has been a return with a difference. Its origin in an era of particularism has imbued present-day philosophizing with a care for detail—a concern to address concretely realistic issues by detailed elucidation and close argumentation. It still seeks to combine the care for minute analysis and concrete case studies. But it no longer sees the results as ends in themselves but rather as building blocks for those larger-scale systematization at which it aims. Care for the big picture across the details has returned to philosophy. "Meaningful detail, meaningfully integrated" is yet another guiding watchword of the new-style philosophy.

The evolution of this new complex-system style of philosophizing is

already well under way. But it is easily overlooked. For the history of philosophy has long accustomed us to a "great thinker" perspective, and on this basis one has become accustomed to seek for innovations only in the writing of some great innovator or other. But in the present case, the situation is such that we are going to have to be dealing with diffused and disaggregated movements or schools of thought rather than stellar individuals. The new-found prominence of microscopic detail has brought forth through the usual processes of specialization and division of labor, a vast host of detail workers. And so system-development has come to take the form of a multilateral and as it were collaborative project.

For the complexity that confronts us throughout the realm of inquiry means that the present situation of philosophy is such that satisfying systems can no longer emerge from single minds like Venus for the head of Zeus. Philosophy has had to come to terms with the fact that the problem situation with which it must nowadays grapple has grown in extent and complexity to the point where adequate systematization lies beyond the power of any individual intellect. And so the order of the day is disaggregated collaboration through the development of schools and circles. Philosophers once again produce complex systems. But they do so multilaterally and collectively, by way of a disaggregated and unplanned collaboration.

Holistic thinking has become one of the leitmotivs of late 20th century thought on a wide range of topics. One finds it in medicine, in thought about environmentalism, conservation, and species protection, and in urban planning and renewal, and in various other domains. And as the present deliberations indicate, it has a presence in philosophizing as well.

What we have nowadays in philosophy is a matter of the unprogrammed and disaggregated collaboration of diffused movements and schools of thought—not roadways constructed by a single engineer but paths created by the footsteps of many people, each crossing the terrain at issue on their own individual errand. The format of present-day philosophizing thus has its own, new and distinctively characteristically multilateral configuration—an uncoordinated programmatic unity superimposed spontaneously on a division of labor in matters of detail.

Moreover, the task of complexity management calls for new modes of exposition—and new modes of teaching and learning to follow in its wake. One salient sign of this is the demise of the single-author expository textbook or handbook for teaching purposes. Single authored texts and treatises can no longer adequately encompass the inherent many-sidedness of present-day philosophizing. What we have seen in their place is the emer-

gence of exposition by anthology. Or, often as not, philosophy teachers nowadays simply create a do-it-yourself anthology via reading lists. Had the copying machine not already sprung into existence, people would have become driven to invent it. And the internet is only now beginning to make its potentially enormous impact in philosophical instruction. All of these innovations, organizational and technical combined, have carried philosophical systematization into a new and different era.

8. THE CONTEMPORARY SITUATION

Then, too, the new concern for combining a holistic approach with a particularistic care for detail has led philosophy—or, rather, philosophizing—to develop in a new direction. And it is instructive to take a closer look at the contemporary situation of the field as it emerges in the light of these considerations. For there can be no question that the development of the new style of micro-systematizing philosophizing has wrought a substantial sea-change in the nature of the enterprise.

Once upon a time, the philosophical stage was dominated by a small handful of greats and the philosophy of the day was what they produced. Consider German philosophy in the nineteenth century, for example. Here the philosophical scene, like the country itself, was an aggregate of principalities—presided over by such ruling figures as Kant, Fichte, Hegel, Schelling, Schopenhauer, and a score of other philosophical princelings. But in the present day, this "heroic age" of philosophy is a thing of the past.

The extent to which significant, important, and influential work is currently produced by academics outside the high-visibility limelight has not been sufficiently recognized. For better or for worse, in the late 20th century we have entered into a new philosophical era where what counts is not just a dominant elite but a vast host of lesser mortals. Great kingdoms are thus notable by their absence, and the scene is more like that of medieval Europe—a collection of small territories ruled by counts palatine and prince bishops. Scattered here and there in separated castles, a prominent individual philosophical knight gains a local following of loyal vassals or dedicated enemies. But no one among the academic philosophers of today manages to impose their agenda on more than a minimal fraction of the larger, internally diversified community. Given that well over ten thousand academic philosophers are at work in North America alone, even the most influential of contemporary American philosophers is simply yet another—somewhat larger—fish in a very populous sea. If two or three percent of

professional colleagues pay attention to a philosopher's work, this individual is fortunate indeed.

The fact is that those bigger fish do not typify what the sea as a whole has to offer. They are certainly not the only contributions to the literature of the field. Be it for reasons of careerism ("Publish or perish") or of authentic dedication, almost all of those numerous philosophers make some contribution to the literature of the field—mostly by way of journal contributions but frequently by way of books. (North America currently has over 150 philosophy journals.)

Consider, then, the situation in the U.S.A. Matters of philosophical history aside, some of the salient themes and issues with which American philosophers are grappling at the present time are

- logic in its non-classical dimension (modal, many-valued, "fuzzy," "paraconsistent," etc.);
- truth and meaning in mathematics and formalized languages;
- computer issues: artificial intelligence, "can machines think?," the epistemology of information processing;
- the nature of physical reality in the light of modern physics (relativity, quantum theory, cosmology, etc.);
- rationality and its ramifications in practical and theoretical contexts;
- social implications of medical technology (abortion, euthanasia, right to life, medical research issues, informed consent);
- feminist issues in ethics, social polity, science, etc.;
- social and economic justice, distributive policies, equality of opportunity, human rights;
- applied ethics: ethical issues in the profession (medicine, business, law, etc.);
- the merits and demerits of scepticism and relativism regarding knowledge and morality;

- the nature of personhood and the rights and obligations of persons.

None of these issues were put on the problem-agenda of present concern by any one particular philosopher. None arose out of a reactive preoccupation with the fundamental concerns of some particular influential philosophical writer. None arose out of one specific philosophical text or discussion. Instead, they blossomed forth like the leaves of a tree in springtime, sprouting forth conveniently in scattered places under the formative impetus of the Zeitgeist of societal concern. And this holds also for the flourishing use of the case-study method in philosophy, a notable phenomenon for which no one philosopher can claim credit. (To a contemporary observer it seems like the pervasively spontaneous expression of the ethos of the age.) The nature of American philosophy today is such that for the most part new themes, ideas, and tendencies have come to prominence not because of the influential impact of some specific philosopher but because of the disaggregated individual efforts of a host of writers. Philosophical innovation today is generally not the work of pace-setting individuals but a genuinely collective effort that is best characterized in statistical terms.

A century ago, the historian Henry Adams lamented the end of the predominance of the oligarchy of the great and the good in American politics—as it had been in the days of the Founding Fathers. He regretted the emergence of a new order based on the dominance of masses and their often self-appointed and generally plebeian representatives. Control of the political affairs of the nation had slipped from the hands of a cultural elite into that of the unimposing, albeit vociferous representatives of ordinary people. In short, democracy was setting in. Exactly this same transformation from the preeminence of great figures to the predominance of mass movements is now, one hundred years on, the established situation in even so intellectual an enterprise as philosophy.[3] In its present configuration, American philosophy reflects that "revolt of the masses" that Ortega y Gasset deemed characteristic of our era. This phenomenon manifests itself not only in politics and social affairs, but even in intellectual culture, including philosophy, where Ortega himself actually did not expect it.[4] For

[3] Not that a sizable percentage of people-at-large takes any interest in philosophy. In this context the democratization of the field is something quite different from its popularization.

[4] "Philosophy needs no protection, no attention, no sympathy, no interest in the part of the masses. Its perfect uselessness protects it." (*The Revolt of the Masses* [*La rebelión de las masas*], tr. by Anthony Kerrigan [Notre Dame: University of Notre

what our century's spread of affluence and education has done through its expansion of cultural literacy is to broaden the social base of creative intellectual efforts beyond the imaginings of any earlier time. A cynic might perhaps characterize the current situation as a victory of the troglodytes over the giants.[5] In the Anglo-Saxon world at any rate—cultural innovation in philosophy as elsewhere is a matter of trends and fashions set by substantial constituencies that go their own way without seeking the guidance of agenda-controlling individuals. This results in a state of affairs that calls for description on a statistical rather than biographical basis. (It is ironic to see the partisans of political correctness in academia condemning philosophy as an elitist discipline at the very moment when professional philosophy itself has abandoned elitism and succeeded in making itself over in a populist reconstruction. American philosophy has now well and truly left "the genteel tradition" behind.)

Insofar as such a perspective is valid, some far-reaching implications follow for the eventual historiography of present-day philosophy. For it indicates a situation with which no historian of philosophy has as yet come to terms. In the "heroic" era of the past, the historian of the philosophy of a place and time could safely concentrate upon the *dominant* figures and expect thereby to achieve a certain completeness with respect to "what really mattered." But such an approach is wholly unsuited to the conditions of the present era. Those once all-important "dominant figures" have lost control of the agenda. To accommodate the prevailing realities, the story of contemporary philosophy must be presented in a much more aggregated and statistically articulated format. And insofar as single individuals are dealt with as such, it must be done against such an enlarged background, for they now function as *representative* rather than as *determinative* figures, with the status of the individual philosopher selected for historical consideration generally downgraded into a merely exemplary (illustrative) instance of a larger trend. The historian of philosophy in its present-day con-

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Dame Press, 1989], p. 73. This classic work originally appeared in Madrid in 1929.)

5 The General Editor of a first-rate survey of American humanistic scholarship wrote in the Foreword to the volume on philosophy: "Not many of the names mentioned in these pages are recognizable as those of great intellectual leaders, and many are unknown even to an old academic hand like myself who has a fair speaking acquaintance with the various humanistic disciplines in America." (Richard Schlatter in Roderick Chisholm et. al., *Philosophy: Princeton Studies of Humanistic Scholarship in America* (*op. cit.*), p. x.)

figuration accordingly faces a task of selection entirely different in nature and scope from that which prevailed heretofore. The role of the individual in the historiography of the future will be as the subject of a footnote illustrative of the diffused and diversified general trends and tendencies of thought to which the main body of the text will have to be dedicated.

Overall, then, philosophy at the end of the century wears a different and distinctive look. It is once more traditionalistic in orientation and systematic in its interests and aspirations—concerned to examine the classical big questions of traditional philosophy in a detailed, comprehensive, and systematic manner. But it is no longer an intellectual enterprise of the "great thinker, great system" type familiar from the earlier tradition. Systems are nowadays constructed rather like ant-hills than like pyramids that are the product of centralized direction. Unprogrammed and disaggregated collaboration among many workers distributively addressing large and complex projects has become the order of the day. And in every area of philosophy a literature of vast scope and complexity has emerged whose mastery is beyond the capacity of single individuals. Systematization is at work, but rather at the collective level than at that of individual contributions.[6] The programmatic format of present-day philosophizing is actually an uncoordinated unity spontaneously superimposed on a division of labor in matters of detail. What we have nowadays in philosophy is a matter of the unplanned and disaggregated collaboration of movements and schools of thought—not roadways constructed by a single engineer but paths created by many people, each crossing the terrain at issue on its own individual errands. Philosophizing at the end of the century thus has a new form—one which (like the science of the present) calls for collaborative teamwork, albeit of disaggregated and unorganized sort (unlike the science of the day.[7]

And this is not necessarily a bad thing. After all, where is it written that philosophical systems must be compact and their production must come from the selected few—that they cannot be many-facedly complex and take the form of a complex, collective and collaborative intellectual, cultural, and scientific projects and positions?

Philosophy cannot stand still, seeing that what it must, in the end provide is a cognitive accommodation of experience. For in the course of time

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6 In the long run, the technology of the internet will doubtless intensify this tendency.

7 In philosophy, unlike physics or chemistry, the multi-author paper is effectively unknown.

the entire network of contexts within which human experience unfolds—alike cognitive, scientific, social, technical, or political—is all subject to change. And here, as elsewhere, new circumstances will call for new responses.

What is the philosophy of the twenty-first century going to be like? A famous jazz musician was once asked "Where is jazz going?" He replied, "If I knew that, we'd be there already." But while it is indeed effectively impossible to say what those philosophers of the future will produce, it is possible to make a plausible conjecture about how they will produce it. They are likely for some time to proceed in much the same way as at present—by the same sort of disaggregated collaboration that we are currently witnessing.

Yet one thing seems sure. The dream of systemic understanding and holistic cognition is something that philosophers are unlikely ever to abandon altogether. To be sure, it is unlikely in the extreme that there will soon be a restoration of the ambitious single-author systematizations the have characterized philosophical productivity in the past. Nevertheless the development of systems is nowadays once more a living venture in philosophy. But it has become multilateral and diffuse—no longer the product of single minds. Present-day philosophy systematizers can no longer manage on their own—any more than contemporary experimental scientists can. The systems to which they aspire may be akin to those of the earlier tradition, but the means of their construction must be configured differently. For those aspiring systematizers of the present era have to depend on effort—or even mere chance—to provide them with collaborators among their colleagues. In this regard, we simply "can't go home again."[8]

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8 This chapter is a somewhat revised version of a German article entitled "Philosophie am Ende des Jahrhunderts," *Deutsche Zeitschift für Philosophie*, vol. 5 (1995), pp. 775-87.

Chapter Seven

TWENTIETH CENTURY ANGLO-AMERICAN NEO-IDEALISM

1. HISTORICAL STAGE SETTING

Historically, idealists have emphasized and indeed often prioritized the role of our human mind-guided modus operandi over that of nature-at-large as basis for the philosophical understanding of ourselves and our place in the world's scheme of things. Idealism has many versions. To begin with, there is the *causal* idealism that looks to the productive role of mind or spirit in the constituting of nature.[1] Then too there is the *axiological* idealism that assigns a formative role to values in this regard.[2] There is also the *absolute* idealism which, despite Hegelian kinship, found its root inspection—at least among English speaking philosophers—in Bishop Berkeley's combination of anti-materialism with a spiritualism of sorts. Such a position was represented in England by Bradley and Basanquet and in the U.S.A. by Josiah Royce, Ernest Hocking and Wilbur Marshall Urban. But none of these three idealisms found widespread favor in the Anglo-American orbit in their original version. Instead, a quite different approach came to the fore—one that was based on the way in which we humans operate with concepts and the language in which they are encorporated.

This Anglo-American neo-idealism is grounded in nineteenth-century German post-Hegelian idealism. Hegel's own teaching was an ontologically based view of the operation spirit and mind upon the historical stage

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1 In the 20th century, this sort of position was principally espoused in France, in the work of Henri Bergson and Teilhard de Chardin.

2 Initiated by Plato in antiquity and reaffirmed by Leibniz, this position has in recent years been eloquently advocated by the Canadian philosopher John Leslie. See his *Value and Existence* (Oxford: Clarendon Press, 1979) and *Universes* (London: Routledge, 1996).

of cosmic developments. Its defining motto was that the real is rational. But the German school of idealism that followed him returned to the standpoint of the earliest philosophers of pre-Socrates Greece who bifurcated the realm of nature (of *physis*) and that of human contrivance (of *nomos*). And in shifting to an epistemological rather than ontological perspective, the founders of this approach insisted upon maintaining a fundamental distinction between the natural and the human sciences, especially in stressing the following points.

(1) The natural sciences are *ahistorical* in their concerns. Carbon atoms behave always and everywhere as carbon atoms must. But the human sciences are inescapably historical: everything that is of human contrivance has its origin and its end in a context of historical developments.

(2) The natural sciences are *value-free*, material nature has no place for judgments of or worth. But human affairs are invariably value-invoking and human actions are guided by judgments of desirability and values.

(3) Explanation and understanding in natural sciences proceeds with reference to *laws of nature*. But in the human sciences explanation and understanding proceeds with reference to *social norms*: customs, habits, conventions, practices, etc. Thus while the orientation of natural science is causal, that of the human science is hermeneutic.

(4) Accordingly, the natural sciences are based upon outward-geared *observation* and their correlation and statistics. But the human sciences always involve an element of intuition—of empathy or sympathy or analogy to how things stand in relation to our own inward-geared - *personal human experience*.

This in essence was the standpoint of the historically oriented German post-Hegelian idealists—of such thinkers as Wilhelm Dilthey (1833-1911), Wilhelm Windelband (1848-1915) and Heinrich Rickert (1863-1936).

The first of these—Dilthey—was also the most influential.[3] He elaborately defended the view that the human "sciences" are so geared to cul-

[3] For the voluminous Dilthey literature see J. Hermann, *Bibliographie Wilhelm Dilthey: Wueller und Literatur* (Berlin and Basel: Weinheim, 1969).

tural phenomena that their effective pursuit calls for an experientially internalized understanding. Only on the basis of lived experience can we achieve the empathetic understanding required for the explanation of human affairs. People are cognitively guided agents who function on the basis of meanings, intentions, values, purposes all of which need to be grasped "from within" if one is to achieve an adequate understanding of human affairs.

In Germany itself, the "human sciences" tradition was taken over and absorbed into a school of "hermeneutically" oriented thinkers who effectively attenuated the link to "science" and, taking textual studies in classical scholarship and religious exegesis as the guiding model for humane studies, saw textual interpretation rather than scientific explanation as the paradigm for the study of human phenomena. In the 20th century Martin Heidegger (1889-1976) and Hans Gadamer (1900-2001) became principal figures in this school of thought. But while this hermeneutic tradition ultimately came to exert considerable influence on the Anglo-American philosophical orbit in the late 20th century, the development of Anglo-American neo-idealism developments also had other sources of inspection.

In some ways, this philosophical tendency is a phoenix-like revival of earlier approaches. In Britain idealism entered the 20th century through the Oxford neo-Hegelian movement of F. H. Bradly and Bernard Bosanquet, but the reaction against this from the Cambridge philosophers Bertrand Russell and G. W. Moore effectively put paid to this tendency. In the USA the initially influential idealism of Royce and Hocking at Harvard was torpedoed by their colleagues Edwin Holt, William Pepperell Montague, Ralph Barton Perry and their allies at Chicago and elsewhere. The 1912 collective on *The New Realism* contributed to the influences in the U.S. which proved fatal to American flirtations with absolute idealism there. Moreover, throughout the Anglo-American realm.[4] G. W. Moore's "Refutation of Idealism," published in his 1922 *Philosophical Studies*, exerted a great influence. Moore's classic essay evoked a widely ignored response in W. T. Stace's 1934 "Refutation of Realism" which argued with Berkelyian inspiration that there could be no valid inference from the subjective principle impressions to anything objective above and beyond them. And so in the inter-war era only a handful of philosophers—pre-eminently A. C. Ew-

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[4] On these developments see Bruce Kuklick, *The Rise of American Philosophy* (New Haven: Yale University Press, 1977).

ing in Britain and Brand Blanshard in the U.S.—continued to uphold idealist theses and theories. By the end of the second third of the 20th century the standard line of Anglo-American philosophy was to characterize idea idealism as anti-realism and to see this as caught in the dilemma between a virtually unintelligible obscurantism on the one hand and a flat out denial of the cognitive authority of science on the other. (The earlier work of Hilary Putnam exhibits this tendency.[5])

2. LATTER-DAY DEVELOPMENTS

An early augury of changes to come were Nicholas Rescher's lectures on "Conceptual Idealism" delivered in the School of Litterae Humaniores at the University of Oxford in the Trinity Term of 1970, subsequently published in a book of that title issued by Basil Blackwell in Oxford in 1973. Rescher had been a student of Stace's in the late 1940's, but his main influences were the British neo-Hegelians of the generation of 1880 and their German precursors. He argued that while positivists and materialists want to explain human phenomena by means characteristic for the exploration of inert nature, idealists hold that a proper understanding of the "material" realm ultimately requires reference to characteristically human proceedings. Human actions—including our cognitive commitments and belief-acceptability determinations—must be explained in sui generis terms involving norms and values. And this even goes for our adequacy determinations regarding the explanation of processes and events existing in the realm of nature. The very concepts we use here are based on our understanding of human phenomena.

His strongly pragmatic sympathies lead Rescher to acknowledge the special claims of the natural sciences to an objective validity betokened by the effectiveness in matters of prediction and control over nature. But nevertheless from a conceptual standpoint the thought instrumentalities they employ are in significant measure modeled on our human self understanding with respect to our cognitive modus operandi. Here at the hermeneutic level it is the conceptual rather than causal standpoint that is paramount. And Rescher integrated this conceptualistic approach with a revisiting of

[5] See Hilary Putnam, "Mind Language and Reality," *Philosophical Papers*, Vol. 2 (Cambridge: Cambridge University Press, 1975). Putnam condemns the neo-positivist theory of science popular in the 1930-60 era as "based on an idealist or ideal-tendency world view. . . that does not correspond to reality."

various key themes of traditional idealism, preeminently including cognitive systematization and the coherence theory of truth, a well as dialectics and its role in cognitive evolution.[6]

Although Rescher made the tactical mistake of defending idealism by that name (a step that doubtless impeded the response to his views), he nevertheless proved to be right in thinking that if idealistic ideas and doctrines were once again going to gain acceptance this would have to occur on the basis of restating the issues and reformulating the doctrines of idealism in the idiom of the analytic mode of philosophizing that idealism's arch-enemies Russell and Moore had inaugurated. Only by infiltrating idealist ideas and views into the doctrinal and methodological position of its prime opponents could the doctrine be made accessible in the climate of thought prevailing in Anglo-American philosophy in the final third of the 20th century.

This circumstance is also illustrated by the interesting segment of latter-day idealism that is represented by the work of Joseph Margolis.[7] For Margolis, it is we humans and our works that stand at the center of the philosophical stage. And he echoes Dilthey's insistence on a definitive difference in conceptualization and approach between the natural and the human sciences when viewed internally from the angle of their own claims and aspirations. For viewed objectively, so Margolis urges, both are simply artifacts, though instrumentative produced by humans in a changing historical context with a view to understanding and explanation. Natural science too is simply another human production in no way privileged over the rest. Thus for Margolis—unlike many of his more natural-science minded contemporaries—it is ultimately the human sciences that stand at the forefront and in this regard he drew heavily on the Continental tradition of philosophy.

The idealistically oriented thinkers of the late 20th century all in one way or another took up Dilthey's hermeneutic approach and insisted that human

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6 *The Coherence Theory of Truth* (Oxford: Clarendon Press, 1973); *Conceptual Idealism* (Oxford: Basil Blackwell, 1973); *Dialecticcs* (Albany: State University of New York Press, 1977); *Cognitive Systematization* (Oxford: Basil Blackwell, 1979); *A Useful Inherentance* (Savage, MD: Rowman & Littlefield, 1989); *Human Knowledge in Idealistic Perspective* (Princeton: Princeton University Press, 1991); *Cognitive Idealization* (Oxbridge, UK: Cambridge Scholars Press, 2003);

7 His substantial trilogy entitled *The Persistence of Reality* was published in Oxford by Basil Blackwell in the late 1980's although part of the material had already appeared in various publications over the preceding decade.

phenomena—our understanding of nature included—must be understood in fundamentally anthropocentric terms, be they cognitive (reasons, explanations), evaluative (values, aims, purposes), or social (norms, rules, conventions). However, they reinstituted this position by deriving ideas and inspirations from various sectors of important work in 20th century analytic philosophy—Carnap and C. I. Lewis for Rescher, Wittgenstein and Kripke on rule following for McDowell and, in the case of Brandom, David Lewis on convention, as well as John Dewey on social practices.

John McDowell's *Mind and World*, based on his 1991 John Locke lectures at Oxford, was a key part of this movement.[8] As McDowell sees it the Cartesian separation of mind from matter is profoundly wrong because much of our thought operates in a way as to be inseparable from their objects and would be unthinkable in the absence of their objects. But clearly this coordination can also be seen in reverse to mean that various objects of our cognition are irremediably mind-dependent and will not be as they are in the absence of mind. And of course just this is the salient doctrine of idealism.

At the center of McDowell's thought is the post-Cartesian problem of integrating thought and physical nature. His project is to insert ourselves—viewed as rational agents functioning in the world on the basis of beliefs and desires and deploying norms and values in shaping them (conceptualizing beings functioning in what Wilfred Sellars called "the space of reasons")—into the natural world as science considers it, albeit as something of a separate and differential island. But though distanced from the merely physical reality of inert matter, there is nevertheless a cognitive causeway that connect the two. In effect, McDowell seeks to achieve this connection by returning to Kant's distinction between spontaneity and receptivity and effectively coordinating these via the insight that "the world" as we deal with it is an intellectual construction, so that by the time we confront it it is too late to ask how it can be that thought can be in touch with the world.

McDowell seeks for a middle ground of a mitigated naturalism "that makes room for meaning."[9] between the "bald naturalism" of a scientism that leaves "nature disenchanted" with regard to human interests on the one hand and on the other a "rampant Platonism" committed to a nature-

[8] John McDowell, *Mind and World* (Cambridge, MA: Harvard University Press, 1994; 2nd ed., 1996).

[9] John McDowell, *Mind and World*, p. 85.

detached domain of norms, values, and reasons. As he sees it, human reason stands in the foreground for understanding pretty much anything that concerns ourselves. We understand and explain human affairs with reference to their position in the "space of reasons." Reaching back to earlier episodes in philosophical history, McDowell's position drew inspiration not only from Ludwig Wittgenstein's later ideas regarding the conventions that govern our communicative discourse about things but also from Immanuel Kant's distinction between the causality of reason and the causality of nature.

Robert Brandom's position is in some ways akin to McDowell's but approaches the issues from a very different angle.[10] With him, it is the social practices that underline our use of language in communication and their validation that stand in the foreground. As Brandom sees it, many of the objectively descriptive feature of things must be understood in terms of our socially conditioned practical interactions with them. What appear as objectively descriptive features of things are in fact dispositional through the linguistically mediated responses they invoke in us. Accordingly what seems on first view to involve questions about reality turn out on closer inspection to come down to issues regarding our use of concepts in characterizing reality and thus to reflect what is—at bottom—a social practice of sorts in point of the linguistic domestication of concepts.

Brandom thus integrates Fregean concerns for the mechanisms by which language comes into contact with the extra-linguistic world with deliberations regarding conventionality as articulated by his teacher David Lewis. And, reaching back even further, Brandom brings into the foreground a conception of social practice as expounded by John Dewey, orienting it towards the inferential practices that govern our mechanisms of linguistic communication. Clearly insofar as our attempts to depict and explain this world we live in involve ideas geared to convention, we return once more to the salient idealistic view that our grasp of nature is definitively mediated and in mentalistic terms of reference in a way that is not just mind-produced but mind-patterned. What thus links all of these diverse latter-day idealists together in orientation is their insistence upon the salience in philosophical understanding of factors characteristic of the human sphere: reasons, rules, customs, conventions, symbols, norms, values, priorities, and the like.

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[10] Robert Brandom, *Making it Explicit* (Cambridge, MA: Harvard University Press, 1994 and *Articulating Reasons* (Cambridge, MA: Harvard University Press, 2000).

What we have here is thus a re-visiting from the vantage point of the analytic mode of 20th century philosophy the 19th century idealism of Dilthey and his congeners with their emphasis on two different modes of understanding and explanation—the one geared to sciences of nature and the other to the "sciences" oriented to the works of human kind, with the key to philosophical understanding seen to lie not in the ideas and paradigms geared to the understanding of inert nature but to the products and processes of human artifice. Here the definitive resources of the cognitive processes of homo sapiens—rationality, convention, evaluation, conceptualization, and symbolization, communication—and the correlation of human praxis in relation to norms, conventions, principles, etc. as the principal instruments of philosophical inquiry. For all of these latter day idealists alike abandon scientific reductionism and the positivism characteristic of philosophy in the first half of the twentieth century to seek the pivotal instrumentalities of philosophical understanding in the sphere of human artifice rather than nature.

3. BACK TO DILTHEY

Although on the issue of a *causal* reductionism the thinkers of this group may differ, nevertheless on the issue of *conceptual* reductionism they agree in being drastically opposed. They all insist on the hermeneutic autonomy of the human domain—that the principal phenomena of the human sciences can only be grasped via principles characteristic of this domain and absent elsewhere. And within this domain they see the concept-machinery of everyday life as paramount—the ideas at work in our ordinary thought and discourse have a primacy and privileged position in the matters of understanding and explanation here and cannot be supplemented by technical innovations. With human affairs, understanding and explanation has to proceed from within the setting of ordinary human thought experiences and the generalization for externalized observation—however useful in some respects—is not the basis for adequate understanding. In this regard this latter-day neo-idealism reflects the 19th century influence of Dilthey rather than that of the British neo-Hegelians.

And so, while no particular credit or credence will accrue to any anglo-American philosopher who adopts the self-description of neo-Diltheyian—seeing that a majority of their colleagues have never even heard of Wilhelm Dilthey—nevertheless this in effect is what most of the contemporary neo-Idealists are.

Most but not all. For now and again there emerges a thinker of idealist tendency who looks to entirely different sources of inspection. One instance of this is the line of thought at issue in the neo-idealism of this sort is anti-realism which finds expression in John Foster's self-avowedly idiosyncratic but nevertheless provocative 1982 book on *The Case for Idealism*. His approach is substantially detached from the sort of position we have here considering, seeing that its sole historical reference point is the ontological idealism of Bishop Berkeley.

Yet another one of these unusual flowers in the garden of contemporary idealism is Timothy Sprigge. His 1983 book, *The Validation of Absolute Idealism*, not only has resonances of Berkeley but goes back beyond him to Spinoza. As Sprigge sees it, natural reality is concurrently both mental and physical in its make-up. He ingeniously defends a dual-aspect panpsychism of sorts, accordingly to which the universe is mental in its inner essence and physical only in its overt structure.

Chapter Eight

THE BERLIN SCHOOL OF LOGICAL EMPIRICISM AND ITS LEGACY

1. BACKGROUND

What has become generally known as the Berlin School of Logical Empiricism constitutes a philosophical movement that was based in Berlin's *Gesellschaft für empirische Philosophie* and erected on foundations laid by Albert Einstein. His revolutionary work in physics had a profound impact on philosophers interested in scientific issues, prominent among them Paul Oppenheim and Hans Reichenbach, the founding fathers of the school, who joined in viewing him as their hero among philosopher-scientists.

Overall the membership of this school falls into three groups, as per Display 1.[1] The founding generation was linked by the circumstance that both Grelling and Reichenbach were collaborators of Oppenheim; the middle generation by the fact that both Hempel and Helmer were students of Reichenbach in Berlin; and the younger generation by the fact that all of its members were students and (at least in their early years) disciples either of Reichenbach or of Hempel in the USA. Three stages are thus at issue: an initial phase in Berlin, a transatlantic migration, and a continuation in the U.S.A.—principally in Pittsburgh.

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[1] Various other people were involved in the Berlin School in a more peripheral way. A detailed account of its early days in Berlin (roughly 1927 to 1933) is given in Dieter Hoffman's contribution to Dannenberg et. al. 1994, entitled "Zur Geschichte der Berliner Gesellschaft für empirisch/wissenschaftliche Philosophie."

Display 1

THE BERLIN SCHOOL

I. THE FOUNDING GENERATION

- Paul Oppenheim (1885-1977)
- Kurt Grelling (1886-1942)
- Hans Reichenbach (1891-1953)
- Walter Dubislav (1895-1937)

II. THE MIDDLE GENERATION

- C. G. Hempel (1905-1997)
- Olaf Helmer (1910-)

III. THE YOUNGER GENERATION

- Norman Dalkey (1915 - 2003)
- Adolf Grünbaum (1923-)
- Wesley Salmon (1925-2001)
- Hilary Putnam (1926-)
- Richard Jeffrey (1926-2002)
- Nicholas Rescher (1928-)
- Gerald Massey (1934-)
- Larry Laudan (1941 -)
- John Earman (1942 -)

Note 1: As a member of the "younger generation" I count those students of a prior generation members who to some extent continued their work and were at least

two of the following: their dissertation students, collaborators in publication, or colleagues. This means that there are bound to be some near misses. Abraham Kaplan who was a doctoral student of Reichenbach and a RAND consultant—associated as such with Helmer and Dalkey—is one of those near misses; his own program of work moved outside the thematic range of the school. Another near miss is John G. Kemeny, a student of Alonzo Church and sometime assistant to Albert Einstein and collaborator of Paul Oppenheim who worked on problems squarely in the Berlin School's range of interests and served for a time as a consultant at RAND, collaborating with Helmer and Rescher there.

Note 2: The "younger generation" divides into those taught by Reichenbach at UCLA (Dalkey, Salmon, Putnam) and those taught by Hempel at Queens, Yale, or Princeton (Grünbaum, Rescher, Jeffrey, Massey, Laudan, Earman.)

What sort of ties must there be to bind different individuals into the commonality of a philosophical "school of thought?" Personal interaction apart, what is it that makes such a school? The answer is: intellectual commonalities. And the following functions, in particular, come into prominence here:

- *doctrinal* commonality: shared beliefs
- *thematic* commonality: shared interests and concerns
- *ideological* commonality: shared values and goals
- *methodological* commonality: shared methods of inquiry

The early logical empiricists (and indeed even more broadly the logical positivists who were their intellectual kinsmen) formed a school on all four counts. Doctrinally they all rejected traditional metaphysics and value theory in anything like their historically established form. Thematically they focused on issues prominent in contemporary science, mathematics, and logic. Methodologically they insisted that philosophy should adopt the modes of reasoning and exposition that characterize the formal sciences of logic and language. And ideologically they all inclined to the view that science, and in particular *natural* science, is the model that all rigorous knowledge ought to emulate. As one of his students (Abraham Kaplan)

wrote of Reichenbach: "he wanted man to look to the logic of science for a guide to belief and action."[2]

2. PERSONS

In considering the Berlin School more closely, it is instructive to begin with the issue of personal interaction. Let us accordingly consider the various individuals involved, with a view to their relationship as the members of a well-defined group. But first a caveat. It cannot be overemphasized that no attempt will here be made to provide a rounded view (however brief) of the life and work of the individuals at issue. Rather, what is of present concern is only their relationships to each other in regard to their conjointly constituting the membership of a particular school.[3]

One more preliminary observation has to be made. The register of Berlin School members does not include Rudolf Carnap. And this is in strictness correct, seeing that Carnap was a member of the Vienna Circle (until 1931) and thereafter linked to it for a time from Prague. All the same, he exerted a great influence on the membership of the Berlin group and in due course was instrumental in the late 1930's in helping Hempel and Helmer secure their first foothold in the academic world of the USA. Thus while Carnap was not a member of the group, he nevertheless exerted substantial influence upon it. And in the end it evolved that many members of the group were personally and scientifically closer to Carnap than to its founding father, Reichenbach.

A. PAUL OPPENHEIM

Born in Frankfurt in 1885, Paul Oppenheim was not a professional philosopher but a business man who was initially trained as a chemist and worked as such in Germany's war industry during World War I. Himself the heir to considerable wealth as son of a successful diamond merchant, he eventually became a director of the chemical conglomerate I. G. Farben. With the rise of Nazism in Germany, he transferred himself and his con-

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[2] Reichenbach 1978, p. 68. For further details on the doctrinal stance of the school see the editor's introduction to Fetzer 2001.

[3] The bibliographical appendix will guide the interested reader to further and fuller information regarding the philosophers at issue.

siderable fortune out of the country—first to Brussels in Belgium and then to Princeton, New Jersey—a locale he selected with a view to the proximity of his close personal friend, Albert Einstein. After leaving Germany Oppenheim never again took up employment. Instead, he lived on his fortune and became a supporter and patron of like-minded philosophers. The idea of a scientific study of the methods and concepts of the sciences was at the core of Oppenheim's interests.

As early as 1921 Oppenheim had been in touch with Hans Reichenbach.[4] Over the years, Oppenheim exerted his influence to further Reichenbach's academic career—both in Frankfurt and in Berlin.[5] And Reichenbach in turn was, in effect, the first of a long series of Oppenheim's collaborators. He recruited Carl G. Hempel to act as a critic and sounding board in helping Oppenheim to formulate the ideas that formed the focus of his first publications: two monographs respectively on the "fundamental principles" (*Grundgesetze*) of a comparative science of the sciences (1926) and of scientific concept-formation (1928). And Reichenbach was also helpful to Oppenheim with the publication arrangements for these studies.

Seeing the handwriting on the wall immediately upon the Nazi rise to power, Oppenheim emigrated in late 1933 from Germany to Brussels, his wife's native city. During the subsequent six years in Belgium, Oppenheim lived as a private scholar, producing one book and several papers in joint collaboration with two investigators whom he aided personally and financially. The first was Hempel who joined Oppenheim in Brussels in 1934 and with whom Oppenheim wrote a book on the logic of classification. (Published in 1936, it was to be the first of four joint Hempel-Oppenheim publications.) The second was Kurt Grelling who came to Brussels in 1935 and collaborated with Oppenheim in an investigation of the *Gestalt* concept.[6]

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[4] Reichenbach, who was then assistant to the physicist Regner in Stuttgart, was at this time one of the most active and effective exponents of Einstein's theory of relativity. His contact with Oppenheim was probably mediated by Einstein.

[5] See Oppenheim's Vorbemerkung to his 1926 book as well as his statement in Rescher (ed.), 1969, p. 1. The details of Reichenbach's collaborative and advisory relationship to Oppenheim can be traced in detail in letters and other materials preserved in the Reichenbach collection of the "Archives of Scientific Philosophy in the 20th Century" at the University of Pittsburgh.

[6] Grelling remained in Belgium until the German invasion, which led to his ultimate demise in the annihilation camp at Auschwitz. For Grelling see Volker Peckhaus

After moving to the U.S.A. in 1939, the Oppenheims maintained in their house at 57 Princeton Avenue what can best be described as a latter-day salon for scientists and philosophers, utilizing to the full Princeton's assets as a major center of learning. Oppenheim was delighted when Hempel eventually transferred from Yale to Princeton. He always regretted the failure of his efforts to bring Grelling there prior to the war, and appreciated Hempel's aid in recruiting Nicholas Rescher to carry forward during 1951-52 the collaborative work with Grelling that had to be abandoned in the 1930s. After Rescher left Princeton in 1951, Oppenheim also attracted other collaborators, including John G. Kemeny and Hilary Putnam. After a long and productive life devoted to personal and intellectual contact and interaction with scientists and academics, Oppenheim died in 1977 at the age of 92. He maintained an active concern for philosophy-of-science issues to the end of his days, and his last paper, collaborative as ever, was published posthumously. In Princeton, Einstein's home at 112 Mercer Street was not far distant from the Oppenheims, and the two aging expatriates regularly went on long Sunday afternoon walks, chatting in German about current events and times gone by.[7]

B. KURT GRELLING

Born in Berlin in 1886, Kurt Grelling studied mathematics with Hilbert and Zermelo in Göttingen and earned a Ph.D. under their direction in 1910. He served as a medic in the German army during WW I. Active in socialist politics he encountered difficulties with an academic career and became a secondary school teacher. He settled in Berlin in 1920 where he became

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"Kurt Grelling in Göttingen und Berlin" in Lutz Danneberg et al. (eds.) 1994, pp. 55-73, as well as Luchins 2000.

[7] In view of the notorious reluctance of the biographers of the famous to allow the non-famous to play their actual role in the lives of their protagonists, it is unsurprising to find Oppenheim missing from many Einstein biographies. An exception is Jamie Sayen's *Einstein in America* (New York: Crown Publishers, 1985), written by the son of Einstein's neighbor in Princeton, which remarks perfunctorily that Einstein's circle included "intellectuals like Paul Oppenheim, a philosopher of science" (p. 126). The significance of Oppenheim in Einstein's life is symbolized in the fact that it was he who, together with Otto Nathan, his literary executor, was responsible for spreading Einstein's ashes. See Abraham Pais, *Einstein Lived Here* (New York: Oxford University Press, 1994).

associated with Reichenbach's "Gesellschaft für empirische (later: wissenschaftliche) Philosophie." Through Reichenbach's mediation he became associated with Oppenheim, and in the wake of Nazism in Germany Grelling, who was of Jewish antecedence, emigrated to Brussels to work with Oppenheim during 1937-38, replacing Hempel who had moved to the U.S.A. in 1937. When Oppenheim emigrated to the U.S.A., Grelling did not join him despite Oppenheim's repeated urging. Remaining in Belgium, Grelling was expelled to France after the German occupation in 1940. Subsequently, after trying to escape to Spain, Grelling was sent back to Germany in 1942, where he perished in Auschwitz later that year.

A significant contributor to modern mathematical logic, and creator of his well-known eponymous paradox, Grelling collaborated with Oppenheim on a monograph entitled "Der Gestaltbegriff im Lichte der neuen Logik."[8] For a time Grelling continued to correspond with Oppenheim about Gestalt matters, but this collaboration was unavoidably unfinished when Oppenheim's energetic efforts to extract Grelling from internment by the Germans proved fruitless. Oppenheim continued to be mindful of Grelling's work, and in 1951 enlisted Rescher (at Hempel's suggestion) for its continuation. This collaboration resulted in their joint publication on "The Logical Analysis of Gestalt Concepts."[9]

C. HANS REICHENBACH

While Oppenheim was Einstein's personal friend, Hans Reichenbach was his protégé and disciple. Reichenbach began his career as a physicist-mathematician who had worked on radio-connected matters in the German war industry during 1917-18 and thereafter turned to an academic career via habilitation in Stuttgart in 1920. After an early interest in political matters Reichenbach turned to philosophy of science in the wake attending Einstein's lectures in Berlin. In 1926 he was appointed, at Einstein's urging, as Professor of Philosophy of Physics in Berlin, and in 1930 he founded (jointly with Rudolf Carnap) the journal *Erkenntnis* as official organ of the school of logical empiricism in which the two of them functioned as principal figures. With the rise of Nazism, Reichenbach emi-

[8] "Der Gestaltbegriff im Lichte der neuen Logik," *Erkenntnis*, vol. 7 (1937/38), pp. 211-25; and "Supplemental Remarks on the Concept of Gestalt," Ibid., pp. 357-59.

[9] *British Journal for Philosophy of Science*, vol. 6 [1955], pp. 89-106.

grated from Germany, first to Istanbul in 1933 and subsequently to Los Angeles in 1938, where he held a chair in philosophy until his death in 1953.

The issues to which Reichenbach primarily dedicated his work were primarily three: space and time, probability and induction, and chance-causality-predictivity; The first of these two issued from Einstein's work on relativity: the latter two had their grounding in the emergence of the quantum theory, whose development played a crucial role in Einstein's thought. Throughout his career, then, Reichenbach continued to work on issues within the boundaries set by Einstein's scientific concerns. He often visited Einstein in Princeton, invariably staying with the Oppenheims.

In the course of his brief professorship in Berlin, Reichenbach had two students who came to figure importantly in the transmission of his influence: C. G. Hempel and Olaf Helmer. Overall, Reichenbach was the driving force behind the development of a Berlin School and together with his student C. G. Hempel he assured its survival through transplantation in the USA.

However, of the score or so of graduate students whom Reichenbach mentored at UCLA, only Norman Dalkey, Hilary Putnam, and Wesley Salmon stayed firmly within the personal and ideological orbit of the school, though several others (Abraham Kaplan, Paul Wienpahl, Donald Kalish, and Ruth-Anna Putnam) can be considered as peripherally relevant.

D. WALTER DUBISLAV

The philosopher and mathematician Walter Dubislav, who was born in Berlin in 1895, was also an active member of the Berlin School for a time in the early 1930s while teaching at the Technische Hochschule in Berlin prior to his emigration to Prague in 1936. He befriended Reichenbach and played an active role in the Berlin school. Along with Grelling and Hempel, he was one of its mainstays after Reichenbach emigrated to Istanbul in 1933. However, he then became paranoid and after imprisonment for acts of madness in 1935, killed his inamorata in 1937, and committed suicide later that year.

E. CARL G. HEMPEL

Carl G. Hempel was born at Oranienburg Eden near Berlin in 1905. He studied at the universities of Göttingen and Heidelberg before taking his

certification as a secondary school science instructor at the University of Berlin in 1929. Initially interested in logic and the foundations of mathematics, he turned to the philosophy of science under the influence of Hans Reichenbach with whose encouragement he also studied in Vienna with members of the Vienna Circle. Reichenbach directed the work of Hempel's doctoral dissertation, but after Reichenbach emigrated to Turkey in 1933, the psychologist Wolfgang Köhler stepped in to complete the formalities of the degree.[10] After receiving the doctorate in 1934 Hempel accepted an invitation from Paul Oppenheim to join him in Brussels and be his collaborator there, a venture which resulted in several later publications. (Here Oppenheim acted on the recommendation of Reichenbach.)

In 1937 Hempel came to the U.S. on a Rockefeller research fellowship to work as research associate to Carnap in Chicago and in 1939 he settled more permanently in New York, serving as instructor and then assistant professor at Queens College from 1940-48. He commuted regularly to Princeton from his teaching post in New York, staying at the Oppenheims' for three days of the week. Their collaboration continued, and resulted in several publications, most prominently an enormously influential paper on "Studies in the Logic of Explanation."[11] In 1948 Hempel moved to Yale University. Subsequently, in 1955, he took the post of Stuart Professor of Philosophy at Princeton, returning once more to the orbit of Paul Oppenheim. Regarded as a major contributor to the philosophy of science, Hempel served as a President of the American Philosophical Association. After reaching the mandatory retirement age at Princeton, he continued to teach as a lecturer there but in 1977 he joined the faculty of the University of Pittsburgh as colleague to his former students Grünbaum, Laudan, Massey, and Rescher. After eight further years of well-received teaching, failing eyesight led Hempel to retire from Pittsburgh in 1985 at age 80. He then returned to Princeton where he lived until his death at the age of 92 in 1997, still continuing to make contributions to his chosen field. He was universally acknowledged as one of the principal figures of scientific philosophizing in the 20th century.

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[10] Köhler's linkage to the Berlin Society—on whose executive committee he served—was mediated through his role in founding Gestalt psychology, which also greatly interested Oppenheim. Oppenheim, Grelling, and Rescher were all eventually to write about the conceptual clarification of the Gestalt concept. For details see Luchins 2000.

[11] *Philosophy of Science*, vol. 15 (1948), pp. 135-75.

F. OLAF HELMER

Olaf Helmer was born in Berlin in 1910. He studied mathematics and logic at the University of Berlin in the early 1930s and became close friends there with Hempel. In 1934 he earned his doctorate in mathematics at the University of Berlin with a dissertation on the formal axiomatization of geometry begun under Reichenbach's direction.[12] Later that year he emigrated from Nazi Germany to Britain where he earned a second doctorate in philosophy under the direction of Susan Stebbing at the University of London. This dissertation was on Russell's Paradox, and Bertrand Russell himself served as one of his examiners. In 1937 Helmer moved to the U.S. At first he worked as a research assistant to Carnap at the University of Chicago. Thereafter he taught mathematics in several institutions, and worked as a collaborator of Oppenheim, whom he had met through Hempel.

In 1944-45 Helmer was drawn into mathematics-based work for the National Defense Research Council under the direction of John Williams, and in 1946, when Williams became one of the founding fathers of RAND Corporation in Santa Monica, Helmer joined him there. During 1954-56 he was joined at RAND by Rescher and their collaboration with one another and with Norman Dalkey turned Helmer's interest ever more decidedly to matters of prediction and forecasting and resulted in the widely influential DELPHI process of collaborative prediction. In 1968 Helmer left RAND to join with several collaborators in founding the Institute for the Future. During 1973-76 Helmer was the first (and only) Professor of Futuristics in the School of Business Administration at the University of Southern California. After retiring form this post, Helmer became associated with the International Institute for Applied Systems Analysis near Vienna and subsequently, he did extensive lecturing and consulting on matters of forecasting and continued for many years to contribute occasional publications to this field. The expression "thinking outside the box" might have been invented to describe Helmer's mentality. But after joining RAND in the late 1940's Helmer never returned to his earlier concern with matters of evidence and confirmation.

[12] As in Hempel's case, Wolfgang Köhler took the process of superism over upon Reichenbach's departure.

G. NORMAN DALKEY

Norman C. Dalkey was born in Santa Clara, California in 1915. He was a graduate student in philosophy at the University of Chicago during 1939-40, being supervised there by Carnap and his two research assistants Hempel and Helmer.[13] In 1940 he moved from Chicago to UCLA (as did his friend and fellow student Abraham Kaplan). In 1942 he earned his Ph.D. in philosophy at UCLA, with a thesis on "The Plurality of Language Structure" written under the direction of Hans Reichenbach. After military service and teaching for a time at UCLA, he joined RAND's Mathematics division in 1948. In his first years there he was a member of Olaf Helmer's group, working principally on issues of prediction (Project DELPHI) and on issues relating to induction and information processing. Subsequently, Dalkey's entire career was spent at RAND until he retired in 1983. (He still lives in Pacific Palisades.) Alone among RAND's logicians he stayed with the corporation throughout his entire career. The work of his later years was devoted primarily to issues of reasoning in condition of uncertainty, even manifesting a knack for acute insight into complex issues.

H. ADOLF GRÜNBAUM

Adolf Grünbaum was born in Cologne, Germany in 1923 and emigrated to the USA with his family in 1938 in the wake of the rise of Nazism in Germany. He studied at Wesleyan University and after military service during the post-war period he earned his Ph.D. at Yale in 1950 with a doctorate on issues of continuity in mathematics and physics written under Hempel's direction. In an autobiographical sketch drafted in 2005, Grünbaum wrote that "the most decisive influence in the direction of my work during the first 25 years after my Ph.D. came from Hans Reichenbach."

During 1950-60 Grünbaum taught philosophy of science at Lehigh University where he was joined by Nicholas Rescher in 1957. Since 1960 he taught at the University of Pittsburgh where he was instrumental in launching both the Department of the History and Philosophy of Science and the Center for Philosophy of Science, as whose director he served during

[13] For early on, the Berlin Circle maintained a close touch with Carnap, who was personally more accessible then the somewhat more self-contained Reichenbach. Certainly after emigration to the USA, Hempel and Helmer interacted more with Carnap than Reichenbach.

1960-78. He was joined in Pittsburgh by Rescher in 1961, by Laudan in 1969, by Massey in 1970, and in 1977 also by Hempel who had recently retired from Princeton. Later on Earman and Salmon came on board as well, giving Pittsburgh a lion's share of the latter-day membership of the Berlin School.

During the earlier years of his career, Grünbaum's research dealt with the philosophy of space and time. Thereafter he turned to issues of scientific rationality, largely in relation to Karl Popper's work. After the 1970's his work focused increasingly on the psychoanalytic theories of Sigmund Freud and the critique of theological approaches to science. Widely recognized for his contributions, Grünbaum has served as a President of the American Philosophical Association and also of the International Union of History and Philosophy of Science. Now over 80 years of age, he continues to be active both as chairman of the Center for Philosophy of Science and as an insightful discussant on relevant issues.

I. WESLEY SALMON

Wesley Salmon was born in Detroit in 1925. Educated at Wayne University and the University of Chicago, he earned a Ph.D. in philosophy at UCLA in 1950 with a dissertation on John Venn's theory of induction under Reichenbach's direction. After teaching at Northwestern, Brown, Indiana, and Arizona (Tucson) Universities, Salmon eventually became a colleague of Grünbaum, Hempel, Massey, and Rescher through joining the department of philosophy at the University of Pittsburgh in 1981. After his retirement in 1999, Salmon was visiting professor to Kyoto University in 2000. He died in an auto accident in 2001.

In the course of his career, Salmon published six books on such topics in the philosophy of science as inductive inference, space-time theory, causality, and scientific explanation—all of them devoted to themes that had figured centrally in the work of his teacher, Reichenbach. It was by unhappy mischance that Salmon died less than a week before he was to deliver the 2001 Reichenbach Lecture at UCLA. He was, in the eyes of many, the most faithful continuator of Reichenbach's work.

J. HILARY PUTNAM

Hilary Putnam was born in Chicago in 1926 and after undergraduate study at the University of Pennsylvania, earned a Ph.D. in philosophy in

1951 at the University of California in Los Angeles, where Reichenbach directed his dissertation on the meaning of probability. During 1953-61 he taught at Princeton as a colleague of C. G. Hempel and as a collaborator of Oppenheim on an inquiry into the unity of science, a favorite theme alike of the Berlin School and the Vienna Circle.[14] A logician and philosopher of high capacity and versatility, Putnam carried forward the work of the Berlin School both in the area of mathematical logic and in general philosophy. His contribution to the solution of David Hilbert's tenth problem represents a particularly outstanding contribution. The Vietnam era deflected his interests into political issues, and when he subsequently returned to philosophy his ideas moved in the direction of pragmatism. He counts as one of the outstanding figures of 20th century American philosophy.

K. RICHARD JEFFREY

Richard Jeffrey was born in Boston in 1936. He was initially educated as an engineer at the University of Chicago where Carnap was among his teachers. Subsequently, he earned a Ph.D at Princeton in 1957 with a dissertation on probability directed by Hempel and Putnam. For a time he taught electrical engineering, but switched to philosophy in 1959. He taught at Stanford, CCNY, and the University of Pennsylvania before joining the Princeton faculty in 1974. For a time he was thus a colleague of Hempel at Princeton, where the rest of his career was spent. In the course of a long and productive career, Jeffrey was a major contributor to research in the areas of probability induction and decision theory. Among members of the School's younger generation Jeffrey (along with Dalkey and Putnam) was exceptional as having no connection with the University of Pittsburgh.

L. NICHOLAS RESCHER

Nicholas Rescher was born in Hagen, Germany in 1928 and emigrated with his family to the U.S. in 1938. He studied at Queens College in New York, where Hempel was among his teachers. He earned a Ph.D. at Prince-

[14] Paul Oppenheim and Hilary Putnam, "Unity of Science as a Working Hypothesis" in Herbert Feigl (ed.), *Minnesota Studies in the Philosophy of Science* (Vol. II (Minneapolis: University of Minnesota press, 1958), pp. 3-36.

ton in 1951 with a dissertation on Leibniz's philosophy of science, and continued to teach there in the subsequent year, during which time he collaborated with Paul Oppenheim, continuing researches that he (Oppenheim) had begun with Kurt Grelling. During 1954-57 Rescher worked at the RAND Corporation in Santa Monica, CA, where he collaborated with Olaf Helmer on future-related studies. In 1957 he took up a teaching position at Lehigh University as a colleague of Adolf Grünbaum—a post to which Rescher had been recommended by Hempel. During 1960-61 Grünbaum and Rescher moved to the University of Pittsburgh to inaugurate philosophy-of-science related studies there. During 1980-88 Rescher directed the Center for Philosophy of Science at this university and he continues to serve as chairman to the present day (2005).

In the course of his undergraduate studies at Queens College in New York during 1946-49 Rescher was a student of Hempel. Subsequently, during graduate study and teaching at Princeton (1949-52), he collaborated with Oppenheim in carrying forward a study of the concept of Gestalt begun by Grelling and Oppenheim in Brussels in 1935-39. During 1954-56 Rescher was a colleague and collaborator of Olaf Helmer at the RAND Corporation, subsequently becoming (in 1956) a colleague of Grünbaum at Lehigh University. In the 1960-61 biennium, Grünbaum and Rescher moved to the University of Pittsburgh, where they were eventually joined by Hempel himself (in a post-retirement appointment) as well as several other Reichenbach/Hempel students. Throughout his entire academic career Rescher was closely linked to members of the Berlin School—although his research interests ranged (from the very start) beyond the thematic foci that had preoccupied its founders. With many philosophical publications to his credit, Rescher has served as President of the American Philosophical Association and as Secretary General of the International Union of History and Philosophy of Science.

M. GERALD J. MASSEY

Gerald J. Massey was born in Wauseon, Ohio in 1934. He did his undergraduate studies at the University of Notre Dame, and after military service earned his doctorate at Princeton in 1964 with a dissertation on the philosophy of space under the direction of Hempel with Alonzo Church as an advisor. After teaching at Michigan State University during 1963-70 in the philosophy department he came to Pittsburgh as an academic visitor in 1969, he joined Grünbaum and Rescher there in 1970 to serve as chairman

of the philosophy department. The bulk of his research and teaching has been into the area of philosophic logic, although in his later years his interests shifted to philosophical issues relating to animals and their relations to humans, an area of investigation reminiscent of the interests of Wolfgang Köhler. During 1988-97 he served as Director at the Center for Philosophy of Science—as Grünbaum and Rescher had done before him. Beyond being an acute and careful scholar, Massey possessed administrative talent in an uncommon measure.

N. LARRY LAUDAN

Laurence ("Larry") Laudan was born in Austin, Texas in 1941. Educated at the University of Kansas, he earned a Ph.D. in philosophy at Princeton in 1965 with a dissertation on theories of scientific method in the 17th century under the direction of C. C. Gillispie with Hempel and Thomas Kuhn serving on the committee. After teaching in Britain for some years he joined the faculty of the University of Pittsburgh in 1969, where he was the founding chairman of the History of Philosophy of Science department and subsequently, during 1978-81 as director of the Center for Philosophy of Science. He then moved from Pittsburgh to Virginia Polytechnic Institute and after a time went to the University of Hawaii. In 2000 he took up a post at the National Autonomous University in Mexico City. He was prominent among the investigators who were instrumental in the post-Kuhnian shift of "philosophy of science" into "history and philosophy of science" (generally known under the acronym HPS).

O. JOHN EARMAN

John Earman was born in Washington, D.C. in 1942 and earned his Ph.D. at Princeton University in 1968 with a dissertation on temporal asymmetry directed by C. G. Hempel and Paul Benacerraf. After holding professorships at UCLA, the Rockefeller University, and the University of Minnesota, he joined the faculty of the University of Pittsburgh in 1985 (just after Hempel's retirement). Over the years since then he has published a series of well received books on such Berlin-School issues as relativity, cosmology and space-time theory, predictability and determinism, and applications of possibility theory. During most of the 1990's Earman served as Associate Director of the University of Pittsburgh Center for Philosophy

of Science. Throughout his work, Earman displays an unusual capacity for the philosophical elucidation of complex scientific issues.

3. TIES THAT BIND

A summary survey of significant linkages between members of the Berlin School is presented in Display 2.

Apart from Berlin, three American cities played a pivotal role in the history of the school: Princeton, Los Angeles, and Pittsburgh. (1) Oppenheim settled in Princeton (to be near Einstein), Hempel and Jeffrey taught there, and Earman, Jeffrey, Laudan, Massey, and Rescher studied there. (2) Los Angeles was prominent in that Reichenbach taught there, Dalkey, Kaplan, Putnam, and Salmon studied with him there, and Helmer worked there, at the RAND Corporation in Santa Monica, where Dalkey and Rescher were colleagues and collaborators of his. Finally, (3) Pittsburgh was prominent in that Hempel and most of younger members of the school (Earman, Grünbaum, Laudan, Massey, Rescher, Salmon) became colleagues at the University of Pittsburgh.

Display 2

LINKAGES BETWEEN MEMBERS OF THE SCHOOL

"Scientific Advisors" to Oppenheim (order of birth)

Grelling

Reichenbach

Hempel

Students of Reichenbach's (order of birth)

Hempel

Helmer

Dalkey

Salmon

Putnam

Students of Hempel's (order of birth)

Grünbum

Jeffrey

Rescher

Massey

Laudan

Earman

Collaborations in publication (chronological order)

Oppenheim/Hempel

Oppenheim/Grelling

Oppenheim/Rescher

Oppenheim/Putnam

Helmer/Dalkey

Helmer/Rescher

Colleagues at the RAND Corporation (order of hire)

Helmer/Dalkey/Rescher (Also, for a brief time Hempel was a consultant there.)

Colleagues at the University of Pittsburgh (order of hire)

Grünbaum/Rescher/Laudan/Massey/Hempel/Salmon/Earman

Colleagues at Princeton (order of hire)

Hempel/Putnam/Jeffrey

Display 3

THEMATIC COMMONALITIES

	Space Time Relativity cosmology	Probability and its Applications	Induction Confirmation Evidentiation	Explanation and determinism	Prediction	Concept Formation Gestalt	Scientific Systematization	Philosophical Logic	Mathematical Logic
Oppenheim				√		√	√		
Reichenbach	√	√	√		√			√	√
Grelling			√			√		√	√
Dubislav							√	√	√
Hempel		√	√	√		√		√	√
Helmer			√	√	√				
Dalkey			√		√				
Grünbaum	√		√	√					
Salmon	√	√		√					
Putnam				√				√	√
Jeffrey		√	√						
Rescher		√	√	√	√	√	√	√	
Massey	√			√				√	
Laudan			√				√		
Earman	√	√	√	√	√				

NOTES:

1. Every member of the school (except Massey) shared at least two major research areas with Reichenbach.

2. The school as a whole divides into two groups: the original Berliners (Oppenheim, Reichenbach, Grelling, Hempel, Helmer) and certain students of Reichenbach's and Hempel's. (See Display 1 above.)

3. Several members of the junior group served in the philosophy department of the University of Pittsburgh (and in the history and philosophy of science department as well) were active in this university's Center for Philosophy of Science, and in four cases served as Directors of this Center (Grünbaum, Laudan, Massey, Rescher).

The renaissance of the Berlin School in Pittsburgh was the result of a somewhat fortuitous accretioned process. The presence there of his former Lehigh colleague Grünbaum drew Rescher to the University of Pittsburgh; the presence of these two drew Laudan and Massey; whereupon the presence of four of his favorite former students finally attracted Hempel himself—and eventually brought in Wesley Salmon and John Earman as well. Nobody said (or thought) "Let's recreate Berlin here on the Ohio in Pittsburgh." What brought this about was a rolling snowball effect with each augmentation making further argumentations easier.

As Display 3 indicates, the members of the school were linked by various thematic commonalities in point of their research concerns. (Laudan and Massey apart, every member of the younger generation shared at least two main areas of research interest with Hans Reichenbach.) However, as time went on the shared concerns among its members became increasingly unstuck as people's interests evolved in different directions.

The confluence of thematic interests that had pervaded the earlier phases of the Berlin School thinned out in the end with the members of the younger generation. Grünbaum migrated from his early concerns with space and time via studies of rationality in Popperism contexts to issues of Freudian psychology and the critique of religion. Salmon stayed closest to the content-agenda of his teacher Reichenbach, but even he migrated beyond the original themes. Rescher developed broader interests throughout the realm of traditional philosophical issues, and ultimately devoted most of his work outside the thematic range of the original school. Massey, like

Rescher, pursued interests across a wide philosophical and historical spectrum, and in due course was instrumental in founding a new field known as philosophical ethology. The unity of preoccupation that is a key requirement of commonality for constituting a definite school gradually dissolved and in the end no single research topic remained as a unifying concern shared by the younger generation. It could be added too that the doctrinal core of the Berlin school suffered erosion in the course of time in the wake of Quine's attack on the analytic synthetic distraction, the critiques of Church and Hempel of the concept of empirical meaningfullness, the Kuhnean revival of historicism, and cognate developments.[15]

And so, over time, the doctrinal cohesion needed to constitute a definite school eventually dissolved. Accordingly, one should not speak of a Berlin-Pittsburgh School despite the fact that the University of Pittsburgh is the place where most of the younger generation came together in the end. For in due course the group ceased to be a school—that is, to function on the basis of substantial intellectual commonalities. Shared thematic preoccupations fell victim to a widening diffusion of interests. Ideological commonalities succumbed to an increasing openness to influences outside the natural sciences. And even methodological conformity fell apart as expanding study in the history and philosophy of science brought to view an ever-increasing diversity of methodologies within the sciences themselves. Perhaps the requisite unity of purpose was impossible to achieve under the prevailing conditions in philosophy but in any case the remaining members of the school—and certainly their students—have scattered to the philosophical winds as regards their work. It might, however, be mentioned that a considerable number of Earman's doctoral students at the University of Pittsburgh have continued to work in the area of explanation and determinism, including two who eventually became colleagues of the University of Pittsburgh: Laura Ruetsche and Gordon Belot.[16] So while one could indeed speak of a Berlin-Pittsburgh *cluster* or *constellation* of science-oriented philosophers, one could not, strictly speaking, designate this as a *school*.

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[15] On factors leading to the demise of the school as such see Fetzer 2001.

[16] Insofar as the school continues, these colleagues are the prime candidates for membership on the basis of the criterion stated above. Their qualifications include doctoral dissertations directed by a school member, continued research in some of the school's definitive areas of interest, and academic colleagueship with other school members.

For by the time this group had firmly reconstituted itself in Pittsburgh its concern now was less with scientific philosophy then with philosophy of science, a subject matter rather than a school doctrine. All that eventually remained was the Cheshire-cat smile of a common dedication to clarity of exposition and cogency of thought—but this became a general feature of Anglo-American analytic philosophy and could not provide for the characteristic unity of a particular school.

4. THE LEGACY

The legacy of the Berlin School encompasses both an intellectual and an institutional heritage.

The intellectual heritage of the school as assessed by its impact that its work exerted on the wider philosophical community consists primarily in

- The Hempel-Oppenheim model of explanation and its subsequent development and critique by younger members of the school.

- Reichenbach's studies of space-time and relativity together with its development and critique by younger members of the school.

- The Reichenbach-Carnap studies of probability and probabilistic reasoning in the sciences and its development and critique by younger members of the school.

- Reichenbach's study of issues of philosophical logic, including matters of time and tense and their development by younger members of the school.

- The Hempel-Helmer-Carnap studies of confirmation and their development and critique by younger members of the school.

- Grelling's, Reichenbach's, and Hempel's studies in symbolic logic and their continuation by younger members of the school.

- The Hempel-Oppenheim studies of explanation and their development and critique by younger members of the school.

- The futurological studies of prediction and forecasting by Dalkey, Helmer and Rescher in the wake of Reichenbach's work.

All in all, the Berlin School has been enormously productive in print. Just to list the publications of the baker's dozen of its main members would require a sizeable volume.

However, the intellectual heritage consists not only of the influential publications of its members but also in the formative intellectual impact that these scholar-scientists made on the successive generations of American graduate students in philosophy whom they helped to train during many years of active teaching in American higher education. In this regard, yet another and by no means insignificant part of the heritage of the Berlin school is represented by a series of younger American philosophers, trained in Pittsburgh and taught there by younger generation members who also worked extensively on issues that had been of concern to earlier phases of the school. This group would include in particular philosophers trained by Grünbaum and Rescher in Pittsburgh (Brian Skyrms, Alberto Coffa, Richard Creath, Patrick Maher, Philip Quinn, and Bas van Fraassen). Then too there are Putnam's many students at Harvard, and the baker's dozen of Earman's students at the University of Pittsburgh as well as Bruce Buchanan, who had studied with Massey in Michigan and Clark Glymour, a student of Salmon's. Though not members of the school as such, these students of its members deserve to count as a part of its heritage seeing that some of them continued research in the school's historical areas of interest.

One development of ongoing significance emerged from the studies regarding the methodology of prediction and forecasting at the RAND Corporation in the 1950's by Olaf Helmer and his collaborators, especially Norman Dalkey and Nicholas Rescher, in relation to the so-called Delphi methodology of forecasting.[17] This methodology made a considerable impact on the world of business planning and operation research, but its reception among philosophers was virtually nonexistent.

[17] See Nicholas Rescher, *Predicting the Future* (Albany: SUNY Press, 1998), pp. 28-33. This is an area of deliberation and investigation which continues to have a lively and many-sided existence, as is readily seen by directing one's search engine to: Delphi + prediction. (There were some 100,000 entries on Google in March of 2005.)

The Berlin School has also left a legacy by way of founding professional journals that were to play an ongoing role in the development of subsequent philosophy. In this regard pride of place belongs to *Erkenntnis*, which was founded by Reichenbach and Carnap and on whose editorial board Hempel was to serve for many years. And members of the group inaugurated, yet another journal—The *American Philosophical Quarterly*, founded by Rescher, which is dedicated to fostering philosophical thought in the spirit of clarity and exactness typified by the work of the school.

Moreover, the school has also left a substantial institutional legacy based in the University of Pittsburgh, a legacy which includes

- A Center for Philosophy of Science, dedicated to the encouragement and furtherance of research in this field. This center is a haven for visiting scholars and also sponsors numerous conferences and cooperates with cognate organizations in various foreign countries.

- A Department of History and Philosophy of Science which provides doctoral training for young scholars in these fields.

- An Archive for Scientific Philosophy housing the papers of Carnap, Reichenbach, Hempel, Salmon, and others who philosophize on relevant issues (including F. P. Ramsey and Wilfrid Sellars).

It is worthy of note that throughout an entire generation—from its conception in 1961 until 1997—the directorship of the University of Pittsburgh's thriving Center for Philosophy of Science lay in the hands of the younger generation of Berlin School members (successively Grünbaum, Laudan, Rescher, and Massey).[18]

However, as far as doctrine is concerned, the Berlin School left little heritage as a permanent deposit. And in particular as regards its initial inclination to the ideology of scientism—to the idea that if a problem is meaningful at all, then it will find a resolution in the teachings of science—this is something increasingly faded into the background—still maintained by some of the younger members of the school (e.g., Grünbaum and Salmon) but rejected by others (e.g., Rescher and Earman). However, the

[18] Moreover, members of the school at various times chaired one or the other of this university's departments of philosophy and of history and philosophy of science (viz., Laudan, Massey, Rescher, and Salmon).

methodological idea that the rigor of thought and precision of expression that typifies scientific work should also make its way into philosophical exposition is one that maintained a prominent presence in the writing and teaching of the later members of all of the school. Moreover, what was a *striking*—and as I now view it distinctly unusual—aspect of the Berlin School was the extent to which its members tried to be helpful to one another in matters not only of research but also of career.

Still, in the end the only ties which remained to link the younger members of the Berlin school were their respect for their precursors, their personal affinities, and—in substantial measure—their colleagueship at the University of Pittsburgh. And so, while the students of these Berlin school members—and indeed the students of their students and *their* students in turn—continue to proliferate across the academic landscape, nevertheless the school as a school was by the end of the 20th century well enroute to passing from a living force into a historical phenomen.

5. CODA

Concern for the fragility of things and their vulnerability to the ravages of time and change is an all-too-familiar aspect of the human condition. But one has to be realistic in these matters. Philosophical movements have their natural lifespan. They arise in a burst of youthful enthusiasm, grow to maturity, and then gradually succumb, if not to new interests, let alone outright opposition, then to a sheer exhaustion of a driving impetus. For sure, the Berlin school has much to be proud of—and nothing to regret. It has had a good running and leaves a respectable number of constructive products behind—perhaps more so than is the case with any other single group of twentieth-century philosophical collaborators.[19]

[19] This paper has benefited from information supplied by Richard Creath, James Fetzer, John Earman, Adolf Grünbaum, Olaf Helmer, Gerald Massey, Merrilee Salmon, and Gereon Wolters.

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Chapter Nine

H_2O: HEMPEL-HELMER-OPPENHEIM: AN EPISODE IN THE HISTORY OF SCIENTIFIC PHILOSOPHY IN THE 20TH CENTURY

PREFACE

Almost fifty years ago, in 1948, when I was an undergraduate at Queens College in New York and a student of Carl G. Hempel, I received from his hands an offprint of his now-classic but then just-published paper "Studies in the Logic of Explanation," written in collaboration with Paul Oppenheim and then just published in *Philosophy of Science* (vol. 15 [1948], pp. 135-75).[1] This paper greatly impressed me—and I was not alone. We have here one of those unusual publications that sets the agenda for a whole generation of investigators. It set in train an enormous body of discussions and publications which shaped the course of deliberations about scientific explanation over the next decades—an effort to which my own work also made some contributions. (This literature and its inherent dialectic has been examined and analyzed in close and interesting detail in Wesley Salmon's fine survey of *Four Decades of Scientific Explanation*.[2]) However my present aim is not to consider what came out of the Hempel-Oppenheim paper but what went into it. I want, in sum, to consider the pre-history of that era of scientific explanation studies—and to look more closely at the background ramifications of this paper that launched a thousand others.

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1 I dedicated this essay to Carl G. Hempel on the occasion of his 90th birthday on 8 January 1995.

2 Minneapolis: University of Minnesota Press, 1990.

1. THE H_2O CONNECTION

The era of the second World War saw the appearance in English-language philosophy journals of several papers addressing the issue of formalizing the idea of a *degree of confirmation* for scientific theories. All of these discussions had deep roots in pre-war German-language philosophizing. The issues concerned divided the community of science-inspired "logical empiricist" philosophers into three major camps. One centered on K. R. Popper, who thought the whole project a mistake and enthusiastically dismissed the ideas of confirmation and inductive logic while at the same time running a rival program based on "corroboration." Another centered on Hans Reichenbach, who (like C. S. Pierce before him) thought that no special new devices were required because the calculus of probabilities would do the job more or less as it stood if geared to orthodox statistics. And the third—of which Rudolf Carnap was the prime exponent—thought under Wittgenstein's inspiration that some probability-analogous contrivance based on considerations of formal logic needed to be devised to provide a measure of confirmation.

One of the watershed developments within the wider orbit of the third school of thought revolved around a group of four papers of interlinked authorship written during 1942-44:

- Hempel, "A Purely Syntactical Definition of Degree of Confirmation," *The Journal of Symbolic Logic*, vol. 8 (1943), pp. 122-43.

- Hempel-Oppenheim, "A Definition of 'Degree of Confirmation'," *Philosophy of Science*, vol. 12 (1945), pp. 98-115.

- Hempel, "Studies in the Logic of Confirmation," *Mind*, vol. 54 (1945), pp. 1-26 and 92-123.

- Helmer-Oppenheim, "A Syntactical Definition of Probability and of Degree of Confirmation," *The Journal of Symbolic Logic*, vol. 10 (1945) pp. 25,60.

All three authors concerned were recent refugees from Nazi Germany who had, for the most part, already known and interacted with one another before coming to the US. And although both Hempel and Helmer had been doctoral students of Hans Reichenbach in Berlin in the early 1930's, both of them had come under Carnap's influence in Chicago in the late 1930's.

The approach set out in these papers became known as H_2O or Hempel-Helmer-Oppenheim approach, being so designated after the authors involved: Carl G. Hempel, Olaf Helmer, and Paul Oppenheim. The abbreviation for this group as H_2O was introduced by Rudolf Carnap in 1945. As Oppenheim put it in his Hempel reminiscences: "Carnap nicknamed our concept (because of the initials of the authors) 'the H_2O concept of confirmation'. We preferred not to speculate about a possible association with the German idiom 'in's Wasser gefallen', used to refer to an enterprise that has come to naught. At any rate, we often used the term in discussions among ourselves and with Carnap."[3]

The approach to confirmation embodied in the H_2O studies lay in back of and ultimately gave rise to that 1948 Hempel-Oppenheim paper which Wesley Salmon in his account of thought on scientific explanation during the four subsequent decades rightly characterized as "truly epoch making." We are accordingly concerned with the antecedents of the fountain from which the work of an entire generation of discussions was to flow. But to begin with it is essential to say something about the cast of characters involved—and also about my own relationship to them.[4]

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[3] Carnap headlined a 1/27/46 memorandum: "Survey of comments and objections made by Nelson Goodman concerning Carnap and the H_2O theories of degrees of confirmation." The manuscript original of this document is included in the Carnap archive which forms part of the University of Pittsburgh's archives of Scientific Philosophy. (See John Earman in Douglas Stalker, *Grue: The New Riddle of Induction* [Chicago and La Salle: Open Court, 1994], p. 109.) The Carnap Nachlass contains various materials relevant to his reaction to the H_2O project.

[4] My own philosophical development was significantly shaped and influenced in its earliest stage by the work of the H_2O team. And it was conditioned by a personal connection with its members—a connection that was uniquely close because:

- As of 1946, I was a student and disciple—and ultimately also for several years a University of Pittsburgh colleague—of Carl G. Hempel, and moreover had the honor of serving as editor of his 1969 Festschrift.

- I was an associate of Paul Oppenheim and collaborated with him in the early 1950's on a joint paper that was eventually published in the *British Journal for the Philosophy of Science* in 1955.

- During 1954-56, I was a colleague and associate of Olaf Helmer at the RAND Corporation and collaborated with him on a joint study initially published as a RAND Corporation paper in 1958, and republished in *Management Science* in 1959 and some half-dozen times later.

To be sure, Carl G. Hempel—known to all of his friends as Peter—is nowadays sufficiently well known among philosophers that he needs no further discussion on my part. Good accounts of his life and work are readily available—for example in such encyclopedic surveys as: *A Companion to Epistemology*, ed. by Jonathan Dancy and Ernest Sosa (Oxford: Blackwell, 1992); *Enzyklopädie Philosophie and Wissenschaftstheorie* ed. by Jürgen Mittelstrass, Vol. II (Mannheim: B. I. Wissenschaftsverlag, 1984); Julian Nida Rümelin (ed.), *Philosophie der Gegenwart* (Stuttgart: Alfred Kröner Verlag, 1991). However, the philosophical community is much less well informed about Paul Oppenheim and Olaf Helmer and their work.[5] So it is with them that I shall primarily be dealing here. This study is, in a way, Hamlet without the protagonist.

2. PAUL OPPENHEIM (1885-1977)

Personal Background

Paul Oppenheim was born into an affluent and cultured Jewish family in Frankfurt am Main on 17 June 1885. His father, Moritz Nathan Oppenheim, the son of a business man who had made a substantial fortune as a wholesale dealer in precious stones continued the family firm and became a major benefactor of the University of Frankfurt, endowing a chair in physics and funding the construction of an observatory.[6] Oppenheim him-

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I shall say more about these collaborations later. But what I want to note here is that there is no one else whose connections with the H_2O group as a whole can bear comparison with mine. And I am accordingly concerned that the collaborative work of this group be duly understood and appreciated—even in matters where I myself was not involved.

[5] In general I shall refer to my protagonists as Oppenheim and Helmer, but in those sections dealing with their relationship with myself they will be Paul and Olaf.

[6] The physicist Max Born provides some data in this connection. He writes: "My chair [in Frankfurt] like many others, was a personal gift by a rich citizen, Herr Oppenheim who, if I remember rightly, dealt in precious stones and lived in a big, old-fashioned house in the Bockenheimer district. His wife was from Vienna and very musical, a good pianist, having been a pupil of Clara Schumann, but so exuberant in her musical enthusiasm that she had difficulties in finding partners to play with her on two pianos. I fell her victim and stood it quite a while, even enjoyed it, as she played well and acquainted me with many compositions which I did no know. The old Oppenheims were good people, very kind and hospitable; we were

self studied chemistry—along with some philosophy—in Freiburg and Giessen and took his doctorate in chemistry at the University of Giessen in 1908. He then became active in the family firm. In 1912 he married Gabrielle Errera, whose father was for a time Rector of the University of Brussels. This link with Brussels established a geographic connection that was to prove important in Oppenheim's own history.[7]

During World War I, Oppenheim worked at the war ministry (Kriegsministerium) in Berlin, in the division of arms procurement. Thereafter he returned to the family business in Frankfurt (N. M. Oppenheim Nachfolger) and traveled extensively on its behalf. He also played an active role in the intellectual and academic life of this important cultural center.

In 1926 Oppenheim became involved in the chemical industry as president of one of the international trading subsidiaries of I. G. Farbenindustrie—the powerful German chemical conglomerate—and he actively represented the firm in its international business. Now too he gave expression to his deep rooted interest in the philosophy of science. In 1926 and 1928 he published philosophical monographs, and in 1927 he was invited to give some lectures at the University of Frankfurt.

As early as 1921 Oppenheim had been in touch with Hans Reichenbach.[8] Though he never appeared explicitly in this role, Hans Reichenbach was, in effect, the first of a long series of Oppenheim's collaborators. For he helped Oppenheim formulate the ideas that formed the focus of his first publications: two monographs respectively on the "fundamental principles"

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often invited to their box in the opera house. . . . The Oppenheims have a son, who was a business partner of his father, but addicted to philosophy; he wrote a book concerning which he involved me in many a tedious discussion. His wife Gabrielle, called Gaby, of the well-known Brussels family Errera [sic], was a very pretty and coquettish blonde, who began a flirtation with every male who came within range of her flashing eyes. . . . I do not know what has become of the young Oppenheims. But I have heard that the old people committed suicide under the Nazi régime." *My Life & My Views* (New York: Scribners, 1968), p. 191.

7 I am grateful to Gabrielle Oppenheim Errera not only for the gracious courtesy she showed me in her house in Princeton more than forty years ago, but also for the information that she—now aged 102—has supplied to me for this article in 1994. The Oppenheim's only son, Felix, also provided some information for this paper.

8 Reichenbach, who was then assistant to the physicist Regner in Stuttgart, was at this time one of the most active and effective exponents of Einstein's theory of relativity. His contact with Oppenheim was probably mediated by Einstein.

(*Grundgesetze*) of a comparative science of the sciences (1926) and of scientific concept-formation (1928). And Reichenbach was also helpful to Oppenheim with the publication arrangements for these studies.[9]

Seeing the handwriting on the wall immediately upon the Nazi rise to power, Oppenheim emigrated in late 1933 from Germany to Brussels, his wife's native city. He managed at this early hour to extract his own substantial resources from the clutches of the new German order. And with the onset of war, Oppenheim migrated once again in August of 1939, this time to Princeton.

During his six years in Belgium, Oppenheim lived as a private scholar, producing one book and several papers in joint collaboration with two investigators whom he aided financially. The one was C. G. Hempel who joined Oppenheim in Brussels in 1934 and with whom he wrote a book on the logic of classification. The second was Kurt Grelling who came in 1936 and collaborated with Oppenheim in an investigation of the *gestalt* concept.[10]

For the almost forty remaining years of his life, Oppenheim lived in Princeton the life of an independent private scholar and friend to scholars. His investments were managed by the firm of Eric M. Warburg, Inc. of New York—whose head was Oppenheim's second cousin—and his affluence provided Oppenheim a comfortable livelihood without the need for employment. With the active support of his charming wife, Gabrielle, the Oppenheims maintained in their house at 57 Princeton Avenue what can best be described as a latter-day salon for scientists and philosophers, utilizing to the full Princeton's assets as a major center of learning. After a long and productive life devoted to personal and intellectual contact and interaction with scientists and academics, Oppenheim died at the age of 92

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[9] See Oppenheim's Vorbemerkung to his 1926 book as well as his statement in Nicholas Rescher (ed.), *Essays in Honor of Carl G. Hempel* (Dordrecht: D. Reidel, 1969), p. 1. The details of Reichenbach's relationship to Oppenheim can be traced in detail in letters and other materials preserved in the Reichenbach collection of the "Archives of Scientific Philosophy in the 20th Century" at the University of Pittsburgh. In return for his help, Oppenheim exerted his influence to further Reichenbach's academic career—both in Frankfurt and in Berlin.

[10] Grelling remained in Belgium until the German invasion, which led to his ultimate demise in the annihilation camp at Auschwitz. For Grelling see Volker Peckhaus "Kurt Grelling in Göttingen und Berlin" in Lutz Danneberg et al. (eds.), *Hans Reichenbach und die Berliner Gruppe* (Braunschweig/Wiesbaden: Vieweg, 1994), pp. 55-73.

on 22 June 1977. He maintained an active concern for philosophy-of-science issues to the end of his days, and his last paper, collaborative as ever, was published posthumously.

A person of broad intellectual and scientific culture, Oppenheim was a collector of people. His comfortable house that was a congenial venue for entertainment and for the accommodation of houseguests. When famous philosophers came to Princeton, they often as not stayed with Oppenheim.[11] I have already mentioned meeting Hans Reichenbach at his house, where he was a frequent houseguest. And in his autobiography (*A Part of My Life*) W. V. Quine recalls fondly and at length staying with the Oppenheim's on the occasion of presenting his classic "On What There Is" lecture at Princeton. The most notable occasion of this sort during my own collaboration with Oppenheim occurred when Bertrand Russell was staying with the Oppenheims in 1950—at just the time of his winning the Nobel Prize for literature. I recall well how, when the announcement came, the Oppenheim's place turned into a pandemonium of eager reporters.

The build-up of Oppenheim's personal network of eminent academics was greatly facilitated by Gabrielle, a vivacious lady of graciousness and social savoir faire.[12] In the case of the most eminent scholar recruited into Oppenheim's network—namely Albert Einstein—Gabrielle played a key part. For the Oppenheims had known Einstein for many years having first met him in his wife's parental home in Brussels in their wedding year, 1912. In Princeton, Einstein's home at 112 Mercer Street was not far removed from the Oppenheims', and the two aging expatriates regularly went on long Sunday morning walks, chatting in German about current events and times gone by.[13]

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[11] To be sure, a strict economy prevailed at the Oppenheims. Olaf Helmer recalls that when he was a houseguest, orders were given to the maid to save the uneaten toast for future use.

[12] Gabrielle Oppenheim was also an expert speech therapist, and many Princetonians—of town and gown alike—benefited from her ministrations, the philosopher John Rawls among them.

[13] In view of the notorious reluctance of the biographers of the famous to allow the non-famous to play their actual role in the lives of those protagonists, it is unsurprising to find Oppenheim missing from many Einstein biographies. An exception is Jamie Sayen's *Einstein in America* (New York: Crown Publishers, 1985), written by the son of Einstein's neighbor in Princeton, which remarks perfunctorily that Einstein's circle included "intellectuals like Paul Oppenheim, a philosopher of science" (p. 126). The significance of Oppenheim in Einstein's life is symbolized in the fact that it was he who, together with Otto Nathan, his literary executor, was re-

Relationship with Hempel and Other Collaborators: H_2O

The pivotal relationship in Oppenheim's academic life, however, was his connection with C. G. Hempel, whom he first met in Berlin in the late 1920's through the mediation of Hans Reichenbach, Hempel's main teacher and his role model during his student days at the University of Berlin. After Hempel completed his doctorate at Berlin in 1934 (with a dissertation begun under Hans Reichenbach before he emigrated to Turkey in 1933), Oppenheim persuaded Hempel to leave Nazi Germany by inviting him to come to Brussels for collaborative work. From 1934 until he moved to the USA in September of 1937, Hempel worked as a privately supported research associate to Oppenheim, and lived in his establishment as a houseguest. During this time they wrote one book and several papers together.[14] Their collaboration initially focused on an inquiry into "the possibility of a systematic ordering of the sciences," the theme of Oppenheim's initial (1926) publication, a project on which he had also "worked with" Reichenbach (as he himself put it).[15] But their collaboration soon shifted to issues of typology and taxonomy in a more general sense. Throughout Oppenheim's work he was dedicated to developing a theory of ordering concepts that would reflect conceptual isomorphisms among different sciences.

During this time in Brussels, Oppenheim saved Hempel's life—perhaps for the second time. The episode, in his own words, ran as follows:

> I was called to a hospital where Peter lay unconscious, breathing heavily, after having fractured his skull in a bicycle accident. The young intern in charge told me that nothing could be done for him, but I insisted that a senior physician be called immediately. Fortunately by a daring procedure he saved Peter's life.[16]

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sponsible for spreading Einstein's ashes. See Abraham Pais, *Einstein Lived Here* (New York: Oxford University Press, 1994).

[14] The book was *Der Typusbegriff im Lichte der neuen Logik* (Leiden, 1936). For the papers see the bibliography.

[15] See p. 1 of Oppenheim 1969b.

[16] Ibid., p. 2.

In 1937, Hempel immigrated into the USA, settling in Chicago to become a research assistant to Rudolf Carnap who had arrived the year before.[17] The following year Hempel moved on to teaching posts in New York (first at City College and after 1940 at Queens College.) After Oppenheim's arrival in the U.S., their collaboration continued in mutual proximity (with Hempel in New York City and Oppenheim in Princeton). As part of their ongoing interests in ordering concepts, they now investigated (under Carnap's influence on Hempel) the prospects of developing a "quantitative concept of confirmation." During 1942-44 Olaf Helmer joined their collaboration, and it was during this period that the work leading to their H2O papers was produced.

After the H2O team completed their "degree of confirmation" investigation, it drifted apart, with Helmer moving to California and Hempel increasingly immersed in academic duties away from Princeton. There was to be only one further joint effort, the Hempel-Oppenheim 1948 paper entitled "Studies in the Logic of Explanation." But this one was a humdinger that ever after put Oppenheim's name on the philosophical map as co-originator of the "Hempel-Oppenheim model of explanation."

A further dividend of collaboration with Hempel was also portentous for Oppenheim's work. Hempel had straightaway secured an academic position in the USA, and while this increasingly impeded collaboration with Oppenheim, it led to Hempel's becoming Oppenheim's philosophical advisor, talent scout, and professional agent. They remained in touch even when Hempel went off to New Haven in 1948, and of course resumed closer contacts when Hempel returned to Princeton as Stuart Professor in 1955. Until Oppenheim's death in 1970 (the year that Hempel removed from Princeton to Pittsburgh upon his first "retirement"), they maintained in regular personal contact, although their active collaboration had ended long ago.

For some thirty years after 1940, Hempel recruited for Oppenheim a long series of collaborators including in chronological order: Olaf Helmer, John Kemeny, Nicholas Rescher, Hilary Putnam, Hugo Adam Bedau, Nathan Brody, and Siegwart Lindenberg. The steady stream of collaborative publications that Oppenheim thus produced over the years (past his 90th birthday!) kept his name before the philosophical world and gave him an academic standing that reinforced his social prominence on the Princeton

[17] Carnap secured the collaboration of Hempel and Helmer via a Rockefeller Foundation grant. See *The Philosophy of Rudolf Carnap* ed. by P. A. Schilpp (La Salle, IL: Open Court, 1963), p. 55.

scene. In this way Hempel's friendship proved decisive for Oppenheim's philosophical stature and reputation.

The Oppenheim-Rescher Collaboration

Like his other young American associates I was recruited as a Paul Oppenheim collaborator by Peter Hempel. The year was 1951. I was twenty-three years old at this point and had just finished my doctorate at Princeton, remaining there as an instructor while waiting for my draft board to arrive at some resolution about my fate. Hempel put Paul and me in touch with one another, and not long thereafter I was invited to a social gathering at the Oppenheims. The guest of honor on this occasion was Hans Reichenbach, but both Paul and Gabrielle made time for a friendly chat with the young scholar who was now for the first time in their home. A few days later Paul invited me to come by on a Saturday afternoon to talk about business matters. He explained to me that he had collaborated on this topic with Kurt Grelling before the war, and while this collaboration had resulted in a publication,[18] there were some further ideas which had been the subject of a couple of letters and memoranda from Grelling. Paul thought that these ideas should be reexamined and might lay the groundwork for a further publication. Would I be his collaborator in this venture? If so, he would furnish me with the notes and sketches left by Grelling, would describe their background to me, and would then count on me to carry further the investigation whose results he would monitor. My role would be that of a paid research assistant. I should keep track of the time I invested in the venture and Paul would pay me for it at the rate of a dollar thereabouts per hour (I forget the exact amount which was quite small, though not—for a penurious scholar of those days—altogether negligible).

On looking into the matter, I formed the opinion that the Grelling material which dealt with analyzing the basic ideas underlying the *gestalt* concept was of some interest and merited further refinement and development. Paul was amenable to this idea and on its basis I drafted the paper I had in view. Paul took this draft under advisement and after a time proposed some minor stylistic revisions. (I am sure that in the meantime he asked Hempel to evaluate the draft.) After those minor revisions were made, the article was submitted to *British Journal for the Philosophy of Science* and in due course published there under the title "Logical Analysis of Gestalt Con-

[18] "Der Gestaltbegriff im Lichte der neuen Logik," *Erkenntnis*, vol 7 (1937/38), pp. 211-225; and "Supplemental Remarks on the Concept of Gestalt," *ibid*, pp. 357-59.

cepts" several years later.[19] My own collaboration with Oppenheim thus ran in a channel different from that of the H2O project, though related to his earlier work in collaboration with Hempel and with Grelling.[20]

Shortly after completing this collaboration, I was drafted into military service early in 1952, with the Korean War still under way. Thereafter, Oppenheim and I exchanged some letters about a possible further collaboration, but the circumstances rendered a pursuit of this idea impracticable.

What Oppenheim principally contributed to our collaboration were two things: (1) the topic of the investigation, and (2) a guiding concern for structural issues that reflected a conceptual isomorphism among different scientific disciplines, specifically the view that here was a concept (eg. that of *gestalt*) which, despite its origin in one particular science, was in principle a versatile instrumentality with useful appreciations in other branches of science. But beyond this guiding concern for a theory of ordering concepts, Oppenheim made very little substantive contribution to the investigation. He was like an Aristotelian first mover: having set a project in motion (in a rather generally indicated) direction, he stood back and let nature take its course, with minimal interference as long as things kept on track.

Before continuing to consider the character of Oppenheim's collaborations, one preliminary digression seems in order. For there is an aspect of

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19 *British Journal for the Philosophy of Science*, vol 6 (1955/56), pp. 89-106.

20 My own involvement with the H2O venture in confirmation theory came late in the day, seeing that I came upon the scene just after those papers appeared. My contribution to this project was carried out in the middle 50's and came to light in two papers: "On Prediction and Explanation", *British Journal for the Philosophy of Science*, vol. 8 (1957), pp. 281-90 and "A Theory of Evidence," *Philosophy of Science*, vol. 25 (1958), pp. 83-94. The latter proposed a way of reconciling the very different and incompatible criteria of adequacy for a theory of confirmation laid down by Hempel and by Carnap based on the discovery the two quite different conceptions of confirmation/evidence were at work in their deliberations. The former paper tried to accommodate an increasingly clear realization of prediction-explanation asymmetries within the general framework of the H2O program. And a still later paper ("Problems on the Theory of Scientific Explanation and Prediction," *Philosophy of Science*, vol. 39 (1963, pp. 365-345) probed these asymmetries yet more deeply. Throughout my work on these issues, I called into question what I regarded as an oversimplified explanation/prediction symmetry thesis, and argued the need for more sophisticated recourse to probabilistic considerations. (All these later developments are interestingly detailed in Wesley Salmon's aforementioned study of *Four Decades of Scientific Explanation;* see especially pp. 89ff.)

Oppenheim's *modus operandi* that I think needs to be clarified in addressing readers living with the changed sensibilities of a different era. Such readers may well—quite mistakenly—view Oppenheim's collaborations in a negative light. They might look at the situation as one in which a philosophical amateur of limited professional capabilities is purchasing at bargain-basement rates the collaboration of talented but impoverished young scholars in the compilation of a creditable record of academic publication. But this perspective, reflecting the egalitarian sensibilities of a later era, does not, I think, do justice to the situation as it existed at the time. Then too there is another side to the issue. It is certainly quite unusual for people to accept personal payment for scholarly collaboration—though perhaps most of us Oppenheim collaborators were at the start too young and inexperienced then to realize fully the extent to which this is so. And it is also true that these collaborations detoured us from the main direction of our own work. But—and here I think I can speak for the whole group—we were not in it for the money. What drew us in was partly the inherent interest of the topic, partly the influence and example of Hempel, and partly the honor of the thing, given Oppenheim's own standing in the scholarly community at large and in Princeton in particular. The realities call for seeing this as a matter of an affluent senior figure providing guidance, monetary incentive, and useful contacts for a struggling young scholar. Indeed in one case, that of Hempel himself, Oppenheim also provided much-needed refuge in mortally dangerous circumstances. (He also exerted substantial—albeit ultimately unavailing—efforts to rescue Grelling from the Nazi terror.) All this has to be taken into consideration if a just estimate is to be formed.

But back to our primary concern. What of Oppenheim's own personal contribution to the research effort. How does he stand as a philosopher?

Here an attention to background becomes important. In the early 1930's an ideological commitment to "unified science" (*Einheitswissenschaft*) came to prominence within the logical empiricist movement. This program was methodologically reductivistic in nature. It saw logic/mathematics as the key formal science and mathematical physics as the paradigmatic natural science which all the rest should emulate.[21] This vision of methodological monism guided the creation of Otto Neurath's Unity of Science Insti-

[21] Cf. Rudolf Carnap's "Die Physikalische Sprache als Universalsprache der Wissenschaft"," *Erkenntnis*, vol. 2 (1961), pp. 432-65. Otto Neurrath called his own theory "physicalism." See the article "Physikalismus" in *Enzyklopädie Philosophie und Wissenschaftstheorie*, Vol. III (*op cit.*), pp. 232-38.

tute in Den Haag in 1936 and led to the publication of the grandiosely named and multiply collaborative *International Encyclopedia of Unified Science* whose publication began in 1938.[22]

But while these developments were only beginning to unfold, Oppenheim was already at work in the field with a somewhat variant perspective. His approach was not physicistic/reductionistic but harked back to the ideas of Ernst Mach and Karl Pearson, who looked to a more stylistic and structural unity of science.[23] Perhaps influenced by the chemist's concern for structural uniformities behind different phenomena, Oppenheim proposed to search for shared elements of epistemic process among substantively diverse sciences. Contemplating the models of comparative linguistics or comparative sociology, Oppenheim from early on mooted the idea of comparative science studies based on the quest for a commonalties among the sciences that abstracted from substantive differences and looked at structural uniformities. The search for fundamental laws of comparative science-studies (*Grundgesetze der vergleichenden Wissenschaftslehre*, the subtitle of Oppenheim's very first publication) served as the guiding principle for his life work. The idea of a generalized "logic of confirmation" that formalized evidential processes of thought common to all forms of scientific reasoning was closely connected to this programmatic vision.

The word "vision" is used with deliberation here. For I think that Oppenheim brought to philosophy not only enthusiasm but a vision. This vision, to be sure, was that of a talented amateur. Trained principally in chemistry, Oppenheim was fascinated—perhaps obsessed—with the idea of *structure*. The chemist can do wonders with a small number of elements organized into a great variety of different material elaborations. Oppenheim—so it seems to me—brought this perspective to philosophy. His preoccupation with types (classifications), with orders and taxonomies, with evidential relations, with *Gestalt* concepts, and the like, all point in the direction of a mind that saw in the idea of logical structure a kind of Ariadne's thread for guidance through the labyrinth of theoretical problems. Oppenheim, in sum, was convinced that various guiding concepts of scientific thought (classification, confirmation, explanation) reflected a fundamental structural communality—an isomorphism of concepts of or-

[22] See R. L. Causey, *Unity of Science* (Dordrecht: Reidel, 1977).

[23] Recall the title of Pearson's 1892 book, *The Grammar of Science* (London: A. and C. Black, 1892; 2nd ed. 1900, 3rd ed. 1911).

der—that runs across different branches of science. Throughout his life, Oppenheim was a dedicated exponent of a structural unity of the sciences.

Of course such a vision is intuitive, sketchy, and programmatic. And Oppenheim lacked the technical resources to translate it into effective and concrete detail in a manner acceptable to the mathematically sophisticated philosophical community of the day. But he was sufficiently perceptive to see and sufficiently modest to admit this. And his recruitment of promising young scholars to work out the details of some of the relevant lines of investigation was a natural product of this situation. As Helmer put it in a personal communication, "Oppenheim was a person who was full of ideas, but not always capable of distinguishing the good from the bad. . . . My impression, in retrospect, is that the underlying ideas of our joint effort came from Paul, but that working out the details was accomplished jointly, with Peter [Hempel] and myself contributing most." This seems to me to put a construction on the matter that is at once generous and accurate.

As I see it, we have here an instance of the confluence of inclinations. But the main themes of the Hempel-Oppenheim paper—namely the so-called nomological-deductive model of scientific explanation and the thesis of explanation-prediction symmetry—reflect at once the interdisciplinarity (or, rather, non-disciplinarity) of Oppenheim's concern for structure and the mathematico-logical formalism that Hempel drew from the Reichenbach-Carnap tradition.

As far as philosophical ability and acumen are concerned, there is, I think, no doubt that Hempel was the leader of the H_2O team. But in this setting he did not move solely under the power of his own internal impetus. I am persuaded that the collaboration with Oppenheim and to a lesser extent the entry of Helmer served to orient, direct, and motivate Hempel's thinking along the lines that ultimately led to the classic Hempel-Oppenheim paper. There is no doubt in my mind that Hempel *could* have done this work alone. But likewise there is no doubt in my mind that he *would not* have—that his early preoccupation in the philosophy of mathematics would have impelled his work in different directions had not Oppenheim deflected it towards a concern for the structure of classification confirmation and evidentiation in natural science.

Oppenheim is thus an example of an extremely unusual circumstance. With the academic professionalization of philosophy that was pervasive throughout the West after World War I, the phenomenon of a talented amateur operating from without the academic system and having no professional base, yet nevertheless making a significant impact and exerting a substantial influence upon professional philosophy, is something virtually

unknown. Oppenheim is a rare—nay perhaps unique—exception to this rule.

3. TRANSITION

From Explanation to Prediction

One important sector of the historical dialectic must now be brought to the fore. In their influential 1948 paper, C.G. Hempel and Paul Oppenheim defended the thesis of the symmetry of scientific explanation and prediction.[24] They argued that explaining and predicting events are substantively parallel processes, in that a cogent explanation of the occurrence of specific events consists in showing that they were only to be expected (i.e. predictable) in the circumstances that prevailed prior to their occurrences. They issued a loud and clear challenge: "Whatever will be said in this article concerning the logical characteristics of explanation or prediction will be applicable to either, even if only one of them should be mentioned." Their justification for taking this stance was based on the idea that the scientific explanation of an event is "nomologico-deductive"—that is proceeds by deducing the event's occurrence from available information about the operative laws and the specific conditions existing prior to that event's occurrence, as per the (essentially deductive) inferential pattern:

- Information about prior conditions
- Causal laws

- Claim of the explanating event's realization

And (so Hempel and Oppenheim maintained) the issue of prediction vs. explanation will simply pivot on the question of whether the time of prediction precedes or succeeds the occurrence time of the event at issue. If the argument is produced after this time then we have an explanation; if prior, then we have a prediction. The processes are logically isomorphic, having exactly the same inferential form. The only difference is that of timing. Here then was a thesis that accorded exactly with Oppenheim's guiding conviction of a logico-structural isomorphism of seemingly distinct processes of scientific thought.

[24] Many of the relevant issues are surveyed in detail in Wesley Salmon's *Four Decades of Scientific Explanation* (*op. cit.*).

From the very first, many people—I certainly among them—questioned the prediction/explanation symmetry thesis. And soon a whole host of discussions sprang up to argue the matter one way or the other. But in the background—quite outside the philosophical literature—stood a keen mind that was concerned to develop the issue of prediction along very different lines. More interested than most philosophical theorists in the matter of prediction, the second H of the H_2O team wanted to abandon the formalisms so dear to the theorists of that era and to recognize the important role of human judgment and sensibility in predictive matters. And this brings us to the need for a closer look at Olaf Helmer.

4. OLAF HELMER (1910 -)

Personal Background

Olaf Helmer was born in Berlin on June 4, 1910.[25] He studied mathematics and logic at the University of Berlin in the early 1930's and became close friends with Peter Hempel there. In 1934 he took his doctorate with a dissertation on the formal axiomatization of geometry begun under the direction of Hans Reichenbach. (Exactly the same is true of C. G. Hempel as well, whose academic career was delayed by a few years of Gymnasium teaching.) That very year (1934) Helmer emigrated from Nazi Germany to Britain. There he earned a second doctorate in philosophy under Susan Stebbing at the University of London (Bedford College) in 1936. His second dissertation was on logic, specifically on Russell's Paradox, and Bertrand Russell himself served as one of his examiners.

His studies in Britain completed, Helmer migrated to the USA in 1937. Along with Hempel, he worked with Rudolf Carnap as his research assistant at the University of Chicago, and then he taught mathematics for several years (1938-41 at the University of Illinois at Urbana and 1941-44 at City College in New York).[26] During this period Helmer supplemented his

[25] Library catalogues generally register the name as Helmer-Hirschberg which occurred on the title page of his first publication, his University of Berlin doctoral dissertation. In Nazi Germany, people were sometimes required to make any "non-Aryan" ancestry manifest in their surnames.

[26] Hempel also functioned as Carnap's assistant during 1937-38. Helmer always remained close to Carnap, as did his wife Maggie who was "Mutzli" to Carnap.

modest income as a junior academic by translating some scientific books. Additionally, in 1944-45 he also worked as a collaborator with Paul Oppenheim, whom he first met through C. G. Hempel in early 1944. He commuted regularly to Princeton from his teaching post in New York City to stay at the Oppenheims for three days of the week.

A dramatic episode occurred at this time. In the summer of 1944 the Oppenheims had rented a cottage at Saranac Lake, and Helmer came there to visit and to work with Oppenheim. Einstein was also visiting there, and a party was formed for sailing on the lake consisting of Einstein, both Oppenheims, and Helmer. When its keel collided with a reef, the boat capsized and its occupants thrashed about in the water at a considerable distance from shore until their lusty shouts managed to get the party rescued. (This time Oppenheim and his friends were well and truly "ins Wasser gefallen.")

Helmer's work with Oppenheim ended when, late in the war, he became involved in mathematics-based war work for the National Defense Research Council under the direction of John Williams. (Although called the Princeton Statistics Research Group, this unit was actually housed at Columbia University.) In 1946, when Williams became one of the founding fathers of the RAND Corporation in Santa Monica, Helmer also joined the enterprise, being appointed as one of the very first staff members of this think-tank designed to keep wartime scientific expertise in the Air Force orbit. (His RAND ID card bore the number 5.) By the time I myself joined RAND (where I worked during the 1954-56 period), Helmer had become one of the group leaders in the Mathematics Division.[27]

Helmer took to Southern California like a duck to water. The relaxed, informal lifestyle of the place suited him to a T. In the early 1950's, the Helmers lived in an attractive typical Los Angeles suburban house on fashionable Mandeville Canyon Road, but in the late 50's Helmer made the investment of a lifetime by building a small stilt-elevated house on the narrow strip of land between the Coast Road (U.S. 1) and the beach at Malibu.

Personally, Olaf was an easy-going and friendly individual who always brought to his work the same naive freshness, enthusiasm, and playful spirit that delighted in orienting its thought-life to the speculative future. He was also impatient of detail—and the active writing up of his researches was for the most part left to his collaborators. It is somehow char-

[27] Helmer was so scrupulous about the allocation of company resources that in our collaboration the more theoretical work was done during off-duty hours rather than "on company time."

acteristic that the one occasion when he was compelled to provide the words and not just the ideas—namely in his 1945 joint paper with Oppenheim in the *Journal of Symbolic Logic*—yielded what was perhaps the single most sustained piece of written exposition that Olaf ever produced at one go.

There is little question that Helmer's main academic contribution was to the field of Futuristics. Once he became engrossed in matters of prediction and futurology this replaced all other concerns. He never returned to the work on confirmation and evidentiation that characterized his early interests.

After more than twenty years at RAND, Helmer left in 1968 to join with Theodore Gordon and Randites Paul Baron and Arnold Kramish in founding The Institute for the Future—a futurology think-tank—whose Eastern branch, located in Middletown Connecticut, he headed for a time.[28] The Institute encountered various difficulties in establishing a secure foothold and ultimately moved under the leadership of Roy Amara to California (where it continues to exist). In 1973 Helmer left it to return to accept an appointment as the first (and only) Harold Quinton Professor of Futures Research in the newly established (and short-lived) Center for Futures Research in the School of Business Administration at the University of Southern California.

Helmer retired from USC in 1976. For a year he functioned as a research scholar at the International Institute for Applied Systems Analysis near Vienna, Austria. Then he retired to Carmel, CA. For some years he continued to travel extensively for lecturing and consulting, and in 1983—now well into his 70's—he published his principal book, *Looking Forward: A Guide to Futures Research*. At the present time (1995), he is living with his wife of many years, Helen Mary ("Maggie"), in a retirement home in Montecito, CA.

Helmer's Contribution to H_2O

Let us now return to Helmer's important contribution to the H_2O collaboration. This has been described by Oppenheim himself in the following rather dramatic terms:

[28] The Western branch of the Institute was located in Menlo Park CA, near the Stanford Research Institute, which ultimately absorbed it.

> One of the main problems [addressed by Hempel and Oppenheim in the early 1940's] still reflected our earlier interest in "ordering concepts." It concerned the development of a precise definition and a theory of a *quantitative concept of confirmation*. In this enterprise, we had the important help of Olaf Helmer who, at that time, was working with me in Princeton. We spent the early summer of 1944 with Olaf at Saranac Lake (where I introduced Peter to Einstein, who was then vacationing there.) By mid-summer, we felt quite pleased to have formulated an explicit definition of "degree of confirmation" for certain simple formalized languages. But, in the meantime, we heard from Carnap that he was at work on much the same problem, and we were curious—to say the least—whether he had been proceeding along the same lines. Fortunately, we were soon to have a chance to find out, for the Carnaps had invited Peter to spend the latter part of the summer with them in their vacation house at Santa Fé. We had agreed that Peter would wire Olaf and me "Stop working" if it should turn out that Carnap had gotten far ahead of us or if he should find a decisive flaw in our approach. A few days later, the fateful wire did come. As Peter explained in a subsequent letter, Carnap had been amazed to find that we had indeed been thinking along very similar lines defining the concept of degree of confirmation as the quotient of two range measures; but he had pointed out that we had chosen a measure-function, which he attributed to Wittgenstein, and which incorporated, as he was able to show, a non-empiricist inductive policy, namely, to learn nothing from past experience.
>
> In fact, however, we did not "stop working," but changed our approach. Olaf provided the basic idea, which made use of R. A. Fisher's notion of maximum likelihood; this led to the definition and theoretical elaboration of a concept of degree of confirmation which did not have the objectionable non-empiricist feature, but which, in contrast to Carnap's concept of confirmation, did not have all the formal properties of a concept of probability.

The drama of that "Stop working" telegram endows Helmer's contribution to the H_2O effort with a special import and poignancy.

The shift from the early Hempel-Oppenheim concern for confirmation and the later Hempel-Oppenheim concern for explanation was (I think) motivated by an important contribution of Olaf Helmer's. Let us consider how this transpired.

The early concern for the development of a degree of confirmation measure dc(p/q), was of course directed as a philosophy-of-science issue of assessing the extent to which the evidence in hand confirms a given scientific theory:

dc (theory/evidence).

However, it is clear that the utility of this standard of theory assessment is very doubtful. For the gap between the inevitably fragmentary observational evidence we actually have and the vast (literally unending) claims that are implicit in any general theory is always enormous. The evidence-to-theory gap is thus to all intents and purposes so great that the dc-quantity at issue is always some trivial $\cong 0$. (And here, of course, lies one of the Achilles Heels of Carnap's approach.)

Helmer's idea was to stand the matter on its head. As his 1945 paper with Oppenheim indicates, inspired by R. A. Fischer's maximum likelihood method in statistics, he proposed to consider instead the quantity:
pr (evidence/theory)

Our real concern—so he thought—ought to be to identify that theory T_i with the range of plausible alternatives $T_1, T_2, ..., T_n$ for which this quantity is maximal. We thus come to the principle that later theorists called "inference to the best explanation," based on the idea that that theory of a given alternative range is the best confirmed relative to which the evidence that we have in hand is the most likely.

Now it is readily seen that the step from here to a covering law model of explanation—as we have it in the Hempel-Oppenheim paper—is both short and easy. Both approaches alike have it that the optimal theory is that one which best explains the evidence. And of course if the reasoning is strictly deductive, the probability at issue will be 1. Things cannot get any better than this, and we are thus led to a deductive model where the step from the theory (plus prevailing boundary value condition) to observe the evidence involves a step of certainty.[29]

And so in this regard, Helmer's contribution deserves to be seen as crucial. He furnished the transitional link in the shift from confirmation to explanation, by way of the maximum likelihood approach—thus effecting a natural transit from the one methodology to the other. On Helmer's stratagem, the issue of confirmatory strength is simply transmuted into that of

[29] This, of course, reflects the Hempel-Oppenheim deductive model. But where the linkage is probabilistic (and less than certain) the step to more daring kinds of argumentation come upon the scene.

the comparative assessment of explanatory adequacy. Carnap's degree of confirmation program approached the issue of the acceptability of a theory through assessing the extent to which the available evidence gives that theory support. Helmer's maximum likelihood approach turned perspective of consideration into a different direction, holding that the best standard of theory assessment is one that proceeds not in terms of evidential support, but rather in terms of the extent to which the theory correctly directs and canalizes our observational expectations. The crucial question now is: "Do those theories portray what we actually observe in the light of the only-to-be-expected. Do they succeed in efficiently and effectively explaining our actual experience (where past) and in predicting it (where future)?" And so the factor of prediction now comes to the fore.

The Turn to Futurology

The shift from explanation/confirmation to prediction was integrally limited to the structure of Helmer's larger interests. For his preoccupation with prediction relates to his immersion in the atmosphere of RAND's military theorists and economists and their concern for matters of forecasting in contexts where formalisms do little if any service and where human judgment has to be brought upon the scene. For Helmer soon came to believe that formalisms could not yield useful *predictions*, and that what is needed for predictive purposes is not a calculus of some sort, but a systematized use of human judgment—that predictive cogency lies not in the structural formalities of what is said but in the (often only partially and imperfectly articulated) thought processes that underlie the saying of it. Accordingly *expert judgment* came to be the pivot point around which Helmer pivoted his vision of predictive methodology.

The Delphi Method

Although he was a member of Mathematics Division at the RAND Corporation, Helmer was rather more a philosopher than a mathematician. In this regard he was the most senior of a small group of RAND Mathematics Division people (including Norman Dalkey, Nicholas Rescher, and Frederick B. Thompson) all of whom had been trained in logic and philosophy of science. The composition of this group reflected the personal attitude of John Williams, head of Mathematics Division and one of the founding fathers of RAND. Helmer found this speculative atmosphere eminently con-

genial. And he made full use of this freedom to ride his own particular hobby horse: issues of prediction and the future.

This brings us to the centerpiece of Helmer's preoccupation with futurological studies—the so-called Delphi Method of expert prediction, which originated in a series of RAND studies in the 1950's.[30] Like many other intellectual innovations of 20th Century America, it was a child of the Cold War. (Not until after the 1966 publication of Helmer's *Social Technology* did Delphi effectively penetrate beyond the RAND Corporation orbit.)

The basic idea of the Delphi technique is to proceed by means of structured interaction among a group of predictors.[31] This predictive process at

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[30] Of the numerous published accounts of the origins of the Delphi method, none gets the matter entirely straight. The story runs as follows: A precursor study that helped to set the stage was Abraham Kaplan, A. L. Skogstad and M.A. Girshick, "The Prediction of Social and Technological Events," RAND Corporation paper P-93 (Santa Monica CA, April 1949), subsequently published in the *Public Opinion Quarterly*, vol.14 (1950), pp. 93-110. The use of the Delphi method itself in an initial, rudimentary form first occured in Norman C. Dalkey and Olaf Helmer, "The Use of Experts for the Estimation of Bombing Requirement: A Project Delphi Experiment," RAND Corporation Research Memorandum RM-727-PR (Santa Monica CA, November 1952). The theoretical basis of the Delphi methodology was first set out in a 1958 RAND publication (paper P-1513) later reprinted as: Olaf Helmer and Nicholas Rescher, "On the Epistemology of the Inexact Sciences," *Management Sciences*, vol. 6 (1959), pp. 25-52. A reasonably accurate outline of the history of *subsequent* developments is set out on pp. 85ff of Edward Cornish et al., *The Study of the Future* (Washington DC: World Future Society, 1977). See also Harold A. Linstone and Murray Turoff (eds.) *The Delphi Method: Techniques and Applications* (Reading, MA: Addison Wesley, 1975), which characterizes the multiple reprinted Helmer-Rescher paper of 1958 as a "classic paper which was very adequate for the typical technological forecasting applications for which Delphi has been popular" (p. 15). The development of Delphi was a collaborative effort—the method, like the proverbial camel, was an object created by a committee. But is was a committee that was definitely headed by Helmer.

[31] The method in its developed form is described in Olaf Helmer's *Looking Forward: A Guide to Future's Research* (Beverly Hills: Sage Publications, 1983). For further references see p. 299 ff of Roger M. Cooke, *Experts in Uncertainty: (op. cit.*), (Chapter 11, entitled "Combining Expert Opinion" is particularly relevant). Good discussions of Delphi are also found in Joseph P. Martino, *Technological Forecasting for Decisionmaking* (New York: American Elsevier, 1972), pp. 28-64, and in Harold A. Linstone and Murray Turoff (eds.) *The Delphi Method: Techniques and Applications* (Reading, MA: Addison Wesley, 1975). However, the very fact that the passage of years has not rendered these discussions obsolete betokens the forecasting community's disillusionment with this predictive technique.

work proceeds without any face-to-face interaction among the group members. Instead, it uses a series of successive questionnaires to elicit responses from a panel of experts to arrive at an aggregate prediction about future developments. The experts are interrogated individually (usually by questionnaire) about their expectations for a series of hypothetical future events. (A typical issue for a Delphi study might, for example, be the demographic question: In what year (if ever) do you expect the at-birth life expectancy of American females to reach 85 years?) After the initial set of questionnaires is completed, the responses are assembled as statistical distributions, stated in terms of means and quartiles, supplemented by any pertinent comments by the experts. Then a second round is executed by the participants being provided with some aggregated information regarding the initial response. They might also be given the (anonymous) comments about and arguments for or against various positions. Respondents are then asked to submit revised estimates together with reasons for agreeing or disagreeing with the initial consensus. In the third (and later rounds) this procedure is repeated, with additional commentary and (depersonalized) exchange of information. Eventually, if the method works according to plan, the respondents will increasingly converge in their thinking, with a resulting narrowing of the range of estimates. Moreover, the feedback aspect of the process makes for an impetus towards consensus that can be reinforced by various artificial means—say by successively discarding extreme judgments.

The Delphi method was received with eagerness in many circles and in the 1960's there was a vast proliferation of Delphi exercises and studies.[32] Here, time was on Helmer's side: The main body of his work was complete and ready for use when the futurology boom began in the early 1960's. And this timing was most propitious. For these predictive studies came at a juncture when, under the pressure of the spirit of the times, concern for the future was very much coming into its own, and in fact propelled Helmer into America's first professorship of futuristics.

The futurology and futurism of this time were bound up ideologically with the vision of progress astir in the era of technological optimism of the pre-Vietnam era. And the bubble ultimately burst on this sentiment in the wake of a whole series of disasters (ranging from the Vietnam War itself to the collapse of America's failed hostage rescue effort in the desert of Iran,

[32] The Futures Group, a spinoff from the Institute for the Future, was launched as a profit-making organization that contracted to perform Delphi studies for corporations on a proprietary basis.

the Challenger disaster, and the industrial catastrophes at Bhopal in India, Soveso in Italy, and Chernobyl in the USSR). Future studies fell increasingly from favor as the probable future whose coming they indicated looked increasingly unappealing. As usual, people who disliked the message killed the messenger. And—as so often—the enthusiasts of an intellectual boom lived to see it bust.

All the same, something has remained from the now long defunct futurology boom and from the Delphi program that figured so prominently on its agenda. In particular, the idea of a inquiry-internal use of expert judgment had substantial eventual consequences. For while the next step in the developmental dialectic—that of the "expert systems" project of developing processes to simulate expert judgment—evolved well after the work of Helmer and his collaborators, their efforts proved to be a portent of things to come.[33]

5. POSTSCRIPT

These deliberations have centered around two particular *booms* or, if one prefers another economic analogy—that of the South Sea Bubble—two particular *bubbles*, in recent intellectual history: the degree of confirmation boom among philosophers of science initiated in the early 1940's and the more wide-ranging futurological boom that began in the late 1950's. In both cases, the project at issue ran its course over a period of some fifteen years and then gave gradual and grudging way to rather differently oriented projects and programs.

And so, in contemplating the fate of the programmatic endeavors of the role models of my younger days, I am led to gloomy ruminations regarding the present. As I look back on those enthusiasm-enlisting research programs of my philosophical youth, I am led to reflections on "the tooth of time" regarding whose all-destructive powers the Greek lyric poet Simonides waxed so eloquent.[34] It was a general theme of which the ancients were fond: *Tempus edux rerum*: time, that devourer of things.

And yet here we are: the time is now and the work is ours. "Sufficient unto the day are the opportunities thereof." We cannot but acknowledge—

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[33] I am grateful to Felix Oppenheim, Gabrielle Errera Oppenheim, and Olaf Helmer for information provided, and also acknowledge some helpful suggestions by the referees for *Philosophy of Science* where this paper was initially published (vol. 64 [1997], pp. 779-805.

[34] See also Shakespeare, "Measure for Measure," V, 1.

however reluctantly—that the future belongs not to ourselves but to others. In this regard we are helpless. But then again so are they—those successors of ours. For they for their part have no alternative but to start out from a position which is, in substantial part, of *our* making. In handing to them the problem-situation as we ourselves have created it, we extend to our intellectual posterity an offer they cannot refuse.

Appendix No. 1: PUBLICATIONS OF PAUL OPPENHEIM

1926 *Die natürliche Ordnung der Wissenschaften: Grundgesetze der vergleichenden Wissenschaftslehre* (Jena: Gustav Fischer, 1926).

1928 *Die Denkfläche: Statische und dynamische Grundgesetze der wissenschaftlichen Begriffsbildung* (Berlin, 1928; *Kantstudien*, Ergänzungsheft 62).

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1955b (with John G. Kemeny). "Systematic Power," *Philosophical Studies*, vol. 22 (1955), pp. 27-33.

1956 (with John G. Kemeny). "On Reduction," *Philosophical Studies*, vol. 7 (1956), pp. 6-19.

1957 "Dimensions of Knowledge," *Revue internationale de philosophie*, vol. 11 (1957), pp. 151-91.

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1959 "A Natural Order of Scientific Disciplines," *Revue Internationale de Philosophie*, vol. 49 (1959), pp. 1-7.

1961 (with Hugo Adam Bedau). "Complementarity in Quantum Mechanics: A Logical Analysis," *Synthese*, vol. 13 (1961), pp. 201-232.

1966 (with Nathan Brody). "Tensions in Psychology Between the Methods of Behaviorism and Phenomenology," *Psychological Review*, vol. 73 (1966), pp. 295-305.

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1969a (with Nathan Brody) "Application of Bohr's Principle of Complementarity to the Mind-Body Problem," *The Journal of Philosophy*, vol. 66 (1969), pp. 97-114.

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1974 (with Siegwart Lindenberg) "A Generalization of Complementarity," *Synthese*, vol. 28 (1974), pp. 117-39.

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Appendix No. 2: PUBLICATIONS OF OLAF HELMER

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ecutive Readings in Management Sciences, ed. by M. K. Starr (New York: Macmillan, 1965), and in *The Nature and Scope of Social Science*, ed. by I. Krimerman (New York: Appleton-Century-Crofts, 1969). [The work on which this paper is based was done in 1954-55.]

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1964b (with Theodore Gordon) "Report on a Long-range Forecasting Study," RAND Corporation paper P-2982 (Santa Monica CA, September 1964). [Reprinted as an Appendix to 1966a.]

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1965 (with T. J. Gordon), "Probing the Future," *News Front Magazine*, vol. 9 (April 1965).

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1970d "Report on the Future of the Future-State-of-the-Union Reports," Institute for the Future report R-14 (Middletown CN, October 1970).

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1992 "Nuclear Sanity, Anyone?" *Technological Forecasting*, vol. 41 (1992), pp. 445-47.

NOTE: Helmer translated Alfred Tarski's *Introduction to Logic and the Methodology of Deductive Science* (New York: Oxford University Press, 1941), and Hermann Weyl, *Philosophy of Mathematics and Natural Science* (Princeton: Princeton University Press, 1949). He also translated Rudolf Carnap's *Logical Syntax of Language*

(London: Routledge, 1959), though this was not acknowledged in print.

Chapter Ten

LOGICIANS AT RAND

1. BACKGROUND

I worked at the RAND Corporation in Santa Monica from May of 1954 through December of 1956. This period fell into the very first decade of RAND's existence, when the enterprise was still in some ways finding its sea legs.

My coming to this top-tier think-tank was the result of two eventuations: the size-implosion in U. S. higher education that followed the passing of World War II's G. I. bill beneficiaries, and the longstanding friendship between my principal teacher, C. G. Hempel, and Olaf Helmer, then one of the mainstays of RAND's Mathematics Division. The former development impeded my reentry into academia after military service during the Korean War; the latter opened the door for me at RAND.

When I crossed the country on the Union Pacific in the spring of 1954 to enter RAND's employ I was still only 25 years old. But I already had behind me two career achievements: an instructorship in philosophy at Princeton University in the wake of a Ph.D., awarded when I was yet 22 years of age, and a period of military service as a Korean War draftee in the U.S. Marine Corps, which had seen my rise to the exalted rank of corporal (one of the very few regards, I might add, in which I resembled that far more eminent ex-corporal, Adolf Hitler).

I did not realize it at the time, but I was a small part of a larger phenomenon—RAND's interest in logicians. For during the 1950s RAND found itself in the position—unusual and indeed unique among military-connected think-tanks—of having a cluster of logicians on its payroll. My aim here is to recount this historical episode and to comment upon its significance and its implications.

As best I can tell, the presence of logicians at RAND in its early days was ultimately due to the influence of John Williams, the first head of its Mathematics Division and one of Frank Collbohm's team of administrative leaders. Williams was profoundly impressed by the incredible mathemati-

cal talent of RAND consultant John von Neumann, whose interests in game theory and mathematical logic became the foci of William's preoccupation. And so beyond building up a stable of game theorists, Williams also hired some logicians.[1] And here the old Collbohm-Williams ethos prevailed—hire able and promising people, cut them a lot of slack, and count optimistically on their good sense to offset the spirit of laisser faire to work matters out to the benefit of all concerned.

In temporal order of birth, this cluster of logicians included J. C. C. McKinsey, Olaf Helmer, Norman Dalkey, Frederic B. Thompson, and myself. Moreover, thanks to Helmer's urging and to Williams' friendship with Charles Hitch, then head of Economics Division, yet another logician eventually found his way into Economics Division, Albert Wohlstetter. Many of these individuals shared with another the instruction of an eminent logician as teacher: Alfred Tarski in the case of McKinsey and Thompson, and Hans Reichenbach in the case of Helmer and Dalkey. (There were personal connections as well: Wohlstetter was a friend of Helmer's; and Rescher a student of Helmers, a longstanding friend and former colleague of Carl G. Hempel.)

Let me present each of these six individuals briefly, in order of age. The present discussion will focus on them alone. Dealing with the rest of the many other able and interesting people who contributed importantly to RAND's work in these days is going to be someone else's job.

2. PERSONS

1. MCKINSEY

J. C. C. McKinsey was born in 1908, and after earning a doctorate in mathematical logic under Tarski at Berkeley, he taught at New York University, Berkeley and elsewhere. He became a close friend and collaborator of Alfred Tarski. In 1947 McKinsey joined a research group under Frank Collbohm at the Douglas Aircraft Corporation in Santa Monica. This group

[1] It was largely due to Williams' influence and persuasiveness that the corporation resisted the natural temptation to focus exclusively on hardware issues and instead turn to the kind of interdisciplinary work that put RAND on the map. As Olaf Helmer put it in correspondence: "Without Williams' continual influence on RAND's directorate, RAND would, in my opinion, never have become the unique and renowned organization that it was in the Fifties and Sixties and is now again" (E-mail of 4/19/05).

became absorbed in 1948 into the independent think-tank and military research facility known as the RAND Corporation. Then and later McKinsey made important contributions to the theory of games and his entry into the Douglas/RAND orbit marked growing interest there in the theory of games. Under Tarski's influence he had become an expert at issues of decision processes in elementary algebra, and it was deemed promising to explore the prospect of their use in computerized optimization of game strategies.[2] However, his open homosexuality blocked the road to the requisite security clearance, and McKinsey then left RAND to return to academia. After leaving RAND in 1951 to take a teaching position at Stanford, McKinsey recommended hiring F. B. Thompson as his replacement. McKinsey himself did not have long to enjoy his new niche. His brilliantly productive career as a logician was cut short by suicide in 1954.

2. HELMER

Olaf Helmer was born in Berlin in 1910.[3] He studied mathematics and logic at the University of Berlin in the early 1930's and became close friends there with C. G. Hempel, who was to become one of the 20th century's most eminent philosophers of science. In 1934 Helmer earned his doctorate with a dissertation on the formal axiomatization of geometry begun under the direction of Hans Reichenbach. He then emigrated from Nazi Germany to Britain, where he earned a second doctorate in philosophy under Susan Stebbing at the University of London (Bedford College) in 1936. His second dissertation was on logic, specifically on Russell's Paradox, and Bertrand Russell himself served as one of his examiners.

In 1937, Helmer left Britain for the U.S.A. At first he worked for a time with Rudolf Carnap as his research assistant at the University of Chicago. Thereafter, he taught mathematics for several years (1938-41 at the Uni-

[2] McKinsey's 1950(?) RAND report "A Decision Method for Elementary Algebra and Geometry" presented some important and influential results. He also wrote his very successful *Introduction to the Theory of Games* (McGraw-Hill, 1952), while at RAND.

[3] Library catalogues generally register the name as Helmer-Hirschberg which occurred on the title page of his first publication, his University of Berlin doctoral dissertation. In Nazi Germany, people were sometimes required to make any "non-Aryan" ancestry manifest in their surnames.

versity of Illinois at Urbana and 1941-44 at City College in New York).[4] During 1944-45 he also worked as a collaborator with Paul Oppenheim, an independently wealthy scholar-scientist whom he first met through their mutual friend Hempel.

Helmer's work with Oppenheim ended when, late during World War II, he became involved in mathematics-based war work for the Army Air Force under the direction of John Williams, joining a unit which, though called the Princeton Statistics Research Group, was actually housed at Columbia University. In 1946, when Williams became one of the founding fathers of the RAND Corporation in Santa Monica, Helmer came along to join the enterprise. He thus became one of the very first staff members of this think-tank designed to keep wartime scientific expertise within the Air Force orbit. (His RAND ID card bore the number 5.) By the time I myself joined RAND, Helmer had become one of the group leaders in the Mathematics Division.[5] At RAND, Helmer's work at first focused on military simulation gaming (as a sideline to which he eventually produced his commercial—and commercially mildly successful—games. SUMMIT and SQUARE MICE). Eventually, however, his interest in matters of prediction and futurology displaced other concerns. Helmer's enthusiastic and steadfast interest in this area led him to become the central figure in the development of the so-called Delphi-methodology for the interactive pooling of expert judgment in matters of prediction, reflecting a preoccupation with futurology that absorbed the remainder of his professional career.

After more than twenty years at RAND, Helmer left in 1968 to join with Theodore Gordon and RANDites Paul Baron and Arnold Kramish in founding The Institute for the Future—a futurology think-tank—whose Eastern branch, located in Middletown Connecticut, he headed for a time.[6] The Institute encountered difficulties in establishing a secure foothold and ultimately moved back to California under the leadership of Roy Amara. In 1973 Helmer left it to return to accept an appointment as Harold Quinton

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[4] Hempel also functioned as Carnap's assistant during 1937-38. Helmer always remained close to Carnap, as did his wife Maggie who was "Mutzli" to Carnap.

[5] Helmer was so scrupulous about the allocation of company resources that in our collaboration the more theoretical work was done during off-duty hours rather than "on company time."

[6] The Western branch of the Institute was located in Menlo Park CA. It still exists at this writing (2005).

Professor of Futures Research in the newly established (and short-lived) Center for Futures Research in the School of Business Administration at the University of Southern California. He thus held the nation's first (and perhaps only) professorship of futuristics.

Helmer retired from USC in 1976. For a year he functioned as a research scholar at the International Institute for Applied Systems Analysis near Vienna, Austria. Then he retired to Carmel, CA, but for some years continued to travel extensively for lecturing and consulting. In 1983—then well into his 70's—he published his principal book, *Looking Forward: A Guide to Futures Research*. At the present time 2005), he is living with his wife of many years, Helen Mary ("Maggie"), in a retirement home in Montecito, CA.

3. WOHLSTETTER

Albert Wohlstetter was born in New York City in 1913. After undergraduate work at City College he did graduate studies in philosophy at Columbia University, earning a master's degree in 1938 with work in symbolic logic under the direction of Ernest Nagel.[7] During World War II he worked for the War Production Board. In 1951 he came to RAND through the mediation of Olaf Helmer, initially in the Mathematics Division, though later he transferred to Economics.

Wohlstetter worked at RAND until 1963, by then somewhat out of spirits with RAND's increasing disinclination towards interdisciplinary studies. He then taught at the University of California in Berkeley for a year or so and from 1964 to 1980 he held up the post of University Professor in the political science department at the University of Chicago where Richard Perle and Paul Wolfowitz were among his disciples. (Those so-called neo-Straussians might just as well be called neo-Wohlstetterites.)

Wohlstetter's work as a defense intellectual at RAND and beyond earned him the accolade of "brilliant strategist" from no less then Henry Kissinger. An influential governmental advisor under several administra-

[7] Wohlstetter's first professional publication, co-authored with Morton White, was a critique of the sociologically oriented general semantics of S. I. Hayakawa and Alfred Korzybski as falling short in point of logical precision in contrast to the logical semantics of Rudolf Carnap and Alfred Tarski. See Albert Wohlstetter and Morton White, "Who Are the Friends of Semantics?" *Partisan Review*, vol. 6 (1939), pp. 50-57. See also Reisch 2005, pp. 69-70 and 127-28.

tors, President Regan in 1975 awarded him the Medal of Freedom, the nation's highest civilian award, for services to national security.[8] After retiring from the University of Chicago in 1978, Wohlstetter returned to California where he continued an active program of research, consulting, and lecturing. He died in Los Angeles in 1997 at the age of 83. (I shall have more to say about him a bit latter.)

4. DALKEY

Norman C. Dalkey was born in Santa Clara, California in 1915. He was a graduate student in philosophy at the University of Chicago during 1939-40, working largely under Carnap. (He also got to know Helmer as well who had recently left off being an assistant to Carnap.) In 1940 Dalkey moved from Chicago to UCLA (as did his friend Abraham Kaplan). In 1942 he earned his Ph.D. in philosophy there, with a thesis on "The Plurality of Language Structures" written under the direction of Hans Reichenbach. After military service during WW II and teaching for a time at UCLA, he joined RAND's Mathematics division in 1948. In his early years there he was a member of Olaf Helmer's group, working principally on issues of prediction (Project Delphi) but also on issues relating to induction and information processing which increasingly attracted his attention. Subsequently, Dalkey's entire career was spent at RAND until he retired in 1983. (He still lives in Pacific Palisades.) Alone among RAND's logicians he stayed with the corporation throughout his entire career. The work of his later years was devoted primarily to issues of reasoning in conditions of imperfect information and uncertainty, ever manifesting a capacity for acute insight into complex issues.

5. THOMPSON

Frederick B. Thompson was born in Defiance, Ohio in 1923 (??). In 1952 he earned a Ph.D. in mathematical logic at the University of California at Berkeley with a dissertation on abstract algebra and metamathematics under the direction of Alfred Tarski. At Berkeley he functioned not

[8] At the same time, Wohlstetter's wife Roberta also received this award on the basis of her book *Pearl Harbor: Warning and Decision* (Stanford, Calif.: Stanford University Press, 1962) an authoritative and very influential study of Japan's surprise attack.

only as Tarski's student but as his assistant and factotum as well. Upon receiving his doctorate he was hired by RAND's Mathematics division at the recommendation of J. C. C. McKinsey. He became attached to Olaf Helmer's group initially focusing at first on damage resulting from hypothetical nuclear attack on urban and industrial targets in the U.S. Subsequently, he struck out along independent lines turning to computerized studies of security issues. He remained at RAND until 1962 and then went to Cal. Tech. in Pasadena to pursue work in information management and computational linguistics. He stayed there until he retired in 1988.

6. RESCHER

Nicholas Rescher was born in Hagen, Germany in 1928 and emigrated to the U.S.A. with his family in 1938. Having received a BS. in mathematics in 1949 from Queens College in New York, he earned a Ph.D. in philosophy in 1951 from Princeton University where he also studied mathematics and logic, largely under the direction of Alonzo Church. After military service during the Korean War, Rescher worked in the Mathematics Division at RAND as a member of Olaf Helmer's group during 1954-56. Thereafter Rescher returned to academia by taking up a profession post in the department of philosophy at Lehigh University. In 1961 he moved to the University of Pittsburgh, on whose faculty he continues to the present day. An active contributor to philosophical research in many areas, Rescher was named University Professor in 1970 and has served as a president of the American Philosophical Association. For many years he edited the *American Philosophical Quarterly* and also served as director of the University of Pittsburgh's Center for Philosophy of Science.

During his time at RAND Rescher collaborated with Olaf Helmer and Norman Dalkey in developing the Delphi process of group prediction.[9] He

[9] 1959 [1958] (with Nicholas Rescher) "On the Epistemology of the Inexact Sciences," *Management Science*, vol. 6 (1959), pp. 25-52. Reprinted in Nicholas Rescher's *Scientific Explanation* (New York: The Free Press, 1970), pp. 163-208 and in Olaf Helmer's *Looking Forward: A Guide to Future Research* (Beverly Hills, 1983), pp. 25-48. This paper was originally issued in 1958 as RAND publication P-1513 and reissued in 1960 as RAND publication R-353. Also reprinted in *Executive Readings in Management Sciences*, ed. by M. K. Starr (New York: Macmillan, 1965), and in *The Nature and Scope of Social Science*, ed. by I. Krimerman (New York: Appleton-Century-Crofts, 1969). [The work on which this paper is based was done in 1954-55.]

also collaborated with Frederick B. Thompson (of Mathematic Division) and Joseph Loftus (of Economics Division) in studies of U.S. vulnerability to surprise air attack by atomic bombardment. After serving at RAND for two and one-half years, Rescher continued for some dozen years in a consulting capacity. His participation in investigations regarding prediction and forecasting had the basis for a longstanding interest in these issues, and provided the seed from which his well-received 1990 book on *Predicting the Future* was ultimately to grow.

* * *

A survey of RAND's logicians would be seriously deficient in failing to mention the eminent logicians who served as consultants to RAND's effort in this area in the early 1950's. First and foremost was John von Neumann, an unusual genius with respect to anything relating to mathematics. Carl G. Hempel was also a consultant for a brief period. And then too there was John Kemeny, a Princeton student of Alonzo Church's and assistant to Einstein. Then just on the verge of being appointed President at Dartmouth, and subsequently to chair the committee investigating the disaster at Three Mile Island, Kemeny made his presence felt at RAND from time to time in a generally constructive way.[10]

3. PROJECTS

Overall, the contributions to the corporation of this group of what might be called "the RAND logicians" were primarily four:

- The study of the theory and practice of interactive gaming processes as theoretical support for the larger efforts of RAND's efforts in game theory and military simulation studies.

- The study of vulnerability reduction of U.S. retaliatory air power.

[10] For a brief period in the summer of 1951 C. G. Hempel was also a consultant at RAND. Abraham Kaplan, a doctoral student of Hans Reichenbach's at UCLA (who had been a teacher of Helmer's in Berlin), was also a RAND consultant for a time, but I do not include him here since his academic work lay outside of logic. Much the same can be said for Herbert Bohnert, a student of Rudolf Carnap's in Chicago who was also a RAND consultant for a period in the 1950's.

- The study of information management conditions of deficient or uncertain information, and more specifically—

- The study of predictive processes and primarily relating to what came to be called Delphi methodology.

A brief word about each of these.

The vulnerability studies were only a small part of RAND's major preoccupation in these days.

The work on information management was constructive but not (as best I can see) actually unique. The issues were part of a broad international effort, and the results that this work yielded would in all likelihood have been achieved even if RAND's contributions had not existed. And with the possible exception of McKinsey's work pretty much the same could be said for the work on gaming and the theory of games.

Most significant, I think, was the work of prediction, futurology, and Delphi methodology. Here the RAND effort was fruitful and pioneering contributing significantly to the development and expansion in the realm of futurological studies in the 1960's and 70's.[11] And it continues actively influential in the present day. When one punches up DELPHI-PREDICTION on Google nowadays (March 2005) some 250,000 entries come to view.

As regards myself, my main effort at RAND—contributions to DELPHI apart—was devoted to what was then (1954-56) and for some years following the prime preoccupation of the corporation viz., studying ways to reduce U.S. vulnerability to surprise attack. Initially, it joined part of a joint effort with Fred Thompson and the economist Frederick B. Moore to make an assessment of the extent of the human and economic carnage that would be brought about by an all-out Russian nuclear assault against the U.S., given the best available estimates of their then-current capabilities according to USAF intelligence. The project was named VAMP for "Vulnerability of American Military Potential"—I myself dreamed up this acronym and was quite pleased with it. As best I recall, the project came to the conclusion that while the economy could manage to recover from the physical damage within a couple of years, we would have lost some one-

[11] On the Delphi prediction premiss and its history see Nicholas Rescher *Predicting the Future* (Albany, NY: SUNY Press, 1993), pp. 92-96, where further bibliographic information is provided.

fifth of the population in the attack—largely as victims to radioactive fallout—so that the destruction of life and its concomitant social disruption could be expected to put all considerations of an impact on economic productivity into the shade. It was going to be the human not the material impact of atomic warfare that rendered it so horrendous.

Early in 1955 I began work on a project of my own making: a speculative assessment of how, given current intelligence assessments of then-extant Russian military capabilities, a preemptive nuclear "counterforce" attack against U.S. retaliatory potential might be designed. Interestingly enough, considering the reputation for war-mongering hawkishness that RAND came to have in the academic community during the 1960's, all my own work there was primarily of defensive orientation, as indeed were most projects of which I had knowledge. RAND was responsive to the moods of the military, and, with Pearl Harbor still fresh in mind, the Air Force of the 1950's was more worried about being sinned against than sinning—Curtis B. LeMay perhaps excepted.

My work at RAND was challenging in its own way, but it had precious little relation to logic and such, nor indeed to any of the matters to which any of the interests with which my formal academic training had addressed. Nor on the other side can I claim to have made any substantial contributions to RAND's primary military mission. Here the center of gravity of RAND's contribution lay elsewhere, with the studies of air-base vulnerability under the leadership of Albert Wohlstetter.

4. APPRAISAL

But back to the group of RAND logicians at large. Initially, it might have been hoped and indeed expected that the logicians would help the Mathematics Divisions very active game theorists resolve their problems. But that is not how matters worked out with the significant but brief exception of McKinsey. Some of them became engrossed in examining group consensus formation in matters of prediction (Helmer, Dalkey, Rescher); some got involved in very applied air force ground issues of vulnerability reduction (Wohlstetter, Thompson, Rescher); some became involved in the design and management of war-gaming exercises (Helmer, Thompson). But none followed in the footsteps of McKinsey in trying to apply the techniques of formal logic to resolving issues in the mathematical theory of games. Here the logicians left matters to their other able colleagues in Mathematics Division. Nor was this particularly unfortunate because it

soon became only too evident that there was a virtually gulf-like disconnection between the macro-issues represented by military war gaming and the micro-issues represented by the mathematical game theory.

Helpfulness to the military required not technical power but judgmental depth and provided savvy. And there was one among RAND's logicians who possessed there talents also—and possessed them in spades. And this was Albert B. Wohlstetter.

The laundering platform for Wohlstetter's journey at RAND was provided by an air-base vulnerability study. The military, good at learning the lessons of its last war, and WWII began in the U.S. with the surprise attack at Pearl Harbor—the subject of Albert's wife Roberta's classic study. And once the first-strike musings of the-best-defense-is-a-timely-offence thinking were relegated to the sidelines, the most plausible course was seen as not presenting a promising target for surprise attack. This line of thought underlay RAND's influential base hardening study, and Wohlstetter emerged as its leading spirit and spokesperson. On this basis Wohlstetter became one of the world's leading gurus in the field of national security studies in the nuclear age. His efforts engendered the "second-strike" and "fail-safe" strategies of deterrence. The powerful impact of these ideas, supplemented with deriving ways of reducing the possibility of accidental war, made Wohlstetter a colossus among cold war strategists.

Wohlstetter was a natural big-picture thinker, and he soon transmuted himself from a spokesperson for technical vulnerability studies into a military policy panjandrum and strategic guide. His effective machinations in the marketplace of military thinking—always backed by the hard numbers crunched by RAND's technical concepts—made Wohlstetter into a power to be reckoned with in military affairs. In 1975 President Ronald Reagan awarded both to him and to his RAND researcher wife Roberta the Medal of Freedom—an unparalleled achievement in the domain of think-tanks.

5. RETROSPECT

Interestingly, not one of RAND's logicians long remained as such. McKinsey died prematurely. Helmer wandered off into futuristics. Dalkey turned to studying the means of inference from imperfect and incomplete data. Thompson's interests shifted to computerized information management. Rescher continued to do some research in philosophical logic for a decade but then turned to general philosophy. Wohlstetter became a strat-

egy guru and military policy wonk. For better of worse, not one of RAND's logicians long continued to work in that field.

Nor did those logicians long continue at RAND. McKinsey went to Stanford in 1951. Rescher returned to academic philosophy in 1957. (An opportunity at Lehigh University developed out of the blue, and in a spirit of now-or-never thinking he opted for now.) Thompson went to Caltech in 1962 to embark on a career in information management and computational linguisitics. Wohlstetter left for the University of Chicago's political science department in 1965. Helmer left in 1968 to found the Institute for the Future. After the 1960's only Dalkey remained at RAND to serve out his career until retirement, continuing to work on issues of futuristics, but also principally dedicating himself to information-theoretic problems.

It would appear that those logicians were mostly academics at heart and preferred captive graduate students to institutional briefing-recipients as an audience. Writing in the mid-60's Bruce Smith in his pioneering book on the corporation spoke of "RAND's role as something of a training center for certain talents that eventually may be channeled into government service" (Smith 1966, p. 289). That was certainly problematic. But I am not persuaded that things worked out entirely that way. Rather, in an unexpected development the RAND of its early years managed to hone talents that were eventually channeled into academia—to its considerable benefit one might add.

The destabilization of American intellectual culture in the wake of the paranoia of the Vietnam War era had significant repercussions for the way in which people—or some people at least—regarded those RAND logicians. For some they were mis-cast in the role of "agents of influence" acting on behalf of a war-mongering military-industrial culture. And so, for example, it transpired that when I gave a series of lectures in Oxford in the early 70's (on philosophical idealism of all things!) some students refused to attend on grounds of my RAND connection.

Nor did such views stop with the end of that war. In a very interesting, just published book entitled "How the Cold War Transformed the Philosophy of Science," George A. Reisch maintains that RAND's influence served to "shape the profession's view of itself and its public" during the 1950's, turning the interests of scientifically minded philosophers into technically, professionalized, nonhumanistic directions, "so as to deflect the discipline from facilitating the development of a more peaceful, economically stable, and just world."[12] But this bizarre view is far afield from

[12] Op. cit., pp. 349-53 and 386-88.

my own reading of the situation. After all, how, even at most and best (or most), could these half-dozen eccentric RANDites possibly have deflected the course of a profession of more than a thousand members?! As I see it, the realities were very different indeed. For as regards those RAND logicians, working at RAND not only honed their analytical skills but broadened their horizons into realms of public interest and concern well beyond the narrower technicalities of their initial training and preoccupation. RAND's effect was in fact the very opposite of what that author envisions: it did not induce its members to become narrowly technical professionals blinded with regard to a larger humanistic concern, but rather stimulated them into a care for broader issues and larger concerns. And as with most other RANDites, those apocalyptic nuclear warfare studies of the 1950's did not create warmongers but "scared them straight" to a deeper appreciation of human interests and values.

But what was it that in the end decimated the cluster of RAND logicians? For one thing, RAND changed. In the aftermath of John Williams' premature death, and especially later in the wake of the Daniel Ellsberg Pentagon Papers episode, RAND became less theoretically oriented, less abstractly speculative, more applied, and thereby perhaps less tolerant of eccentricity.

And of course people changed too. In particular, it seems that those who were theorists at heart drifted back to their roots and found in academia an environment that was more congenial to them.

Was its encounter with those logicians really worth it from RAND's point of view?

In addressing this, I propose to look at the question from the angle of what I think was John William's perspective on things. I think that John's attitude was something like this. In recruiting people one can never do more than to spot talent. Cannot manage to foresee whether that talent will bring something big to fruition. Every hire is a leap in the dark. You have to be a gambler about it—it's all a matter of probabilities and expected values. With any given person, however able and promising, there's only a one-in-a-good-many chance of hitting it big. It is a lottery and you have to buy in big to be pretty sure of one big hit. But those misses are not wastage—they are a system cost—simply part of the over-all price of one big success.

As I see it, John Williams' hiring strategy was based on a very deep insight, namely that in certain circumstances efficiency and effectiveness are at odds with one another. That if you are looking—or rather *hoping*—for

REALLY BIG RESULTS in a highly unstructured problem-environment, then you must jettison all orthodox ideas of efficiency and that in *such* circumstances you have to tell the keepers of the purse what Commodore Vanderbilt purportedly told the man who asked about the costs of keeping a yacht: If you have to ask about the cost, you can't afford it.

Did this unorthodox policy pay off? In RAND's case, I think it did pay off—and pay off in spades. For, as I see it, the success that made the whole thing eminently worthwhile was Albert Wohlstetter.

Almost single handedly he turned the defense policy of this country around. He revolutionized thought and—even more importantly—action in the area of our strategy. He became the prime architect of America's cold war on defensive strategy and it earned him the Presidential Medal of Freedom. He embodied the very essence of the idea of a "military defense intellectual" and was one of the small handful of thinkers in military history who stops this expression from being a contradiction in terms. Where else in the vast behavior of think-tank activity is there a success story comparable to that?

Finally as to myself. In the preceding remarks I have been humble enough to describe myself as part of the wastage. But in actual fact I think this is so far only a very narrow and somewhat blinded point of view regarding RAND's concerns and contributions.

For it seems to me that all of those RAND logicians eventually made important contributions in their respective fields of endeavor. And most of them performed differently—and better—for having had the experiences and insights that derived from their work at RAND. I firmly believe that the contributions these people made in the wake of their service at RAND made significant additions to the bottom line—albeit perhaps not the bottom line of the corporation itself but that of the wider society of which it is a part.

If asked, would I recommend that RAND hire logicians today? I do not think so.

Changed circumstances call for changed responses and changed resources. Oliver Cromwell said: "It's not what they want but what's good for them that matters." RAND has always been in the business of telling its customers how to meet their needs—but there is also the question of how those needs are determined. The RAND of the 1950's based its relation to the customer's requirements on what's-good-for-them thinking. It aspired to tell its customer (then most prominently USAF) what it needed. And this required speculative and preconception-free force thinking about funda-

mentals—just the sort of thing to which logicians could (just possibly) make a real contribution.

On the other hand, the RAND of today operates in a far more structured—perhaps you would say more matured—context. It seeks to respond to what the circumstances require—as the customer himself sees those requirements. Unlike the RAND that I knew in the mid-1950's, the corporation is nowadays less inclined to read its customers unwelcome lectures on "what's good for them." The fundamentals are seen as settled and the technical issue of this realization stands at the top of the agenda. In this sort of context speculatively minded thinkers with ideas fettered by considerations of logic alone doubtless have a diminished utility.

It would seem that as the corporation matured a certain distancing developed between the logicians and the rest of the enterprise. For the logicians as such are generalists whose thought is limited by the limits of possibility alone. Most RANDites, on the other hand, were even then technical experts whose thought is geared to how things actually go in the existing order of things. And I suspect that this inherent tension between speculative generalists and technical specialist created some discomfort for the logicians.

All in all, then, I think that the role of logicians at RAND marked the circumstances of an era that is now safely consigned to the yellowing pages of history.[13]

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[13] This chapter was presented as a lecture at RAND in May of 2005. I am grateful to Olaf Helmer for providing some factual information. Of course the opinions expressed here are mine alone.

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Rescher 2005.

ALBERT WOHLSTETTER (1913-1997)

Kaplan 1983. White 1999. Holmes 2001.

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Appendix

FUTURISTICS AT RAND: PROJECT "DELPHI"

During the nineteen fifties and sixties RAND, as part of its support mission for the U. S. Air Force, came to take a strong interest in predicting the future. Predicting enemy intentions, has always been a key task of military intelligence, but in the modern technological world forecasting the development and deployment of weapons systems became no less crucial a mission. Accordingly the issue of identifying and validating predictive methods evolved as an area of RAND interest.

In this context, the stagesetting precursor for the evolution of interest in predictive methodology at RAND was a 1949 paper by A. Kaplan, A. L. Skogstad, and M. A. Girschick.[14] At RAND this paper inspired interest primarily on the part of Olaf Helmer who discussed its issues with several colleagues in the Mathematics Division, initially John Williams and Norman Dalkey. The underlying rationale for this interest related to its possible air force operations planning and this sort of application was implemented in a 1952 study by Helmer and Dalkey which used expert judgment in relation to future bombing requirements.[15]

Everyone interested in predictive issues soon realizes that—occult procedures apart—there are two prime approaches to predicting the future: the formal by way of modeling the processes at issue (the standard method of economic forecasting) and the informal by use of the informed judgments of appropriately knowledgeable people (the standard method for setting racetrack odds or making medical prognoses). And since formal modeling

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[14] Abraham Kaplan, A. L. Skogstad, and M. A. Girschick, "The Predictions of Social and Technological Events," RAND Corporation paper P-93 (April, 1949), subsequently published in the *Public Opinion Quarterly* vol. 14 (196), pp. 93-120.

[15] Norman C. Dalkey and Olaf Helmer, "The Use of Experts for the Estimation of Bombing Requirements," RAND Corporation Research Memorandum RM-727 (November 1952).

was evidently impracticable with issues in the military domain, the second approach of reliance or informal expert judgment was deemed the way to proceed.

In the RAND fashion of the day, prediction-related investigations acquired the code name "Project DELPHI." And the name "Delphi Method" came to be attached to the process of multiple-round forecasts based on "expert" judgements with later rounds based on shared information about the outcome of earlier ones.

The basic idea of the Delphi technique is to proceed by means of structured interaction among a group of predictors. This predictive process operates here without any face-to-face interaction among the group members. Instead, it uses a series of successive questionnaires to elicit responses from a panel of experts to arrive at an aggregate prediction about future developments. The predictors involved are interrogated individually (usually by questionnaire) about their expectations for a series of hypothetical future events.

An illustrative issue for a Delphi study might, for example, be the demographic question: In what year (if ever) do you expect the at-birth life expectancy of American females to reach 85 years? However, the experts do not meet to debate the question, but are kept apart from each other so that their judgment will not be influenced by social pressure or other distortions of small-group behavior. Instead, the Delphi process method calls for eliciting information in questionnaires, with feedback stages in which earlier responses are conveyed to the group in a condensed, statistically summarized form. Such additional sophistications as providing a weighting for the participants on the basis of their (perhaps only self-appraised) expertise may also be introduced. As one early account put it:

> The Delphi technique eliminates committee activity altogether thus further reducing the influence of psychological factors such as specious persuasion, the unwillingness to abandon publicly expressed opinions, and the bandwagon effect of majority opinion. This technique replaces direct debate by a carefully designed program of sequential individual interrogations (best conducted by questionnaires), interspersed with information and opinion feedback derived by computer consensus from the earlier parts of the program. Some of the questions directed at respondents may, for instance, inquire into the "reasons" for previous expressed opinions and a collection of such reasons may then be presented to each respondent in the group,

together with an invitation to reconsider and possibly revise his or her earlier estimates.[16]

After the initial set of questionnaires is completed, the responses are complied via statistical distributions, stated in terms of medians and quartiles, supplemented by any pertinent comments by the experts. Then a second round is executed by the participants being provided with earlier responses are conveyed to the group in a condensed, statistically summarized form. They might also be given the (anonymous) comments about and arguments for various positions. Respondents are then asked to submit revised estimates together with reasons for agreeing or disagreeing with the initial consensus. In the third (and later rounds) this procedure is repeated, with additional commentary and (depersonalized) exchange of information. Eventually, if matters work out according to plan, the respondents will increasingly converge in their thinking, with a resulting narrowing of the range of estimates.

The Delphi method clearly eliminates various objections to the predictive use of group opinion—in particular those relating to psychological factors of group processes such as the participants' unwillingness to back down from their publicly announced positions, personal antipathy to or excessive respect for the opinions of a particular individual, skill in verbal debate, bandwagon effects, and the like. To be sure, problems still remain. One of them is that in situations of information sharing many “experts” are reluctant to put their status at risk by doing what others would see as eccentric, so that convergence is achieved not because the consensus estimate is better evidentiated but simply because it represents the course of safety for people inclined towards the conventional wisdom.

In such an investigation provision for due scientific caution is readily made by focussing on probabilities rather than specific outcomes. The distinction between categorical predictions and probabilistic forecasts is thus readily accommodated in a Delphi process.

As Project Delphi unfolded, the study of this methodology was advanced on two fronts: that of theoretical analysis and that of concrete case studies. On the former front Olaf Helmer collaborated with Nicholas Rescher, and on the latter front with Norman Dalkey and later also with Bernice Brown and Theodore Gordon.

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[16] Olaf Helmer and Nicholas Rescher in *Management Sciences,* vol. 6 (1959), pp. 25-52 (see p. 47).

Since both Helmer and Rescher had various other commitment it was difficult to find uninterrupted time during the workday to address the rather abstract and theoretical issues involved in the epistemology of prediction. Accordingly, they met periodically in the evening or on weekends, either at Helmer's house on Mandeville Canyon Road or at Rescher's house on Bestor Boulevard in Pacific Palisades. Published in 1958 as RAND paper P-1513 entitled "On the Epistemology of the Inexact Sciences," this paper was re-issued in 1960 as RAND Report R-353 having meanwhile been published under the same title in *Management Sciences*, vol. 6 (1959), pp. 25-52. In their book on *The Delphi Method: Techniques and Applications* (Reading, MA: Addison Wesley, 1975), the editors Harold A. Linstone and Murray Turoff characterized this Helmer-Rescher publication as "a classic paper which was very adequate for the typical technology forecasting applications for which Delphi has been popular." (p. 15).[17]

Upon completion of this theoretical phase the Delphi inquiry took an experimental turn. Throughout the 1960 (and somewhat beyond) a series of predictive experiments with a view of clarifying methodological issues was undertaken by Helmer and Dalkey with the collaboration of Bernice Brown and Theodore Gordon who served as a RAND consultant in the early 1960's. In particular, a number of basic questions were investigated: for example, will these who selfappraise themselves as *highly* knowledgeable in the field perform better as predictors than others? Would predictive performance improve on average if extreme predictions were discarded? Would it improve on a second-round interaction if the statistics of a first round were put at the disposal of predictors? Would it improve a second round if predictors were asked for reasons explaining their initial predictions and their reasons were imparted to the rest for a second round?

Beyond such empirical investigations regarding Delphi methodology, there was also an effort by Helmer and Bernice Brown to apply this method to questions of social technological forecasting. In 1964 Helmer and Gordon published their "Report on a Long-Range Forecasting Study" (P-2982) which synthesized the results of most of this earlier work. This

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[17] For further references see p. 299 ff. of Roger M. Cooke, *Experts in Uncertainty* (New York: Oxford University Press, 1991). (Chapter 11, entitled "Combining Expert Opinion" is particularly relevant). Good discussions of Delphi are also found in Joseph P. Martino, *Technological Forecasting for Decisionmaking* (New York: American Elsevier, 1972)

paper was expanded and amplified by Helmer in his 1965 monograph "Social Technology" (P-3063) and under this title was reprinted as *Social Technology* (New York: Basic Books, 1966). And during the remainder of the 1960's, Helmer and his collaborators undertook several further studies devoted to Delphi methodology and its applications in forecasting innovation in technology and science.[18]

Meantime, Rescher in collaboration with Kurt Baier embarked on an investigation of changes in American values under the sponsorship of the Carnegie Foundation. This study, in which Helmer also participated, was based in part on Delphi methodology and issued in a substantial anthology entitled *Values and the Future* (New York: Basic Books, 1968).

Overall, then, the development of the "Delphi" process evolved through the following stages:

1. The precursor study of Kaplan, Skogstad, and Girschick 1949 and the use of some of its ideas in the Helmer-Dalkey bombing study of 1952.

2. The theoretical/epistemological groundwork of the Helmer-Rescher paper of 1958.

3. The methodological experiments of Helmer-Dalkey-Brown issued in several publications after 1962.

4. The application of Delphi methodology in several predictive studies by Helmer, Brown, and Gordon as published by them during 1960-71.

5. The publication of Helmer's *Social Technology* of 1966 encompassing much of items 2 - 4 above.

6. The Rescher-Baier investigation of *Values and the Future* issuing in the book of this title in 1968.

Watching these predictive investigations from the sidelines was that acute and enterprising entrepreneur, Herman Kahn. He was less interested

[18] Much of this work was synthesized in his *Looking Forward: A Guide to Futures Research* (New York: Sage Publications, 1983).

in prediction, the identification of probable outcomes, than in scenario-devising, the projection of plausible possibilities.[19] However, since scenario construction addresses the issue of possible or probable courses of future developments and is not concerned with prediction as such, it falls outside the scope of our present deliberations. In any case, Kahn wanted to run his own show and felt that RAND's more collaborative and consensual atmosphere ill suited his own more automatic style. So in 1961 he went off to found his Hudson Institute and cultivated greener pastures elsewhere.

Helmer eventually followed in Kahn's footsteps. After more than twenty years at RAND, he left in 1968 to join with Theodore Gordon and Randites Paul Baran and Arnold Kramish in founding The Institute for the Future—a futurology think-tank—whose Eastern branch, located in Middletown Connecticut, he headed for a time. The institute encountered various difficulties in establishing a secure foothold and ultimately moved under the leadership of Roy Amara to California where it continues to function up to the present day. However, in 1973 Helmer left the Institute to return to accept an appointment as the first (and only) Harold Quinton Professor of Futures Research in the newly established (and short-lived) Center for Futures Research in the School of Business Administration at the University of Southern California.

Meanwhile, Rescher had long ago returned to academia in 1957 to pursue his first love of philosophy, eventually achieving in this field a degree of success attested by election as a president of the American Philosophical Association. However, he never entirely lost interest in the theme of predicting the future. Until 1969 he continued as a RAND consultant and participated in some follow-up work on the Delphi effort. He also published a number of papers over the years,[20] and eventually producing a substantial

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[19] (See in particular Herman Kahn and Anthony T. Wiener, *Toward the Year 2000: A Framework for Speculation* [New York" Macmillan, 1967] and idem et al. (eds.) *The Next 200 Years: A Scenario for America and the World* [New York: William Morrow, 1976].)

[20] Rescher's publications in this area include:

- "On Predicting and Explanation" *British Journal for the Philosophy of Science*, vol. 8 (1957).
- "Discrete State Systems, Markov Chairn and Problems in the Theory of Scientific Explanation and Prediction," *Philosophy of Science*, vol. 30 (1963), pp. 325-345.

monograph on the topic: *Predicting the Future* (Albany, NY.: State University of New York Press, 1998).

Theodore Gordon in due course left the nonprofit Institute for the Future to set up his own (commercial) company. He is now one of the principals involved in the United Nations University's Millennium Project, which makes use of a simplified version of Delphi methodology for its inputs. And so of those RAND futurists of the nineteen fifties and sixties, only Normam Dalkey and Bernice Brown remained with the Corporation after 1970. However, their work and interests shifted in other directions, and RAND's interest in futuristics as such ran out in the sand.

In any case, however, the futuristic studies that had rooted in RAND work on Delphi methodology were soon overtaken by the course of events. Inspired in part by this RAND effort, but confluent with many trends in the technological and ideological atmosphere of the time, the late 1960's wit-

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- "Generalization in Historical Explanation and Prediction in History," *S. Radhakrishnan Souvenir Volume*, ed. by J. P. Streya (Moradabad, India, 1964).

- "The Future as an Object of Research," RAND Corporation paper P-3593 (Santa Monica, CA, April 1967).

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- "The Unpredictability of Future Science," in R. S. Cohen et al. (eds.), *Physics, Philosophy, and Psychoanalysis* (Dordrecht, 1983), pp. 153-168. Expanded version in Chapter 7 of *The Limits of Science* (Berkeley & Los Angeles: University of California Press, 1984).

- *Predicting the Future: An Introduction to the Theory of Forecasting* (Albany NY: State University of New York press, 1998.)

nessed a virtual explosion in futuristic studies and especially in the area of technological forecasting.

Some straws in this wind were Dennis Gabor's *Inventing the Future* (London, 1964), Theodore J. Gordon's *The Future* (New York, 1965), Bertrand de Jouvenel's *Art of Conjecture* (New York 1967), and also articles by Daniel Bell in his and Irving Kristol's journals *The Public Interest.* These American publications have been matched by a spate of books and articles in French and German—with such themes as Fritz Baade's *Der Wettlauf zum Jahre 2,000* (Oldenburg, 1960)—which we shall not trouble to detail here.[21]

A number of serious journalists have been sufficiently impressed by this spate of futuristic studies to take up the cause. One may mention here the excellent article on "The Future as a Way of Life" by Alvin Toffler in the summer, 1965, issue of *Horizon* magazine, as well as a feature article in *TIME*, which coined the term "the futurists" for those who have been prominent in establishing and promoting this area of research. And Toffler's enormously successful *Future Shock* (1970) served to popularize futurology just as its peak as an academic endeavor was being approached. Another token of its entry into the fashion of popular culture was Walter Cronkite's highly rated television series on "The Twenty-First Century." The January, 1967, issue of *Fortune* magazine contains an article on the future by Max Ways in which he speaks of "the new style" in forecasting and planning. Indulging in the futures game himself, he ventures the prediction: "By 1977, this new way of dealing with the future will be recognized at home and abroad as a salient American characteristic."

This whole constellation of activities in the 1960's and 1970's represented a dramatic explosion of futurism which now led to what might be called *The Future Industry*. The activities of this industry go on at an increasingly intensive pace in dozens of institutions on the U.S.A., and in many corners of the world.[22] Institutionalization: The Institut für Zukunfts-

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[21] For an overview of publications in the area see Annette Harrison, "Bibliography on Automation and Technological Change and Studies of the Future," RAND Corporation paper P-3365-2 (March 1967); Roy Amara "The Future's Field," *The Futurist*, vol. 15 (1981), pp. 25-29; Anonymous, *The Future* (Washington, D.C.: World Future Society, 1977); Edward Cornish, *The Study of the Future* (Washington, D.C.: World Future Society, 1977); Willis W. Harman, *An Incomplete Guide to the Future* (New Jersey: Transaction Publishers, 1977).

[22] For a comprehensive survey of the area see Erich Jantsch, *Technological Forecasting in Perspective* (Paris, 1966; Working Document for the organization for Eco-

fragen in Vienna. A "World Future Society" was launched in Washington, D.C., in 1966 with a newsletter called *The Futurist* first issued in February, 1967. By the late 60's it seemed that this futures business was everybody's business.

Why did the bubble of this boom burst? Many different factors came into play. Prominent among them was that once people strayed from the paths of the obvious most everyone's predictions were going wrong. For technological forecasting was falling on hard days and there was a multitude of such other failures as the wake of Chernobyl, the collapse of the population explosion scare, the mishaps of intelligence forecasting in Vietnam, Iran, and elsewhere. Moreover, as the future began to look less hopeful, people found it less appealing to contemplate its prospects. But above all, the moving finger of intellectual fashion wrote and then having written moved on to other issues. And so this boom—like any other on the economic or the intellectual scene—eventually reached the natural end of its life-cycle.

How well did the RAND futuristics of the 1950's and 60's actually do at prediction? This issue is complex and would in fact be the topic of an interesting study. But its execution would not be simple. For the inherent problem of most experiments in prediction will be familiar to anyone who has examined the claims made by and on behalf of Nostradamus—namely when is a prediction sufficiently detailed that it can reliably be classed as fulfilled.

Delphi too had its difficulties. For ample experience indicates that even a "consensus of experts" is no royal road to predictive success.[23] The per-

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nomic Cooperation and Development), and the Abt Associates, *Survey of the State of the Art: Social, Political, and Economic Models and Simulations* (Cambridge, Mass., 1965; Report for the National Commission on Technology, Automation, and Economic Progress). The former of these documents, despite its title, does not restrict its range to strictly scientific and technological issues, but also deals with their social implications. Moreover, it contains an extensive bibliography, and makes a comprehensive survey of organizations and institutes in Europe and the U.S.A. that concern themselves with forecasting in these fields.

[23] An eloquent plea to this effect is represented by Irving L. Janis's interesting book *Victims of Groupthink: A Psychological Study of Foreign Policy Decisions and Fiascos* (Boston: Houghton Mifflin, 1972). For a balanced evaluation of the strengths and weaknesses of Delphi processes see Thomas R. Stewart, "The Delphi Technique and Judgmental Forecasting" in Kenneth C. Land and Stephen H. Schneider

formance of even the best practitioners is liable to give predictive punditry a bad name. We have to recognize that there are obvious risks to this way of proceeding.[24] After all, in relying on the predictions of experts we have to contend with the general difficulty of telling the good pundits from the bad.

A biting critique of the Delphi method was published by Harold Sackman in 1975.[25] Apart from criticizing the rather loose way in which some Delphi studies had been carried out, three major criticisms of the Delphi process were pressed: (1) its inherent conformity pressures and potentially problematic emphasis on consensus, (2) its reliance upon what is, in the end, little more than educated guesswork, and correspondingly (3) the absence of a formalized scientific basis for legitimating Delphi outcomes. The bearing of each of these points is certainly debatable. But the fact remains that judgmental prediction, even in so sophisticated a form as Delphi methodology, is a *faute-de-mieux* technique to which people resort when predictive information is needed in the absence of clearly superior theory-based alternatives.

Was the Delphi venture a wasted effort—an exercise in futility? I myself certainly do not think so. To be sure, it failed to realize the dream of Nostradamus of finding a way to gain trustworthy foresight into the future. But what it helped to achieve was a clearer picture of just why it is that the future is so substantially imponderable. Moreover, it helped to clarify the many-sidedness of the problem of prediction by clarifying why it is that in some domains of phenomena a good deal of foresight is possible and in others virtually none. What the inquiry helped to achieve, in sum, was less an impressive manifold of successful and surprising predictions than a deeper insight into the inherent limits of the predictive enterprise. Only

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(eds.), *Forecasting in the Social and Natural Sciences* (Dordrecht: D. Reidel, 1987).

[24] A useful discussion of relevant issues is provided in Roger M. Cooke, *Experts in Uncertainty: Opinion and Subjective Probability in Science* (New York and Oxford: Oxford University Press, 1991).

[25] Harold Sackman, *Delphi Critique* (Lexington, Mass.: D. C. Hearth, 1975). He concludes his rather one-sidedly negative presentation with the stricture: "It is recommended that conventional Delphi [What is *conventional* Delphi?] be dropped from . . . use until its principles, methods, and fundamental applications can be experimentally established as scientifically tenable" (p. 74). (How this result is to be reached if the process is indeed dropped from use is left unclear.)

through a serious effort to explore the methodology of prediction can the resistance barriers to man's cognitive penetration of the future be brought to light.[26,27]

[26] This view of the matter is worked out in considerable detail in the author's 1998 book on *Prediction* (Albany: State University of New York Press), which, for him personally, was the principal ultimate finit of his involvement with futuristics at RAND.

[27] I am grateful to Olaf Helmer for corrigenda and constructive comments.

Chapter Eleven

PLURALITY QUANTIFICATION

The year 1964 saw the publication of a brief note no more than two pages long presenting an idea with which my name has become most intimately associated.[1] This is the so-called "Rescher-Quantifier," which has made a name for itself in symbolic logic.[2] And so, the irony transpires that, in a long lifetime of creative philosophical work, the creation perhaps most closely associated with my name—and which more than any other thing seems likely to be associated with it over the years to come—is embodied in a diminutive note formulating a rather simple idea tossed off in some idle moments as a jeu d'esprit.

Classical quantification theory in symbolic logic is based on two quantifiers only, namely "existential quantifier" where something holds of SOME and the "universal quantifier" where something holds of ALL. And these are in one very important way sufficient—that is, they suffice for all the purposes of mathematics. But the contrasting "plurality quantifier" MOST not only resists definition in terms of the standard quantifiers, but also has various interesting formal features (such as the duality implication that MOST $\Rightarrow$ not-MOST-not and also the failure (in contrast to SOME and ALL) to be self-commutable. Moreover, it is just this sort of qualification, standing apart from all-or-something approach of the usual quantifiers, that is interestingly applicable and useful in the domain of human affairs.

This idea of plurality quantification might possibly have dropped into oblivion were it not for a follow-up discussion in which David Kaplan drew attention to the fact that it opened the doorway to a significant shift of

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1 Nicholas Rescher, "Plurality Quantification," *The Journal of Symbolic Logic*, vol. 27 (1964), pp. 373-74. The entire text is presented here as an Appendix.

2 See the *Handbook of Philosophical Logic*, ed. by D. Gabbay and F. Guenther (Dordrecht: D. Reidel, 1989), p. 18; 2nd edition, Vol. I (19xx), p. 168; also Dag Westenstahl, "Quantifiers" in Lou Goble (ed.), *The Blackwell Guide to Philosophical Logic* (Oxford: Blackwell, 2001), p. 441.

prospective regarding the role and modus operandi of quantification.[3] But this is speculation, and in actual fact during the subsequent period plurality qualification under the name of "the Rescher quantifier" made its way into the agenda of logical research and established itself as a useful instrumentality for elucidating and systematizing a significant sector of quantificated logic. Odd though it seems (to me, at any rate), it seems fair to say that no other single concept or thesis of my work has found such extensive resonance in the research literature. In substantiation of this contention it can be observed that currently (January, 2004) the search engine Google offers under the rubric "Rescher quantifier" several hundred references to the work of a wide variety of logicians at work in many countries.

In view of this development, it seems appropriate to give a brief account of how the idea of plurality quantification initially entered into my thinking. While (rather regrettably) I have no specifically concrete recollection of this, I feel pretty confident that at the back of my mind in thinking on this issue there figures Aristotle's idea of generalizations that hold on-the-whole (or "for the most part," *epi to polu*.[4])

A word as to background. My work on plurative generalization was prefigured on views about the human sciences, developed in the mid 1950's, which pointed towards the idea of exception-tolerant generalizations as an important instrumentality in social and in particular in historical contexts came to the fore in my thought regarding the epistemology of the inexact sciences and history in particular.[5]

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[3] David Kaplan, "Rescher's Plurality Quantification," *The Journal of Symbolic Logic*, vol. 31 (1966), pp. 53-55.

[4] On this Aristotelian conception see Gisela Striker, "Notwendigkeit mit Lücken" *Neue Hefte für Philosophie* 24/25 (1985), pp. 146-164. Its role in Aristotelian science is discussed in Lindsay Judson, "Chance and Always or For the Most Part," in idem (ed.), *Aristotle's Physics: A Collection of Essays* (Oxford: Clarendon Press, 1991), pp. 73-99.

[5] See N. Rescher and Olaf Helmer, "The Epistemology of the Inexact Sciences," *Management Science*, vol. 6 (1959), pp. 26-52. (This paper was also published in 1959 as Rand Corporation Memorandum No. 353. It was subsequently also reprinted in N. Rescher, *Scientific Explanation* (New York: The Free Press, 1970), pp. 163-208) and in Olaf Helmer, *Looking Forward: A Guide to Futures Research* (Beverley Hills: Sage Publications, 1983), pp. 25-48.

In the wake of my return to philosophy in 1957, after some years spent in other pursuits, I worked rather intensely on issues relating to Aristotle's logic.[6] Additionally, during this period I was carrying out a variety of investigations regarding nonstandard uses of quantifiers in relation to such matters as many-valued qualification, many-sorted quantifiers, quantification in modal and many-valued systems, and the like.[7] And so, proceeding not just by memory but by the documentary record, I feel confident that it was the confluence of these two streams of historical and logical studies that led me to conceive the idea of plurality quantification.

Moreover, as that 1964 note itself indicates, immediately upon projecting the idea of pluratative generalizations, the idea came to me of adding such propositions to the standard manifold of universal and existential propositions in Aristotelian syllogisms. And from this it was an easy step to extend the mechanism of so-called Venn diagrams to monitor the validity of syllogisms in this extended syllogistic. The details of this approach were worked out in collaboration with my student Neil Gallagher, and the results formulated in a little paper published in the mid-1960's.[8]

Ultimately, the ideas at work in these deliberations about plurality-quantification in formal logic ultimately exerted a significant influence upon my work on larger philosophical issues—and indeed upon my views regarding the nature of philosophy itself. For—as Aristotle already contemplated—the shift from "all" to "most" in science suggests the prospect

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6 It took some time for this work to bear fruit in publications. Among the earlier of these were: "New Light for Academic Sources on Galen and the Fourth Figure of the Syllogism," *Journal of the History of Philosophy*, vol. 3 (1963), pp. 27-41 and "Aristotle's Theory of Modal Syllogisms" in M. Bunge (ed.,) *The Critical Approach of Science and Philosophy* (London and New York: Free Press of Glencoe , 1964), pp. 152-77.

7 "Many-sorted Quantification," *Proceedings of the 12th International Congress for Philosophy* (Venice, 1958); vol. 4, *Logic, Theory of Knowledge, Philosophy of Science, Philosophy of Language* (Firenze, 1960), pp. 447-453; "A Quantificational Treatment of Modality," *Logique et Analyse*, vol. 7 (1964), pp. 34-42; "Predicate Logic Without Predicates," *Logique et Analyse*, vol. 7 (1964), pp. 101-103; "Quantifiers in Many-valued Logic," *Logique et Analyse*, vol. 7 (1964), pp. 181-184; "Venn Diagrams for Plurative Syllogisms," *Philosophical Studies*, vol. 16 (1965), pp. 49-55. With Neil A. Gallagher.

8 "Venn Diagrams for Plurative Syllogisms," *Philosophical Studies*, vol. 16 (1965), pp. 49-55.

of a parallel shift from "always and invariably" to "normally and standardly" in matters afforded by chance and choice. On such a perspective, philosophical generalizations would be construed as holding not with regard and rigorous universality, but would instead manage to characterize the usual and normal course of things. In unusual or extraordinary circumstances, such generalizations would admit of exceptions which would be seen as such exactly because the circumstances are un-usual and extraordinary. The program of "philosophical standardism" which I elaborated in a 1994 book of that same title[9] was dedicated to working out the details of such a metaphilosophical approach geared to generalizations of this sort. Thus while the idea of plurality qualification was principally active in the world of logicians, its influence on me moved rather in the direction of social and humanistic concerns. It is not that there are no pluralistic facts in mathematics and logic. (After all, "Most primes are odd," with 2 forming the sole exception.) But the pluralistic truths of these disciplines can always be restated without going beyond the resources of standard quantification. Whereas in the social and human sciences this does not seem to be the case.

And so in the end the ideas at work here came round in a full circle—moving from the initial inspiration of Aristotle's qualified "generally and on the whole" generalizations towards the general idea in matters of human affairs and humanistic studies of an Aristotelian (quasi-) science geared not to how matters stand always and invariably, but rather merely "on the whole" (*epi to polu*).[10]

Appendix

We introduce the new mode of *plurality-quantification*, represented by the quantifier M, with (*Ma*)ϕa to be construed as: "For *most* individuals *a* (in the non-empty universe of discourse D)ϕa." This is to be taken to say that the set of individuals for which ϕ is true has a greater cardinality than the set for which it is false (so that it is clear that the applicability of the notion is not restricted to finite universes). This M quantifier qualifies as a

[9] *Philosophical Standardism* (Pittsburgh: University of Pittsburgh Press, 1994).

[10] This chapter was originally published in *Philosophical Inquiry* vol. 26 (2004), pp. 1-6.

quantifier in the sense of Mostowski *(Fund. Math.,* vol. 44 (1957), pp. 12-36; cf. T. Hailperin in *Zentralblatt für Mathematik etc.,* vol. 78 (1959), p. 244). The semantical theory of this mode of quantification is obvious.

Some of the logical principles governing this quantifier are:

(i) $(x)\phi x \supset (Mx)\phi x$,

(ii) $(Mx)\phi x \supset (\exists x)\phi x$,

(iii) $[(Mx)\phi x \,\&\, (Mx)\psi x] \supset (\exists x)(\phi x \,\&\, \psi x)$,

(iv) $(\mathrm{M}x)\phi x \supset \sim(Mx)\sim\phi x$,

(v) $[(Mx)(\phi x \supset \psi x) \,\&\, (x)\phi x] \supset (Mx)\psi x$,

(vi) $[(x)(\phi x \supset \psi x) \,\&\, (Mx)\phi x] \supset (Mx)\psi x$.

(It is clear that the converse of (iv) does *not* obtain - think of a domain *D* with an *even* number of members, exactly half of which have ϕ.) Note, however, that all these theses, as well as all ensuing remarks about the M-quantifier, are unaffected if $(Ma)\phi a$ were construed—for finite universes—as "For over 80% [instead of 50%] of all individuals *a*, ϕa", etc.

Since a semantical interpretation of the *M*-quantifier is in hand, we may raise (but will not here discuss) the question of a complete set of axioms for the "lower predicate calculus" involving this quantifier (i.e., principles which, taken as axioms, yield as theorems all logical truths of the (*M*-enriched) quantification theory based on 1-place predicates alone).

An interesting feature of the *M*-quantifier is that it is not self-commutative, i.e., unlike the analogous case with universal or existential quantification, we do *not* have:

$$(Mx)(My)\phi xy \equiv (My)(Mx)\phi xy.$$

This is readily shown by considering a universe of discourse of three members, x_1, x_2, x_3, with the relation *R* taken such that x_1 bears *R* to nothing, x_2 only to x_1 and x_2, and x_3 only to x_1 and x_2.

If the identity-relation is given, so that we can define the familiar operator for "there are exactly *i* distinct individuals *a* such that ϕa", and further *if the domain of discourse D is finite and its cardinality is specified,* then

one can of course define M by the remaining machinery of the system. However, *if the cardinality of the (finite) domain D is unspecified, or if this domain is infinite, then (Ma)ϕa cannot be defined in terms of the familiar resources of standard quantificational logic.* The theory of quantification based on universal and existential quantification alone cannot render: "For most *x*'s (of the non-empty domain *D*), ϕ*x*."

Observe that "(*Mx*)(*Ax* ⊃ *Bx*)" does *not* represent "Most *A's* are *B's*" (and indeed would not do so even if "⊃" were replaced by an implication-relation stronger than material implication). It is readily shown that (if the *A's* are a *proper* subset of the entire domain of discourse, and the cardinality of this domain is *not* specified as some finite number) "Most *A's* are *B's*" cannot be defined by means of the usual resources of quantificational logic; not even when these are supplemented by our plurality quantification, or any other type of quantification, for that matter. Nevertheless, the logic of the propositions "Most *S* is *P*" and "Most *S* is not *P*" is an extremely simple matter. For example, syllogisms involving these quasi-categorical statements are subject to a validity test using Venn-diagrams (by a suitably elaborated employment of arrows to indicate the extension of one region of the diagram to be less than that of another). More generally, the machinery needed for the analysis of such syllogisms is much less than is required for De Morgan's "numerically definite syllogisms" (*Formal Logic*, Chapter VIII).

Consider the arguments:

(1)	(2)	(3)
	Most things are *A*'s	Most *C*'s are *A*'s
All *A*'s are *B*'s	Most things are *B*'s	Most *C*'s are *B*'s
All parts of *A*'s	Some *A*'s are *B*'s	Some *A*'s are *B*'s are parts of *B*'s

Textbooks often charge that traditional logic is "inadequate" because it cannot accommodate patently valid arguments like (1). But this holds equally true of modern quantificational logic itself, which cannot accommodate (2) until supplemented by something like our plurality-quantification. And even such expanded machinery cannot accommodate (3). Powerful tool though it is, quantificational logic is unequal to certain childishly simple valid arguments, which have now featured in the logical literature for over a century (i.e., since De Morgan). (To be sure, once the

quantificational system is elaborated in some way to the point where arithmetic is possible so that we can *count* the extension of a property *P* and compare the results of such countings—then this impotence is overcome.)

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