

ciences

The Rhetoric of the Human Sciences

John S. Nelson, Allan Megill, Donald N. McCloskey

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Language and
Argument in
Scholarship and
Public Affairs

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Arthur Keith, "Man's Posture: Its Evolution and Disorders," *British Journal* 1 (1923): 451.
 Raymond A. Dart, "Taung and Its Significance," *Natural History* 26 (1917): 17.

"Taungs," p. 321.
 Henry Fairfield Osborn, "Recent Discoveries Relating to the Origin and History of Man," *Proceeding of the American Philosophical Society* 67 (1927): 17.
 Metaphorically, apes are seen as "failed experiments" or, in the words of Lovejoy, "preliminary studies [in] the apprenticeship of Nature in learning to make a man." Arthur O. Lovejoy, *The Great Chain of Being* (Cambridge: Harvard University Press, 1964) p. 280. This idea that human evolution is a kind of apprenticeship is especially well developed in the writings of Frederick Copleston and G. Elliot Smith. The latter describes the terrestrial realm as a laboratory in which, for untold ages, Nature was making her great experiments to achieve the transmutation of the base substance of some brutal ape into the divine form of Man." G. Elliot Smith, *The Evolution of Man* (Oxford: Oxford University Press, 1924), pp. 77-78.

Owen Lovejoy, "The Origin of Man," *Science* 211 (1981): 341-50.
 Indeed, Lovejoy's theory is untestable, at least paleontologically. As Maitland A. Edey, "I never seen an estrous fossil." Donald C. Johanson and Maitland A. Edey, "How Ape Became Man: Is it a Matter of Sex?" *Scientific American* 243 (1981): 49.
 Sherwood L. Washburn, "The Fun of Human Evolution," in R. K. Mittermeier, ed., *Colloquium in Anthropology* (Taos, N. Mex. (Fort Burgwin Center, 1977), pp. 61-62.
 David Pilbeam, "New Hominoid Skull Material from the Miocene of Ethiopia," *Nature* 295 (1982): 232-34; Steven Ward and David Pilbeam, "Facial Morphology of Miocene Hominoids from Africa and India," in Russell L. Ciochon and Richard F. Corruccini, eds., *New Interests in Ape and Human Ancestry*, (New York: Plenum, 1982).

The problems associated with reconstructing past environments on the basis of fossils have been nicely demonstrated by Nikos Solounias. Looking at the teeth of Solounias finds that unlike modern bovids, who live on savannahs, these fossil forms show anatomical features associated with woodland habitats. This contradicts the widely held belief that fossil bovids lived in savannahs spread over much of Eurasia during the Miocene. Solounias's point is that in using fossils to reconstruct past environments, we create the present environments of their modern descendants. Nikos Solounias, "Savannahs in the Miocene," paper presented at the Museum of Comparative Zoology Seminar, Harvard University, April 23, 1982.
 Clifford Geertz, "Thick Description: Toward an Interpretive Theory of Culture," in *The Interpretation of Cultures* (New York: Basic Books, 1973), p. 16.
 David Pilbeam, "Major Trends in Human Evolution," in L.-K. Konig, ed., *Current Argument on Early Man*, (New York: Pergamon, 1980), p. 285.

8

CODIFYING THE SOCIAL SCIENTIFIC STYLE

THE APA PUBLICATION MANUAL AS A BEHAVIORIST RHETORIC

CHARLES BAZERMAN

The terms "human sciences," "behavioral sciences," "cognitive sciences," and "social sciences" express a shared aspiration to produce statements of knowledge of the kind and authority reputed to come from the natural sciences, statements that seem to rise above rhetoric. Yet scientific discourse embodies rhetorical decisions and raises serious rhetorical issues. Scientific writing is not a single undifferentiated genre, defined by a timeless idea. On the contrary, varieties of scientific writing have developed historically in response to different rhetorical situations, aiming at different rhetorical goals and embodying different assumptions about knowledge, nature, and communication. The form of the experimental report solves a problem—namely, given what we currently believe about science, scientists, the scientific community, the scientific literature, and nature, what kind of statements should we make? To treat scientific style as fixed and epistemologically neutral is rhetorically naive and historically wrong.¹

In adopting a scientific style of communication, the human sciences neither escape rhetoric nor eliminate the possibility of rhetorical choice. Though many practicing social scientists wish to embrace a single, correct, absolute way of writing science, any model of scientific writing embeds rhetorical assumptions. The explicit examination of these embedded assumptions reasserts our control of choices now determined by tradition, stereotype, and ideology. The forging of a scientific language is a remarkable achievement; but since it is a human accomplishment, it must be constantly reevaluated and remade as the human world changes.

communicate more easily with other individuals within the same tradition.⁵

In addition to the appeal to tradition—a tradition we will find shorter and more varied than one might guess—his passage urges uniformity on three other grounds: efficiency of reference, evaluative usefulness, and ease of communication. The second reason presupposes that there is one right way to present an experimental report and that wandering from the form is bad science, or at least keeps bad science from being evident. The other two reasons suggest an encyclopedic function for an incremental literature; the concept of incremental encyclopedism will be examined later in this article.

The prescriptiveness evident in the current publication manual has only gradually developed since the first "Instructions in Regard to Preparation of Manuscript" appeared in the February 1929 *Psychological Bulletin*.⁶ This original stylesheet is only six and a half pages long. About a page discusses "Subdivision and Articulation of Topics," a third of which is explicitly devoted to experimental articles. Although the authors refer to a "natural order" for the presentation of experiments, internal titles are discouraged: "Necessary headings only should be inserted."⁷ Advice is of a general kind: for example, writers should include sufficient detail to allow the reader "to reconstruct and to criticize the experimentation and to compare it with other procedures and results."⁸ The committee preparing this set of instructions avoided an authoritative stance, presenting these suggestions for "general guidance" only.

By 1944 the stylesheet, now "The Preparation of Articles for Publication in the Journals of the American Psychological Association," had grown to thirty-two pages.⁹ Guidelines for bibliographical reference and the use of tables and graphs had correspondingly increased in length, as did the explanation of the editorial policies of the APA journal. On the structure of the experimental article, however, the stylesheet says little more than the previous edition, although conceding that the form "has now become structured into a fairly developed pattern."¹⁰ Moreover, the stylesheet encourages the use of headings to indicate "the main features of [the article's] framework."¹¹ The authors offer their advice for the "younger members of the profession, many of whom are writing for publication for the first time."¹² Thus pedagogy allowed prescriptions without committed prescriptiveness.

The 1952 *Publication Manual*, now a sixty-one-page separately bound supplement to the *Psychological Bulletin*, no longer hedges its prescriptive intent: "The purpose of the publication manual is to improve the

quality of the psychological literature in the interest of the entire profession."¹³ The manual is the standard. And as a standard it lays out explicitly just what is demanded. The section on organization lists the familiar parts of the experimental study, but suggests that headings reflect "the particular requirements of a study," rather than the standard part titles. Nonetheless, the manual prescribes what should be included within each. For example, the method section "should describe the design of the research, the logic of relating empirical data to the theoretical propositions, the subjects, the sampling and control devices, the techniques of measurement, and any apparatus used."¹⁴

The 1957 and 1967 revisions, although differing in some respects, retain the general length and detail of the 1952 manual.¹⁵ The 1974 edition doubles the length and detail of prescription again, devoting 12 pages of the total 132 to content and organization.¹⁶ The 1983 edition "clarifies" and "amplifies and refines" this second edition, but adheres to much of its wording. Notably, to ensure that standards are met on all levels, this last edition adds a section on grammar.

Two further style changes concerning the summary and reference formats are worth noting here. In the 1927 stylesheet, the last section of a paper is defined as a summary entirely distinct from the abstract to be submitted to *Psychological Abstracts*. The 1944 stylesheet clarifies that the summary should be a serially numbered list of conclusions. In 1952 the summary, no longer a list, becomes a description of the entire argument, covering "the problem, the results, and the conclusions." This formal summary could also be used for *Psychological Abstracts*. Beginning in 1967, however, the abstract appears at the start of the published article, eliminating the final summary.

The prescribed reference format changes from traditional footnotes in 1927, to cross-references to a numbered bibliography in 1944, to the current author-date system with a reference list at the end, first prescribed in 1967. These changes help bring the references into the flow of the discussion as items for conscious attention. Both the dates and the names of authors now serve as facts in the argument.

II

The evolution of published articles in experimental psychology reveals the nature of the rhetoric embedded in the *Publication Manual*, for the history of the articles shows the rhetoric in action.¹⁷ The founding journals of the discipline defined the acceptable range of writing for the field by the articles they published: *Philosophische Stu-*

Readers are sometimes treated as quite knowledgeable about the current work, so that much technical background goes unexplained, as, for example, in Hall and Motora's article on dermal sensitivity in the opening issue of *AJP*.²⁴ Nonetheless, the audience is generally assumed to be concerned primarily with broad issues of psychological understanding. The early articles almost always begin with some issue of general psychological interest and connect the specific study to that issue. In fact, the technical article by Hall and Motora is the one prefaced by the Greek quotation and appears in the issue in which Hall editorially anticipates a broad readership for the journal.²⁵

These articles review the literature only sporadically. At most, short summaries present assorted experimental results without establishing definitive findings that lay a stable groundwork for current studies. Frequently articles begin without any specific reference to previous work. In short, the articles give the general impression of a new beginning; they are to be grounded thoroughly in empirical results, as opposed to the implicitly rejected nonempirical earlier work. This is consistent with a philosophical tradition that treats each new approach as a fresh attempt to establish philosophy on its true footing.

Wundt's role in his own journal, which largely published the results of his own laboratory, best reveals the philosophical nature of the endeavor. Wundt, although the founder of the first regular laboratory and frequently called the father of experimental psychology, published no experimental reports in *PS*. Nonetheless, articles by Wundt appeared in the journal at least two or three times a year, and sometimes as often as eight, discussing ideas, methods, and philosophical issues well removed from psychology. These discussions often take the form of reviews or critiques of the work of others, but always have the purpose of explicating fundamental issues. In them Wundt kept the empirical work of the new discipline firmly in philosophical, reasoning focus. Although his students and other followers stayed much closer to the data—and no one else seemed to be granted an equal right to philosophize at length in the pages of the journal—he helped maintain the philosophical thrust of the discourse.

Despite the desire to subordinate the experiments to philosophical inquiry, the experimental data proved too complex and removed from philosophical issues to resolve the problems posed. Typically in the early articles, the continuity of rational discussion breaks down when the results section is reached. The argument bogs down in extensive tables reporting massive amounts of data, frequently raw or subject only to simple aggregating calculations. As in an 1894 study by Joseph

Jastrow in *PR*, the discussion often simply repeats the tabular data with a few low-order statistical generalizations.²⁶

Characteristically, no conclusions relative to a substantive problem are drawn, and the ultimate meaning of the data remains murky. Authors often caution against generalizing too quickly on the basis of uncertain results in situations that remain too multi-factored to analyze fully. More decisive results are promised in the future. When substantive conclusions are drawn, the intermediate analysis of the data may be missing, as in one of Munsterberg's studies, which bypasses specific explanations with phrases like, "it is evident," "of course," and "the reason lies evidently in the fact that . . ." ²⁷

The inability of these massive collections of data to resolve philosophical issues, such as the nature of memory and perception, soon leads to a divorce between philosophical and empirical work.²⁸ Articles turn to establishing low-level generalizations descriptive of the results. Literature reviews grow longer as the literature itself grows, and there is some attempt to find common denominators or clear patterns of disagreement among the prior studies and to set up the current experiment as a resolution. Methods become standardized and are frequently referred to by eponyms or citations. But the results generally do not resolve substantive issues. Conclusions are often a series of numbered statements, repeating the data. Even where the numbered conclusory statements address the originating question, as in a 1916 article in the *Journal of Experimental Psychology* (hereafter *JEP*), "A Preliminary Study of Tonal Volume," only minimal substantive discussion relates results to the problem.²⁹ The complex data, both physical and introspective, are left largely to speak for themselves.

Since the true object of inquiry remained internal phenomena, the subject of the experiment remained an important independent actor in the story. Subjects are described to show expertise or particular qualifications for accurate observation. In K. M. Dallenbach's articles throughout the period, for example, subjects are characterized as trained in psychology and familiar with the purposes and methods of the particular experiment under discussion.³⁰ Introspective accounts provide data and—significantly—possibly interpretations of the measured data. As late as 1930, in a study by S. C. Ferral and K. M. Dallenbach, the introspective accounts of the subjects (who include Dallenbach) are used to guide the analysis of the other results.³¹ Another striking example, "An Experimental Study of Fear," is based entirely on introspective accounts of emotional responses to the experimental situation.³²

Other methods of gaining evidence about the internal processes of humans were also still acceptable. A study of the foster-child fantasy is based on a survey of adolescents rather than on an experiment.³³ An anthropological observation entitled "The Gesture of Affirmation Among the Arabs" is intended to clear up some incorrect and misinterpreted facts used by Wundt.³⁴ Studies of literary figures based on their works still appeared in *A/P* as late as 1920, when analyses of Charlotte Brontë and Edgar Allan Poe were published.³⁵

The author thus remains a problem-solver, trying to gain some understanding of mental processes using empirical data, even though the discussion has now switched from a general philosophical to a more particular descriptive mode. Articles through 1920 still read as continuously reasoned arguments, with internal headings used sporadically and flexibly. Headings, when used, often reflect the specific content of the article and are not typographically prominent.

The implied audience as well remains varied—interested in the workings of the mind, but not necessarily involved in research. Through the 1920s articles still frequently start with familiar problems of everyday experience (such as fear, fantasy, and the sensation of burning heat), and they use a variety of approaches.

III

As behaviorism in its many forms came to dominate psychology between the two world wars, a rhetoric consistent with behaviorist assumptions narrowed rhetorical possibilities and became the basis for the official style reflected in the *Publication Manual*. By "behaviorism" and "behaviorists," I mean the general turn toward behavior and away from mind as the proper subject and data for psychological investigation. Many varieties of explicit behaviorism developed, not just the classic versions of Watson and Skinner. Additionally, many other schools of experimental psychology followed behaviorist procedures, although they did not explicitly espouse behaviorism.

Stephen Toulmin and David Leary associate the dominance of behaviorism and neo-behaviorism with a "cult of empiricism" fostered by an alliance with logical positivism, popular during the same period between the wars. The positivist principles of "physicalism" and "operationalism" legitimated the behaviorist limitations of allowable questions, method, and data. The behaviorist method then could be considered identical to scientific method, excluding other forms of psy-

chological investigation as unscientific.³⁶ And the behaviorist rhetoric could be identified as the only proper way to write science.

The proper way to write positivist, behaviorist science did not, however, appear immediately on the scene, invented in a burst of self-conscious rhetorical creativity. Instead the style emerged over a number of years as many individuals gradually discovered the form most congenial to their ideas and work. Early works appeared in a variety of styles consistent with the patterns of the past.

Watson, although often identified as the founder of behaviorism, published little behavioristic experimental work. Rather, what is taken as his seminal work, "Psychology as a Behaviorist Views It," is a polemic.³⁷ It is continuous, persuasive, and aimed at a general audience; it considers a general problem and presents the author and audience as reasoners capable of making intelligent judgments. Furthermore, as editor of *Psychological Review* from 1910 to 1916 and then of the newly founded *Journal of Experimental Psychology* for another ten years, Watson presided over the kinds of articles described in the previous section.³⁸

The famous article "Conditioned Emotional Reactions" (1920), which Watson co-authored with Rosalie Raynor, reports one of his few published experimental studies.³⁹ This unusual article, although different in many respects from both articles that came before and those to come after, still bears more resemblances to the earlier rhetoric than to the later. The study, which describes the conditioning of an infant to fear rats, is told as a coherent story with no real headings or strong divisions to interrupt the flow of argument. The only marked divisions are four questions, labeled with roman numerals, and dated passages from the laboratory notes. The typical structure of introduction, method, results, discussion, is not maintained. Rather, the theory to be demonstrated dominates the organizational pattern, with components of the method and results separated and subordinated to the various questions to be answered.

Thus the authors emerge as reasoners and persuaders, constructing an argument that uses experimental results to persuade the readers of the truth of a general theory. They use the first person throughout in order to present themselves in a number of roles: as conductors of experiments, as holders of certain expectations, as investigators desiring tests of certain questions, as makers of observations, as provers of certain propositions, and as interpreters of results. Furthermore, they present the experimental results in the rather personal form of the lab notes, replete with disjointed phrases and sentence fragments. Even

though the notes present the events without reference to internal processes or imputations, rhetorically they serve to show the events through the eyes of the narrator.

The authors also stand well back from the literature, which is presented largely as speculative and unfounded, even Watson's own writing on the subject. This article is, in short, another attempt to begin inquiry into basic matters *de novo*. Here again we see the independent philosopher, impatient with earlier false starts and misguided work. The opening paragraph reviewing the state of the problem is brusque and mildly contemptuous; the next to last paragraph, comparing the authors' conclusions with Freud's, is gratuitously and gleefully nasty, reminiscent of the delightfully vitriolic exchanges of nineteenth-century German philosophers.

Thus the audience is witness to a knock-down intellectual argument and is invited to choose sides, not just between ideas, but between persons: Watson and Freud. The choice rests on the audience's response to a first-person account of a single incident: in essence, a short story. In its narrative simplicity, clarity of argument, and broadness of issue, the article clearly aims at a wide audience. Its vigor of argument assumes that readers can and will make a choice—in favor of Watson.

The subject of Watson's experiment, the infant Albert B., has an immediate presence in the drama of the piece. The detailed description shows how, by virtue of his stability and lack of fear, he is mentally fit for the test to which he will be subjected. He emerges as an individual character in an engaging narrative account of his induced phobia, very much in the tradition of the clinical accounts of the mentally ill that had until recently shared the pages of the journals with experimental reports.

However, two differences set the treatment of Albert apart from the treatment of subjects in previous articles. First, the details of his background establish that his mind is a clean slate, unaffected by special quirks, foreknowledge, or other hindering factors. The subject's identity, in other words, is a sign of the experimenter's control of variables, rather than the subject's special capacity to observe his own reactions. Second, the authors exclude introspection or any other attempt to gain knowledge of the subject's internal processes or sensations. This, of course, is the obvious mark of behaviorism. Yet despite the attempt to turn Albert into an impersonal object of study, the fullness of the narrative produces a certain poignancy. As Albert's phobia grows, the reader sees him become a victim, moved by the manipulations of the experimenter rather than his own volition.

In the period following the publication of this article, the objectification of the subject increases. Author, audience, and literature as well become more objectlike. All the aspects of the drama of the experimental article move into a behaviorist universe. The rhetorical decisions made in the 1920s are elaborated, rigidified, and standardized in subsequent decades. The first APA stylesheet appeared in 1929; the increasing certainty and prescriptive detail of the successive stylesheets confirm the growing influence of the behaviorist style. Articles begin to look like one another, so that we can clearly identify the official style that lies behind the prescriptions of the publication manual.

Only when a community decides that there is one right way can it achieve the confidence and narrowness of detailed prescriptions. In rhetoric, "one right way" implies not only a stability of text, but a stability of rhetorical situation and rhetorical actors, so that there is little room or motive for improvisatory argument.⁴⁰ Within a stabilized rhetorical universe, people will want to say similar things to each other under similar conditions for similar purposes. In this context, prescribed forms allow easy and efficient communication without unduly constraining needed flexibility. The behaviorist picture of the world allows that stability and lack of free invention.

The behaviorist world view first makes itself felt, as we have already seen in the article by Watson and Raynor, in characterizations of the experimental subject and the phenomena investigated. Not only do behaviorists categorically eliminate imputations of internal processes and introspective accounts; they no longer consider the external data as indicators of some mental process. The experimental problem switches from one of indicators to one of controls, from getting some hard data on complex individual internal processes to keeping the history of the subject and the environment sufficiently clean. The kind of narrative that Watson provides for Albert B. soon vanishes, for such a narrative grants too much personality to the subject, who is to be reported more as a type exhibiting very specific behaviors in highly controlled circumstances.

The previous tendency toward low-level conclusions that give only aggregate descriptions of the behavior observed is no longer a difficulty—such descriptions are the extent of the enterprise. One looks only for patterns of behavior, not underlying principles or mental operations. The increasing statistical sophistication of experimental articles serves to exhibit and validate patterns of behavior across large numbers of subjects. The results themselves appear in increasingly calculated and patterned ways. Individual behavior disappears in a pattern, dis-

played in a graph or a table of secondary calculated values, rather than as a raw number. The results sections increasingly begin by describing the display tables and figures. By 1950 statistical talk, describing the statistical methods used and the limits of statistical liability, becomes a standard part of the results section, usually immediately following the presentation of the numerical display.

Instead of a reasoner about the mind, the author is a doer of experiments, maker of calculations, and presenter of results. The author does not need to reason through an intellectual or theoretical problem to justify or design an experiment, nor in most cases does he or she need to identify and take positions on arguments in the literature. To produce new results, the author must identify behavior that has been inadequately described and design an experiment to exhibit it. With the methodological problem reduced to obtaining uncontaminated results, carefulness rather than good reasoning becomes the main characteristic to be displayed in the methods section. The methods section becomes less substantively interesting. Starting about 1930, the section is demoted to small print, where it remains today. Nor are methods customarily covered in summaries or abstracts.

This rhetorical diminution of methods in a science devoted to obtaining experimental results only makes sense when we see that the main rhetorical function of the methods section is not to present news or innovation, or even to help the reader conceptualize the event that produced the results. Its main function is rather to protect the researcher's results by showing that the experiment was done cleanly and correctly. In the articles from sample year 1950 that I examined, this desire to protect the results by constantly demonstrating that one has done things correctly on all counts, from examining the prior literature to using proper statistical methods, becomes obtrusive and accounts for much of the length of the articles. As the conventions for demonstrating proper work become stabilized, through the growing prescriptiveness of the stylesheets and through repeated practice, this competence display is done more rapidly, so that by 1965 these preliminaries take much less space.

Because the methods section no longer serves as an intellectual transition between the problem and the results, the article tends to break into disjointed parts, increasingly labeled by standard headings, as reflected in the successive stylesheets. The results become the core of the article. Discussion often merely sums up the data and is sometimes relegated to small print. Conclusions do little more than repeat confirmation of the descriptive hypotheses.

With the article primarily presenting results, constrained and formatted prescription, authors become followers of rules to gain the reward of acceptance of their results and to avoid the punishment of nonpublication. Accepting this role, they subordinate themselves to the group endeavor of gathering more facts toward an ultimately complete description of behavior—a project of incremental encyclopedism. As behaviorism gradually gained influence, authors began presenting results as ends in themselves, to fill gaps in other results, rather than as potential answers to theoretical questions. In the mid-twenties, introductions rapidly ceased to raise problems and began to give a codified review of the literature, with each item associated with a specific contribution. The experiment to be reported in the article was presented simply as a continuation of the prior work. After a brief period when close analysis of the literature was allowed in small print, disagreements over theory, results, or formulations in the previous literature tended no longer to be discussed. Articles tended to be treated as accumulated facts; literature reviews in the articles tended to lack synthesis, problem-orientation, or interpretation. Edwin Boring, an editor of *AJP*, in a 1930 note attempting to domesticate the Gestalt movement, articulates the principle: “The progress of thought is gradual, and the enunciation of a new crucial principle in science is never more than an event that follows naturally upon its antecedents and leads presently to unforeseen consequents.”⁴¹ This communal vision—much narrower than the traditional “shoulders of giants” formulation—diminishes the role of any individual as a thinker.

Several other rhetorical consequences flow from this incrementalism. First, since the function of the article is now to add a descriptive statement to an existing body of such statements, and since the new statement will achieve this goal only if it passes certain tests, strong rhetorical pressure pushes the candidate statement (the hypothesis) near the front of the article. Only then can the reader, in reading the body of the article, judge whether the claim passes the criteria. Thus the descriptive generalization moves from a conclusion to an opening hypothesis that takes on an increasingly central role in the presentation of the experiment.⁴² As the main unifying element in the article, the hypothesis often comes to be repeated four or more times in a single article. Similarly, as the abstract switches from a summary of results to the presentation of problem, results, and discussion, the “problem” comes to mean the test of the hypothesis and the “discussion” the confirmation of the hypothesis.

Second, since they were only adding bits to a larger descriptive project, articles decrease in scope and length. The single experiment replaces the series of experiments with minor variations in conditions or procedures. The confirmation of a single descriptive statement replaces the examination of a large phenomenon from a number of angles.

Articles also become shorter with the codification of format and of surrounding knowledge. With a fixed framework of knowledge and communication, one can add one's single additional bit more rapidly. In the selection of articles I examined, the low point in terms of article length was in the mid-1960s. Articles from the same period also show a significant increase in technical vocabulary, indicating a dense, specialized knowledge. Most of the technical terms used earlier (except for statistical ones) are ordinary-language terms given more precise definition—for example, "stimulus," "condition," "fatigue." Even such usual coinages as "retroactive inhibition" are not far removed from ordinary usage. But in the 1965 articles, terms, although originating in common-use vocabulary, take on narrow, concrete meanings that diverge from normal usage. These terms are then used in combination with other such terms. Moreover, key terms are replaced by acronyms or abbreviations. Only those familiar with the technical background can be sure that they know exactly what is being discussed in a phrase like "the effects upon verbal mediation of the delay intervals interposed between the two acquisition stages of a mediation paradigm or between the second acquisition stage and the test trial."⁴³

Third, the *Publication Manual* had adopted a reference style wherein the author and date of a cited work appear as facts or landmarks in the course of the article, visibly demonstrating the incrementalism of the literature. As anyone who has worked with this reference system can attest, it is very convenient for listing and summarizing a series of related findings, but it is awkward for extensive quotation or discussion of another text, and even more awkward for contrasting several texts in detail. The format is not designed for the close consideration of competing ideas and subtle formulations.

Finally, readers are no longer cast in the role of people trying to understand or solve some problem. Rather, they are presumed to be looking for additional bits of knowledge to fit in with their previous bits. They are assumed to be looking for faults because such faults would disqualify the experimental report as a valid increment to the descriptive encyclopedia. The author must display competence to the audience rather than persuade readers of the truth of an idea. If properly demonstrated by a proper experiment, the hypothesis must be accepted by the audience. In an intellectual sense, the audience has little

to say about the meaning of an experiment or even about the truth of a hypothesis. Its role, rather, is to judge the propriety of the experimental proof.

Within this rhetorical world, the chaos of intellectual differences is eliminated. Individuals accumulate bits, follow rules, check each other out, and add their bits to an encyclopedia of the behavior of subjects without subjectivity. There is not much room for thinking or venturing here, but much for behaving and adhering to prescriptions. Thus we get to the ever-expanding *Publication Manual*.

IV

Over the last twenty years, another major change in the style of the psychological journals has started to take place, the result of the rising influence of a cognitive psychology based on the computer model. This new approach brings with it a new epistemological and rhetorical universe. It is too soon to give a full account of this new style, nor is it clear how pervasive it will become in the face of the continuing behaviorist rhetoric. One thing is clear: this new style has not yet affected the *Publication Manual* in any significant way. The APA manual still serves basically as a codification of behaviorist rhetoric.

For those social scientists who believe that the behaviorists' positivist program creates an accurate picture of the human world and provides the surest (if not the only) path to knowledge, the prescriptive rhetoric of the *Publication Manual* is precisely the right one. The invention of a way to communicate that is consonant with their beliefs constitutes a major accomplishment. Nonetheless, the realization that behaviorism has not escaped rhetoric, but has merely chosen one rhetoric and excluded alternatives, may temper adherents' certainty about their mode of communication.

For those who have received the rhetoric as a given, the recognition of the implications of the official style reopens the question of how to write. Rhetoric is always sensitive to beliefs about the world. The human sciences are subject to a particularly immediate form of this rhetorical sensitivity, for these sciences create and argue for beliefs about human beings, the inevitable main actors in the drama of communication. If a social science changes our view about the nature of ourselves, we need to change our way of talking to each other. To neglect the implications of our rhetoric is to lose control of what we say.

NOTES

1. See, for example, Charles Bazerman, "Modern Evolution of the Experimental Report in Physics: Spectroscopic Articles in *Physical Review*, 1893-1980," *Social Studies of Science* 14 (1984): 163-96; and idem, "Reporting the Experiment: The Changing Account of Scientific Doings in the *Philosophical Transactions of the Royal Society*, 1665-1800," manuscript, 1983.
2. American Psychological Association, *Publication Manual*, 3d ed. (Washington, D.C.: APA, 1983).
3. *Ibid.*, p. 26.
4. *Ibid.*, p. 18.
5. *Ibid.*, p. 18.
6. Madison Bentley, et al., "Instructions in Regard to Preparation of Manuscript," *Psychological Bulletin* 26 (Feb. 1929): 57-63.
7. *Ibid.*, p. 58.
8. *Ibid.*, p. 59.
9. John Anderson and Willard Valentine, "The Preparation of Articles for Publication in the Journals of the American Psychological Association," *Psychological Bulletin* 41 (1944): 345-76.
10. *Ibid.*, p. 350.
11. *Ibid.*, p. 351.
12. *Ibid.*, p. 345.
13. Council of Editors, *Publication Manual of the American Psychological Association*, *Psychological Bulletin* 49, pt. 2 (July 1952 supplement): 389-449.
14. *Ibid.*, p. 397.
15. American Psychological Association, *Publication Manual*, rev. ed. (Washington, D.C.: APA, 1957, 1967).
16. American Psychological Association, *Publication Manual*, 2d ed. (Washington, D.C.: APA, 1974).
17. The characterizations that follow are based on analyses of over a hundred articles and examination of several times that number from the chief journals of experimental psychology, clustered in the early period (the last decades of the nineteenth century), the periods of the rise (1916 to 1930) and dominance of behaviorism (1950 and 1965 taken as sample years), and the current period (1980 as a sample year). The selection of articles analyzed and examined is large enough to reveal the major trends, but the dates attributed to the first emergence or dominance of any particular feature are necessarily approximate. Further, any characterizations of large numbers of texts will inevitably obscure differences among texts and may not be accurate for specific features of individual texts; however, as the official behaviorist style emerges, texts become much more uniform. That movement toward prescriptive uniformity forms a central part of the story.
18. G. Stanley Hall, "Editorial Note," *American Journal of Psychology* 1 (1887): 3.
19. G. Stanley Hall and Yuzero Motora, "Dermal Sensitiveness to Gradual Pressure Changes," *American Journal of Psychology* 1 (1887): 72.
20. Hugo Munsterberg, "Studies from the Harvard Psychological Laboratory," *Psychological Review* 1 (1894): 32-60.
21. Hugo Munsterberg, with the assistance of W. T. Bush, "III. A Psychometric Investigation of the Psycho-Physic Law," *Psychological Review* 1 (1894): 45-51.
22. Max Friedrich, "Über die Apperceptionsdauer bei einfachen und zusammengesetzten Vorstellungen," *Philosophische Studien* 1 (1883): 40-48.
23. James Hyslop, "Experiments in Space Perception," *Psychological Review* 1 (1894): 257-73, 581-601.
24. Hall and Motora, "Dermal Sensitiveness."
25. Hall, "Editorial Note."
26. Joseph Jastrow, "Community and Association of Ideas: A Statistical Study," *Psychological Review* 1 (1894): 152-58.
27. Munsterberg, with Bush, "A Psychometric Investigation."
28. Indicative of the early divorce between philosophy and psychology is the changing character of the articles in the English journal *Mind*, founded in 1876 with the stated intention of being the first journal of the new psychology. The philosophical climate in England, however, did not prove conducive to the flowering of experimental psychology. Although early volumes contain glowing reports of the experimental work in Germany (for example, J. Sully, "Physiological Psychology in Germany," *Mind* 1 [1876]: 20-43), reviews of experimental work became increasingly critical (for example G. C. Robertson, "The Physical Basis of Mind," *Mind* 3 [1878]: 23-43; E. W. Scripture, "The Problem of Psychology," *Mind* 16 [1891]: 305-25). The general complaint against experimental work was grounded in the mind/body dichotomy; these philosophers found physical data of no value for understanding issues of mind. By the turn of the century, discussion of experimental psychology ended altogether, leaving the journal as a purely philosophic one.
29. G. J. Rich, "A Preliminary Study of Tonal Volume," *Journal of Experimental Psychology* 1 (1916): 13-22.
30. For example, K. M. Dallenbach, "The Measurement of Attention," *American Journal of Psychology* 24 (1913): 465-507; idem, "The Measurement of Attention in the Field of Cutaneous Sensation," *American Journal of Psychology* 27 (1916): 445-60; and idem, "Attributive vs. Cognitive Clearness," *Journal of Experimental Psychology* 3 (1920): 183-230.
31. S. C. Ferrall and K. M. Dallenbach, "The Analysis and Synthesis of Burning Heat," *American Journal of Psychology* 42 (1930): 72-82.
32. Virginia Conklin and Forrest L. Dimmick, "An Experimental Study of Fear," *American Journal of Psychology* 36 (1925): 96-101.
33. Edmund S. Conklin, "The Foster Child Fantasy," *American Journal of Psychology* 31 (1920): 59-76.
34. S. S. George, "The Gesture of Affirmation Among the Arabs," *American Journal of Psychology* 26 (1916): 320-24.
35. Lucile Dooley, "Psychoanalysis of Charlotte Bronte as a Type of the Woman of Genius," *American Journal of Psychology* 31 (1920): 221-72; and

TURNING PSYCHOLOGY

ON ITSELF

THE RHETORIC OF PSYCHOLOGY

AND THE PSYCHOLOGY

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Lorine Pruette, "A Psychoanalytic Study of Edgar Allan Poe," *American Journal of Psychology* 31 (1920): 370-402.

36. Stephen Toulmin and David Leary, "The Cult of Empiricism and Beyond," in Sigmond Koch and David Leary, eds., *A Century of Psychology as Science: Retrospections and Assessments* (New York: McGraw-Hill, in 1985). Lawrence D. Smith makes a similar point in his "Psychology and Philosophy: Toward a Realignment, 1905-1935," *Journal of the History of the Behavioral Sciences* 17 (1981): 28-37.

37. J. B. Watson, "Psychology as a Behaviorist Views It," *Psychological Review* 20 (1913): 158-77.

38. The *Journal of Experimental Psychology* was founded as an offshoot of the *Psychological Review*, and the two journals shared editorial boards.

39. John B. Watson and Rosalie Raynor, "Conditioned Emotional Reactions," *Journal of Experimental Psychology* 3 (1920): 1-14.

40. For a discussion of the relationship between genre and recurrent social situations and actions, see Carolyn R. Miller, "Genre as Social Action," *Quarterly Journal of Speech* 70 (1984): 151-67.

41. Edwin G. Boring, "The Gestalt Psychology and the Gestalt Movement," *American Journal of Psychology* 42 (1930): 309. He had earlier formulated this principle in "The Problem of Originality in Science," *American Journal of Psychology* 39 (1927): 70-90.

42. The common methodological belief that the formulation of a hypothesis must precede the design of an experiment chronologically in the actual research process may in part derive from this rhetorical order.

43. Margaret Jean Peterson, "Effects of Delay Intervals and Meaningfulness on Verbal Mediating Responses," *Journal of Experimental Psychology* 69 (1965): 60.

Psychology may serve as both a target and rhetorical analysis. As a target, psychology possesses the same dependence on rhetoric that rhetoricians discover in other academic disciplines. Psychological rhetoric is influenced by the prevailing rhetoric and logical positivism, which deemphasize the role of rhetoric in psychology—they simply restrict the kinds of rhetoric used. Examples of psychological rhetoric are provided later in this paper.

More interesting are the contributions of psychology as a tool for examining rhetoric. Psychologists study processes and phenomena that are central to language, stories, persuasion, and other topics of interest in hermeneutics. Such studies can help us to understand the nature of psychology and other disciplines.

Using empirical methods to examine rhetoric may seem like an enlightened move to those who celebrate rhetoric as an alternative to empiricism and to those who view empiricism as superior to rhetoric. But rhetoric and empiricism are both tools in the construction of meaning and knowledge, and neither obviates the need for the other. More often than not, contemporary social scientists use both tools together, though rarely with equal enthusiasm.