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What is This?

The Dynamics of Positivism in the Study of Public Administration: A Brief Intellectual History and Reappraisal

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Abstract

This article explores the development of three features of positivism from the 1800s to the present: the unity of science, the verification criterion of meaning, and the empiricist observation language. The development of these features is demonstrated in the mid-20th century public administration (PA) literature and in the self-reflective literature of the last three decades. Contemporary positivism has been substantially moderated: The verification criterion of meaning has been abandoned, but the unity of science remains a presupposition, and the empiricist observation language remains an important tool. By presenting this intellectual history, some clarity may be added to the philosophical discourse in PA.

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Introduction

Public administration (PA) had a difficult and confusing time defining and redefining itself throughout the 20th century. Many themes have waxed and waned, such as scientific management, implementation, human resources, constitutionalism, new public management, postmodernism, and governance. This difficulty persists into the new millennium, and PA remains to some extent fragmented across schools, subdisciplines, and organizing themes. Evidence of the so-called "identity crisis," as others have called it (Morgan, Kirwan, Rorh, Rosenbloom, & Schaefer, 2010; Raadschelders, 2011b; Riccucci, 2011), is particularly evident in the ongoing debates concerning the appropriate philosophical foundations of the field.

One party to the debated argues that the study of administration needs more scientific rigor and stature; using the norms and methods of natural science, it pursues empirical truth within the tradition of philosophical positivism. The *Journal of Public Administration Research and Theory* has evolved in response to this concern.[1] Another tradition is more concerned with the scientific attitude being inappropriately applied to PA, and is to some extent concerned with deconstructing positivism's truth claims. This tradition is broadly labeled postmodernism. The journal *Administrative Theory & Praxis* has evolved to fill this need, promoting a variety of perspectives from philosophy to film.

The conflict between positivism and postmodernism revolves around a host of dichotomies, such as politics/administration, objective/subjective, fact/value, inductive/deductive, and theory/practice. These dualisms socialize philosophical traditions into familiar worldviews. For example, the politician deals in normative principles, and the administrator in objective facts; the practitioner deals with the world of the practical, while the researcher is isolated to the high tower of ideal form. The practitioner asks, "Of what use is theory to my job?" The academic asks, "What is the relevance of anecdotal experience to my theories?" Meanwhile, pragmatists have attempted to reconcile these hard-line divisions, providing a philosophy of action to practitioners and academics. To be sure, these three philosophies do not exhaust the philosophical real estate in PA. Nevertheless, there seems to be something compelling about the interplay between them.

The word *positivism* has become somewhat hard to say in academia, and many may be offended by its mention. There are a great many articles arguing its limitations, but few that treat the subject systematically. Often it seems that debates in the social sciences over positivism are at cross-purposes, taking on a thick emotional tone. As a result, a great many students of PA remain in the dark about its feature principles, its history, and variety.

This article explores the intellectual history of philosophical positivism as it relates to the study of PA. Positivism has had a major impact—whether positive or negative—on the American intellectual heritage, including disciplines such as sociology (Zald, 1995), psychology (Smith, 1986), political science (Johnson, 2006), economics (Friedman, 1953; McClosky, 1983), and PA (Raadschelders, 2011a). As a philosophical tradition, it endures within the interdisciplinary study of PA, shaping to some extent the direction and quality of the field. This article sheds light on some of the more noteworthy features of positivism's development from the 19th to the 21st century, providing an intellectual history of three prominent, developing, and interconnected features:

  i.   the unity of science,
 ii.   the verification criterion of meaning, and
iii.   the empiricist observation language.

It should be stated at the outset that the goal of this article is neither to defend the aforementioned features against the attacks of postmodernism, nor to advocate postmodern alternatives or to articulate our own biases in philosophical pragmatism, which have been noted elsewhere (Shields, 1996, 1998, 2003, 2008; Whetsell, in press; Whetsell & Shields, 2011). The goal is to articulate positivism's role in the intellectual history of PA.

First, we trace the development of the (a) *unity of science* and (b) the *verification criterion of meaning* through classical positivism in the 19th century, as well as the development of (c) the *empiricist observation language* through logical positivism (LP) in the early-20th century. Second, these three features are explored as they manifested in some of the prominent mid-20th century PA literature, and, third, in the self-reflective literature from the 1980s to the present. Finally, we conclude with some observations on the present state of contemporary positivism in the first decade of the 21st century.

Historical Dynamics

Positivism, as a philosophical term in contemporary use, is mostly an intellectual artifact of the logical positivist movement of the early-20th century.[2] But the philosophical tradition of positivism is much older, and the infamy bestowed on it by the dissolution of LP obscures a striking continuity from the 19th century to the present. In a broad sense, the 19th century classical positivism of Auguste Comte anticipated many key features of its logical positivist phase and continues to wield influence even after LP's dissolution and the rise of postmodernism (in PA) in the late 1980s. One way to visualize
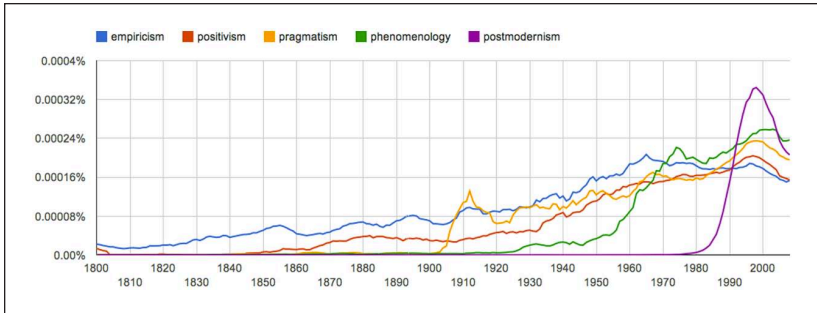
Figure 1. Google Ngram search (1800-2008) five philosophies.

this history of positivism is in relation to other major philosophical traditions: empiricism, pragmatism, phenomenology, and postmodernism. The Google Books Ngram Viewer statistical tool (Figure 1) tracks the enduring use of these words from 1800 to 2008.

The primary point of this graph is not to draw conclusions about the greater popularity or influence of one of these philosophies, but to show that they all trace individual paths, that intellectual history is dynamic, and that while an idea may appear to have great influence or no influence, positivism has persisted.[3] Despite the postpositivist and postmodernist assault on LP in the second half of the 20th century, key features of positivism persist consciously and implicitly in American intellectual life. Positivism thus maintains an important place in what Raadschelders (2005, 2008) has called the tradition of "scientific knowledge" in PA. It is therefore due some systematic attention.

Classical Positivism

Positivism is a tradition of philosophy brought forth by the French philosopher Auguste Comte (1798-1857) during the second quarter of the 19th century. Positivism became widely popular in its second half and had a strong effect on the British empiricist J. S. Mill, whose ideas in turn influenced Comte's positivism (Laudan, 1971). Both empiricism and positivism were themselves prefigured by the empiricism of David Hume, among others in the 1700s, and both have persisted into the contemporary era. Comte is widely considered not only the father of positivism but also of sociology and the social sciences in general (Bourdeau, 2011). As Babbie (2010) argued, "In a sense all social research descends from Comte. His view that society

could be studied scientifically formed the foundation for subsequent development of the social sciences" (p. 35). Hassard (1993) traced an intellectual lineage from Comte to Durkheim to Parsons, which consolidated a substantial tradition of "sociological orthodoxy in the 20th century" (pp. 8-13). In PA, the term *positivism* shows up frequently but seems to have been discussed only superficially within the context of research methodology. Most texts do not mention Comte and mention positivism only in passing, or wrongly attribute its origins to the logical positivist movement of the early-20th century.

The silence of Comte's classical positivism, however, is not specific to PA. As Laudan (1971) argued, "in spite of the frequency with which the term 'positivism' is used . . . remarkably little has been written about the details of Comte's theory of scientific method and his philosophy of science" (p. 35). Thus, the contemporary meaning of the term *positivism* has substantially different connotations than its classical form supposed. The word now stands ironically as both a badge of scientific expertise and a term of abuse.

Perhaps the grandest idea within Comte's positivism is his philosophy of history, embodied in "The Law of Three Stages." Human society in its quest to interpret and explain reality has undergone a successive transformation from a theological worldview, to a metaphysical worldview, finally terminating in a positivistic worldview. The positivistic stage of social transformation, which Comte saw himself ushering forward, would replace the pseudointellectual mysticism of theology and metaphysics in favor of a scientific interpretation of humanity (Acton, 1951). The idea of reaching a positivistic stage of human development presupposed that society itself could be studied and explained in the same manner as the natural sciences. This principle, broadly known as the *unity of science* (note, first feature of positivism), was central to classical positivism. As a point of clarification, the *unity of science* is closely related to the logical positivist thesis of physicalism (e.g., Neurath, 1931/1959), which involves the hierarchy of sciences concept commonly invoked to explain social science. The unity of natural and social science relies on the physicalist principle that explanation of the social world is possible through a logical reduction of social phenomena to physical terms (Oppenheim & Putnam, 1958). The principle of physicalism provides objectivity to the study of humanity, and the *unity of science* provides the ontological force necessary for the grand undertaking of positivism's progressive philosophy of history, which has often been understood simply and negatively as "scientism."

Through the *unity of science*, Comte articulated political and moral dimensions to the scientific progress of human society. Science is not merely the objective revelation of fact, but is a social process that produces in

humankind a common bond and moral sentiment (Acton, 1951). If only applied more persistently, science could establish "the irresistible power of the proletarians and of women" against the "twofold obstacle" of "undisciplined intellectuals" and "men of wealth." Indeed, he stated these goals to be "the essential mission of the priests of humanity" (Comte, as cited in Acton, 1951, p. 304). Clearly, Comte's thesis of *the unity of science* maintained dimensions beyond the LP ideal of pure scientific objectivity.

In contrast to Comte's philosophy of history, which is well known, Comte's philosophy of science has received less attention. Laudan (1971) added to this literature, providing a treatment of two continuities central to Comte's methodology and philosophy of science. The first addresses the aim of science, and the second what qualifies as scientific knowledge:

a. Prediction is the aim of science, which implies the concept of explanation.
b. The *verification criterion of meaning* is the standard of scientific knowledge, which implies the concept of testability.

First, the chief aim of science in Comte's positivism is prediction: "A body of knowledge incapable of supporting predictions is not scientific, nor, for that matter, is it even 'knowledge' in the strict sense of the word" (Laudan, 1971, p. 36). Comte's assertion of what constitutes scientific knowledge indicates that prediction also serves as a point of demarcation, which draws a "sharp contrast between scientific theories on the one hand and, on the other, metaphysical or theological systems." But as Laudan noted, in contrast to LP, Comte's concept of scientific meaning attached to complexes of theory rather than single propositions. In addition, Comte's concept of prediction principally implied an explanation between the known and the unknown (Laudan, 1971, pp. 36-37).

Second, the function of Comte's prediction criterion implied that "a proposition is to be regarded as scientific, not if it is highly probable in light of known evidence, but rather if it is such that we can imagine ways to put it to the empirical test"(Laudan, 1971, p. 37). Thus, the aim of prediction, and by definition explanation, is supported only through the operational act of verification. Hence, "preoccupation with *verification* is a central theme of Comte's work." Comte's *verification criterion of meaning* (note, the second feature of positivism) held that "meaningful statements must bear on the physical world, i.e. they must be nonanalytic and open to checking, either by refutation or by partial confirmation" (Laudan, 1971, p. 39). In these respects classical positivism hosts an empiricist epistemology in which verification implies testability against observation, experimentation, or comparison

(Laudan, 1971, p. 43). But as we will see, this is a moderate form of empiricism compared with that of the logical positivist movement, where the concept of verification begins to take on a more strident tone.

Logical Positivism

LP was for a short time a highly popular philosophical movement that spread from Vienna, Austria, through Europe during 1920s-1930s and then throughout the United States during 1930s-1950s. LP originated with the Vienna Circle of philosophers,[4] which came to include circles in Germany and Great Britain. Its pursuit of a scientific philosophy and the attendant rejection of theological and metaphysical doctrines made LP a viable alternative to "philosophical irrationalists," such as Nietzsche and Heidegger, popular in Europe after the dissolution of Kantian philosophy. Such irrationalism, as the Vienna Circle saw it, provided the intellectual atmosphere in which Nazi fascism flourished (Depew, 1999). During the 1930s, logical positivists such as Herbert Fiegl, Rudolph Carnap, and Carl Hempel migrated to the United States to avoid growing authoritarianism, where their ideas were received by American philosophers such as Ernest Nagel, Sydney Hook, Albert Blumberg, and Charles Morris (Wilson, 1999, p. 123). As a result, for a short while, LP was very popular in America. Indeed, as Friedman (2006) argued, LP became "one of the central strands in the fabric of twentieth-century thought" (p. xi). Furthermore, it influenced not only philosophy but by the mid-20th century gained a foothold in social science and the emerging study of PA as well (Cruise, 2006; Dobuzinskis, 2006).

LP built on the classical positivism of Comte and the empiricism of Mill but was more emphatically guided by the "the scientific world conception" inspired by Bertrand Russell, Ludwig Wittgenstein, and Albert Einstein, as noted in the manifesto document of the Vienna Circle (Stadler, 2007, pp. 13-16). The logical positivists of the Vienna Circle reshaped Comte's positivism, taking it a step further by labeling everything not observationally verifiable or logically tautological as "nonsense" (Ayer, 1990). Through the maxim of the *verification criterion of meaning*, LP narrowed the scope of philosophical analysis, rejected metaphysics wholesale, and recast the entire enterprise as scientific philosophy. What philosophers had taken for millennia to be real problems, were under LP actually just problems of imprecise language/logic and empirical groundlessness. Recalling the familiar theme of LP, Ayer (1959) noted, "in so far as philosophical problems are genuine at all they can be definitely resolved by logical analysis" (p. 8). This principle of analysis marks the *logical*, analytic side of LP, and as Moritz Schlick (1930/1959) argued, also marked a greater "turning point" in the history of

philosophy—a turn credited largely to the thought of Wittgenstein. As Schlick (1930/1959) stated it, "I am convinced that we now find ourselves at an altogether decisive turning point in philosophy, and that we are objectively justified in considering that an end has come to the fruitless conflict of systems" (p. 54). This turning point in philosophy was popularly known by Gustav Bergmann's term, the "linguistic turn," one of the central goals of which became the construction and implementation of an *empiricist observation language* (note, the third feature of positivism, *iii*, p. 3). Bergmann (1967, p. 63) pointed out that "the linguistic turn" had its roots in Wittgenstein's influential *Tractatus Logico-Philosophicus*.

The logical positivists are mostly known for taking up Comte's rejection of metaphysics and the *verification criterion of meaning* with new enthusiasm. The father of LP, Moritz Schlick (1932/1959), articulated the verification criterion clearly, stating that "every proposition has meaning only insofar as it can be verified" (p. 90). Schlick was very specific about what verification entailed: the successive approximation of a proposition "until finally only such words occur in it as can no longer be defined, but whose meanings can only be directly pointed out" (p. 87). That which is "pointed out" is what logical positivists referred to as "the given." Thus, the final "meaning of a proposition is determined wholly and alone by its verification in the given" (Schlick, 1932/1959, p. 88).

However, the *verification criterion of meaning*, as the logical positivists explicated it, could not abide its own test of significance. In an early articulation of what became a famous criticism, Werkmeister (1937) asked, "If verifiability is the criterion of meaning, what gives meaning to the principle of verifiability?" (pp. 281-282). Fittingly, many of its strongest adherents provided the route toward LP's demise, and by the mid-1930s, the movement was experiencing internal contradictions. Members of the Vienna Circle such as Rudolph Carnap and Otto Neurath perceived in "the given" an unsettling recourse to metaphysics.

Attempting to deal with the metaphysical implications of verification by reference to "the given," Neurath (1932/1959) argued against foundationalism: "The fiction of an ideal language constructed out of pure atomic sentences is no less metaphysical than the fiction of Laplace's Demon" (p. 199). According to Neurath, the foundationalism of "protocol statements" (the basic atoms of the *empiricist language*) could be avoided by moving to a new criterion based on the principle of coherence. Hence, a proposition is correct if it coheres with the rest of the propositions in the logical structure: "each new statement is compared with the totality of existing statements previously coordinated . . . What cannot be incorporated is rejected as incorrect" (Neurath, 1931/1959, p. 291). This development altered the direction of LP,

moving it from epistemic foundationalism in which all propositions are reducible to the given, to epistemic coherentism in which propositions are justified by their consistency with all other propositions.[5] Finally, this caveat allowed LP to avoid making metaphysical statements about the nature of reality.

Carl G. Hempel also attenuated LP's foundations. Hempel disliked the term *positivism* and preferred to use the term *logical empiricism* (LE). As he noted, "In the early days of the Vienna Circle, a sentence was said to have empirical meaning if it was capable, at least in principle, of complete verification by observational evidence" (1950/1959, p. 110). Hempel was not satisfied with the exhaustive nature of the verification criterion, and like Neurath, he walked back the verification criterion to a nonexhaustive and more holistic concept of meaning. Thus, "the cognitive meaning of a statement in an empiricist language is reflected in the totality of its logical relationships to all other statements in that language" (Hempel, 1950/1959, p. 123). According to Hempel, the criterion of meaning for a scientific theory was not a matter of confirming or disconfirming single propositions by reference to the given but of confronting theory against the coherence of all other beliefs. This point illustrates the essential repositioning from foundationalism to coherentism, and hence from LP to LE.[6] Instead of a verification criterion, Hempel posited a translatability criterion: "a sentence has cognitive meaning if and only if it is translatable into an *empiricist* language." Hempel clarifies the nature of this language as follows:

a) the language is constructed with "the customary locutions of logic,"
b) it is composed of "observational predicates"
c) it is organized by a syntactic-grammatical structure, such as described in A. N. Whitehead and Bertrand Russell's *Principia Mathematica.* (Hempel, 1950/1959, p. 117)

But Hempel (1950/1959) was dissatisfied even with the criterion of translatability, falling back on a criterion of cognitive significance, derived from a set of syntactic rules, a logical vocabulary, and cognitively significant empirical terms. Finally, being dissatisfied with cognitive significance as well, he concludes "much like the analytic-synthetic distinction, the idea of cognitive significance with its suggestion of a sharp distinction between significant and nonsignificant sentences or systems of such, has lost its promise and fertility as an explicandum" (Hempel, 1950/1959, p. 129). We take this to mean that drawing a sharp distinction between scientific significance and nonsignificance is extremely difficult, if not impossible, especially at the level of individual statements. As we have seen, this is because the verifiability/

translatability/cognitive significance of a single proposition depends on its fit within an a priori deductive system. The essential theory-laden quality of observation eliminates the possibility that given observations may stand on their own, or to bring it back down to earth, that the facts may speak for themselves.

Setting aside LP and LE for a moment, it is important to briefly note the influence on this issue of Karl Popper, who rejected verification and popularized the falsifiability criterion for demarcating science and pseudoscience. For Popper, a theory or hypothesis is scientific if it can in principle be falsified, if we can think up ways to prove it wrong (Albert, 2004). Popper issued this attack on the verification criterion from the standpoint of "uncompromising deductivism." In Popper's opinion, verification suffered the classic problem of induction (Galavotti, 2007). In contrast to LP, Popper is considered to be a realist, and is often referred to as a critical rationalist (Thornton, 2013). Others such as Laudan (1977) have pointed out the overlap between Popper's thought and LE. Popper was at the periphery of the Vienna Circle, and many core members did not consider his ideas as antithetical to their own (Stadler, 2007, p. 25), but Otto Neurath labeled him the "the official opposition" (as cited in Thornton, 2013). Moving on, the importance of replacing the verification criterion of meaning with a falsifiability criterion of demarcation should not be overstated. When compared with the later criticisms of LP by postpositivism and postmodernism, this would certainly seem to be a weak distinction. Falsifiability also does not appear to be in tension with the classical positivist criterion of testability. Unfortunately, more cannot be said at this point, for the focus remains on positivism.

The basic principles of LP fell systematically under the criticism of its own progenitors. It steadily eroded atop the internal contradictions of its major theses over the course of two decades—most notably, the self-referential incoherence of the *verification criterion of meaning*. What are we to take from the self-inflicted dilemmas of the logical positivist philosophical tradition as it shifted away from its primary ideas? Is LP dead? Has it simply walked itself all the way back to where it started? Or has it produced some moderated variety of contemporary positivism?

By the midcentury, Rudolph Carnap (1995) provided a notable reflection on LP, pointing to the importance of Vienna Circle's early efforts to contrast itself with idealism. He states, "When I was young and part of the Vienna Circle, some of my early publications were written as a reaction to the philosophical climate of German idealism. As a consequence, these publications and those by others in the Vienna Circle were filled with prohibitory statements" (p. 12). The ideas of the logical positivist movement should be viewed by the lights of its historical context, as well as by the later reflections of its

former proponents, and not carried off in the service of universal application.

LP's downturn was pushed along by the dissolution of the Ernst Mach Society and the death of Hans Hahn in 1934, the murder of Moritz Schlick in 1936, and the death of Otto Neurath in 1945 (Friedman, 2006; Stadler, 2007). Furthermore, the revolutionary social program of the logical positivist movement, its advocacy of socialism, and its identification with "red Vienna" were abandoned by its progenitors when they migrated to America (Friedman, 2006, p. xi). The internationalization of LE simultaneously diluted its core and stimulated disintegration (Stadler, 2007, p. 17). As a result of these factors, by the late 1950s, LP reached "a period of stasis," at which point it succumbed to the assault of critical rationalist and postpositivist philosophers such as Popper, Quine, Hanson, Kuhn, Fayerabend, and Rorty. As Friedman notes "Logical positivism's influence and reputation has been eroded dramatically . . . to such an extent, in fact, that logical positivism now often serves more as an intellectual scapegoat than as an honorable philosophical opponent" (Friedman, 2006, pp. xii-xiii). Positivism however maintains a certain level of continuity into the present. Getting us from there to here, a notable description was provided by Anthony Giddens (1976) on the state of positivism in the social sciences in the mid-1970s:

> The term "positivism" has become in most quarters more of a derogatory epithet than one with a precise reference . . . I take it, however, to have at least two connotations: the empiricist notion that there exists a neutral or theory free observation language in terms of which observations of objects or events can be made and generalizations inductively established, and the thesis that such a model, derived initially from natural science, is appropriate for the study of social phenomena. (p. 727)

To clarify and reiterate the basic trajectory of this intellectual history, the logical positivist *verification criterion of meaning* was abandoned, and has sublimated back into Comte's basic theses of testability, explanation, and prediction. In addition, these have been augmented by Popper's criterion of falsifiability. However, the historical worldview embedded within the *unity of science* remains intact, so too does the goal of developing and applying a standard *empiricist observation language*.

The basic thrust of positivist philosophy in the social sciences, and by extension its features in PA, can be seen as the attempt to unify the social sphere with the natural sciences and to establish a language of administrative science. Yes, positivism is to a very substantial degree bound up with specific types of quantitative methodology, for example, Laplace's use of the method

of least squares and Carnap's probability theory.[7] But there is nothing inherently philosophical in the instrumentality of one or another method. Positivism as a philosophy is more clearly identifiable in its rejection of metaphysics, an empiricist epistemology, the reliance on logical analysis, and a belief in the scientific progress of human history. Together these features can be seen as part of a great quest for certainty. As we have seen, the consequences of this quest have been mixed.

Positivism in PA: Mid-20th Century

Even though the field has at times distanced itself from the social sciences, courting terms like *applied science, design science*, and *profession*, primary disciplines in social science such as sociology, psychology, political science, and economics have wielded a great deal of influence in the study of the public. By proxy so too has positivism made its presence known—though not to the same extent as other fields, for example, economics and political science. As mentioned previously, the *verification criterion of meaning* was overturned after the decline of LP in schools of philosophy but persisted in departments of social science. Furthermore, the goals of *unity of science* and the *empiricist observation language* are evident in the mid-20th century literature of public policy and administration.

This section focuses on the scholarship of William Whyte, Dwight Waldo, Herbert Simon, and Harold Lasswell. These authors provide perspectives from four primary aspects of public policy and administration: organization, politics, administration, and policy. Scholars such as William H. Whyte and Dwight Waldo were critical of positivism's influence, but their comments are very limited, especially concerning the evolution and devolution of LP. Herbert Simon on the other hand openly advocated LP's prescriptions for PA and articulated a sophisticated advocacy of its major theses. Finally, Harold Lasswell noted LP and seems to have endorsed the use of its methods, but expressed a more complex vision that mitigated LP's hard-line aspects via the contextual value orientation in the policy sciences of democracy.

Whyte and The Organization Man

William H. Whyte's (1956) introductory statement on positivism in *The Organization Man* provides an interesting account of its underlying force and its effect in organization theory by the mid-20th century. Whyte used the term *scientism*, which should now be understood as a term of abuse but nevertheless expresses clearly the positivist philosophy of history: "It is the promise

that with the same techniques that have worked in the physical sciences we eventually create an exact science of man." But the quest for an exact science of man had by then already accumulated "a long and dismal record of achievement; even its proponents readily admit that the bugs are appalling. But this has not shaken the faith in scientism, for it is essentially a utopian rather than a technical idea" (Whyte, 1956, p. 27). Whyte's critique discerns the liberal idealism of positivism and points toward the historical thesis of positivistic human development, embodied in Comte's law of three stages.

Within the unification thesis, positivism's historical, moral, and utopian aspects were evident. Whyte (1956) argued that the unification thesis was merely "a cliché that had been kicked around for centuries" (p. 27). Its shortcomings meant that scientists could only be assured of progress in the social sciences as an abstract ideal: "If man would only apply the discipline of the natural sciences to the study of man, then only a sufficient expenditure of time, money, and thought would separate him from the good society" (Whyte, 1956, p. 28). Whyte emphasized that scientism's quest made itself known in organizations through the theory of social engineering. In this scheme, the role of the public organization is to engineer the social field. Through social engineering, the bureaucrats of state could proudly take up the professionalizing symbol of scientific manager (Whyte, 1956).[8]

Waldo and The Administrative State

Waldo was also critical of positivism. Though expressed in a less vitriolic manner than Whyte, Waldo (1948) made similar observations in *The Administrative State*. Waldo focused on major historical and political events that shaped the field of PA by the mid-20th century: the establishment of a Great Society, urbanization, industrialization, the Great Wars, and the Great Depression. These were accompanied by a now familiar list of ideologies dominant at the time including the American faith in democracy, the law, progress, efficiency, and finally in the promise of science to remake the condition of humanity. Indeed the *unity of science* was as prevalent among the students of PA as any other. Waldo's treatment of the influence of scientism on them bears repeating.

> Following the lead of many of the scientists and most of the persons whose province of study was human affairs, they frequently concluded that the New Day would not dawn until science were applied to the realm of human affairs just as it had been to the physical world . . . An easy and unwarranted optimism abounded that at least a technique for solving these problems of group life, if not an actual answer to the problems themselves, lay hidden within the mystery of science . . .

This faith in science and the efficacy of the scientific method thoroughly permeates our literature on public administration. (Waldo, 1948, p. 20)

Waldo's descriptions of positivism in *The Administrative State*, however, were limited to what he later termed its "garden varieties," what appears to be its classical Comtean form (Waldo, 1965). Waldo avoided a systematic treatment of positivism's main ideas in *The Administrative State* perhaps because the literature he reviewed avoided any such depth. As for the "scientific" managers, they seemed to be enamored with the ideal of positivism, but only in the sense of being enamored with a mirage, an illusion, or an idealization. Neither they nor he investigated "the linguistic turn" occurring in philosophy at that time. Or as Waldo later articulated it in "purple prose," they had not been "washed pure in the blood of Carnap and Ayer" (Simon, Peter, & Waldo, 1952, p. 501).

Nevertheless, one achievement of *The Administrative State* is in helping to disabuse PA of the more utopian aspects of scientism. Waldo demonstrated that the principles of administration were aggrandized through a false mimicry of the natural sciences. Referencing F. S. C. Northrop, Waldo identified three problems of administrative theory: the naturalistic fallacy, the cumulative view of science, and the misapplication of the fact–value dichotomy. Each of these problems can be viewed as classic problems of empiricism, sharing a close relation to its fraternal twin, positivism. The naturalistic fallacy points to the logical problem of deriving an "ought" from an "is"—the general view among PA theorists at the time being that the facts speak for themselves, producing the right course of action for a given decision. Second, the cumulative view of science supported the general opinion that only a sufficient accumulation of the facts was necessary before a science of administration emerged. Third, inverting the naturalistic fallacy, the facts could not be divorced from their value content, from the essential humanity of the subject matter (Waldo, 1948, pp. 177-185). For these reasons, among others, Waldo concluded that the ontology of PA prohibited the establishment of a science of PA: "the nature of the subject matter must define the method. Many administrative matters simply are not, by their nature, amenable to the methods of physical science" (Waldo, 1948, p. 191).

Waldo's criticism of the scientism of the PA literature identified an incestuous relationship between scientism and the cult of efficiency, as well as their expression in the principles of management (what Simon called proverbs). However, Waldo's discomfort with positivism's influence in PA did not receive a thorough accounting. Later Waldo (1965) noted this oversight, as the social sciences in general seemed to be embracing LP by proxy of the behavioralist movement. This embrace occurred despite LP's decline in the

schools of philosophy. This inconsistency between the disciplines, like Jackson fighting the Battle of New Orleans after the War of 1812 had ended, may have been a problem of poor communication across the disciplines.

Simon and Administrative Behavior

Administrative Behavior also served as a critique of the scientific management literature of the previous era, delivering a blow against the principles of public management. Interestingly, this blow was delivered from a more rigorously positivist perspective. In contrast to Whyte and Waldo, Simon (1948/1976) incorporated economic and psychological theories, using LP as a foundation and point of departure. On positivism he stated, "the conclusions reached by a particular school of modern philosophy—logical positivism—will be accepted as a starting point" (p. 45). Though Simon later replaced LP with "empiricism," many of the basic features of LP appear in *Administrative Behavior*.

The *unity of science* thesis underlies Simon's goal of establishing an administrative science, but the historical and moral aspects of scientism do not seem to make a strong appearance in *Administrative Behavior*. The logical positivist *verification criterion of meaning* is however taken as the first principal establishing the scientific study of administration:

> First, science is interested in sentences only with regard to their verification . . . Propositions about administrative processes will be scientific in so far as truth and falsehood, in the factual sense, can be predicated of them. Conversely, if truth or falsehood can be predicated of a proposition concerning administrative processes, then that proposition is scientific. (Simon, 1948/1976, p. 249)

This feature of LP cannot be overstated and plays an essential role in Simon's analysis, providing the foundation for the construction of the fact/value dichotomy and the practice/theory dichotomy. Using these two dichotomies, Simon divorces the ethical (value) dimensions of practice from the scientific (fact) dimensions of theory within the context of administrative decision making. Finally, Simon is principally concerned with translating the factual propositions of administration into a standard *empiricist observation language*. He argues, "In so far as decisions can be said to be 'correct,' they can be translated into factual propositions. Their ethical element must be eliminated before the terms 'true' and 'false' can be applied to them" (Simon, 1948/1976, pp. 248-249). The phrase "translated into factual propositions" indicates that the coherence principle of the *empiricist observation language* is at work in Simon's theory. Simon provides a systematic example from

economics, illustrating how to translate value-laden propositions into value-free observational propositions: "In the realm of economics, the proposition 'Alternative A is *good*' may be translated into two propositions, one of them ethical, the other factual: 'Alternative A will lead to maximum profit' . . . 'To maximize profit is good'"(Simon, 1948/1976, pp. 249-250).

Interestingly, Simon uses the principle of translatability to reinforce the *unity of science* thesis, stating, "If this analysis is correct, then there are no *logical* differences which distinguish the sentences of one science from those of another" (Simon, 1948/1976, p. 250). Hence, Simon's how-to on translation assumed that the administrative subject matter was similar enough to the subject matter of natural sciences for a reduction to equivalent empirical terms, so long of course as the ethical element was eliminated from the language of administrative science.

But this is not the whole story. Simon actually seemed to be more interested in using LP to isolate an objective aspect of administration than presenting an attack or statement about ethics. Thus, Simon's fact/value dichotomy should not be taken too far. In another area he states, "to consider the administrative activity itself as valuationally neutral is an abstraction from reality which is permissible within broad limits but which, if carried to extremes, ignores very important human values" (1948/1976, p. 184). Rather, of the three features of positivism, Simon seems most concerned with developing an *empiricist observation language* of administrative science as a way of enhancing the stature of the discipline (1948/1976). He also demonstrated that the objectivity with which the scientific management movement advanced its principles was unfounded, though others have revisited this debate with differing opinions (e.g., Hammond, 1990; Meier & Bohte, 2000).

Lasswell and The Policy Orientation

Around the same time that Whyte, Waldo, and Simon articulated their respective visions of science and society, Lasswell promoted the creation of a new field called the "policy sciences." Like these others, Lasswell's (1951) observations in "The Policy Orientation" grew out of an understanding of two world wars and the Great Depression. As he noted, the academic context of the times was marked by increasing disciplinary specialization that seemed to promote the narrow pursuit of value-free science, an inappropriate basis for the study of policy. The policy orientation embodied in Lasswell's vision of the policy sciences should be read as antithetical to the more hard-line aspects of LP, such as the *verification criterion of meaning*. Lasswell did however express an appreciation for the work of the prominent logical empiricist

"Rudolph Carnap and his associates," giving special attention to their development of "operational indexes." As he states it,

> If terms are intended to designate events, they do not have stable reference until "operational indexes" are specified. Indexes are operational when they can be applied by an observer with descriptive intentions, competence, and equipment, who occupies an observational standpoint in relation to a field of events to be described. The observational standpoint is the procedure used in entering the situation for data-gathering (protocol-making) purposes. (Lasswell, 1951, p. 12)

While this can be seen as a reference to LP "protocol statements," within the context of the *empiricist observation language*, Lasswell nevertheless seems to have rejected a hard-line distinction between the methodological use of LP's techniques and commitments to other philosophies such as pragmatism. Thus, he favorably noted the experimental efforts by John Dewey and other pragmatists in the field of education (Lasswell, 1951). This weakens the logical positivist pursuit of *unity of science*, as well as Simon's *verificationism* and the fact/value dichotomy, placing the emphasis on using the methods of LP in the service of other philosophical ideals.

Finally, Lasswell places the use of an *empiricist observation language* within a rich social context, permeated by human values and great uncertainty about the future of human life. As he noted, the principle problems associated with the use of observational indexes are both the philosophical interchangeability of meaning and the instability of observational indexes. The consequence is that such indexes require continual calibration over time (Lasswell, 1951, p. 13). Lasswell's promotion of such methodological aspects of positivism seems to have "gained [him] a considerable reputation as a positivist and technocrat" (Torgerson, 1985, p. 242). But Torgerson points out that the contextual dimension of Lasswell's policy orientation prevents that reputation from holding any substantive weight. DeLeon (1997) supported this position, defending Lasswell's reputation against charges of positivism.

> Few visions have been so apparently disrupted—perhaps even consciously distorted—for once the policy sciences mechanisms became one of the hallmarks of contemporary governmental processes in the United States, their practice has been formidably distanced from their proscribed democratic ideals and origins. (DeLeon, 1997, p. ix)

In reality, not only is the imputation of LP to Lasswell inappropriate, he seems to have prefigured to some degree later developments in interpretivism

and critical theory (Torgerson, 1985). Furthermore, considering his appreciation of Deweyan pragmatism and his work with the pragmatist philosopher Abraham Kaplan (Lasswell & Kaplan, 1965), he may be thought of as maintaining to some degree the historical presence of pragmatism in the policy literature through the midcentury and prefiguring more recent applications of pragmatism to PA (e.g., Evans, 2000; Harmon, 2006; Kasdan, 2011).

Concluding this section, these short notes on Whyte, Waldo, Simon, and Lasswell reveal the continuity between classical positivism and LP, bringing us to the late-20th century, where its contemporary form developed. One of the consequences of this moderation is that few advocates of positivism emerged during this period, and it remains somewhat of an orphan that academic researchers refuse to examine or own. But positivism and empiricism remained surprisingly unexamined until the 1980s when postmodernism began to level some serious challenges against it in philosophy (e.g., Rorty, Foucault, Habermas), and when public policy and administration scholars began to level similar arguments against it in the policy sciences (e.g., Callahan & Jennings, 1983; Dryzek, 1982; Farmer, 1995; Fischer & Forester, 1993; Fox & Miller, 1996; McSwite, 1997; Schneider & Ingram, 1993; Torgerson, 1986). While it may be safe to say that the more hard-line aspects of LP such as the *verification criterion* are intellectual/historical artifacts, no longer a part of theoretical debates in PA, something of LP's underlying methodology has been more resilient.

Positivism in the Self-Reflective Literature of PA From the 1980s to the Present

Beginning in the 1980s, a group of PA scholars concluded that positivist methodology in research was too weak and should be made stronger. They found that the dissertations and literature of PA suffered from a lack of methodological standardization. In 1984, McCurdy and Cleary sparked a prolonged discussion about the quality of research in PA that has endured into the present.[9] This study measured the state of research in PA using six criteria. Four of these criteria were concerned with the methodological aspects of research:

   i)   Purpose: did the study have a research purpose?
  ii)   Validity: did the study have a clear research design?
 iii)   Theory testing: Did the study test a theory?
 iv)   Causal relationships: Did the study demonstrate or *test causal relationships*?
 (p. 50)

Their results revealed serious problems with dissertation research methods. Only 21% demonstrated validity, 18% connected to a theory, and 26% had causal relationships. Astonishingly, only 64% had something resembling a clear purpose. They concluded that the dissertations failed to meet minimum benchmarks for positivist social science (McCurdy & Cleary, 1984). There are however problems with two of these criteria, and they should each be examined singularly. First, a research purpose does not express any specifically positivist inclination, but is simply a feature of good research and writing; therefore, this criterion should be basic across traditions. Second, establishing validity through a clear research design is simply a feature of systematic and transparent inquiry, not necessarily specific to positivism. McCurdy and Cleary's (1984) third criterion (theory testing) and fourth criterion (establishing causality), however, make critical shifts into positivism by asserting as benchmarks of quality testability and explanation/prediction. These presuppositions are embedded within the classical positivist demarcation criterion of science. McCurdy and Cleary thus concluded among other deficiencies, "The purpose of on-going research is not sufficiently directed toward theory building or propositions testing" (p. 54).

Within 2 years, PA scholars geared up to further explore research quality. White (1986b) questioned McCurdy and Cleary's framework, pointing out its presuppositions: causality and explanation as norms of quality (p. 15). White attempted to construct a "different theory of knowledge," incorporating interpretive and critical theory to account for administrative experience and practical reasoning. He also backed away from method-centric benchmarks of quality, finding fault with texts and courses that were disconnected from larger philosophy of science issues and norms (1986b, p. 21). Later on, White (1986b) examined the dissertation quality question again, using slightly different conceptual lenses, notably adding *hypothesis testing*. These results were slightly different than the original, but the basic assessment was quite similar. Less than 40% of the dissertations used a valid research design, tested a theory, tested a hypothesis, or incorporated causality. Twenty percent were practitioner research without theoretical underpinnings, which described a process in the author's workplace. White (1986a) also determined that less than 13% of the dissertations from 1980 and 1981 made it into a journal article by 1985.[10] The findings were consistent with McCurdy and Cleary's, indicating that dissertations performed poorly using conventional social science criteria.

Moving further into the future, a noticeable shift appeared in *Public Administration Review* (PAR). Perry and Kraemer (1986) analyzed PAR's content from 1975 to 1984 (289 articles). They noted that PAR articles tended to be focused on the problem delineation, variable identification, or variable

relationship stages. Less than 3% either established causality or manipulated a policy variable; more than half were empirical; about 20% used either legal or logical deductive reasoning; and less than 2% were literature reviews of empirical research. Perry and Kraemer (1986) also noted that the research was generally applied and that empirical articles employed case studies or cross-sectional data analysis. Furthermore, the underlying objective of the research tended to be narrowly problem oriented, "which limits development and testing of empirical theory" (p. 219). While these criteria serve as positivist standards of quality, Perry and Kraemer seemed to move beyond simple positivist prescriptions, recommending more extensive and sophisticated use of meta-analysis of findings across studies. They also called for greater sophistication in case study research, but through more advanced quantitative methodology.

Stallings and Ferris (1988) evaluated PAR articles since the inception of the journal (1940-1984), finding that with the exception of the earliest years, "conceptual" articles were most prevalent. Case studies were more frequent in very early years, dropped off, and resurfaced around 1975, and, multivariate studies were virtually nonexistent in the early years but outpaced case studies in the last 10 years. By this assessment, positivist methodology seems to have waxed and waned but nevertheless grown since the early days of PAR. Stallings and Ferris (1988) concluded that problems of research persisted: "Little causal analysis or theory testing has taken place over the years" (p. 538).

In a content analysis of PA journals from 1984 to 1988, Houston and Delevan (1990) demonstrated the familiar preoccupation with positivist social science. They examined whether deficiencies extended to a variety of PA scholarly articles ($n = 218$). They found that scholars in PA engaged in mostly conceptual research with very little theory testing, and by traditional positivist social science standards, PA scholarship was weak.

Shifting gears, Gregory Daneke (1990, p. 383) pointed out that introspective analysis was occurring in many other fields. Like PA, "frustration with prevailing positivism" had resulted in "an era of unprecedented epistemological introspection." He drew attention to three features of evaluation across disciplines: concern over "lack of theory development" in empirical research; keen interest in critical theories, which expose the "social construction" of social science; and the development of alternative methodologies. Daneke (1990) also noted that critics in PA were more focused on a "critique of positivism and/or neoclassical economic theory" than an articulation of an alternative theoretical framework. He further suggested rebuilding systems theory because it was capable of incorporating the insights of critical theory and chaos theory (p. 383).

Cleary updated his studies in 1990, noting that the biggest gain was in the percentage of research concluding with a causal statement (26% in 1981 vs.

51% in 1990). In 1992, Cleary produced yet another study finding important improvements in the quality of PA dissertations using criteria of positivist social science.

Subsequent articles (Adams, 1992; Bailey, 1992; Box, 1992) argued that the practitioner's perspective, as well as other modes of knowledge acquisition, must be integrated into a meaningful discussion of PA research methods. Fundamentally altering the formulation of quality, Box (1992) argued that the consensus of weak research quality was "unduly pessimistic," resulting from "inappropriate assumptions about what is acceptable as research in public administration" (p. 63). He argued that the evaluative frame of reference should shift from social science to applied fields (e.g., planning, law, and social work), and drew from Kaplan's *The Conduct of Inquiry* to characterize the diversity of "cognitive styles in scientific writing" (Box, 1992, p. 64). He called for comparative studies and a broadened debate that would take a "more comprehensive look at the quality and usefulness of public administrator research" (Box, 1992, p. 70). Adams (1992) questioned the positivist worldview of an "ahistoric and atemporal field that stresses technical rationality and has limited capacity to address critical questions facing society" (p. 363). Adams recommended deemphasizing "scientific rigor" and placing more attention on history. Similarly, Bailey (1992) directed her attention to the diminished place of practitioner research and expressed concern about the emphasis on quantitative methods. Drawing from Yin (1990, as cited in Yin 2009), she showed how case studies add depth to the field.

In 1994, Adams and White responded to Box's (1992) observations about the need to compare PA research with applied fields, examining dissertation abstracts across six applied disciplines. They argued, "If a large majority of dissertations in PA did not self-consciously intend to contribute to theory and meant only to contribute to practice, why did one third of them appear to have no practical relevance?" (p. 567). They added a new dimension to the critique, noting the overwhelming empiricism of the research as "mindless"— "the elevation of technique over all other considerations" (p. 573). Worse, mindless empiricism had extended to case study and *qualitative* research. They concluded that applied social science research was a "theoretical wasteland." Regardless of theoretical range, conceptual frameworks were absent, and as a result collection of data or analysis of findings often proved pointless.

In 2000, Cleary revisited the dissertation quality question yet again for the last time. He compared dissertation quality across three time periods. The dissertations of 1998 scored dramatically better than those of 1981 and also showed improvement from 1990. They were more likely to have a research purpose (89%), have a rigorous research design (33.9%), and conclude with

a causal statement (86.9%). Theory testing was up a little from 1981 and had fallen since 1990. From the positivist benchmark, PA dissertations continued to be weak on theory testing. However, it should be noted that the first two nonpositivist criteria articulated by McCurdy and Cleary (purpose and design) had a role in improving the quality of the field over the previous two decades.

Raadschelders and Lee (2011) recently conducted a 10-year content analysis of PAR, concluding that research featuring a positivist/empiricist methodology is on the rise, comprising 61% of articles. This should be good news for the evaluators of the past who saw positivist research as a benchmark of quality. But this dominance has relegated the rest to the minority: legal (1.2%), historical (2.7%), biographical (3.2%), descriptive (3.3), normative (4%), and critical review (6.3%; Raadschelders & Lee, 2011). They argued that the typical problems which positivism suffered since inception, but more acutely during the logical positivist phase, persisted into the 21st century by contributing to ignorance of broader philosophical questions of ontology, epistemology, and axiology. As Raadschelders and Lee (2011) noted,

> Perhaps there is less concern about the so called identity crisis than there was 30-40 years ago, as illustrated by the increasing number of empirical studies using quantitative-statistical research methods . . . However, the methods selected are seldom accompanied by statements about the ontological and epistemological assumptions underlying the choice of methods . . . The emphasis on methodology, without reference to ontology and epistemology, is tantamount to placing the cart before the horse. (p. 26)

As the present treatment of the literature of PA suggests, introspection itself has to some extent been preoccupied with positive methodology as a benchmark of quality. Those who support this benchmark will be satisfied that PA has become more rigorous in the positivist sense. However, the frequent call for increased rigor in this methodology is not the only factor in improved quality in recent decades. Of particular importance has been the clarification of a purpose and design for the writing/research process. To neither of these things do positivism hold exclusive claim. Purpose and design, or what we call "the teleology of research," is perhaps the most fundamental aspect of quality.

Conclusion—Positivism Today

Even though LP was aborted shortly after it became popular in American schools of philosophy, the social sciences and PA were much slower at

realizing LP's decline. Nevertheless, by the 1980s, the postmodern assault on positivism reshaped its more overt features, producing a moderated contemporary form. Contemporary positivism remains safe in many fields of social science and in the policy science aspect of administration. In this respect, it maintains a strong but implicit following in the schools of public affairs, primarily through the use of methods, as is evident in the consistent emphasis on the dearth of theory and hypothesis testing in PA scholarship, and in the broader inattention to historical, legal, interpretive, narrative, and critical modes of research.

Occasionally grand claims are made similar to Comte's "law of three stages," Schlick's "turning point in history," or Simon's "language of administrative science." For example, Meier (2007b) recently presented the "essence of the public management literature" in a multivariate equation, which distills a vast body of empirical research into a handful of variables. While many view this as a positive development in the policy sciences, critics will remain unable to suspend disbelief that complex mathematical operations can be performed on subjective management constructs. Still others will remain skeptical about the potential benefits of this approach, being more concerned with the opportunity costs of ignoring other approaches to research.

But contemporary positivists such as Meier often fail to remain isolated within their philosophical boxes. For example, in response to Luton's (2007) "caricature" of his philosophy, Meier (2007a) suggested a cooperative research program in which "interpretivist and explanatory social scientists, along with those espousing a critical epistemology, identify collectively an important research question for the field and then do the hard work of addressing it from various points of view" (p. 792). On this basis, a cooperative effort may be constructed, but has any such program commenced? In another area, Meier (2005) dispelled the "specter" of positivism, asserting that it died in the 1970s—as an approach in PA, it was nothing more than a myth. The "myth" of positivism nevertheless has been worth examining.

The key features of positivism that have been treated in this article, and as they have developed in PA, include three interconnected principles:

i. The belief that PA can be studied in a scientific manner consistent with the *unity of science* thesis, as well as its corollary concepts of physicalism and the hierarchy of sciences, remains an implicit presupposition within much of the field's research.[11]

ii. PA no longer uses the language of the *verification criterion of meaning*, which has been replaced by the language of testability, explanation, and prediction in the classical positivist sense. This has been augmented by Popper's falsifiability.[12] Quality in contemporary

positivist PA research rests primarily in the testing of hypotheses and the establishment of causality through statistical probability, which implies prediction.[13]

iii. PA continues to utilize and develop an *empiricist observation language*. Contemporary positivists in the field prefer this approach rather than narrative, legal, historical, or philosophical explications. Arguably, among these three features of positivism, the use of an *empiricist observation language* remains the strongest.[14]

If adhered to rigidly, these principles can become damaging to the ultimate aims of human inquiry and, in the case of PA, damaging to the service quality of Lasswell's policy orientation. But even Simon's avowed LP (what he later rebranded empiricism) was qualified in such a way as to maintain the humanity of the community. Positivists in the contemporary era no longer actively pursue the overthrow of metaphysics, or the subordination of philosophy as a subclass of logic, or even the philologists' bounding of the proper limits of the word science. Rather, it may be more accurate to say that subjects such as ontology and axiology are simply ignored by contemporary positivists in PA. These branches of philosophy are not attended to because they are not perceived to be within the sphere of relevant concerns of science, the space of which is reserved for the revelation and accumulation of truth. Contemporary positivists concerns are more intimately tied up with distinctions between induction and deduction, or parsimony and comprehensiveness, as well as with developing new quantitative methods of analysis.

Interestingly, much of the force of the logical positivist movement in the early-20th century seems to have sublimated back into some variety of Comte's classical positivism, albeit without Comte's more overt value orientations and philosophy of history. But contemporary positivism remains somewhat of an orphan in public policy and administration. Its lack of vocal proponents makes any kind of fruitful intellectual debates across philosophical traditions mostly impossible. Until contemporary positivists take up positions on epistemological issues, positivism is likely to remain implicit and unexamined (or examined only from the perspective of opposing traditions). Broad philosophical soul searching may either confirm that positivism indeed has a strong following in the schools of public affairs; it may on the other hand reveal the greater influence of some other philosophical traditions such as realism, pragmatism, or phenomenology.

In some ways, the field of PA is today more pluralistic than in the previous century. As a field that is undeniably interdisciplinary and ever problem focused, pluralism will most likely gain strength in the century ahead

(Raadschelders, 2011a). Hopefully this article has made some progress in clarifying positivism's role in the pluralistic panoply of PA's intellectual traditions by situating it within a dynamic philosophical and historical context.

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Notes

1. We use the term "evolved" here because there seems to be some distinction between the intent of its creation and its subsequent direction.
2. The term *logical positivism* (LP) often has imprecise definitions but originates in the thought of the members of the Vienna Circle. Major logical positivist figures such as Moritz Schlick and A. J. Ayer used the term "logical positivism," while others such as Carl G. Hempel replaced the word "positivism" with "empiricism." There are also important parallels between 19th century positivism and empiricism.
3. The Ngram viewer is case sensitive, and frequencies increase by capitalizing. The changes over time and relations between philosophies remain similar. To get a better sense of the overall frequency, searches in Google books (not case sensitive) returned 1.5 million for empiricism, 1.4 for positivism, 1.9 for pragmatism, 2.4 for phenomenology, and 1.4 for postmodernism. Frequencies returned from Web of Science searches are much lower, and are limited to the 20th-21st centuries. Interestingly, searching only the science citation index empiricism returned 886, phenomenology 12,000, pragmatism 536, positivism 200, and postmodernism 168.
4. According to the Vienna Circle manifesto, members of the Vienna Circle included (selected among others) Moritz Schlick, Otto Neurath, Herbert Fiegl, Gustav Bergmann, Rudolph Carnap, Kurt Godel, Victor Kraft, and Hans Hahn. Logical positivism/empiricism, however, had a broader membership, which also included important philosophers such as A. J. Ayer and Carl Hempel (Stadler, 2007).

5. For a discussion on the distinction between coherentism and foundationalism, see Whetsell (in press).

6. It should be noted that the argument we make here about a transition/distinction between LP and logical empiricism (LE) should be taken as tentative, because LP and LE are frequently used interchangeably.

7. The logical empiricist Rudolph Carnap discusses theories of probability based on frequency or logical relation. A "modified principle of indifference," which provides the basis for degrees of certainty in statistical environments, led Carnap to advance the term "degree of confirmation" as the product of an analytical procedure, not an empirical one—though he admits nuance. Thus, he argues that values in a statistical system are both factual and logical: "statements giving values of statistical probability are not purely logical; they are factual statements in the language of science" (Carnap, 1995, pp. 32-34). In this statement, the implications of the *empiricist observation language* are at work.

8. Some moments in history seem to support this hypothesis, for example, neo-conservatism/liberalism's attempts at engineering geo-strategically situated societies around the world. What is a grander example than nation building?

9. In the order of date, see McCurdy and Cleary (1984), White (1986a), White (1986b), Perry and Kraemer (1986), Stallings and Ferris (1988), Houston and Delevan (1990), Hummel (1991), Cleary (1992), Box (1992), Bailey (1992), Adams and White (1994), White, Adams, and Forrester (1996), Felbinger, Holzer, and White (1999), Brewer, Douglas, Facer, and O'Toole (1999), Cleary (2000), Schroeder, O'Leary, Jones, and Poocharoen (2004), Raadschelders and Lee (2011).

10. This percentage was garnered indirectly. White noted that 25% of the authors had published something and about 50% of what was published related to their dissertation topic. Half of 25% is 12.5%.

11. Meier (2005) appeared to argue against the *unity of science*, what he calls "test-tube envy." Meier turns the hierarchy of science "on its head." As he states it: "The hierarchy of sciences, to the extent that there is one, has social sciences at the top with natural sciences below" (p. 655). This is consistent with the unity of science principle of physicalism (see, Neurath 1959).

12. Meier (2005) articulated Popper's falsifiability: "The superiority of the social science approach to public administration, if done correctly is that we build in a way to refute what we say" (p. 656). As was pointed out earlier, Popper is considered a realist and not a logical positivist (Thornton, 2013).

13. Meier (2005) articulated explanation: "we study some phenomenon under condition A, and conclude that B is related to C, with an estimate of uncertainty" (p. 656). To explain C through B is to predict C using knowledge of A and B.

14. Meier's (2007b) "essence of public management" equation is such an example.

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