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Epistemologies and the Formation of Modern Democratic Individuality

Nathalie Bulle

1. Introduction: The Philosophical Premises of Models of Democracy

 The analyses that follow are based on the idea that the development of institutions in any given society is channeled through philosophical theories. These theories determine the way we think about humankind, knowledge and values, relationships between the individual and the collective, etc. Highlighting these philosophical premises allows us to understand not only democratic models that have historically developed, but also the models of humanity that are associated with them.

In this approach, two main theses are supported. The first thesis is that modern individuality has emerged based on the recognition that the faculty of independent thinking — or autonomy of judgment — founds humankind. From this recognition follows the moral necessity that political power be rooted in those who are governed.

The second thesis is freely based on the work of the American epistemologist Filmer Northrop (Meeting). Using analyses made by Northrop as support, we observe that an epistemic duality of sources of human knowledge lies at the heart of some of the major trends of modern epistemology. We contend that this epistemic duality opens a path that is distinct from both the ontological dualism of classical rationalism and the radical empiricisms derived from classical empiricism, though it includes their main teachings. This path invites us to rethink the sources of free thinking in the knowing subject; the epistemic duality that characterizes the major currents of modern epistemology gives real meaning to models of participatory democracy to which schools contribute through their cognitive role.

2. The Human Faculty for Independent Thinking and Modern Individuality

2. 1. A Critique of Pure Theoretical Reason and a Quest for Accessing Certainty

Our analysis begins with the following questions: How has modern democratic individuality emerged historically? What is the point of rupture from the earlier period, and what is most essentially significant about this rupture as far as teaching is concerned? To approach the initial issues underlying the new comprehension of humankind that opened the way for modernity, we will refer to the texts of those great thinkers who were

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the first to participate in its emergence —Francis Bacon, René Descartes, Thomas Hobbes and Jan Amos Comenius among others — and to the works of those who described this emergence while benefiting from its great historical proximity, as did Nicolas Condorcet in his Sketch for a Historical Picture of the Progress of the Human Mind [Esquisse d'un tableau historique des progrès de l'esprit humain].

The first thing we note is that the same idea occupied the thoughts of these philosophers and scientists at the dawn of modernity: they all hoped to define the yardstick by which human knowledge should be measured, and the way it should be built. They combated in this regard the error and superstition that had arisen from vague concepts, faulty premises, and archaic methods that automatically produced errors because they remained confined to a universe of postulations and logical deductions. Scholastic logic had developed a line of thought based on premises, notions, and concepts borrowed from authoritative books, not comparing the proposed theses with any criteria of certainty except for the credit granted to the authors studied. Thus, the major works that marked the emergence of this new era of human thought attacked beliefs and notions that had been accepted without examination. Scholasticism was targeted by the thinkers of this period because it had been unable to found human knowledge. It justified, through the Aristotelian system, a stable, hierarchical, and teleological social order. Moreover, it was able to accommodate religious beliefs and represented the official doctrine of the Church. In short, it led to a confinement of human thought within limited dominant forms of intellectual, political and religious authority, offering no external criteria of truth.

Condorcet designates Bacon, Galileo and Descartes as the three men who most marked the period from which modernity emerged — Bacon because he recommended the renunciation of all beliefs and concepts and a retention of only those ideas with a proven degree of certainty, without being able to offer a clear or acceptable method; Galileo for his discoveries and method, although these were limited to the mathematical and physical sciences; and Descartes for imprinting on minds their own movement to seek the truth.

Bacon explains that in syllogism, everything is based on the value of manipulated notions, and that these notions have no other foundation than the authority of the authors who use them. As a precursor of classical empiricism, his stance is in direct opposition to this position. Rather than taking books as the point of origin, Bacon argued, data drawn from experience should be used. Our only hope for establishing well-founded reasoning, he claimed, lies in “true and proper induction” (109).

The great educator of the 17th century, Comenius, also points out the scholastic tendency to rely on abstract, unproven concepts. In search of a new teaching method, he found in Bacon’s works a primary but incomplete source of inspiration, because, in his opinion, it lacked solid demonstrations. His conclusion was less radical than Bacon’s, and more inclusive. According to Comenius, a profound amendment of Aristotelian philosophy had to be carried out, with every investigation using the three major sources of knowledge: the senses, reason, and the Holy Scriptures.

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The fall of the Aristotelian system due to the discoveries of modern physics, with Galileo’s and Newton's replacement of final causes with mechanic causality, made the shortcomings of the older system stand out even more. In his Dialogue Concerning the Two Chief World Systems, Galileo mocks the geocentric Aristotelian interpretation maintained by the Simplicio character. Under the impact of such attacks, the system of final causes that had formed the basis of the stable, hierarchical representation of society in medieval theories of government started collapsing. Filmer Northrop highlights the substantial links between Aristotle’s conception of nature as a hierarchical system governed by final causes and the medieval world’s philosophical representation of the universe and humankind. In the Aristotelian model, any individual thing or substance could be understood teleologically according to its final state or goal, and it participated via its form in a natural, hierarchical system in which species were included within the larger classes, the genera, so that “the formal and final causes of all individual things fit together organically into a hierarchic unity and pattern” (Northrop, Meeting 276). Human souls, for example, were the form of their material body with no metaphysical gulf. This representation was well reflected in the medieval organization of society and of power in the feudal system, within which the source of sovereignty lay not in the private opinion of the individual, but in the objective, organic, hierarchical principle joining individuals to each other in the community (see Northrop, Meeting 173).

With Galileo and Newton, however, nature became likened to a homogeneous space, and consequently, it could be calculated mathematically. The issue was to discover the laws governing the movement of bodies in that space. From then on, or in connection with these epistemological developments, conceptions of human existence could only be profoundly redefined, as there were now two sources of knowledge that could be distinguished — subjective sensed data on one hand, and public, physical objects in a mathematically defined space on the other hand.

In his Sketch, Condorcet argues that Descartes is the philosopher who first was able to convince all human beings that they possess within themselves the power of knowledge: Descartes had “stimulated men’s minds, and this all the wisdom of his rivals had never done. He commanded men to shake off the yoke of authority, to recognize none save that which was avowed by reason, and he was obeyed, because he won men by his boldness and led them by his enthusiasm. The human mind was not yet free but it knew that it was formed to be so” (Sketch 122). According to Condorcet, with regard to this era that was opening to democratic modernity, each man had learned that nature had not destined him to believe in the word of others, and so each man had discovered his right to employ his own reason to grasp the truth.

2. 2. Human Faculties of Judgment and Democratic Modernity

Modern democratic individuality thus emerged from the recognition of the independent thinking faculties of the human mind, and, in parallel, from the rejection of all intellectual or moral authority, and of any belief imposed on the individual in a dogmatic way. There was no questioning of the idea of truth per se, which explains why neither relativism nor

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subjectivism follows from this recognition. But truth could not be based on any authority or dogma, i.e., on anything that must be accepted without examination.

The recognition of this individual power to know and to judge involves the possibility of inferring human rights “from the single truth ... that man is a sentient being, capable of reasoning and of acquiring moral ideas” (Condorcet, Sketch 128). Such recognition opens up the moral impossibility of dividing humanity between those who govern and those who obey. Therefore, human faculties for independent thinking, or autonomy of judgment, appear historically as the raisons d’être of modern democracy. But this recognition is not just a proposed principle. Independent thinking must be real, or at least achieved; without this, democracy would not be a viable form of government, or it would be nothing more than autocracy in disguise.

In brief, the emergence of modernity appears to be characterized by a rejection of any dogma or belief imposed on individuals on the basis of faith. Negatively, this rejection expresses the profound feeling of a lack of method. Positively, it represents a striving toward truth, a call for certainty. This striving had to be assumed by each individual; otherwise any power over minds would be left to new dogmas and superstitions.

Alexis de Tocqueville notes that the French have generalized and highlighted the philosophical method that consists of submitting every idea to self-examination and that, in a very general way, this method forms part of the essence of democracy. Nevertheless, he puts this method into perspective based on the impossibility of proving to ourselves all the truths we make use of every day, and our inability, if need be, to conduct any thorough examination. Tocqueville also refers to the need for beliefs that are dogmatic, received, and therefore indisputable, so that “the minds of all the citizens should be rallied and held together by certain predominant ideas” (Democracy 493). These reflections reveal the problem, inherent in the foundation of a modern democratic order, of reconciliation between individuals’ independent thinking and collective agreement. Its resolution depends on the knowledge theories involved and is part of a historical development of philosophical theories that the second part of this analysis aims to bring to light.

3. Knowledge Theories and Democracies

3. 1. Towards an Analysis of the Epistemological Premises of Models of Democracy

If human faculties for independent thinking are the basis of modern democratic individuality, knowledge theories developed by the various philosophical systems take on a substantial share of responsibility in the definitions of models of democracy. That is why we propose to continue our analysis of the philosophical premises underlying models of democracy by focusing on the evolution of epistemological ideas.

If every person has faculties of judgment — faculties that underpin the demands of democracy — we still must ascertain what lies behind the sources of truth in every person. Whatever the truth is, the means of accessing it should be cultivated in each

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individual in order to ensure democracy’s survival. Let us keep in mind three possible paths offered by the history of modern ideas: the path of innate ideas, which refer, with Descartes, to a link to transcendence; the path of sensorial experience, which refers to the sensitivity of each individual; and a third path, according to which the theoretical constructs invented during the course of human history become individual tools used in any search for understanding of the world and of truth. What deserves further consideration is the specific character of these theoretical constructs, all of which represent artificial devices that cannot be reduced to empirical data.

On this subject, we will briefly introduce the theory of knowledge presented by the American epistemologist Filmer Northrop (Logic) and its links with advances in modern epistemology. We then will highlight a number of strong relationships that bring together knowledge theories and models of democracy, freely drawing support from the analyses developed by Northrop in his work The Meeting of East and West. Finally, we will deduce from the paths opened by modern epistemology a few important consequences for democratic individuality.

3. 2. Epistemic Duality and Advances in Modern Epistemology

We note from the outset that Northrop's views are consistent with the conceptions of other major epistemologists such as Emile Meyerson, Henry Margenau, Gaston Bachelard, Karl Popper. and more recently, Nancy Cartwright. What links these philosophers is the epistemic duality elaborated in their knowledge theories, which distinguish two irreducible dimensions of thought, one theoretical and the other empirical.

The title of a major work by Emile Meyerson, Identity and Reality, refers to this duality. According to Meyerson, human understanding nourishes a need that the things being manipulated by the mind conserve a stable identity over time. This need must be conciliated with the fact that elements of reality appear to be indefinitely changing. The aim of the mind is not to represent the world directly, but to account for interactions between elements in the world. Therefore, elements manipulated by the mind can remain the same — they are not directly induced by the observation of reality — while their arrangement changes. From this point, with the same formal, postulated elements, it is possible to make quite different sets appear, just as with the same alphabetic letters, to borrow with Meyerson an image from Aristotle, we can write both a tragedy and a comedy. The elements that remain stable over time are theoretical concepts or constructs — concepts “by postulation” in Northrop’s view, as we will see in the next section.

In accordance with Albert Einstein’s views, the duality of the ultimate sources of human knowledge accounts for the fact that humankind gains knowledge of an external, public world only by speculative means (see Northrop, Philosophical Anthropology 62, and Einstein 60). This duality justifies the notion of epistemological rupture put forward by Bachelard, and Popper’s proposal regarding the relative independence of a “third world” that lies at the edge of both the physical-chemical world and the world of subjectivity. This world of productions of the human mind is relatively autonomous and self

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developing. It also ultimately explains “how the laws of physics lie,” according to Cartwright. This duality lies at the very heart of the epistemology of Margenau — who proposes a conceptualization close to that of Northrop — just as, we can note, it also lies at the heart of the psychology of intellectual development provided by the father of the historical-cultural school of developmental psychology, Lev Vygotsky. In Vygotsky’s work, the structured, hierarchical organization of theoretical concept systems accounts for the potentialities of logical reflexive thought, just as in the works of Northrop, Margenau or Meyerson, as we will see, it accounts for the possibility of distinguishing causal reasoning from a mere record of repetitive temporal sequences.

These epistemologies conflict with older essentialist epistemologies which support a model based on a correspondence theory of truth. They also conflict with all the experiential theories of knowledge that are still anchored in classical empiricism. The meaning of theoretical concepts does not refer to anything pertaining to another reality or to anything given by the senses. This was seen by John Dewey, who emphasized the hypothetical status of these concepts as meeting the needs of a structure marked by formal relationships for making deductions possible (cf., for instance, Dewey, Quest, chap. VI). But Dewey did not provide a well-defined dual theory of concepts, more concerned as he was with assembling every concept under a whole functional or operational conception. In order to derive some consequences for modern democratic individuality from a dual conception of the ultimate sources of human knowledge, we turn to Northrop’s works.

3. 3. The Epistemology of Filmer Northrop

Northrop's epistemology is based on the existence of two sets of concepts that differ in nature. The concepts belonging to the first set get their meaning by denotative reference to something directly sensed or immediately experienced. These are concepts gained by intuition or by inspection. Here intuition does not mean a speculative hunch, but the immediate empirical act of apprehension that occurs in direct inspection or pure observation (Northrop, Logic 36). The concepts belonging to the second set — concepts by postulation (scientific concepts or theoretical concepts) — do not refer directly to the world. They are imageless concepts: they derive their meaning from entities and relations that exist by means of assumption rather than as a result of immediate apprehension. In other words, they are an integral part of systems of concepts, and their meaning depends on the other concepts to which they are linked. If the concept of blue, referring to the color blue as it is perceived, belongs, for example, to the first set — the set of concepts by intuition — the color blue as a wavelength belongs to the second set — the set of concepts by postulation. Postulated concepts are not a priori, that is, extant prior to experience and independent from it, like axioms that might lead to our vision of the world; nor are they discovered a posteriori, based on inductive processes essentially born of experience. These are human creations that cannot be reduced to experience and which present, moreover, no value in terms of obligation or categorical necessity. These concepts, which are defined by the relationships of concepts with other concepts, refer to virtual objects of thought; they have no direct concrete reference and, ultimately, are

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independent of any relationship to an observer. They are part of a public space of knowledge that can be objectivized and therefore communicated and accumulated.

Finally, and this is a major point in Northrop's epistemology, scientific theories can only have explanatory and predictive scope if the virtual entities they are handling, based on what are known as postulated concepts, are appropriately linked to the directly observable data denoted by intuitive concepts, knowing that such links do not always exist. The relationships between concepts formed by postulation and concepts formed by intuition or by inspection are said to be “epistemic correlations” because they link entities in different worlds of discourse. Therefore, according to these views, truth is neither unique nor purely relative; it is a question of a good match between theoretical models and empirical observations.

3. 4. Ontological Dualism and the Birth of the Modern Democratic Subject

Modern knowledge theories did not immediately identify these two epistemic components of human knowledge.1 The first error in such theories was their attribution of these components to the properties of different substances, one mental and the other material. Theoretical concepts — and some specific intellectual faculty that their manipulation supposes — were associated with the human mind's link to the divine, while empirical concepts were associated with its relationship with phenomenal reality. But this error is the bearer of a major intuition, that of the irreducibility of the two ultimate sources of knowledge.2 It can therefore be considered that the dualism of substances finds a contemporary form in the duality of epistemic components, theoretical and sensible, that we find in the knowledge process. This dualism, Northrop shows, is of fundamental importance to our modern democracies.

The individual, defined as a mental substance, is basically free and equal to others. Therefore, it is not subject to the laws of the physical, material world. This conception led to freedom and equality becoming axioms that identify democratic individuality. It cannot be inferred from experience alone. Today, it is postulated as a founding principle of our democracies and rests on concepts that are theoretical in nature. These concepts are defined only by relationships between concepts, which allows a meaning that is independent of the variability of particular real-life situations to be conferred on both the idea of equal rights for all individuals in the eyes of the law, and the idea of universal human rights. The meanings extant in the founding proposals of liberal democracies thus refer to intellectual constructs applied to experience, but not directly deduced from it (Northrop, Meeting, chap. XVII).

The role of the dualism of substances, which, in a sense, is played by the duality of epistemic components of knowledge, is, according to Northrop, the foundation upon which our modern democracies are built. This foundation constitutes the early basis not only of continental rationalism, which is developed in the philosophy of Descartes, but also of British empiricism, which is developed in the philosophy of Locke.

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Locke relies, like Descartes, on the idea of a dualism of substances, which not only accounts for human faculties of thought on the fringes of the natural laws that regulate relationships between objects of the physical world, but also introduces intrinsic equality between spiritual substances. This metaphysical condition is reflected by the normative postulates of our modern democracies. The two basic premises of Locke's theory of government and the American Declaration of Independence derive from the dualism of substances: first, that all men are created free and equal, and second, that governments derive their just powers from the consent of the governed.

3. 5. From the Individualism of Classical Epistemology to the Positivist Premises of Modern Epistemology

We know, however, that Descartes and Locke developed knowledge theories that were radically opposed.

Descartes (Méditations) proposed to make progress in the discovery of truth through reasoning — deductive reasoning in the main — based on ideas called innate because they come from our faculty of thought itself, and this faculty, he assumed, comes from our link to God. This common link should therefore have ensured an agreement of minds by opening up access to the truth on the basis of rational inferences. Forms of education that can be traced back to the Cartesian doctrine of knowledge are necessarily centered on intellectual development leading to freedom and truth, and on the agreement of minds, as was the case, we could say, with intellectual education in Plato, whose curriculum is set forth in The Republic (Book VII). Belief in reminiscence in Plato can be compared, as far as human intellectual powers are concerned, to the assumed existence of “innate ideas.”3

More specifically, Descartes (Discours) recognizes three sources of knowledge: sensation, imagination (which is comparable to reflection in Locke), and the soul’s capacity to find within itself ideas that are independent of sensation and reflection.4 These ideas, that is to say innate ideas, account for the existence of a faculty of thought that is capable of imagining and manipulating objects whose meaning cannot be “abstracted” from the data of sensory experience: the theoretical faculty. With Descartes, modern philosophy therefore distinguishes two irreducible sources of knowledge: the theoretical and the sensible. According to Descartes, the ultimate foundation of knowledge is not experience, because no certainty can be founded on that, but reason. Moreover, Descartes is radically skeptical of constituted knowledge. He aims to replace it with a science founded on reason and based on the model offered by mathematics.5 Hence, contrary to Locke, who centers his philosophy of knowledge on empirical sources, ignoring the sui generis nature of theoretical conceptualizations, Descartes centers his philosophy on the rational faculties. But he views culture as a distortion of human nature, and rejects what we today know represents the very source of human theoretical capacities of thought. In this respect, he was mistaken. His individualism paved the way for Locke’s error, which anchors all objects of thought in the individual’s experience, while Locke himself paved the way for sensualist reduction.

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Locke's theory of knowledge denies innatism and bases itself on processes that are essentially individual and subjective, rooting human ideas in sensory experience. This approach separates the mental faculties of the mind, which are associated with the soul, from knowledge content, which is derived from the impact of material objects on the mind and the development of ideas by reflection. For reasons linked to the dualism of substances, certain theoretical teaching programs — mathematics in particular — take on an intrinsic educational value that is associated with their impact in terms of mental discipline (even if Locke does not use this notion).6

In fact, Locke’s hypothesis of an entrenchment of ideas in sensation condemned the dualism of substances to failure, just as it is incompatible with the modern duality of epistemic components of knowledge. This assumption led to radical empiricism, as the epistemologies of George Berkeley and David Hume (Inquiry) have each shown in their own way. The Lockean theory of ideas does not hold, and as such offers an incomplete interpretation of the philosophical consequences of Galileo’s and Newton’s physics. As Northrop (Meeting 113-114) notes, this inadequacy gave rise to the unsuccessful attempts of philosophical reconstruction by Berkeley, Hume, Kant, Fichte, Hegel, Marx and Dewey.

Berkeley notes that the being of things is to be perceived or known, and so the idea of material substance is useless: there can be no unthinking substance or substratum of ideas perceived by sense. There is no material substance but simply combinations of sensible qualities existing only for perceiving substances. Matter is a mere appearance for the mind. This point of view can also be turned around, as it is by Hume. For Hume, nothing exists apart from sense data and their associations, and so the mind is an association of sensory information.7 Hence the substitution of association psychology for the psychology of faculties, and the development of positivism in philosophy, which is based on the idea that nothing exists beyond the immediately apprehended (Northrop, Meeting 116).

The importance of the positivist premises of classical empiricism for modern theories of knowledge can be highlighted by a number of reflections by Ernst Cassirer concerning the Age of Enlightenment. The Enlightenment, he tells us, was structured around two intellectual trends: the classical Cartesian form of analysis and a new philosophical synthesis, according to which the criterion of science is entirely contained within the method itself. The period thus made possible the transition from substantialist thinking to relational thinking, which establishes truth’s place as being not in the hidden essence of things, but in relationships with those things. Whereas for the major metaphysical systems of the 17th century, reason was the region of “eternal truths” — truths which are common to both the human mind and the divine spirit — in the 18th century truth was defined much less as a possession and more as a mode of acquisition. But the exclusion of all transcendent mediation in understanding the relationships between thought and its objects led the empiricist thinkers of the 18th century to neglect any other possible form of mediation8 and to hold human physiology as the starting point for knowledge and also as the key to knowledge of the natural world.

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As Popper (184) explains, by relying on sensorial experience, the traditional epistemologies of Locke, Berkeley, Hume, and even Russell, along with a substantial part of modern and contemporary epistemology, has systematically studied knowledge or thought through the involvement of an observer facing reality. This type of epistemology finds itself to be missing the point, because while aiming to study scientific knowledge — which is part of the third world of theories, problems and objective arguments — the epistemologists were in fact studying something else.

A theory of knowledge rooted in Lockean empiricism was therefore elaborated. It asserted that individuals are born with no innate ideas or dispositions. These individuals, born free of any predisposition, could be thought of as shaped by their environment. This idea found scientific justification in the biological model of evolution. From this follows a specific conception of humanity that anchors the formation of human reason in concrete experience.9

3. 6. Rationalist Versus Empiricist Individualisms and Education

Epistemologies derived from classical empiricism thus offer conceptions of knowledge and of the good that are rooted in individual experience. Following almost directly from sensualist empiricism is the concept of the immanence of moral values. Hobbes, as a forerunner to this concern, likened human life to a race in which each person always has to be ahead of his or her competitors from the moment when no objective conception of the good and no absolute set of rules is supposed to regulate it. The “market” that is fed by interpersonal comparisons represents the natural driving force behind the justification of values. Following from the subjectivism of these epistemological premises is the need for social forms that seek an agreement of minds through the imposition of an external norm, that is, through conformist pressures, a dictatorial regime, or some other means.

Nevertheless, the social and political consequences of Locke's dualist philosophy differ from those of his empiricist successors. In Locke's theory, the mind is substantially separated from the body, but ideas ultimately refer to sensory information. In other words, relationships between individuals concern their bodies and have no connection with any principle or relationship derived from the nature of mental substances. Hence, we have a democratic theory of social organization as a lesser evil, based essentially on the preservation of private property and the consent of the majority as determinants of right and good (Northrop, Meeting 95).

Among Locke's successors in Great Britain, the abandonment of the dualism of substances allowed the justification of a positive conception of government and of criteria for the good. As nothing exists outside of sensory information, the good is relative to the well-being of the individual. It is identified with pleasure, or the amount of pleasure, by Jeremy Bentham, and is extended to the possibilities of human perfection by John Stuart Mill.10 Because he identified individuals with their metaphysical being, Locke had placed emphasis on the equality of all individuals. He had no other criterion of the good for the individual than the freedom of the mental substance, and no criterion of good for the state but the “consent” of a majority. Because the orientations of the majority needed

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to be under control, Locke’s conceptions tended to produce a democratic culture in which conformity and similarity between people were regarded as a good thing. But, Northrop explains, because Mill equated individuals with their sensitive being, identifying “the personal with the private, immediately sensed experiences and individual preferences” (Meeting 123), he located the good in the quantity of pleasure experienced by the individual, which could then be associated positively with a criterion of the good for the state. Therefore, Mill could place emphasis on how unique each person is, viewing individual differences as a good thing. This tended to produce a democratic culture in which singularity and the greatest amount of pleasurable content are the determinants of the good (Northrop, Meeting 122-123).

We can now outline the major axes that underpin modern models of democracy and the pedagogical ideas associated with them. According to our first thesis, modern democracies are morally justified by the recognition that human faculties for independent thought lie at the foundation of humanity, and thus must invest in the development of these faculties. From there, the question of sources of human knowledge that oppose rationalist philosophies and classical empiricist philosophies can account for two major and almost antithetical educational trends. Both these trends tend to confine the knowledge process to a single space that is accessed subjectively, one of which is theoretical, and the other of which is empirical. On the one hand, priority is given to access to the truth via knowledge that is best placed for mental discipline and reasoning. On the other hand, priority is given to education for practical life. On a moral level, the differences are just as pronounced. On the one hand, both the axiological development of individuals and the agreement of minds are ensured by the exercise of reason as based in common rational intuitions. On the other hand, taking into account the relativism that emerged from sensualist premises, axiological development and agreement of minds must be fostered by an educational program that — beyond individual singularities — specifically aims to develop shared values and practices.11

3. 7. Towards a Third Direction: The Kantian Solution and Its Limits

We have seen that, in order to develop, modern physics needed a space with virtual constructs that do not directly refer to the world of experience. The inadequate nature of classical empiricist epistemology in this respect was approached by Immanuel Kant after he awoke from his “dogmatic slumber” (Prolegomena 5) the day he read Hume. Purely inductive judgments proved unfit for establishing necessary connections between phenomena. Kant therefore committed himself to developing a theory of knowledge that was meant to account for the objectivity of human knowledge. He therefore attempted to synthesize the results of the British empiricists and those of the continental rationalists, admitting both the sensory foundations of knowledge and the more formal, rational and systematic type of knowledge found in mathematics and mathematical physics. In such a theory, the notion of causality would not be subjective and would not simply express a relationship of statistical co-occurrence, but would present a necessary connection between two systemic states. There was no other alternative, explains Northrop (Meeting 196), but to conclude that our knowledge, derived from both common sense and scientific objects, is composed of two parts, one empirically given through the senses, as Hume

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states, and the other given theoretically, on the basis of postulated, unperceived elements. This is Kant's “great insight” (Northrop, Meeting 194). Kant states that it is because each one of us, by observing and knowing ourselves and the world, brings non-sensory meaning to sensory information, that beliefs accepted by common sense and theories verified by mathematical physics experiments are possible. But Kant saw this theoretical component of knowledge as categorical and necessary rather than, as is the case, simply hypothetical and confirmed indirectly by deductive consequences (Northrop, Meeting 194). In this regard, we know that the Kantian solution invokes two kinds of a priori categories of knowledge; the first, called “forms of sensibility” (Kant, Critique 121; see also Janiak), involves space and time; the second, called “categories [or] concepts of the understanding” (Kant, Critique 121; see also Thomasson), involves concepts of substance, relation, causality, etc.

These a priori and regulative tools of human thought are conceived by Kant as universal and necessary; they are the same for everybody. Given their a priori status, such uniformity is required; otherwise we would not all know the same public world. We will see, continuing with Northrop’s analysis, that, as a consequence, Kantian democratic individuality divorces itself from theoretical reason, and involves the concrete, individual moral agent. We should note, though, that with Kant we move on to a third major conception of democratic individuality. According to Descartes, and to a part of ancient philosophy that is derived from Plato, people have the foundations of what is true and good within themselves, and can develop these foundations through intellectual education and reflection. It is this prescience which, in fact, legitimates the Socratic method of bringing forth the truth from within, or maïeutics. But what is true and what is good are given a priori as absolutes that can be accessed by individuals, as long as these people are released from the illusions of the common world by adequate intellectual training. Through their power of knowing, individuals are therefore rendered active beings, but as discoverers rather than as inventors. According to Locke, and then Hume, individuals, as induction machines on the basis of their own sensory experiences, are also discoverers rather than inventors. They develop a kind of activity, but this activity is mechanical, the fruit of the accumulation of information received passively during life experiences and linked together by comparison and the association of ideas.

In the Kantian approach, however, individuals are no longer seen as passive receivers, because they apprehend information from experience with a priori tools of thinking. Kant gives meaning to the notion of objective knowledge within the limits of human faculties for thought, and this relative objectivity creates a public space of knowledge. Thanks to this public space, knowledge can be objectivized and accumulated. The human mind is, in a genuinely true human sense, creative; the sources of objective knowledge are in the knower rather than in the object known. But this creativity is limited to these general conditions of thought and do not refer to individual qualities. A priori forms of sensibility and the categories of understanding which represent the human contribution to the apprehension of information from experience are purely formal and functional, and they are the same for everyone. The horizon of human objectivity they open up leaves no room for individuality on the part of the knowing subject: Nature and knower are both governed by necessity. Besides, there is only one knowing subject, the

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transcendental ego, a universal identity common to singular persons. Northrop (Meeting 200-219) explains that it is only through his moral philosophy that Kant can obtain meaning for the human self. The lack of freedom of the knowing subject led Kant to dissociate theoretical reason and practical reason. It is therefore to the field of practical reason, morals, and religion, each thought of as independent from theoretical reason, that Kant has confined human freedom.

Kantian democratic individuality divorces from theoretical reason, and involves the concrete, individual moral agent. But the undertaking does not lead very far. This is because, in order to account for the agreement of minds regarding moral or social life, Kant turns to moral law. But a morality that implies a free act can only be reconciled with a morality defined by the necessity of the law by identifying, as Kant and his followers did, positive freedom with obedience to the necessity of moral law.

In Fichte (Vocation), the freedom is made more radical, as it is rooted in pure, unconditional will, and the moral centers itself in the will itself, the “true final end” of the individual being obedience to the “law of conscience” (136). This fusion of free will and moral necessity sheds light on the apparent paradox of Fichtean education. The “new education,” according to Fichte (“Second Address” and “Third Address,” Addresses 1951), combines the principles of pleasure and freedom — which place it on the side of socalled modern educational trends — with a highly standardizing finality: “you must fashion [the student], and fashion him in such a way that he simply cannot will otherwise than you wish him to will” (21).

These developments in German philosophy, placing all the weight of human freedom on the will as primary, found the agreement of minds within necessity itself. They opened up to the positioning of the foundation of the good within historical development, with freedom and determinism tending to come together. Hegelian philosophy brought the concept of development to the forefront and led, even before evolutionary doctrines, to thinking of everything in terms of temporal evolutionary processes. Northrop stresses that Hegel did not conceive of a set of two types of concepts of a differing nature, theoretical and empirical, epistemically correlated in the knowledge process, but only of one concept, “the concrete universal,” mixing two distinct worlds of discourse (Logic 259). He suggests that the development of philosophical thought through Fichte, Hegel and Marx, by ignoring the creative duality of theoretical reason and experience, may have sowed the seeds of the totalitarian ideologies of the 20th century.

3. 8. Theoretical Reason Reconciling Human Creativity with Objectivity

Kant thought that the basic structures of the knowing thought were posed a priori as the necessary conditions of human knowledge. This belief was developed in psychology by Piaget in particular, who tried to show that general “logico-mathematical structures” (305 ff.) were developed during childhood and exercised an a priori logical role in thought. But, as Vygotsky stressed in Thought and Language, our logical faculties depend on the conceptual structures we master in a specific domain, so we cannot dissociate the structure of thought from its content.12

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The problems caused by the Kantian solution’s imposing of purely formal and necessary theoretical reason have been overcome by modern epistemology. The epistemic duality of the modern knowledge theories mentioned previously offers a simple response to the problem of causality, which Kant thought he had resolved with an a priori category of understanding. This response allows us to understand the shortcoming of the Kantian solution when separating the form of thought from its content. Let us look into this a little further.

Margenau (esp. chap. 19) and Meyerson (34-36) evoke the distinction between partial causes and total cause. The slow watch appears to be the cause of missing the train. But in reality, the reasoning goes as follows: if the watch had not been slow, the train would not have been missed. Through such reasoning we move forward along the path of explanation, but we do not reach the entire or generative cause, which involves the totality of antecedents and, according to Meyerson, the identity over time of the elements in play. Besides, the search for a law, although it contributes to the explanation, does not fully satisfy the demands of causality. The solution to the problem of explanation, Margenau contends, lies in the creation of closed theoretical systems. These systems alone make it possible to offer a comprehensive theoretical model of the postulated antecedents; and, as we have seen, the specific composition of these antecedents makes it possible to account for different phenomena — not what things in nature “are,” but the way in which they interact with one another. Therefore, in order to be applied and to have genuine explanatory power, the principle of causality requires systems that are completely closed and finished. Such systems do not exist in nature. The systems upon which logical analysis can be developed are intellectual constructions — i.e., theoretical models. The systems constructed from theoretical concepts allow the simulation of causal mechanisms that aim to account for observable phenomena, whereas, as Hume noted, thought that refers directly to the empirical world can only establish relationships of concomitance between empirical facts. Causality is not a pure “a priori category” of understanding. It is made possible by a constructed theoretical space that maintains indirect relationships with the real world; theoretical concepts thus are not mere contents of thought but underlie its logical inferences. We, therefore, cannot separate the structure and the contents of thought, but must distinguish its theoretical and empirical dimensions, with no metaphysical precedence, so that the theoretical factors are hypothetical, rather than necessary.

4. Epistemic Duality and Democratic Individuality

4. 1. The Social Origin of the Theoretical Dimension of Thought

The two major classical approaches to true knowledge tend to confine knowledge in one single — theoretical or empirical — space. Since Kant, a third perspective has emerged that views knowledge as the bringing into relation, by the knowing subject, of two irreducible types of components — the theoretical and the sensible. But Kant assumed that the theoretical components at the root of the relative objectivity of human knowledge

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are essentially necessary and a priori, and a formal limit on the thinking of all human beings.

Note also the solution offered by Pragmatism, which, according to James, represents a method of renewing the old empiricist attitude in a “more radical and less objectionable form” (51). Pragmatism is characterized negatively by its rejection of static objects of thought — abstraction, verbal solutions, fixed principles, and closed systems — and positively by its call for “concreteness and adequacy,” “facts,” “action,” and “power” (James 51). That is why concepts in it appear to be meaningless verbalisms unless they have a functional or active role — i.e., that of being apprehended through the activity that is supposed to constitute them (cf. Dewey, “How Do Concepts Arise”; Quest). With philosophical pragmatism, and in conflict on this point with classical empiricism, knowing subjects are no longer passive receivers taking in impressions from outside and digesting them. They only create their knowledge by their own activity. They place themselves, as knowing subjects, ahead of experience in order to apprehend it and adjust to it. Objectivity and creativity are then part and parcel of the same process and are evaluated by what works. Thought and experience are inextricably linked in such a way that the concepts get meaning through their operational function. Following these views, instruction should be “a continuous reconstruction, moving from the child’s present experience out into that represented by the organized bodies of truth that we call studies” (Dewey, Child 11). Access to concepts elaborated by modern science demands, for instance, the reconstruction, through education, of the types of experience that led humankind to contemporary forms of knowledge.13

What classical empiricism and a great part of modern epistemology ignored, by involving, as noticed by Popper, only an observer facing reality, is the new path of human development opened by the very particular capacities of the human mind. These capacities have allowed humankind to develop cognitive thinking tools and to build a public space for knowledge and exchange.14 Humankind thus appears to have emerged from the formation of social relationships and socially constituted tools of thought. The correlative question of communication allows us to go beyond the epistemological problematic that essentially brings subject and object into confrontation. Communication is dotted with concepts that do not generally refer to the immediately perceived and experienced world, but whose meaning depends on the relationships they maintain with one another. Science takes this logic further by creating theoretical systems with links to reality that are essentially indirect.

Human knowledge develops by bringing conceptual structures into contact with experience. In this respect, it represents a form of induction involving socially constituted cognitive tools, such as, for instance, language, the numerical system, conceptual and symbolic systems, etc. Rationalist individualisms and classical empiricisms remain unaware of this specific social dimension of the human capacities for knowledge, and the resulting epistemic duality was not understood by either post-Kantian German monisms or philosophies anchored in evolutionism.

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4. 2. Epistemic Duality and Democratic Individuality

Acknowledging the genuine duality of the epistemic components of knowledge may help us to rethink the foundations of modern democratic individuality.

First, the theoretical and experiential duality of the epistemic sources of knowledge reveals a fundamentally active and creative knowing subject. The subject’s theoretical knowledge instigates actions by individuals upon their own mind (Vygotsky, Mind 39). In other words, the mind is a tool for thinking, that is, for manipulating objects of thought, and through the logical inferences it allows, it is a dispenser of meaning.

Secondly, we no longer have the conception, as derived from the Lockean mental substance, of a person as being independent from and having nothing in common with all other persons and things. Especially, the intrinsic equality between members of the political community is a basic postulate of our modern democracies which moves from the metaphysical plane to the theoretic plane. The theoretical dimension of thought underpins the participation of the members of society within the public space and is epistemically linked with the experienced dimension of their own life. Human individualities are thus no longer unconnected; the relationships between individuals are secured by collectively constructed and validated social and institutional principles.

Finally, this epistemic duality secures the compatibility of the knowing subject’s freedom with collective agreement. It refers problems of truth and the good to the links between postulated and referential forms of knowledge, so that they appear neither as absolute, nor as essentially relative to the subjective world of experience. They can be the object of rational reflection involving the public objectivity of theoretical constructs as well as the subjectivity and diversity of private experience. According to Northrop (Meeting 470), this reconciliation of theoretical with practical reason prevents us from making the same culturalist error as did the German Hegelian Idealists, the Russian Communists, and to a lesser degree the American Pragmatists. All of them identify the good of society with its present or future “is,” based on either a historical or a functional conception of social and historical evolution.15

Our conclusions move away somewhat from those of Northrop here. The appropriateness of normative beliefs is not only the result of their being tempered by scientific reason, as Northrop thinks — that is, by the moral use of our positive knowledge of the natural and human world. Northrop appears to underestimate the sui generis dimension of human morals. We would rather suggest that like science, but not only on the basis of science, morals bring into confrontation postulated meanings and experiential ones.16

4. 3. The Cognitive Role of Formal Education

The epistemic duality of knowledge sources leads to important consequences for formal education. The development of the theoretical dimension of thought is the basic function of school (see Vygotsky, Thought and Language). Knowledge can only serve the

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individual and be developed if the latter appropriates the conceptual structures it is made of. These intellectual constructs draw their meaning from the relationships they maintain between themselves, so they can, for the most part, be objectivized and therefore passed on. Moreover, it is necessary that the teacher highlight their particular relationships in each field of study, paying attention to the structure of knowledge.17 These are tools for thinking, and as such, they do not develop any mechanical link with thought. Therefore, passing them on is not only possible, but is also not, in itself, dogmatic.

From this point, all the confusion surrounding quarrels about teaching that have been recurrent since the beginning of the 20th century, opposing individuals and knowledge, can be reabsorbed fairly simply if we understand that it is neither the importance given to knowledge nor the importance accorded to the individual that is at stake. Indeed, that which implicitly divides the points of view and standpoints is linked to the foundations of knowledge. When we assume that our concepts take on meaning in the course of concrete experience and not as abstract, mediating tools of thought, we in fact deny epistemic duality. By denying it — as Dewey (Child 11) did by unifying theoretical and empirical concepts under a functional conception centered on operational meanings (see Dewey, Quest; Logic) — we undermine the specific role of theoretical constructs in individual understanding and public participation.

On the contrary, if we accept that the specific capacities of human thought lie in the development of mediating tools for thinking and the linking up of these cognitive tools with elements drawn from experience, then epistemological duality is fully recognized and the conflict of knowledge versus the individual no longer stands. Instead of relying on the individual’s experience as linked to practical activity, the learning of complex forms of knowledge should rely on their intellectual reconstruction, knowledge being neither a content to learn nor a tool to act with, but a dynamic tool supporting understanding. Given the nature of theoretical concepts, such an intellectual reconstruction needs to rely on a progressive, reflective and structured development. 5. Conclusion: Epistemic Duality and Participatory Democracy

We have maintained that modern democratic individuality emerged from the recognition of human faculties of independent thinking and the correlative rejection of any intellectual or moral authority imposed on individuals. On these foundations, the epistemological conceptions that define humankind’s relationship to the truth shed light on the models of democracy that have developed historically. Northrop’s insights reveal the shortcomings of classical rationalist and empiricist epistemologies, as well as those of the Kantian solution and the false restoration of human freedom within German idealisms and evolutionist (historical or biological) types of thought. Neither theoretical reason alone, nor experience alone, nor any primacy of one over the other, could define the individual’s link to the idea of truth or account for human freedom.

The theoretical dimension of knowledge, which Kant reintroduced in a minimalist way, appears here in all its creative richness as linked to the social dimension of human existence. It appears to be the fruit of the human use of artificial signs for thinking and

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the correlative development of a space of mediation that supports reflective thought and communication. Human cognitive constructs that individuals appropriate, especially through formal education, are the instruments by which they develop their independence of thought and exchange the ideas that can be objectivized within a public space for debate. The social construction of theoretical reason postulates (scientific, ethical, or moral) that are indirectly controlled by experience underpins a rational, creative evolution of positive and normative beliefs. Thus, this duality underpins collaborative reflection regarding the purpose of joint action and appears to be the conception of knowledge most suitable for founding the basis of agreement between members of a society on types of participatory democracy.

Political and social participation assume that education might allow the progressive construction by individuals of conceptual systems conceived of as symbolic mediatory tools for reflective thinking. This must be done by progressively shedding light on the links between theoretical concepts, on one hand, and their (indirect) links to experience on the other. From this perspective, education should not focus either on knowledge or on competencies as such that do not necessarily involve reflective thinking and, therefore, intellectual contribution. Education should aim, firstly and on these bases, at fostering understanding. Other consequences for education of the dual conception of knowledge sources that cannot be developed here include the development of human sensibility, through literary and artistic expression in particular, and the recognition that the diversity of personalities and experiences represents an asset for democracy.

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Notes

 1 Northrop calls them the “theoretic component,” or the component “designated by verified scientific theory” (Logic 199), and the “aesthetic component,” or “the immediately apprehended factor in knowledge and reality” (Logic 377).

 2 Nevertheless, we note, truth belongs to the space of intelligible Forms — in Plato, for instance.

 3 Plato’s curriculum, designed for a would-be philosopher-king, unites the studies of arithmetic, geometry, astronomy and music (see The Republic, Book VII). It aims at preparing the student to engage in dialectic, considered as the science of intelligible Forms and thus as a method of searching for truth, which in turn opens up access to knowledge of the Good.

 4 Locke (Essay II, ch.1, § 2-5) distinguishes essentially two original sources of human knowledge: the objects of sensation — that is to say, external material things — and the objects of reflection, which he identifies as the operations of our own mind concerning the impressions rooted in sensorial experience.

 5 Mathematics is here understood as a theoretical science; in the Discours de la méthode Descartes criticizes the teaching he knew, which was only applied to the resolution of practical problems posed by the mechanical arts.

 6 Locke thought that “the Souls of Men” do not bring into the world with them any ideas, but rather “inherent Faculties” (Essay I, ch. 1, § 2: 49) that could be strengthened by education. Locke especially mentioned mathematics as “a way to settle in the mind the habit of reasoning closely and in train” (“Conduct” 198). See also Kolesnik, esp. ch. V. 7 Consequently, Hume (Treatise I, pt. 3, sect. 9: 80-81), we note, considers that the opinions and notions transmitted by education are transformed into beliefs by habits of the mind; education appears then as mere indoctrination, while Hume’s idea of truth involves a “harmony between the course of nature and the succession of our ideas” (Inquiry V, ch. II, § 44: 54).

 8 This was not the case, however, with Condillac, who understood the crucial role of the mediation of signs in human thought, and with the French intellectuals grouped under the banner “les idéologues,” who followed Condillac’s main ideas.

 9 The impact of these developments on dominant educational models is studied in Bulle.

 10 See in Donatelli (“Mill’s Perfectionism”) how Mill links his perfectionism to the utilitarian doctrine by considering the issue of inner experience.

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 11 The tension between freedom and control in Mill's thought is analyzed, for instance, in Carbone.

 12 We observe that children’s and adults’ reasoning capacities vary according to whether they have acquired adequate conceptual structures in the areas of knowledge involved. Since every concept is in some way linked to others, the total body of concepts acquired during a lifetime influences the acquisition and use of other concepts, and this also explains why most children are unable to engage in general abstract reasoning before the age of eleven or twelve (Novak 122).

 13 Cf. on this subject Alix. This article is an expanded version in French of “The Continuity of Experience Principle: a Deweyan Interpretation of the Recapitulation Theory,” a paper presented at the 2013 Meeting of the Society for the Philosophical Study of Education, Chicago.

 14 On this subject, see for instance Corballis for an evolutionary overview of the human mind’s development.

 15 In the case of pragmatism, Northrop, as well as Max Horkheimer (chap. 1), emphasizes here the impossibility of having the instrumental conception of theoretical reason doubt a society’s basic principles: a situation only becomes problematic in a predefined cultural setting that is not called into question.

 16 For instance, Northrop (Complexity) maintains that “ethical norms are empirically testable and therefore cognitive … through their epistemological, and other philosophical, antecedents with respect to nature” (203).

 17 This is a consequence deduced by Jan Derry from Robert Brandom's philosophy, which is consistent with the theory of concepts upheld here.

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