A History of Philosophy
74 Bertrand Russell -- Logical Atomism
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What I'd like to do today is to pick up the threads from where we were a week ago, last Monday, and to ask in this context that you add that assignment to your reading for this week, which says something about an additional assignment. This is it. We're going to be dealing next time, perhaps the time after, with realism in Britain and America in the early 20th century.

And I'd like you to read about that either in Culberston, Volume 8, Chapter 17, you know Culberston's history of philosophy, or in the Encyclopedia of Philosophy, the article on realism. And once you've got that, then we'll come back to where we were on Monday. Namely this, that 19th-century empiricism, represented in your readings and in my comments by the Frenchman Auguste de Comte, the British John Stuart Mill, and the German, or is he Austrian, Ernst Mach.

19th-century empiricism can be characterized in these three ways. First of all, the development of the hypothetico-deductive method in science. This is the way in which enlightenment objectivity in empiricism begins to show itself.

The problem with enlightenment foundationalism was, of course, getting firm enough premises. Either Descartes' intuitive first principles, or empirical generalizations like John Locke, Thomas Hobbes, and others. Now, what happens in the thinking of the 19th century and these people is that the empirical generalization, while it cannot be inductively proven, is taken to be a hypothesis.

And really, from an empirical standpoint, that's what it is. If we have a sample of only half of the class, then it's hypothetical that the whole class has the same characteristics as the half we have a sample of. So you have a hypothesis, then, an empirical generalization that functions as a hypothesis.

Sometimes it's not even a hypothesis, which has the degree of confirmation that would be available with empirical data. Sometimes it's simply a hypothesis that we have no direct confirmation of. And is only confirmed indirectly by what we deduce from the hypothesis.

But the same pattern is there. Just as in the Enlightenment it was premise, deductive inferences to conclusion, the whole structure of foundationalism as initiated by Descartes, and just as John Locke wanted to do that with what he called demonstrative knowledge, from first principles, definitions, whatever, deducing, that sort of procedure, if you like, the mathematical method of deduction from premises, that carries over into science as the hypothetical deductive method. And you can see

that, for instance, in John Stuart Mill, when he talks about the principle of induction, which enables you to generalize in terms of the uniformity of nature.

The uniformity of nature is the hypothesis, the grand, greatest empirical generalization of all. And so you need that as a premise, the hypothetical deductive method. Now that method is extended by Comte into what became sociology, by Mill into political science and ethics.

Extended, that is to say, into the study of humankind, human behavior, human society, social change, and so on. So you have this extension of the methods of natural science into the social sciences, as we call them. And that gives rise to what in Auguste Comte is called the unity of science, and in the 20th century is known as the unity of science movement.

Now I was commenting just now about what Evans said on trulch. You see, trulch would be part of that unity of science movement. He wants history to be amenable to the methods of the natural sciences, including causal explanations.

He wants the scientific empiricism of the natural sciences to operate in the understanding of history. So this unity of science movement, John Dewey was very influential in that in the 20th century. In fact, his book on the theory of valuation, in which he develops most articulately his instrumentalism, was in a series of monographs called the International Encyclopedia of the Unified Sciences.

Get that? The International Encyclopedia of the Unified Sciences. A series of monographs. So that extinction of the human sciences then produced Comte, Mills, utilitarianism, so on and so forth.

Now, the further thing, however, is that any kind of empiricism begins to have difficulty with metaphysics, as we well know from our friend David Hill. And so it's not surprising that this 19th-century empiricism develops a phenomenalist, not phenomenological, keep those two separate, develops a phenomenalist position. And that's obvious in Comte, where he has those three stages in the evolution of any science, the first stage being religious, the second stage metaphysical, and the third being science.

And so empirical science has outgrown the need for metaphysical speculation. And likewise in Mill, where matter is simply described, defined in phenomenalist terms as the further possibility of sensations. And the mind is the permanent possibility of reflections.

You see, purely empirical definitions, phenomenalist definitions. Nothing about what the mind is in itself, or matter is in itself. So there's some phenomenalist anti-metaphysical thing.

And Mark, likewise, though he's a physicist and therefore his emphasis is more on the first two of these. Now, this is what we were talking about last Monday. If you've not already done so, do read those selections from Gardner assigned for last week from Comte, Mill, and Mark.

You'll find Comte and Mill pretty straightforward to read. Mark also. But Comte and Mill are the most important of the two.

So do get acquainted with them. And I'm not going to spend further time on them, partly because there's only so much time, but partly as well because they're so readily intelligible. You've learned how to read for yourself by this time in the semester.

You know, we don't have to expound step by step anymore, like it may have been necessary. ...is that these three characteristics of 19th century empiricism are true also of Bertrand Russell. You'll see.

And in what comes out of Bertrand Russell, namely the work of the early Wittgenstein, logical positivism, and certain types of analytic philosophy after the logical positivism of Ayer. So you're going to be reading Ayer now as the source material. In reading Ayer, keep these three things in mind.

That's the key to understanding what he's doing and the whole positivist movement. This is the subject matter for the seminar that's coming up in B Quad in the fall. What's it called? Recent analytic philosophy? Something of that sort.

Modern analytic philosophy. Yeah, starting with Russell. And then, as you look at some of the people in our chapter in Stumpf, Carnap, and Quine.

The three biggies in the development of 20th-century analytic philosophy. Well, in addition to Wittgenstein. Okay? So this is tremendously important stuff in shaping the positivist movement, in shaping the direction of philosophy of science until mid-century, the 50s, and in shaping the development of what has perhaps been the most influential philosophical movement in the West in the 20th century, scientific naturalism.

Okay? A naturalistic philosophy oriented to the methodology and findings of natural science. These are the assumptions underlying it. Tremendously important.

And if you want to understand that, you have to understand those 19th-century guys. You have to understand Bertie Russell and so forth. Incidentally, it may seem a jump from John Stuart Mill to Bertrand Russell, who died just what, 20 years ago? Maybe less than that.

Until you read, as you might someday, that John Stuart Mill was Russell's godfather. I'm not quite sure what godfather means for those of such little religious persuasion, but at least there was a formal relationship, if not a religious one, in that sense. Okay.

So, their lives at least overlapped a wee bit for that to be possible. ...is, I think, of lasting importance for his logical atomism. That's the thing that Stumpf emphasizes, and rightly so.

Now, he did a lot more besides. His initial interest was in mathematics and logic. He started out as a mathematician.

Co-operated with Whitehead when they were both at Cambridge. Co-operated with Whitehead in writing Principia Mathematica. Affectionately known as PM.

That PM means three different things in Britain. Afternoon, Prime Minister, and Principia Mathematica. Okay.

Now, for Russell, the PM was really the launching of his major influence in Korea. In it, he and Whitehead showed that mathematics is essentially the same as logic in that they are both formal logical systems. Now, what we mean by a formal logical system is simply a deductive system.

A system that has the form of a deductive system. Okay. Like we're familiar with in Euclidean geometry.

Where from the initial axioms you deduce the theorems, and from the conclusions of various theorems you deduce further theorems, and so on and so forth. The idea is that mathematics, arithmetic, and geometry can all be formalized as deductive systems. And what they developed was symbolism.

Algebraic symbolism for dealing with other subject matter in a formal fashion. So, symbolic logic wasn't the first attempt at a symbolic logic. I think Leibniz may have been the first attempt, but this was the thing that really launched symbolic logic in English-speaking philosophy. He also wrote an introduction to mathematical philosophy for those of you who are math majors and interested in math.

The foundations of math. He wrote a work on that while he was in prison during World War I as a conscientious objector. That's what they did to COs back then.

But his major works were in epistemology. Beginning with a little popular work called Problems of Philosophy that was published in, I think it was, 1910. On through works on our knowledge of the external world.

Works dealing with the mind, with matter. Until in the 40s, the late 40s, I think it was 47, 48, his last systematic work in epistemology called Human Knowledge at Scope and Limits. And I'll refer to that and some aspects of that later on.

But running through all of his work in epistemology is this ideal developed in Principia Mathematica of the formal system. The deductive system. And in a little essay of his called Logic as the Essence of Philosophy.

He spells that out. Logic as the Essence of Philosophy. He spells it out as well in a longer essay entitled Logical Atomism.

Which has given this name to his method and to his philosophy. Now, what is Logical Atomism? Well, it's the thesis that all of our thoughts, beliefs, knowledge, all of our discourse on any subject whatsoever can and should be analyzed into atomic propositions. Let's get some space for this.

Can and should be organized into atomic propositions. Now, admittedly, atomic propositions are not the smallest parts of speech because a proposition has a subject and a predicate. So, in addition to atomic propositions, there are terms, but of course, terms don't mean anything except as they are used in asserting something or denying something.

That is to say, in propositions. So you have terms, you have atomic propositions. Atomic propositions are combined to form molecular propositions.

No surprise there. An atomic proposition is simply the smallest unit of thought. Atomic propositions refer to atomic facts.

Molecular propositions refer to molecular facts. What do terms refer to? Well, either particular... No, take it back. Terms refer either to general properties.

Blue, square... Notice that these are general, universal, if you like. Blue, square, brown. To the general properties.

Or they simply name individuals. Joe, Bill. Those are terms, proper names.

So either general properties or serving as proper names, they name individuals. So then the thing is that you analyze discourse into atomic propositions that correspond to atomic facts. And then organize those atomic propositions into a formal deductive system.

Showing how all of the atomic propositions constituting our knowledge can be deduced from certain premises. What premises? Empirical generalizations. Including hypotheses of the utmost generality.

The hypothetical deductive method. So, what it means then to provide a logical explanation of something you believe is to show how it may be deduced logically from certain generalizations, certain hypotheses, whatever the case may be. So that the foundationalist model of the deductive system is extended beyond natural science into ethics, discussions of whatever subject matter you like.

The method of mathematics that was analyzed in the Principia Mathematica is now taken as the method of all scientific thought. Of all logical understanding. Explanation is in terms of deduction from generalizations from premises.

The hypothetical deductive method. Now, reflect on that for a moment. What is an atomic fact? Well, we say, atomic facts are the smallest constituents of reality.

Yeah, this is an atomistic view of nature. As an atomistic view of nature, it's influenced by Ernst Mach. His theory of sensations, you remember.

Sensor. Theory of sensations as the atomic constituents of experience. So that scientific theories are simply economical ways of talking about these atomic data, atomic facts.

Sense data. What Russell seems to be saying is that relationships between atomic facts are not given in experience. That's an old story all the way back to Hume.

Experience doesn't come connected. Remember? It comes in atomistic. Beep, beep, beep.

No relationships given. And consequently, Russell is assuming a pluralism. A metaphysical pluralism.

Assuming that all relationships are external causal relationships of a mechanistic sort. He is rejecting, in his very starting point, any monistic metaphysics like Hegel's. Or any view that there are intrinsic organic relationships.

He's still working with a mechanistic model rather than an organismic one. Get it? One of his first books was called Mysticism and Logic. In which, in arguing for his logical method, he repudiated the methodology of people like Bergson and Bradley.

Wrote it in Hegel. Bergson, you recall, talked of an intuition that we have of the whole scene out of which a worldview arises. And Bradley speaks of an immediate awareness of being in its large scope.

You see? Which gives structure to the detailed work we do on particulars. Russell calls that mysticism. Repudiates it completely.

Because he does not think that there are any internal relationships between the atomic facts. So you've no way of knowing that you're related to the whole in that way. And intuition has no basis.

As it would have a basis if there were already an internal relationship, intuition would simply be the consciousness that goes with it. You see? And so, on the basis of a metaphysical pluralism, he comes up with his theory of logical atomism that tries to identify the atomic facts which are the basic constituents of reality.

Their relationships, if there are relationships, are causal relationships. And immediately, you've got another problem coming up. Because causal relationships have been questioned by whom? And by Godfather John Stuart Mill.

Should we call him the Godfather? That has connotations these days, doesn't it? By John Stuart Mill. Question. But it's interesting to notice that in Russell's works in epistemology, when he questions knowledge of causal relationships, he becomes a phenomenalist.

Because if you don't know there are causal relationships, how do you know that the atomic data of experience have any external causes? And what they are. So all you have is the phenomenon. The world for me.

When he, as he does at certain stages in his career, accepts causal relationships, he tends to be a realist rather than a phenomenalist. A realist in the sense that there are real material objects and we know their properties. He takes science realistically in those junctures.

I should say that in his earliest work, he had an additional reason for being a realist, as he was. Namely, he accepted the notion that consciousness has intentionality. It is a mental act that intends, points to, and means an object.

And inasmuch as intentionality, the mental act, gives me an object, Russell started out as a realist. But he came to reject the mental act. And he came to reject knowledge of causal connections.

Therefore, he became a phenomenalist. The question is whether that mental act is empirically knowable. Is the phenomenological account of it valid? Well, atomic facts then.

That very phrase is loaded with philosophical assumptions. Now, secondly, atomic propositions are the constituents of language. They're the constituents of language.

And we have to analyze molecular propositions into such constituents. So, take, for instance, how he does that. One of his examples, the present king of France, is bald.

Now, I don't know why I always choose that example. The present king of France is bald. You look at that, that sounds like a simple atomic fact.

No, it's not. It's a molecular fact. Because it really combines two things, as you see when you try to translate this into symbolic form.

Now, those of you who've had some introduction to symbolic logic will recognize that here we're talking about an existent individual who is the present king of France and who is bald. There exists such an X that X is the king and X is bald. So you have, here's one atomic fact, here's another atomic fact.

The molecular proposition combines these two and says that this X, who is bald, is the X who is also the present king of France. Could be a piece of mistaken identity. So the analysis then proceeds in this way, and the symbolic logic provides a very convenient sort of tool.

Now, notice that in addition to the term atomic facts and atomic propositions, atomic propositions correspond to atomic facts. So, here you have a correspondence theory definition of truth. And he spells that out very carefully.

He wants to say that for a proposition to be true, there has to be a one-to-one correlation between the atomic propositions and the atomic facts. Between the terms of the atomic propositions and the properties in the atomic facts. A one-to-one correlation of a very precise sort.

Now, with that logical atomism, he goes on, of course, to try the deductive process. But notice what he's landed up with, philosophically, already. Pluralism is distinct from monism in metaphysics.

Phenomenalism is distinct from realism. Well, he oscillates a bit between the two and comes out on the side of the angels as a realist in the end, but all right, he's in that phenomenalism realism game. He is rejecting speculative metaphysics in favor of analysis.

Logical analysis. His atomic facts are themselves neither mental nor material. They are neutral with regard to those distinctions.

He's what we call a neutral monist. Qualitative monist, only one quality of fact. That quality is neutral with regard to mind-body distinctions.

That is possible because molecular propositions and complex ideas are mental constructs. Our constructs. We construct our objects out of atomic facts.

They don't come to us already constructed because relationships are not given. We're bombarded through the senses with a variety of atomic facts. You know what I'm saying? Relationships are not given.

And so the object which emerges in our thinking of a material body, that notion of a material object, is a mental construct. A logical construct. It's an ideal entity, whether or not it's real externally.

It exists as an idea. Now this is known as the construction theory of knowledge because what we know are our own mental constructs. Now you see how he sort of, despite being a foundationalist, stumbled into being sort of a postmodern.

We construct our own world. He makes a distinction in a number of places in his early writings, and this is retained throughout. He makes a distinction between knowledge by acquaintance and knowledge by description.

Now, knowledge by acquaintance is knowledge of since data. Knowledge of our own mental states. Knowledge by description is knowledge of material objects like the present king of France.

And those are mental constructs that we describe. So the constructs are described in the language of molecular propositions, complex ideas. It's the particular properties.

It's here that knowledge by acquaintance functions. It's here that knowledge by description is most obvious. And depending on what stage he's at, realist, phenomenalist, the atomic facts are going to be either by acquaintance or description.

Sometimes one, sometimes another. All right, now what about the deductive part of this? How does that work? Because we said that he wanted all explanation to be in terms of a deductive system. Well, take his book Human Knowledge as an example.

Human Knowledge, Its Scope and Limits. Published in 1948. Human Knowledge, Its Scope and Limits.

Here he was trying to organize in logical form the scope of the nature of scientific knowledge. Trying to show how all of our knowledge arises by scientific methods, essentially this hypothetical deductive procedure. He came to the realization that if

he wanted to do this by deduction from empirical generalizations, of which we have certain direct empirical verification, that is to say, samples that we can verify, then we don't have enough premises to achieve the deduction.

In other words, scientific knowledge has to involve additional hypotheses than simply hypotheses that are amenable to any kind of direct verification. He admits, therefore, that pure empiricism does not provide a logical explanation. That we have to introduce additional premises that he calls scientific postulates.

That is to say, the postulates of modern science. Postulates that make the scientific explanation of this hypothetical deductive sort workable. And he spells out what these are.

The two or three most significant ones are things like the principle of induction. Uniformity of nature. The principle of induction.

Causal lines. There are lines of causal influence. Causal lines.

The quasi-permanence of material objects. Okay. In other words, he has to introduce as postulates the very things which earlier metaphysical systems had maintained there was metaphysical ground for believing.

So that in effect, what Hume asserted as beliefs that are necessary in the course of life, Russell elevates to the status of scientific postulates necessary in the course of science. But then on that basis, he thinks that scientific knowledge can be justified, explained, and that the logical analysis works. Okay.

Now that's the overview of Russell. Question? Comment? Have you gotten to reading Stumpf on this yet? Okay, no wonder you're sitting like ducks in a row. Yeah, Mary.

Yeah, what he calls neutral monism. Okay, Descartes introduced a qualitative dualism. There are two kinds of reality, minds and bodies.

Okay. There are two kinds of reality, minds and bodies. In talking about mind-body problems pretty well ever since Descartes, we've talked of two kinds of properties.

Mental properties and physical properties. Okay. Mental properties, which involve consciousness.

Physical properties, which involve extension. Well, what Russell is saying is that there aren't two kinds of properties. There aren't two kinds of entities.

There's only one kind of property, which is neutral with regard to that mind-body distinction. So that a space-time event, organized in a certain way, produces what we

call, naming our mental construct, a mental event. And organized in another way produces what, naming our mental construct, we call a body.

Now, Russell isn't the only one with this view. James, William James, had this notion. And he explained it in what he called the Searchlight Theory of Consciousness.

That is to say, what you have to do is to picture something going along like that. Let's say it's a chain of physical events. Which is lit up at this point by a searchlight.

That is to say, consciousness is aroused, you see, when you light upon that, catch the plane in the searchlight. So that this one event at that juncture is both a physical event and a mental event. If there were nothing in this chain of events, it would be just a mental event.

And in that sense, hallucination, illusion, daydreaming, and vision. But inasmuch as there is this other, you see, it can be both. Neutral monism.

Do you think he's a metaphysical pluralist? Come again? Do you say that he's a metaphysical pluralist? Yeah, you see, in terms of the quality, the nature of things, qualitatively, he's a monist. There's only one kind of thing. In terms of the quantity, he's a pluralist.

There are many, many, many, many facts of an atomic sort. Yeah, and I think you can see that. Lucretius, Democritus, atomists, you see, we think of them as pluralists.

And monists in the sense that everything's of one sort. As distinct from Anaxagoras, with his seeds of qualitatively different sorts. So Anaxagoras is a pluralist in two senses, quantitative and qualitative.

Russell is a pluralist just in the quantitative sense. Qualitatively, he's a monist. And I think his monism really turns out to be naturalism.

Okay, now does this flesh out the 19th-century criteria that we were talking about? The hypothetical deductive method, universalized, you see, giving rise to phenomenalism. Yeah, here it is in Russell. Okay, we'll pick up there.