

**. . . unless I am correct in affirming that each human being is, as appears to be the case in our perceptual experience, a single, solid substance, then a whole dimension of philosophy—the dimension in which we find moral and political philosophy would become null and void.**

—Mortimer Adler

---

---

## APPEARANCE AND REALITY

A Philosophical Problem Concerning Human Existence  
with a solution by Mortimer Adler. [In two parts]

*Max Weismann interviews Mortimer Adler (1995)*

### PART II

**WEISMANN:** I must say that I was taken aback by Sir Arthur's claim that Table 2 is the only one which is "really there." What was your reaction?

**ADLER:** I will never forget my shock when I first read Sir Arthur's lectures. In his opening remarks, Sir Arthur told his audience that the table in front of which he was standing, the table which seemed so solid to them that they would bruise their fists if they tried to punch through it, was in reality an area of largely empty space in which tiny invisible bodies were moving about at great speeds, interacting with one another in a variety of ways, and making the table appear to us to be solid, of a certain size, shape, and weight, and having certain other sensible qualities, such as its color, its smoothness, and so on.

**Appearance and reality!** As Sir Arthur spoke, there seemed to be no doubt in his mind which was which. The table he and his audience perceived through their eyes and could touch with their hands might appear to them to be an individual thing that had an enduring identifiable identity which could undergo change while remaining one and the same thing. That was the appearance, an appearance that might even be called illusory in comparison to the invisible and untouchable reality of the atomic particles in motion that filled the space occupied by the visible table, a space largely empty even though impenetrable by us.

My initial shock increased when I passed from thinking about the table to thinking about myself and other human beings. We were not different from the table. We, too, were individual physical things. We might appear to ourselves to be as solid as the table, perhaps somewhat softer to the touch, but just as impenetrable to a probing finger. But, in reality, the space our apparently solid bodies occupied was just as empty as that of the table.

**WEISMANN:** Does this mean that whatever attributes or characteristics our bodies appear to have as we perceive them through our senses, they have as a result of the motions and interactions of particles that themselves have none of these sensible characteristics?

**ADLER:** Yes, according to this view, the imperceptible particles that compose all the objects of our ordinary perceptual experience possess only quantitative properties, no sensible qualities at all. The latter, it is maintained, exist only in our consciousness of the objects we perceive, not in the objects themselves. They have no status in reality. Thus arises the riddle about what came to be called “secondary qualities,” a puzzlement that always accompanies the reductionist fallacy to which atomists are prone.

**WEISMANN:** What becomes of my personal identity, or yours, and with it moral responsibility for our actions, if

each of us ceases to be one individual thing, but instead a assemblage of physical particles that do not remain the same particles during the span of our lifetime?

**ADLER:** To face the question that you raise, let us eliminate at once the easy way out of the difficulty. That easy way out is to regard both pictures—the one we have as a matter of common sense and common experience and the one we are given by atomic physicists—as convenient and useful fictions. The first of these serves all the practical exigencies of our daily lives. The second, applied through technological innovations, gives us extraordinary mastery and control over the physical world in which we live.

**WEISMANN:** If we approach the problem this way, does it eliminate the conflict between the two views of the world in which we live and of ourselves as living organisms existing in it?

**ADLER:** Indeed, approached this way, we need not ask which is the reality and which is the mere appearance or illusion.

**WEISMANN:** Is that why before the middle of the last century, the theory of the atomists was regarded as positing a useful scientific fiction, and so it posed no challenge to the reality of the commonsense view that a sound philosophy endorsed?

**ADLER:** Yes. Until then, beginning with Democritus in the ancient world and coming down to Issac Newton and John Dalton in the modern world, the atom was conceived as the absolutely indivisible unit of matter. In the words of Lucretius, it was a unit of “solid singleness,” with no void in it, as there must be a void in any composite and, therefore, divisible body having atoms as its component parts.

**WEISMANN:** Don't we now know that in our own day all this has been radically changed, and there is no longer any

doubt about the real existence of atoms which are now known to be divisible and to be as much filled microscopically with void or empty space as the solar system is filled macroscopically?

**ADLER:** That is correct, and I might add that in the empty space move the elementary particles that have now been discovered by the most ingenious detecting devices, the real existence of which, supposedly verified by inferences from the observed phenomena, phenomena that cannot be explained except by positing the real existence of these unobservable particles.

**WEISMANN:** Do I understand you to be saying that the elementary particles, which are the moving components of the divisible atom, are intrinsically imperceptible to our senses?

**ADLER:** Yes, let me make sure that this last point is fully clear. As a contemporary writer puts it, they are essentially unpicturable—"unpicturable-in-principle."

They and the atoms they constitute do not have any of the sensible qualities possessed by the perceptible physical things of common experience. Nor do the elementary particles even have quantitative properties possessed by atoms and molecules, such as size, weight, shape, or configuration.

**WEISMANN:** Is this what the modern physicist Werner Heisenberg meant when he said, "The indivisible elementary particle of modern physics possesses the quality of taking up space in no higher measure than other properties, say color and strength of material. [They] are no longer material bodies in the proper sense of the word."?

**ADLER:** Precisely, and Heisenberg goes on to say that they are units of matter only in the sense in which mass and energy are interchangeable. This fundamental stuff, according to him, "is capable of existence in different

forms,” but “always appears in definite quanta.” These quanta of mass/energy cannot even be exclusively described as particles, for they are as much waves or wave packets. I will comment later on the relation of quantum mechanics to reality.

**WEISMANN:** Speaking of atoms and molecules, are we not called upon to say of them what we seem to be called upon to say of ourselves and the other perceptible things of common experience? They, too, are divisible wholes made up of moving and changing components.

What about their reality as compared with that of elementary particles that constitute them? If we could perceive with our naked eyes an atom or a molecule, would we not be compelled to say that it only appeared to be what it was perceived as—a solid, indivisible body—but that in reality what we perceived was only an illusion?

**ADLER:** Yes. That is the assertion of many modern physicists. What we are confronted with here is the fallacy of reductionism, a mistake that has become most prevalent in our own day, not only among scientists but also among contemporary philosophers. It consists in regarding the ultimate constituents of the physical world as more real than the composite bodies these elementary components constitute. Reductionism may go even further and declare these ultimate constituents to be the only reality, relegating everything else to the status of mere appearance or illusion.

**WEISMANN:** How is this fallacy of reductionism, this philosophical mistake, to be corrected as it must be if our commonsense view of things plus a philosophy of nature that accords with it, is to be validated?

**ADLER:** Before I attempt to suggest a solution, let me make sure that the conflict between the scientific and the commonsense view is clear. The chair on which I am now sitting fills a certain area of space. To say, on the one hand, that that space envelope is filled with the single, solid body

that we experience as the perceived chair contradicts saying, on the other hand, that that space envelope is largely a void filled by moving and interacting imperceptible particles.

**WEISMANN:** Is my understanding correct that the conflict or contradiction that we find here is not simply between empty and filled space, but more importantly, involves a contradiction between the one and the many.

**ADLER:** You are correct. Let me explain. The chair of our common experience, the reality of which a philosophy of common sense defends, is not only a solid body, but even more fundamentally it is a single being. Whereas, the chair of physical theory consists of an irreducible multiplicity of discrete units, each having its own individual existence.

If the unitary being which is the solid chair, with all its sensible qualities, is dismissed as an illusion foisted on us by our sense-experience, then no conflict remains. Or if the physicist's atoms, elementary particles, wave packets, or quanta of mass and quanta of energy are merely theoretical entities to which no real existence is attributed, that is, if they are merely mathematical forms which have no physical reality, then their being posited for theoretical purposes as useful fictions does not challenge the view that what really exists out there is the solid chair of our experience.

**WEISMANN:** But if real existence of the same kind is attributed to the entities described by the commonsense view and by the scientific view, then how can we possibly avoid a conflict that must be resolved?

**ADLER:** A clue or hint that leads to the solution is contained in your words: "of the same kind." Both the solid chair and the imperceptible particles have real existence, but their reality is not of the same kind, not of the same order or degree. By virtue of that fact, the conflict can be resolved. The contradiction is then seen to be only apparent.

The problem would be insoluble if the two assertions

to be reconciled stood in relation to one another in the same way that the statement that Jones is sitting in a particular chair at a particular times stands to the statement that Smith is sitting in the same chair at the same time, and is not sitting on top of Jones or on the arm of the chair, but exactly where Jones is sitting. The statements about Jones and Smith cannot both be true. They cannot be reconciled.

**WEISMANN:** Are you saying that the assertion about nuclear particles as the imperceptible constituents of the chair and the assertion about the perceptible solid chair as an individual thing, both occupying the same space, can be reconciled on condition that we recognize different grades or degrees of reality?

**ADLER:** Yes, Werner Heisenberg used the term *potentia*—potentialities for being—to describe the very low, perhaps even the least, degree of reality that can be possessed by elementary particles.

He wrote:

. . . In the experiments about atomic events we have to do with things and facts, with phenomena that are just as real as any phenomena in daily life. But the atoms or the elementary particles themselves are not as real; they form a world of potentialities or possibilities rather than one of things or facts.

Heisenberg, in saying that the elementary particles are not as real as the perceptible individual things in daily life, does not deny that they still have some reality.

**WEISMANN:** Do I understand this to mean that the merely possible, that which has no existence at all, has no reality, and that which has some potentiality for existence and tends toward existence has some, perhaps the least, degree of reality and is barely more than merely possible?

**ADLER:** That is correct. I will now summarize the solution to the problem, which corrects the philosophical mistake

that arises from the fallacy of reductionism. It involves two steps:

(1) The reality of the elementary particles of nuclear physics cannot be reconciled with the reality of the chair as an individual sensible substance if both the particles and the chair are asserted to have the same mode of existence or grade of being. The same thing can also be said about the nuclear particles and the atoms of which they are component parts. The particles are less real than the atoms; that is, they have less actuality. This, I take it, is the meaning of Heisenberg's statement that the particles are in a state of potentia—"possibilities for being or tendencies for being."

(2) The mode of being of the material constituents of a physical body cannot be the same when those constituents exist in isolation and when they enter into the constitution of an actual body. Thus, when the chair exists actually as one body, the multitude of atoms and elementary particles which constitute it exist only virtually. Since their existence is only virtual, so is their multiplicity; and their virtual multiplicity is not incompatible with the actual unity of the chair. Again, the same thing can also be said about a single atom and the nuclear particles which constitute it; or about a single molecule and the various atoms which constitute it. When an atom or a molecule actually exists as a unit of matter, its material constituents have only virtual existence and, consequentially, their multiplicity is also only virtual.

**WEISMANN:** Are you saying that what exists virtually has more reality than the merely potential and less than the fully actual?

**ADLER:** Yes, that is precisely what I am saying and another way of stating this is that the virtually existing components of any composite whole become fully actual only when that composite decomposes or breaks up into its constituent parts.



The virtual existence and multiplicity of the material constituents do not abrogate their capacity for actual existence and actual multiplicity. If the unitary chair—or a single atom—were exploded into its ultimate material constituents, the elementary particles would assume the mode of actual existence which isolated particles have in a cyclotron; their virtual multiplicity would be transformed into an actual multitude.

The critical point here is that the mode of existence in which the particles are discrete units and have actual multiplicity cannot be the same as the mode of existence they have when they are material constituents of the individual chair in actual existence.

**WEISMANN:** If we assign the same mode of existence to the particles in a cyclotron and to the particles that enter into constitution of an actual chair, does the conflict between nuclear physics and the philosophical doctrine that affirms the reality of the material objects of common experience cease to be merely an apparent conflict?

**ADLER:** Yes, it is a real conflict, and an irresolvable one, because the conflicting theories are irreconcilable. But if they are assigned different modes of existence, the theories that appear to be in conflict can be reconciled.

Not only is the conflict between the view of the physical world advanced by physical science and the view held by common sense reconciled, we also reach the conclusion that the perceptible individual things of common experience have a higher degree of actual reality. This applies also to the sensible qualities—the so-called “secondary qualities”—that we experience these things as having. They are not merely figments of our consciousness with no status at all in the real world that is independent of our senses and our minds.

With this conclusion reached, the challenge to the reality of human existence and to the identifiable identity of

the individual person is removed. There can be no question about the moral responsibility that each of us bears for his or her actions.

**WEISMANN:** I believe that your resolution to this problem is from the point of view of every human being, and the philosopher, if not the scientist, of indispensable importance. I would like you to summarize for our readers the reason why a correct understanding of your solution of this problem has crucial consequences.

**ADLER:** The reason is that unless I am correct in affirming that each human being is, as appears to be the case in our perceptual experience, a single, solid substance, then a whole dimension of philosophy—the dimension in which we find moral and political philosophy would become null and void.

In that dimension we are dealing with the norms, or the prescriptive truths, about how human beings with freedom of choice ought to conduct their lives and societies. A mere collection or aggregate of particles in motion cannot serve as the agent of human conduct, which aims freely at the good life and the good society.

Human beings with intellects and free wills are the really existing substances that we are dealing with here. What physical science gives us in terms of elementary particles in motion is not the ultimate reality, but only an analytical aspect of that reality. The error is the error of reductionism, substituting an aspect for the reality of which it is an aspect. The whole and ultimate reality here is the individual, substantial human being.

A final word about quantum theory: Einstein was right when he declared “God does not throw dice,” implying that the quantum theory is an incomplete account of subatomic reality, but he was wrong in thinking that that incompleteness could be remedied by any means at the disposal of science. Why? Because the question that

quantum theory and subatomic research cannot answer is a question for philosophy, not science.

=====  
**LETTERS TO THE EDITOR**

Hi Max,

Re: TGIO # Issue 134. Teaching, Testing and Learning  
-- An Essay by John Boleyn.

I just read this essay. Good thoughts but, as usual, wrong emphasis. Today's teachers come from the lowest echelon of the intelligence scale. We need teachers who are among the most intelligent persons in our society. Plus, not enough emphasis is put upon reading, reading, reading, reading, reading. If a person can read he can learn anything. ANYTHING! He can learn from others or teach himself. No limits. You know that as well as I. Why can't the edocrats learn that?

I have very little confidence in our government schools. I'm a firm believer in home schooling.

Have a good day.

Buddy Walker

-----  
Dear Max,

Your last issue of the two tables (common sense and scientific) could not have come at a better time. I will be teaching atomic theory to my chemistry students starting in a week. As usual, I will be faced with the students' skepticism.

However, this year I will assign this as readings to be discussed in class. For once, they will have to really get their heads around what atomic theory means to them,

instead of simply memorizing what they need to pass the test.

Thank you so much for the photograph of yourself and MJA.

Regards,

Sarah Barrett

\*\*\*\*\*

**THE GREAT IDEAS ONLINE**

is published weekly for its members, by the  
Center for the Study of The Great Ideas

Founded by Mortimer J. Adler & Max Weismann (1990)

E-mail: [TGIdeas@speedsite.com](mailto:TGIdeas@speedsite.com)

Homepage: [TheGreatIdeas.org](http://TheGreatIdeas.org)

A not-for-profit (501)(c)(3) organization.

Donations are tax deductible as the law allows.