Introduction

Metaphysics of Physics is the much needed and crucial voice of reason in the philosophy of science, rarely found anywhere else in the world today. We are equipped with the fundamental principles of a rational philosophy that gives us the edge, may make us misfits in the mainstream sciences but also attracts rational minds to our community.

With this show, we are fighting for a more rational world, mostly by looking through the lens of the philosophy of science. We raise awareness of issues within the philosophy of science and present alternative and rational approaches.

We are your hosts and guides through the hallowed halls of the philosophy of science. Dwayne Davies, my husband, is the founder, primary content creator and voice for Metaphysics of Physics. I am Ashna and I help out however I can. You can find out more about us on the About page of the website.

You can also find all the episodes, transcripts, subscription options and more on the website at metaphysicsofphysics.com.

Hi everyone! This is episode eighteen of the Metaphysics of Physics podcast and today we are discussing the works of Bill Gaede and its importance.

Who is Bill Gaede?

Bill Gaede was born n 1952 in Argentina and spent much of his earlier life as an engineer and programmer.

He is, unfortunately, apparently best known for his Cold War industrial espionage conducted while working at AMD (Advanced Micro Devices). It seemed that at the time he sympathized with Communism. As a result, he provided the Cuban government with technical information pertaining to the semiconductor industry.

[Editorial: Unfortunate because his scientific work is much more interesting and this earlier stage of his life seems to encourage people to think he is a crank. Which is isn't]

He later turned himself over to the CIA. Which lead to him working with the FBI in counter-espionage operations. As a result, he was prosecuted

and convicted. I believe he was sentenced to 33 months in prison but only served 3 years. He was later deported.

If you want to know more about this, *El Crazy Che* on Netflix discusses it.

If we did not bring this up, someone else would. Let us be clear, we are aware of this stuff. But, as we understand it his political views have changed and he became disillusioned with Communism.

But, more importantly, none of this really has any real impact on his views regarding philosophy of science and his scientific views. Which we are about to get to.

[Editorial: I am not sure how much Gaede considers his work philosophy or whether he would call himself a philosopher of science. But, his criticism of physics and other areas of science is philosophical. So, he does engage in some philosophy of science. So we are calling him a philosopher of science, even if he himself might not do so.]

Starting in the late nineties, he started devoting much of his time to a criticism of modern physics and the development of the Rope Hypothesis. His criticism is largely centered around the fact that modern physics is irrational and does not offer a proper physical interpretation of reality. And is, thus, really not physics. Which is very true. We will see more of these criticisms in this episode and the following ones where we start covering the "What is Physics" video.

This is his work which we are most interested in here on Metaphysics of Physics. He has a lot to say in this area and quite a lot of it is very good. We do not agree with all his conclusions, but the essentials of his arguments against modern physics are all very good and highly worth exploring in detail.

In our view, he is one of the most objective and rational critics and philosophers of science we know of. There is a great deal he says which we have said for a long time. It is extremely impressive to see someone else saying this stuff. Especially given he does not have the philosophical background in Objectivism which we do. It would be impressive even if he did.

It is not easy doing what we and Bill Gaede do. Philosophy is not easy, just ask anyone who does a lot of it. It requires a lot of high-level abstraction and integration. Which you then have to learn how to apply.

Rational philosophy requires a lot of sound ideas, all well integrated into a coherent whole. While rejecting mainstream philosophy and its largely irrational ideas. Usually after having already implicitly accepted many of them. Which requires you to reason your way out of those ideas and to untangle them from your better philosophical ideas.

So anyone with a fair grasp of a decent number of rational philosophical ideas has achieved something rare and difficult. And it is important to recognize this and give people credit for that. Whatever other errors they make or evasions they might be guilty of.

What About His Work?

What do we think of Bill Gaede's Rope Hypothesis? It is extremely intriguing and as far as we have studied it, it seems entirely plausible. It offers a physical interpretation of a great many things in physics. Such as gravitation, light, electromagnetism and so on. The key word here is physical. It offers an explanation in terms of the actions of physical entities.

But isn't that what physics already does? No, not modern physics. Not really. It offers non-physical "explanations" for things which in fact explain nothing. For instance, take how General Relativity describes gravity as the curvature of space-time. What is space-time? Blank out, it offers no real explanation.

Does this matter? Does physics need to explain things in terms of physical objects?

Yes! It most certainly does. Since physics is supposed to explain the fundamental nature of the physical world.

[Editorial: It is a shame that I have to point this out. Since physics is all about the study of the *physical* world!]
Now, it seems some of you may hold the opinion that the fundamental "things" which make up reality are not matter, are not physical. And are some undefined "stuff" without properties, at least without the properties of physical objects.

And that maybe these things and their interactions result in other things having properties like size, shape and the like. This entire idea does not make any sense and is very disagreeable.

It sounds very Platonic or modern-physics like and is very disturbing. Although, perhaps these things might not have all the properties we are used to.

Whatever the most fundamental things exist turn out to be, they are some kind of matter.

If it isn't matter, what is it? Well, I guess it is not physical then!

[Editorial: Note the heavy sarcasm. Of course it is physical, what else?!]

Consciousness? Well, evidently not.

Energy? First, tell me what you think that is. Since most people don't know. And try to convince me that energy is a category of existence in the same way as matter.

Energy is simply some aspect of the behavior of matter or some kind of abstract description of something. Matter does not *turn into energy*. Nor is energy a metaphysical alternative to matter.

So, no, energy is not more fundamental than matter.

An attribute? No. Attributes are attributes *of something* so can hardly be fundamental.

A relationship? No. Relationships also pertain to things, they describe aspects of things. So cannot be fundamental.

Some kind of abstract description or other abstraction? No, same argument really.

What is this fundamental stuff then? What does the above not rule out? If it is not matter, that does not leave a lot else it can be...

This is a rather important metaphysical issue. Since it seems people are messing up their ontology and trying to justify undefinable and baseless categories of existence.

The basic constituents of reality are matter.

We can use this logic and say that ultimately, everything physics studies reduces to matter, its actions and how it interacts with other bits of matter. As well as the various properties of matter.

What do non-physical explanations do to help us understand matter and how it interacts? Nothing.

Describing spacetime as curved does nothing to help us understand gravity in terms of matter and its interactions.

Just as saying that an electron is a wave and a particle does not help us understand what the electron is and how it behaves.

Or take electromagnetism. It is said that it is caused by the electromagnetic field. OK, great. Now, what is a field? It is a series of points and abstract mathematical descriptions. How does that help us understand which physical entities are involved and how they interact? It doesn't.

Consider energy. We do not even know what that is. Don't believe me? Well, Feynman, one of the most knowledgeable physicists of all time points this out:

"It is important to realize that in physics today, we have no knowledge what energy is. We do not have a picture that energy comes in little blobs of a definite amount.".

Yet, energy is a crucial aspect of every aspect of physics. But, we don't know what it is. We don't know how the concept of energy relates to the physical world. Which physical entities does it pertain to?

We know it is conserved. We think that matter turns into energy. But does it?

No. Matter does not turn into energy. We cannot say that. How can we say that, given we don't know what energy is? We have no basis for believing that.

And in fact, when we talk about energy, what we are describing seems to be an abstract description of something matter does. How can matter turn into an abstract description of what matter does It can't!

We don't know what light is. Also, we don't know how gravity works. We don't know what keeps atoms apart. There is all this talk about forces working by means of fields, but we simply treat them as mathematical descriptions. Without trying to figure out what they describe.

What then do we know about all these things? Basically nothing, other than a bunch of mathematical equations which describe relationships.

What does quantum mechanics tell us about actual physical objects? Basically nothing! And much the same can be said about Special and General Relativity.

If it does not explain anything in terms of the actions of physical objects, then it is not physics. It is mathematical modeling.

It might be very useful mathematical modeling and it might further our understanding of relationships between things. Granted, it might allow the creation of amazing technology.

But it is not physics. Which is all about explaining how the physical world works, using mathematics as a tool. Not describing relationships, which is the job of mathematics.

Hence, most "modern physics" should be viewed as "modern mathematical modeling".

And this gives us a pretty good summary of a lot of the problems Bill Gaede also sees in modern physics. And which he is going to tell us in "What is Physics".

Next week we will start getting into the video itself. I trust that you will tune in to find out more.

Some Updates

We have some updates which some you may already know about.

This month we are launching our subscription service. This gives you access to our weekly articles as well as some other perks. The articles will cover all sorts of topics, ranging from expanding on topics covered in the podcast to topics you will not see discussed on the podcast!

The first three articles will appear on the 19th of April. After that, you can see them weekly, if you subscribe.

The articles will be accessible for the small fee of $2 per month. The fee is in US dollars, but still pretty reasonable even if you do not happen to live in the US. There is also a $5 tier available for additional perks.

Consider this your way to support the show, if that is what you want to do. Since not only do you get the bonus articles if you subscribe, but your support ensures we can keep producing the freely available podcast episodes as well. Or maybe you want to be more involved in the show, then you can check out the other perks and join us here.

We already have our first subscriber. She is a long-time fan and supporter of the show and often shares and promotes the podcast. You may remember us thanking her before, but we have reason to do so again. Thanks, Louise Lamontange! You are indeed making the world a more rational place!

So, what we are talking about in this months subscription articles?

On 19th April we will be publishing articles discussing:

- What is Color? Clearing up Chromatic Confusion.
- More on Thought Experiments
- Atheism or Anti-religiosity?

And on 26th April, the subscription article released will be titled "Reviewing A Rational Cosmology, Part Two"

We are always looking for more people to interview!

We have an interview with Warren Fahy coming up. Many of you may know him as the author of the books *Fragment* and *Pandemonium.*

If you have not read these books, you really should. They are wonderfully creative works, filled with thrilling events and novel biological ideas. Find out more here.

If you want more news, then you can check out the April News article here. You can also signup for the newsletter if you want. That will be coming out around the end of each month. The next will be at the end of May.

Alright. That brings us to the end of this episode. Thanks for listening!

Outro

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You can also check out our Metaphysics of Physics merchandise if you wish. All profits from these go back into the show.

And as always, you are welcome to send in questions to questions@metaphysicsofphysics.com. Or you can also contact us via contact@metaphysicsofphysics.com if you want to talk to us about physics, philosophy of science, any of the other sciences or anything relevant at all. We are always looking for more people to interview or appear on the show!

Please tune in for the next episode and start thinking of some questions! Until then, stay rational!