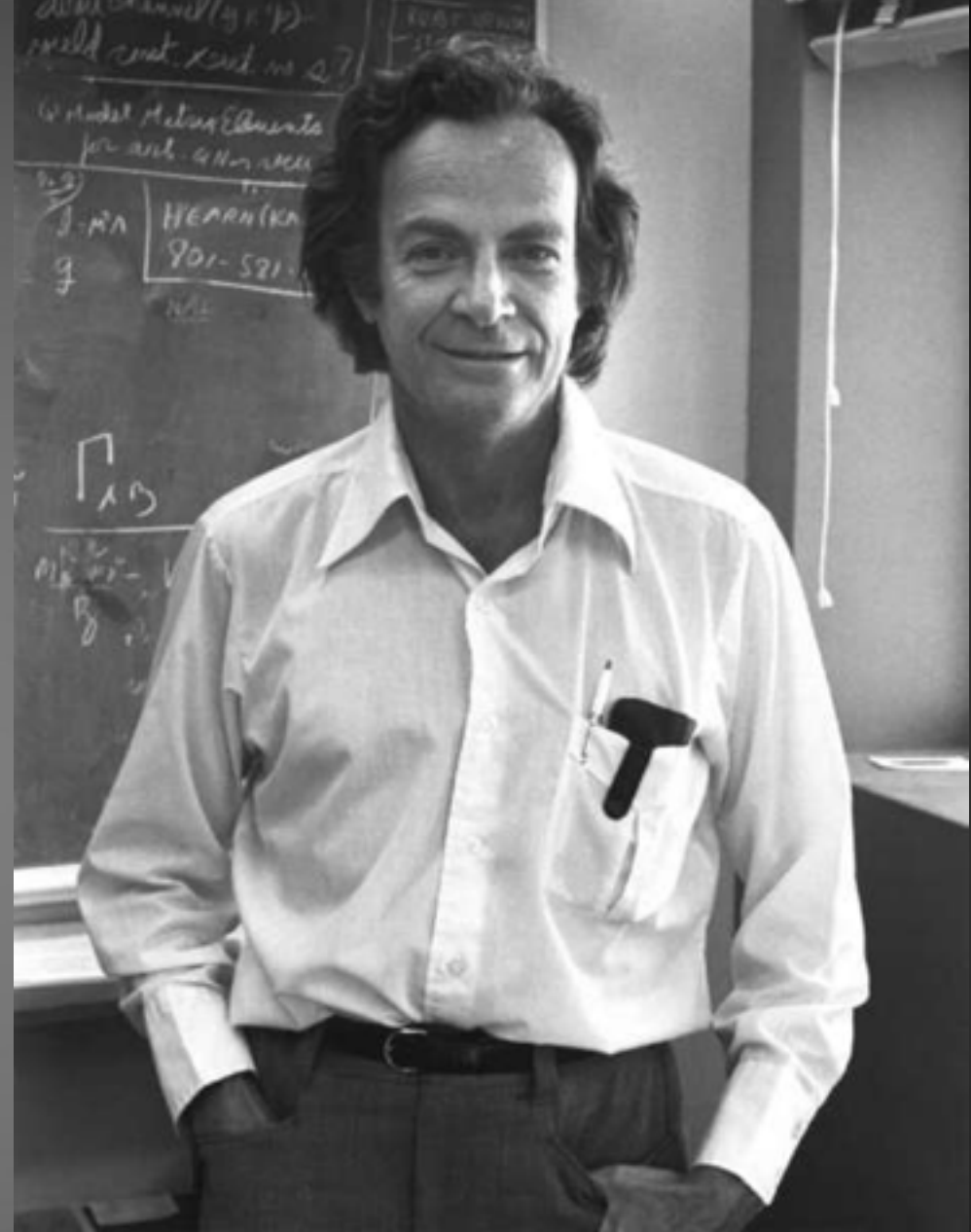


Atheism of Richard Feynman



Why Feynman?

- Charismatic;
- Great teacher;
- Public intellectual;
- Impact of his personality was and still is huge;
- The first who called himself an “atheist” among the physicists of the highest rank. What did that mean for him, precisely?



1918-1988

Biography facts

- Born in Jewish American family of a sales manager and a housewife.
- Late talker; 1st word at 3+ y.o.
- PhD from Princeton in 1942; his thesis advisor was **John Archibald Wheeler**: the groundwork for the path integrals and Feynman diagrams.
- **Robert R. Wilson** encouraged Feynman to participate in the Manhattan Project (1942–45) “Depression”
- Cornell (1945–50), CalTech—
- Rogers Commission, investigated the Challenger disaster (1986)

Richard Feynman



1918–1988

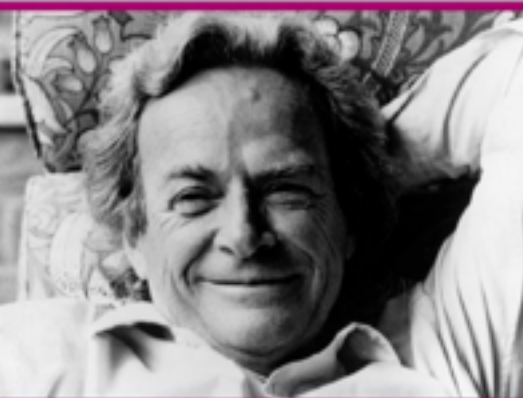
Born	Richard Phillips Feynman May 11, 1918 Queens, New York, United States
Died	February 15, 1988 (aged 69) Los Angeles, United States



Dr. John A. Wheeler (1911-2008)

NATIONAL BESTSELLER

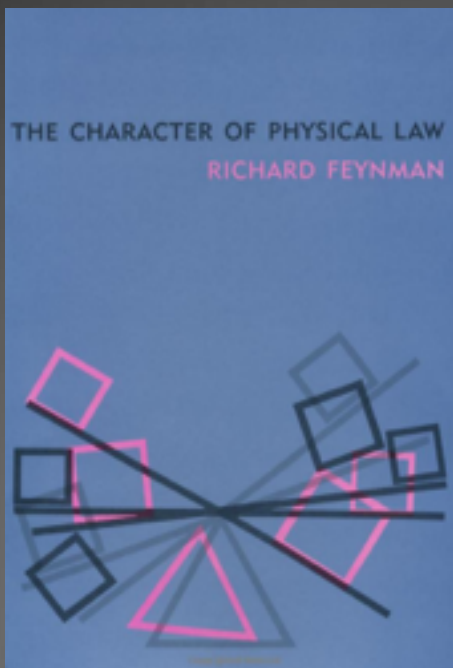
THE PLEASURE OF FINDING THINGS OUT



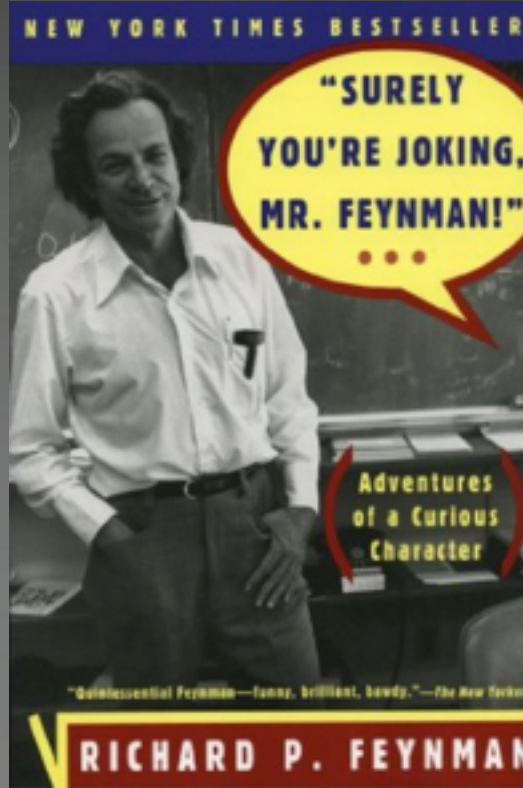
"Feynman at his idiosyncratic, brilliant best." —*David Kohn*, author of *The End of Science*

THE BEST SHORT WORKS OF
RICHARD P. FEYNMAN

Foreword by **FREEMAN DYSON**



THE CHARACTER OF PHYSICAL LAW
RICHARD FEYNMAN



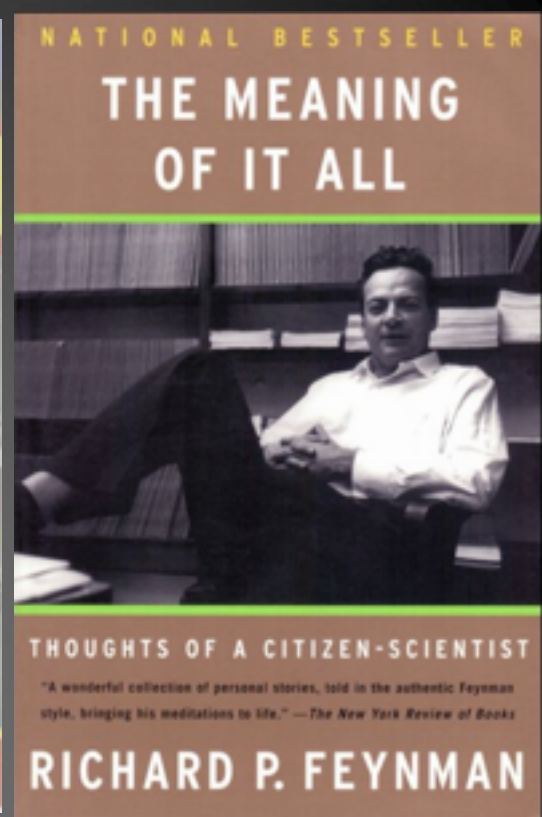
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...

Adventures of a Curious Character

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RICHARD P. FEYNMAN



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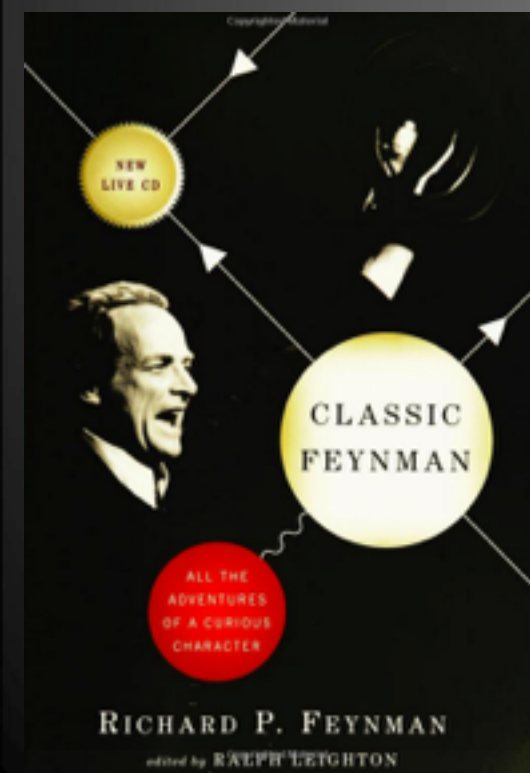
THE MEANING OF IT ALL



THOUGHTS OF A CITIZEN-SCIENTIST

"A wonderful collection of personal stories, told in the authentic Feynman style, bringing his meditations to life." —*The New York Review of Books*

RICHARD P. FEYNMAN



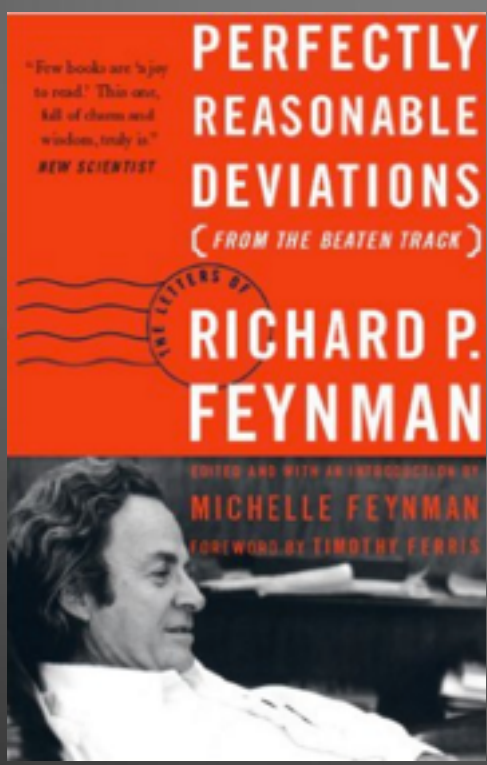
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RICHARD P. FEYNMAN
edited by **RALPH LEIGHTON**



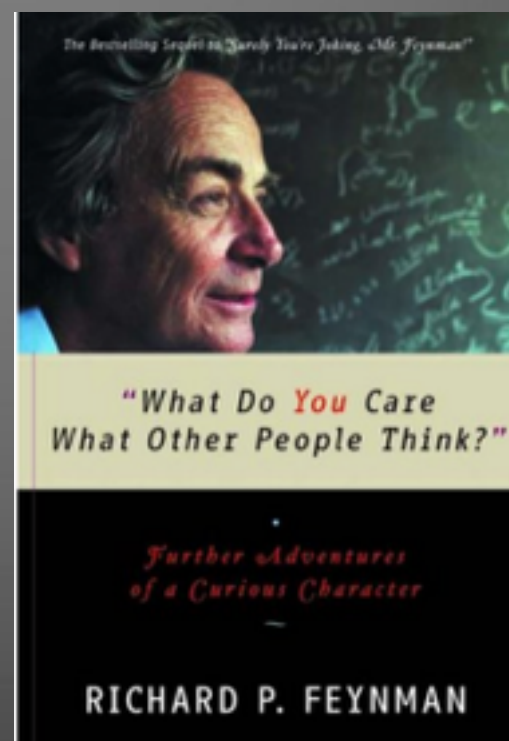
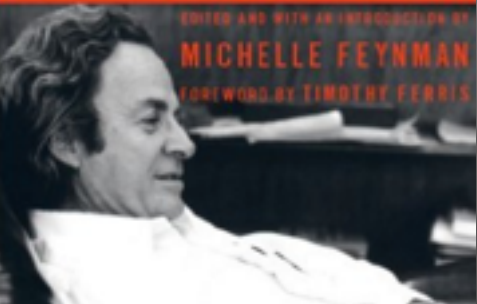
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PERFECTLY REASONABLE DEVIATIONS
(FROM THE BEATEN TRACK)



RICHARD P. FEYNMAN

EDITED AND WITH AN INTRODUCTION BY
MICHELLE FEYNMAN
FOREWORD BY **TIMOTHY FERRIS**

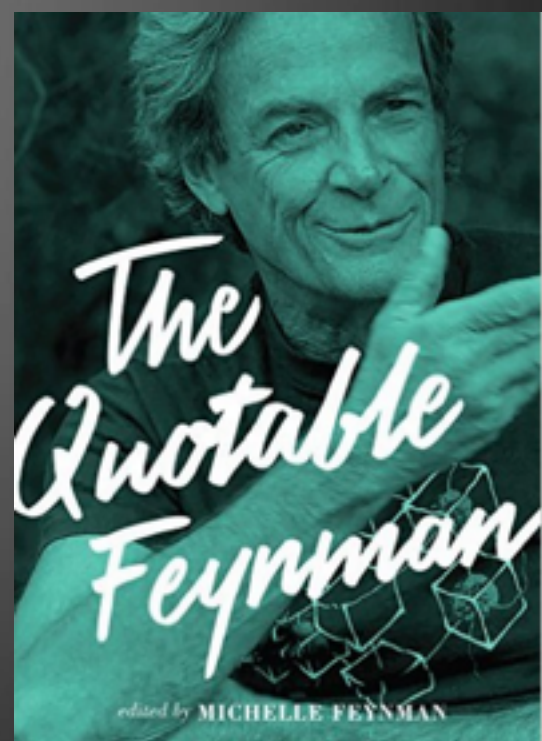


The Bestselling Secret to *Surely You're Joking, Mr. Feynman!*

"What Do You Care What Other People Think?"

Further Adventures of a Curious Character

RICHARD P. FEYNMAN



The Quotable Feynman

edited by **MICHELLE FEYNMAN**

How he stopped attending Sunday school

The actual crisis came when I was eleven or twelve. The rabbi was telling us a story about the Spanish Inquisition, in which the Jews suffered terrible tortures. He told us about a particular individual whose name was Ruth, exactly what she was supposed to have done, what the arguments were in her favor and against her—the whole thing, as if it had all been documented by a court reporter. And I was just an innocent kid, listening to all this stuff and believing it was a true commentary, because the rabbi had never indicated otherwise. At the end, the rabbi described how Ruth was dying in prison: “And she thought, while she was dying”— blah, blah. That was a shock to me. After the lesson was over, I went up to him and said, “How did they know what she thought when she was dying?” He says, “Well, of course, in order to explain more vividly how the Jews suffered, we made up the story of Ruth. It wasn’t a real individual.” That was too much for me. I felt terribly deceived: I wanted the straight story— not fixed up by somebody else— so I could decide for myself what it meant. But it was difficult for me to argue with adults. All I could do was get tears in my eyes.



I started to cry, I was so upset. He said, “What’s the matter?” I tried to explain. “I’ve been listening to all these stories, and now I don’t know, of all the things you told me, which were true, and which were not true! I don’t know what to do with everything that I’ve learned!” I was trying to explain that I was losing everything at the moment, because I was no longer sure of the data, so to speak. Here I had been struggling to understand all these miracles, and now— well, it solved a lot of miracles, all right! But I was unhappy. The rabbi said, “If it is so traumatic for you, why do you come to Sunday school?” “Because my parents make me.” I never talked to my parents about it, and I never found out whether the rabbi communicated with them or not, but my parents never made me go again. And it was just before I was supposed to get confirmed as a believer. Anyway, that crisis resolved my difficulty rather rapidly, in favor of the theory that all the miracles were stories made up to help people understand things “more vividly,” even if they conflicted with natural phenomena. But I thought nature itself was so interesting that I didn’t want it distorted like that. And so I gradually came to disbelieve the whole religion. (*What Do You Care What People Think*, 1988)



Feynman called himself “an atheist”.
What did that mean for him, precisely?

Feynman's "Atheism" (~1986)

And some thing or force, at least equal to us in intelligence or creativity, caused our creation.

Feynman: Oh no, I don't see that at all. I don't know what that means: "A force has to have the same intelligence." That stuff doesn't mean anything to me. Now that doesn't mean I don't appreciate that the world is very mysterious and wonderful, or that I understand it at all deeply. There are many profound questions that leave me awestruck and confused. All true. But that it has anything to do with Protestant, Catholic, or Buddhist—no. Intelligence, no. **Anything anthropomorphic, no.**"

Do you call yourself an agnostic or an atheist?

Feynman: An atheist. Agnostic for me would be trying to weasel out and sound a little nicer than I am about this.

But I thought a scientist couldn't call himself an atheist, because that's like saying "There is no God," and you can't prove a negative.

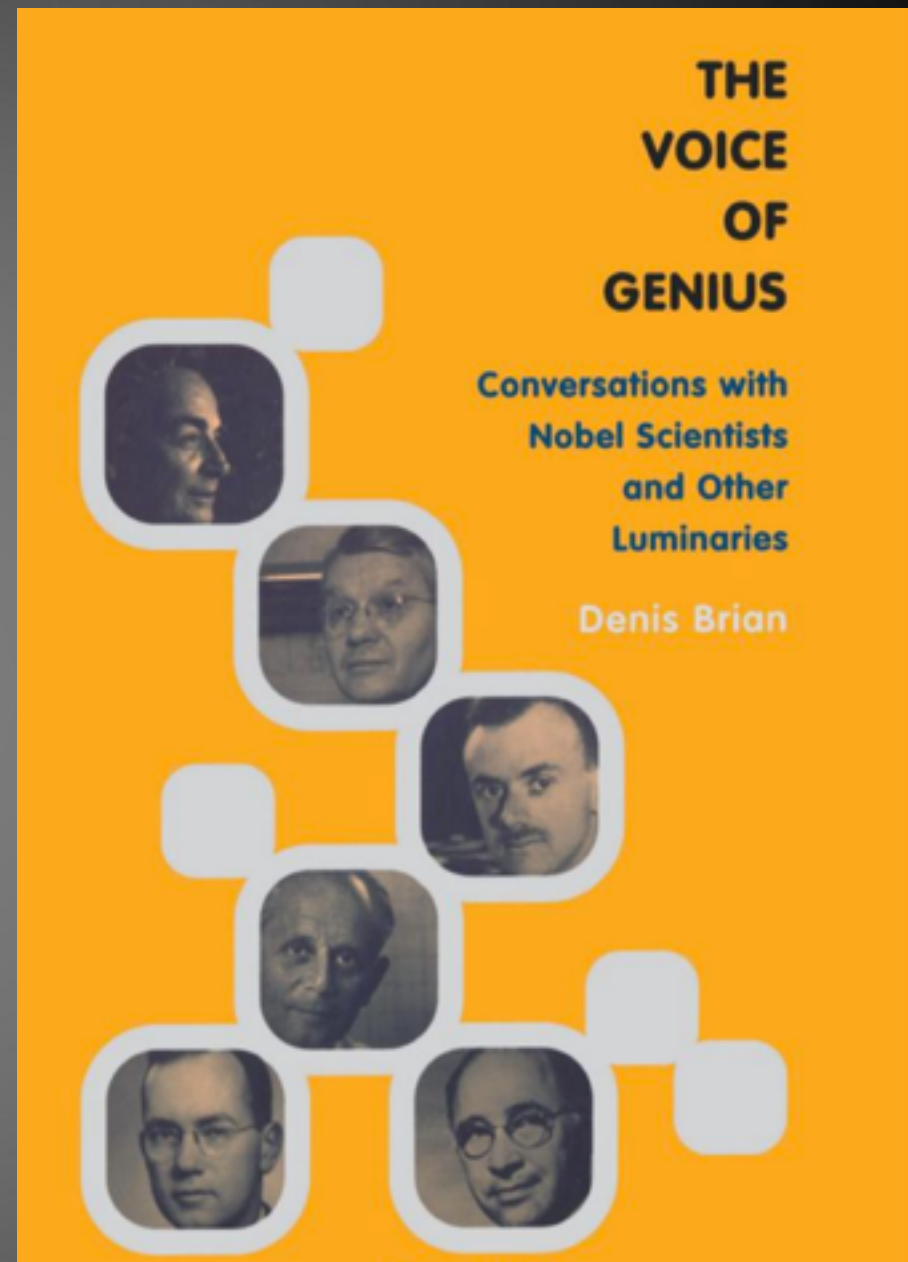
Feynman: I don't have to prove it. I only say: "Look, I don't know that there is a God; I just don't think there is one."

That makes you an agnostic.

Feynman: No, no, no, no, no.

According to the dictionary (Webster's New World): an agnostic is "a person who thinks it is impossible to know whether there is a God or a future life, or anything beyond material phenomena."

Feynman: That's too refined. There's always an edge. What I mean is this: the probability that the theory of God, the ordinary theory, is right, to my mind is extremely low. That's all. That's the way I look at it.



D. Brian, "The Voice of Genius",
1995

How did he relate his atheism with his awe of the beauty of the laws of nature?

"The Character of Physical Laws", 1967

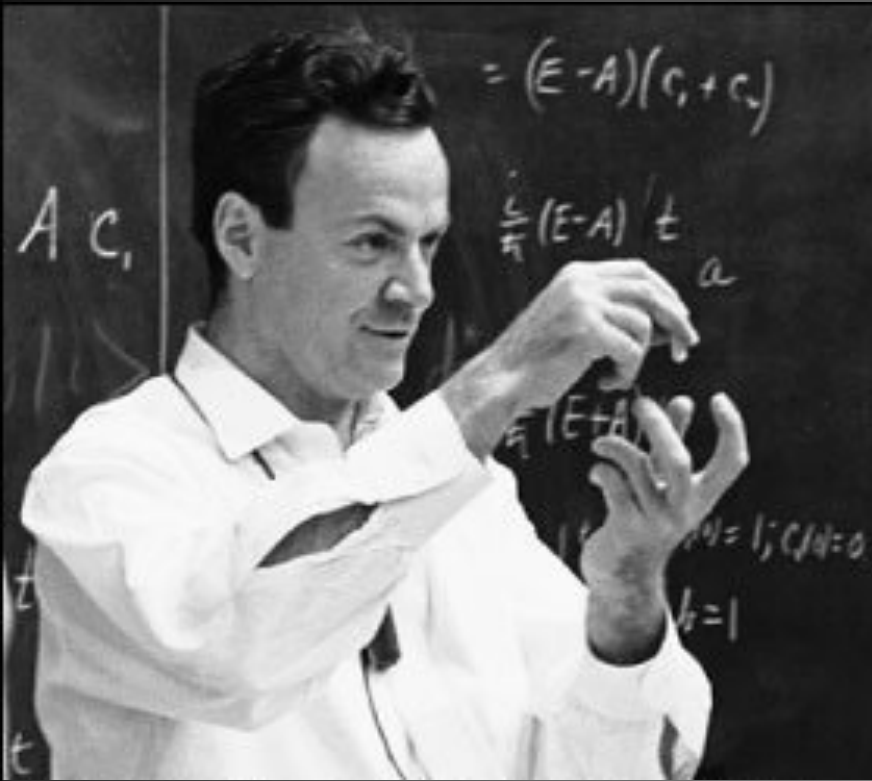
...To summarize, I would use the words of Jeans, who said that "the Great Architect seems to be a mathematician". To those who do not know mathematics it is difficult to get across a real feeling as to the beauty, the deepest beauty, of nature. C.P. Snow talked about two cultures. I really think that those two cultures separate people who have and people who have not had this experience of understanding mathematics well enough to appreciate nature once.

It is too bad that it has to be mathematics, and that mathematics is hard for some people. It is reputed – I do not know if it is true – that when one of the kings was trying to learn geometry from Euclid he complained that it was difficult. And Euclid said, "There is no royal road to geometry". And there is no royal road. Physicists cannot make a conversion to any other language. If you want to learn about nature, to appreciate nature, *it is necessary to understand the language that she speaks in. She offers her information only in one form; we are not so unhumble as to demand that she change before we pay any attention.*

All the intellectual arguments that you can make will not communicate to deaf ears what the experience of music really is. In the same way all the intellectual arguments in the world will not convey an understanding of nature to those of "the other culture". Philosophers may try to teach you by telling you qualitatively about nature. I am trying to describe her. But it is not getting across because it is impossible. Perhaps it is because their horizons are limited in the way that some people are able to imagine that the center of the universe is man...



Witness of a Genius



“We are not to tell nature what she’s gotta be. ... She’s always got better imagination than we have.” (1979)

“You can recognize truth by its beauty and simplicity. When you get it right, it is obvious that it is right—at least if you have any experience—because usually what happens is that more comes out than goes in. ...The inexperienced, the crackpots, and people like that, make guesses that are simple, but you can immediately see that they are wrong, so that does not count. Others, the inexperienced students, make guesses that are very complicated, and it sort of looks as if it is all right, but I know it is not true because the truth always turns out to be simpler than you thought.” (quoted by K.C. Cole, *Sympathetic Vibrations: Reflections on Physics as a Way of Life*, 1985)

Role of religion and
“the central problem of our time”

Metaphysics, Moral, Inspiration

It is not simply a matter of having a right conscience; it is also a question of maintaining strength to do what you know is right. And it is necessary that religion give strength and comfort and the inspiration to follow these moral views. This is the inspirational aspect of religion. It gives inspiration not only for moral conduct—it gives inspiration for the arts and **for all kinds of great thoughts and actions as well**. These three aspects of religion are interconnected, and it is generally felt, in view of this close integration of ideas, that to attack one feature of the system is to attack the whole structure. The three aspects are connected more or less as follows: The moral aspect, the moral code, is the word of God—which involves us in a metaphysical question. Then the inspiration comes because one is working the will of God; one is for God; partly **one feels that one is with God**. And this is a great inspiration because it brings one's actions in contact with the universe at large.



The Pleasure of Finding Things Out
(pp. 252-253).

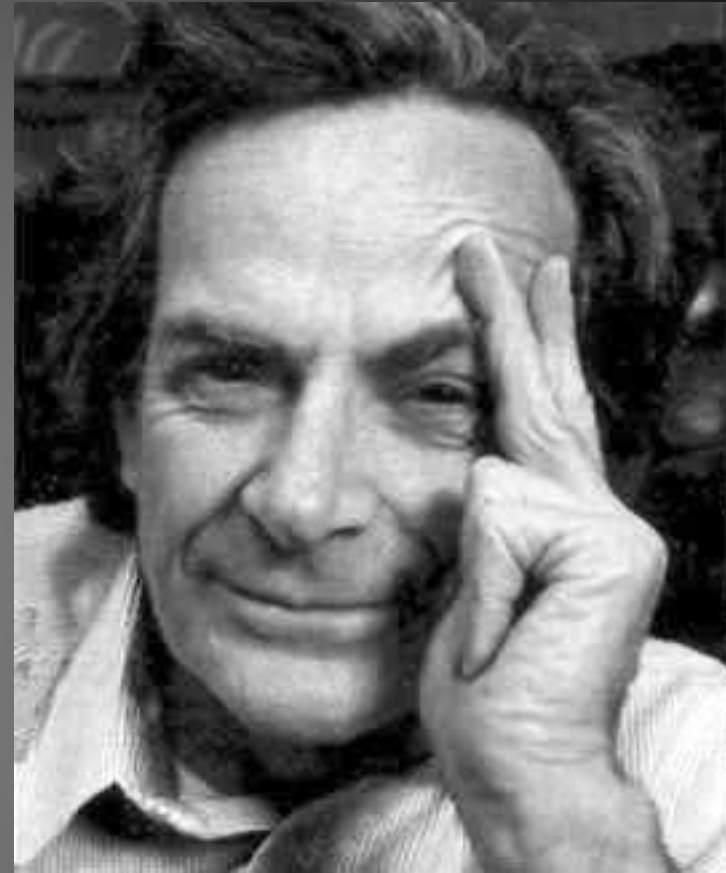
«Turning to the third aspect of religion—the inspirational aspect—brings me to the central question that I would like to present to this imaginary panel. The source of inspiration today—for strength and for comfort—in any religion is very closely knit with the metaphysical aspect; that is, **the inspiration comes from working for God, for obeying his will, feeling one with God**. Emotional ties to the moral code—based in this manner—begin to be severely weakened when doubt, even a small amount of doubt, is expressed as to the existence of God; so when the belief in God becomes uncertain, this particular method of obtaining inspiration fails. I don't know the answer to **this central problem**—the problem of maintaining the real value of religion, as a source of strength and of courage to most men, while, at the same time, not requiring an absolute faith in the metaphysical aspects. Western civilization, it seems to me, stands by two great heritages. One is the scientific spirit of adventure—**the adventure into the unknown**, an unknown which must be recognized as being unknown in order to be explored; the demand that the **unanswerable mysteries of the universe remain unanswered**; the attitude that all is uncertain; to summarize it—the humility of the intellect. The other great heritage is Christian ethics—the basis of action on love, the brotherhood of all men, the value of the individual—the humility of the spirit... How can we draw inspiration to support these two pillars of Western civilization so that they may stand together in full vigor, **mutually unafraid? Is this not the central problem of our time?**» (*The Pleasure of Finding Things Out*, p. 257)



Eternal conflict?

- “In my opinion, it is not possible for religion to find a set of metaphysical ideas which will be guaranteed not to get into conflicts with an ever advancing and always changing science which is going into an unknown. We don’t know how to answer the questions; it is impossible to find an answer which someday will not be found to be wrong. The difficulty arises because science and religion **are both trying to answer questions in the same realm here.**” – *The Relation of Science and Religion, May 1956*

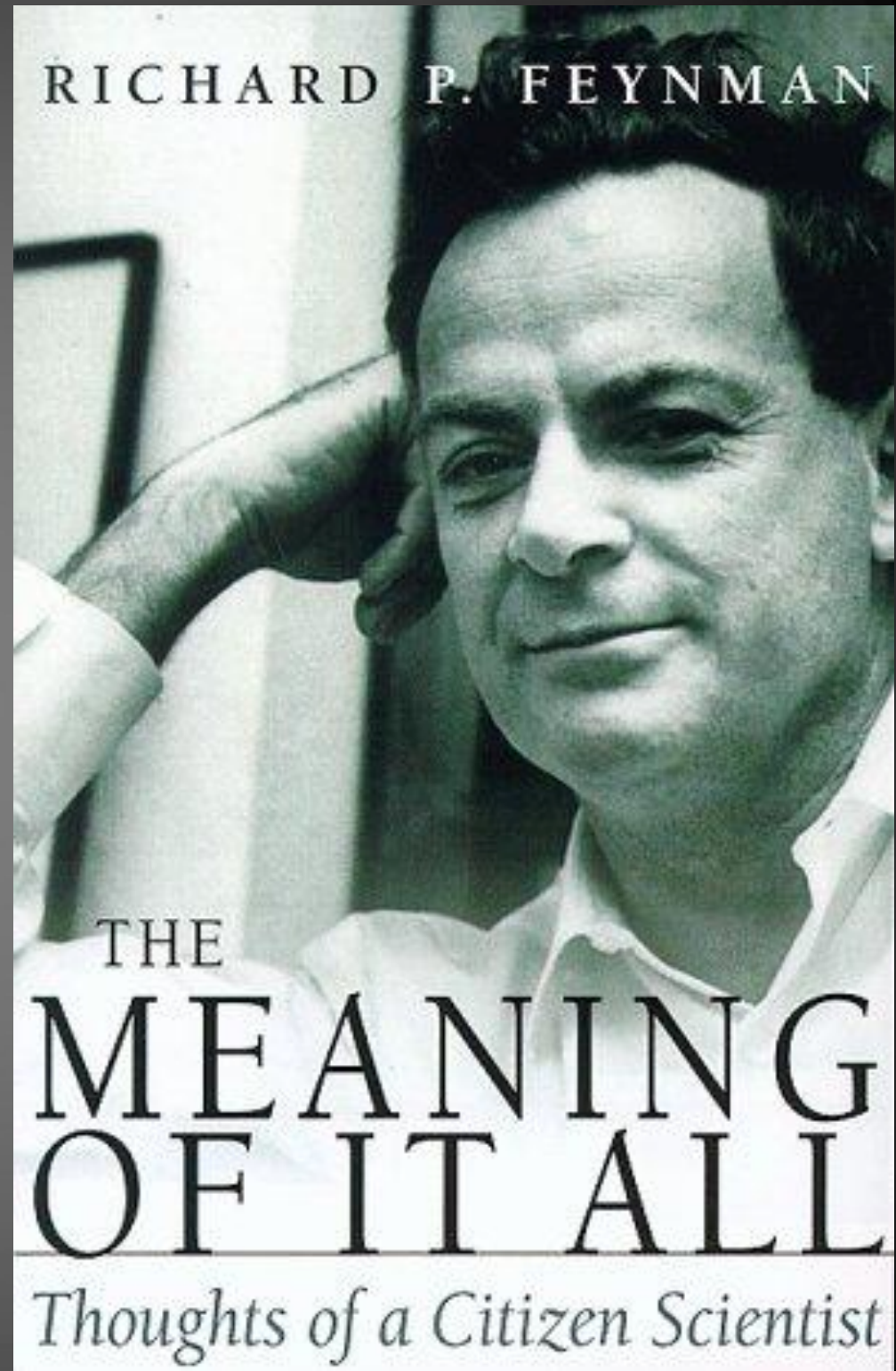
- Is it really so?



atheistic argument: “the stage is too big”

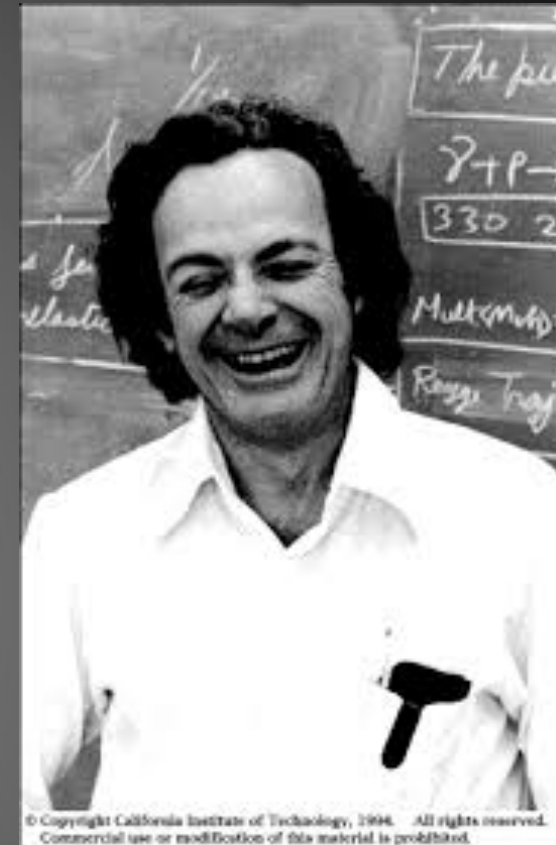
What are humans for God?

- It doesn't seem to me that this fantastically marvelous universe, this tremendous range of time and space and different kinds of animals, and all the different planets, and all these atoms with all their motions, and so on, all this complicated thing can merely be a stage so that God can watch human beings struggle for good and evil — which is the view that religion has. **The stage is too big for the drama.** (1959, quoted in *Genius: The Life and*



Highest forms of understanding

- “My mother ... had a wonderful sense of humor, and I learned from her that the **highest forms of understanding we can achieve are laughter and human compassion.**” (*What Do You Care What Other People Think?*, 1988)
- “It is a great adventure to contemplate the universe, beyond man, to contemplate what it would be like without man, as it was in a great part of its long history and as it is in a great majority of places. When this objective view is finally attained, and the mystery and majesty of matter are fully appreciated, to then turn the objective eye back on man viewed as matter, to view life as part of this universal mystery of greatest depth, is to sense an experience which is very rare, and very exciting. **It usually ends in laughter** and a delight in the futility of trying to understand what this atom in the universe is, this thing — atoms with curiosity — that looks at itself and wonders why it wonders. Well, these scientific views end in awe and mystery, lost at the edge in uncertainty, but they appear to be so deep and so impressive that **the theory that it is all arranged as a stage for God to watch man's struggle for good and evil seems inadequate.**” (*The Meaning of It All*, 1999)



What if the human cognition of *the stage* is a key part of God's idea?

Could it be that art, philosophy, science, religion, civilization have highest meaning in the eyes of God and highest interest to Him?

Reflection on Feynman's Faith

Feynman's Faith

- “Atheist” Feynman rejected conventional confessions in popular forms inasmuch as he knew them. It would not be correct though to say that he did not believe in God. He did, he just did not use that word. Feynman taught to not be fooled by names.
- F. called his God the “Great Architect” or Nature (She):
 - In her laws, She speaks in the language of beautiful mathematics;
 - She's always got better (mathematical) imagination than we have.
 - Thus, She has all the features of Super-Mind.
- F. did not believe in any personal contact with divinity except his (and human) ability to read Her beautiful words. This was his true passion.
- This creed constitutes a special well known faith: Deism. “Atheist” Richard Feynman was in fact a deist, as almost all giants of the Scientific Revolution (Poincare, Einstein, Bohr, Pauli...).



Poor divinity

- Deism is a belief in a **purely scientific divinity**, responsible only for the beauty and discoverability of the laws of nature. It is a minimal, forced concession to reductionism in the face of that extremely impressive and important fact (*to avoid reductio ad absurdum*).
- **Deistic divinity (DD)** cares solely about universal laws. Not only does she not know individual beings—**she does not see humanity and even life in general**.
- Thus, DD is a **poorest and most pitiful of gods**: she sees only mathematical structures. The charming beauty of life, wonders of human creativity, art, philosophy, science, drama of love—**all are totally unknown to her**.
- DD is not sensitive even to **our discoveries** and admiration of her only treasure: the laws of nature. She is completely blind even to that.
- Keeping all that in mind—can such a **poor being exist**? Even if to imagine that she exists, what could be the value of **a communion with her**?
- **Why did giants of science never discuss that?**



Our humanity is a poor thing, except for the
divinity that stirs within us.

(Francis Bacon)

izquotes.com

With the poor DD, isn't it exactly the opposite?

Why is that poor divinity not discussed?

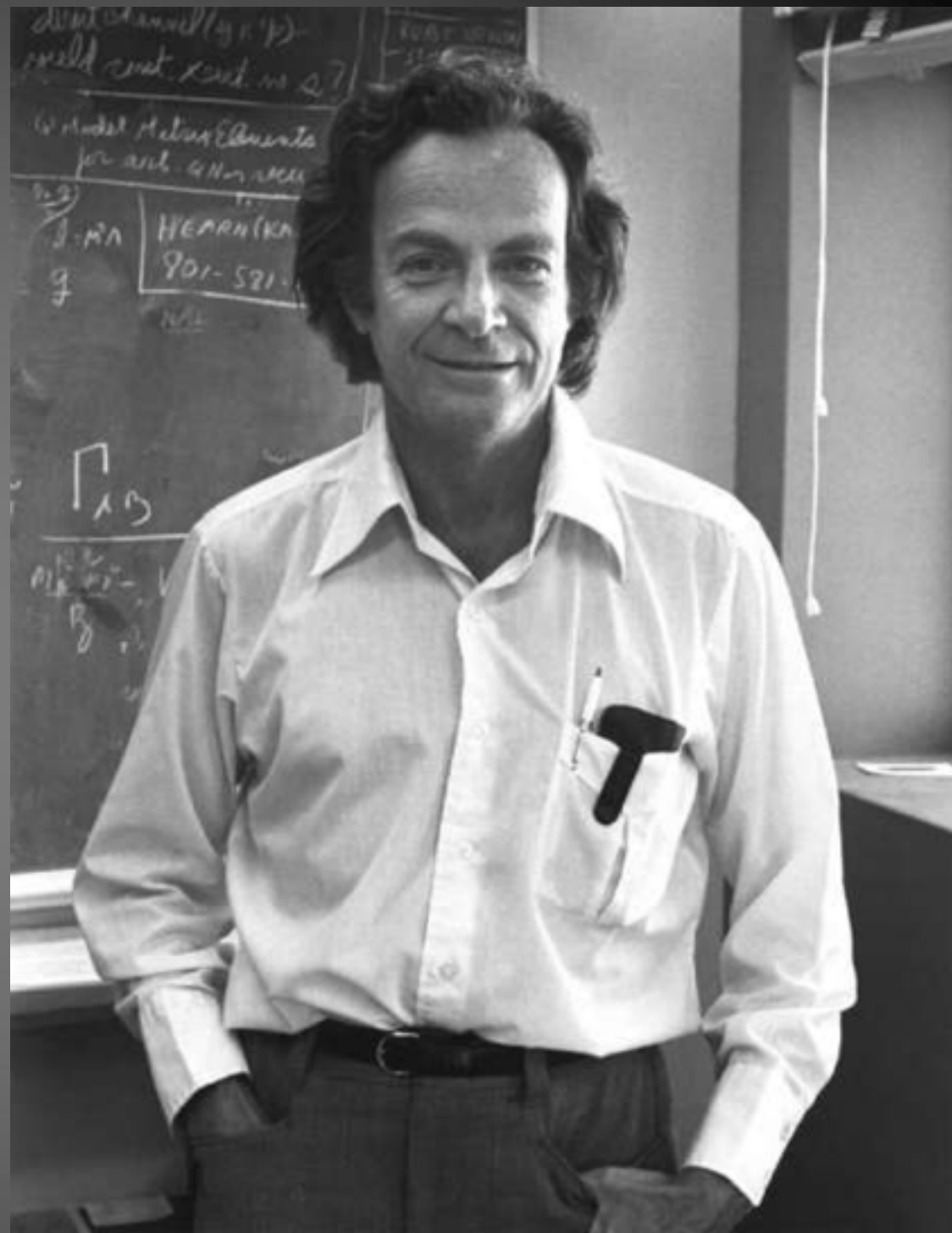
Loss of philosophy

- “In this age of specialization men who thoroughly know one field are often incompetent to discuss another. The great problems of the relations between one and another aspect of human activity have for this reason been discussed less and less in public. When we look at the past great debates on these subjects **we feel jealous of those times**, for we should have liked the excitement of such argument. **The old problems**, such as the relation of science and religion, are still with us, and I believe **present as difficult dilemmas as ever**, but they are not often publicly discussed because of the limitations of specialization.” (*Remarks at a Caltech YMCA lunch forum, 1956*)



“Cargo Cult Science”
and
The first commandment
of Richard Feynman

In 1974, Feynman delivered the Caltech commencement address on the topic of **cargo cult science**, which has the semblance of science, but is only pseudoscience due to a lack of "a kind of scientific integrity, a principle of scientific thought that corresponds to a kind of utter honesty" on the part of the scientist. He instructed the graduating class that "The first principle is that you must not fool yourself—and **you are the easiest person to fool**. So you have to be very careful about that. After you've not fooled yourself, it's easy not to fool other scientists. You just have to be honest in a conventional way after that."





“Cargo Cult Science”, 1974

commencement address

Caltech

“I’m talking about a specific, extra type of integrity that is not lying, **but bending over backwards** to show how you’re maybe wrong, that you ought to do when acting as a scientist. And this is our responsibility as scientists, certainly to other scientists, and I think to laymen. For example, I was a little surprised when I was talking to a friend who was going to go on the radio. He does work on cosmology and astronomy, and he wondered how he would **explain what the applications of this work were.** “Well,” I said, “**there aren’t any.**” He said, “Yes, but then we won’t get support for more research of this kind.” I think that’s **kind of dishonest.** If you’re representing yourself as a scientist, then **you should explain to the layman what you’re doing—and if they don’t want to support you under these circumstances, then that’s their decision.**”

- Did Feynman not fool himself with his poor divinity?
- Did he not just follow without sufficient thinking the deistic mainstream of the scientific revolution?
- Was he not a victim of the “limitations of specialization” in that respect?
- Isn't his “atheism” an example of the *cargo cult theology*?

Could it be, that his philosophical laughter, instead of being *the highest form of understanding*, was in fact something opposite—something like an escape from understanding?

Feynman First Commandment



*The first principle is that you must not fool yourself—
and you are the easiest person to fool.*

WE LOVE YOU DICK

Shortly after Feynman died, a couple of CalTech students climbed over the face of Millikan Library on ropes, and hung this sign.

