

Einstein and Religion

Physics and Theology

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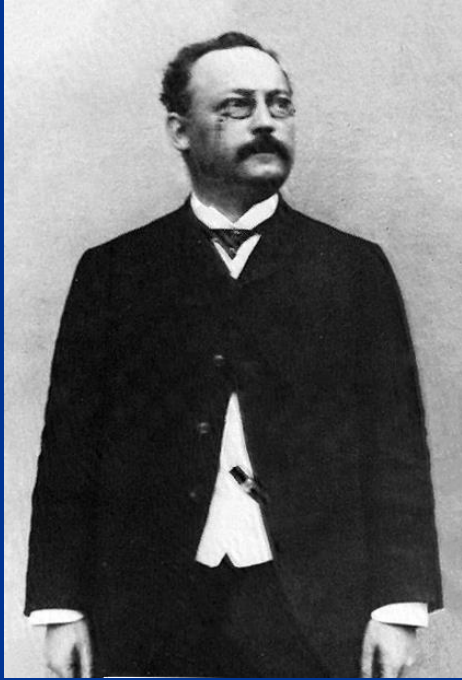
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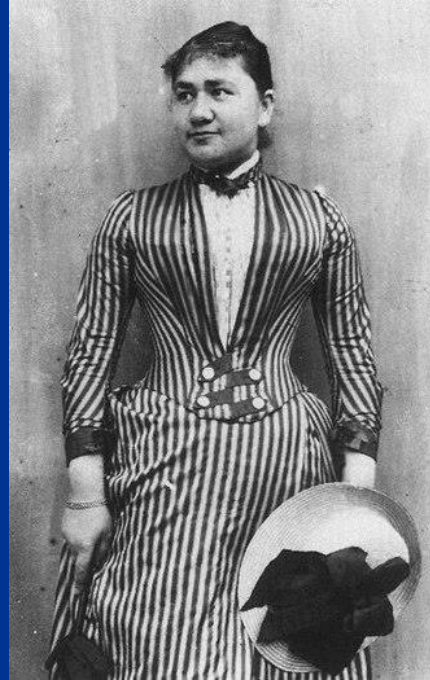
Einstein and Religion

- I. The Role of Religion in Einstein's Life
- II. Einstein's Philosophy of Religion
- III. Theology and Einstein's Physics

I. Religion in Einstein's Life



Hermann Einstein
(1847–1902)



Pauline Koch
(1858–1920)

Hermann Einstein regarded Jewish rituals as relics of ancient superstition and was proud that Jewish rites were not practiced at home. (Jammer 1999, 15)



Petersschule in München

Einstein's first school since 6 years old
(a Catholic primary school)

Music, Nature, and God became intermingled in him in a complex of feeling, a moral unity, the trace of which never vanished, although later the religious factor became extended to a general ethical outlook on the world.

(Alexander Moszkowski)

In the meanwhile Einstein's parents still hired a relative (unknown) to teach Einstein Judaism.

“To what extent are you influenced by Christianity?”

“As a child I received instruction both in the Bible and in the Talmud. I am a Jew, but I am enthralled by the luminous figure of the Nazarene.”

“Have you read Emil Ludwig’s book on Jesus?”

“Emil Ludwig’s *Jesus* is shallow. Jesus is too colossal for the pen of phrasemongers, however artful. No man can dispose of Christianity with a *bon mot!*”

“You accept the historical existence of Jesus?”

“Unquestionably! No one can read the Gospels without feeling the actual presence of Jesus. His personality pulsates in every word. No myth is filled with such life.”

(interview by George Sylvester Viereck in 1929)



No 1
Seeau-Str.

Luitpold-Gymnasium München

Einstein went to Luitpold-Gymnasium, another school, in 1888 (9 years old), which is not a Catholic school. This school taught Judaism especially to Jewish students.

Einstein kept religious, he did not eat pork for example. (actually I don't know he did not eat pork before or after coming to Luitpold)

But Einstein rejected *bar mitzvah* at 12 years old.

Thus I came to a deep religiosity, which, however, found an abrupt ending at the age of 12. Through the reading of popular scientific books I soon reached the conviction that much in the stories of the *Bible* could not be true. The consequence was a positively fanatic [orgy of] freethinking coupled with the impression that youth is intentionally being deceived by the state through lies; it was a crushing impression. **Suspicion against every kind of authority** grew out of this experience, a skeptical attitude towards the convictions which were alive in any specific social environment—an attitude which has never again left me, even though later on, because of a better insight into the causal connections, it lost some of its original poignancy.

(Autobiographical Notes, 1949)

I am of the opinion that all the finer speculations in the realm of science spring from a deep religious feeling, and that without such feeling they would not be fruitful.

(interview by James Murphy and John William Navin Sullivan, 1930)

I'm not an atheist, and I don't think I can call myself a pantheist. We are in the position of a little child entering a huge library filled with books in many languages. The child knows someone must have written those books. It does not know how. It does not understand the languages in which they are written. ... That, it seems to me, is the attitude of even the most intelligent human being toward God.

(quoted from Viereck (1930))

What Does “Religion” Mean for Einstein?

* A pious sentiment of an inspired devotion without any dogmatic indoctrination. A psychological or spiritual driving force that stimulated him to endure the hardships of concentrated work.

(Jammer (1999), 32, 55)

* In a symphony at 12th Apr, 1930, Einstein told to Yehudi Menuhin that “Now I know there is a God in heaven! (Einstein dislikes Wagner)
The feeling of the awesomeness and mystery of the world?

* Specific Metaphysical Position

(determinism, the comprehensibility of the world, the existence of external world...)

Einstein's akinship to Spinoza

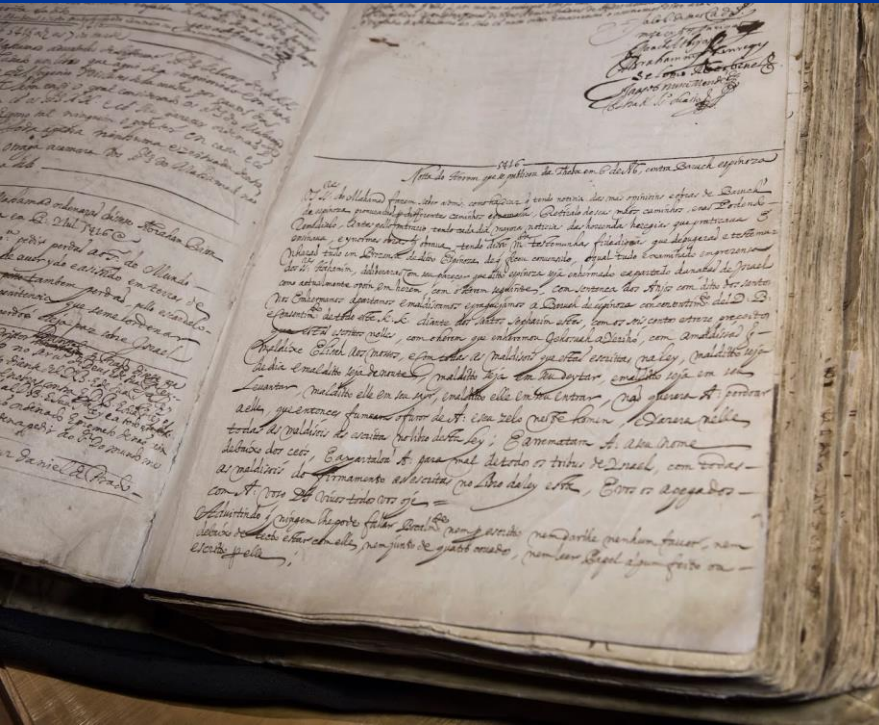


Benedictus de Spinoza
(1632-1677)

Jammer suggests that, as a “lonely traveler”, Einstein shared similar feelings to Spinoza as a Jewish exile. (Spinoza was excommunicated by Judaism at 23 years old, and also was condemned by the Catholic Church)

Although I firmly believe that the chasm between Jewish theology and Spinozism can never be bridged, I am not less convinced that Spinoza's contemplation of the world (Weltanschauung) was thoroughly imbued with the principles and sentiments that characterize so many Jewish intellectuals. I feel I would never have come so near to Spinoza had I not myself been of Jewish extraction and grown up in a Jewish milieu.

(Einstein to Aron, 1943.1.14)



The Influence of Maimonides?



Moses ben Maimon
(1138-1204)

I firmly believe that . . . no bodily accidents apply to Him, and that there exists nothing whatever [that] resembles Him.

(from Judaism daily prayer book)

The Incorporeality of God.

Maimonides exerted a crucial and fruitful influence on his contemporaries and on later generations.

(Einstein, New York Times, 1935)

Any indirect influence?

II. Einstein's Philosophy of Religion

RELIGION AND SCIENCE

- BY PROFESSOR ALBERT EINSTEIN -

EVERYTHING that men do or think concerns the satisfaction of the needs they feel or the escape from pain. This must be kept in mind when we seek to understand spiritual or intellectual movements and the way in which they develop. For feeling and longing are the motive forces of all human striving and productivity—however noble these latter may display themselves to us. What, then, are the feelings and the needs which have brought mankind to religious thought and to faith in the widest sense? A moment's consideration shows that the most varied emotions stand at the cradle of religious thought and experience.

In primitive peoples it is, first of all, fear that awakens religious ideas—fear of hunger, of wild animals, of illness and of death. Since the understanding of causal connections is usually limited on this level of existence, the human soul forgets a being, more or less like itself, on whose will and activities depend the experiences which it fears. One hopes to win the favor of this being by deeds and sacrifices, which, according to the tradition of the race, are supposed to appease the being or to make him well disposed to man. I call this the religion of fear.

This religion is considerably stabilized—though not caused—by the formation of a priestly caste which claims to mediate between the people and the being they fear and so attains a position of power. Often a leader or despot, or a privileged class whose power is maintained in other ways, will combine the function of the priest-hood with its own temporal rule for the sake of greater security; or an alliance may exist between the interests of the political power and the priestly caste.

A SECOND source of religious development is found in the social feelings. Fathers and mothers, as well as leaders of great human communities, are fallible and mortal. The longing for guidance, for love and respect, pervades the atoms of the growth of a social or moral conception of God. This is the God of Providence, who protects, decides, rewards and punishes. This is the God who, according to man's wishes, soothes, loves and provides for the life of the race, or of mankind, or who even loves life itself. He is the comforter in unhappiness and in unsatisfied longing, the protector of the souls of the dead. This is the social or moral idea of God.

It is easy to follow in the sacred writings of the Jewish people the development of the religion of fear into the moral religion, which is carried further in the New Testament. The religions of all the civilized peoples, especially those of the Orient, are principally moral religions. An important advance in the life of a people is the transformation of the religion of fear into the moral religion. This in itself does not avoid the prejudice that regards the religions of primitive peoples as pure fear religions and those of the civilized races as pure moral religions. All are mixed forms, though the moral element predominates in the higher levels of social life. Common to all these types is the anthropomorphic character of the idea of God. Only exceptionally gifted individuals or

especially noble communities rise essentially above this level; in these there is found a third level of religious experience, even if it is seldom found in a pure form. I will call it the cosmic religious sense. This is hard to make clear to those who do not experience it, since it

earlier levels of development—for example, in the Psalms of David and in the Prophets. The cosmic element is much stronger in Buddhism, and, in particular, Schopenhauer's magnificent essays have shown us. The religious geniuses of all times have

contemporaries as viewed, but sometimes also as saints. Asteved from this angle, men like Democritus, Francis of Assisi and Spinoza are near to one another. How can this cosmic religious experience be communicated from man to man, if it cannot lead to a definite conception of God or to a theology? It seems to me that the most important function of art and of science is to arouse and keep alive this feeling in those who are receptive.

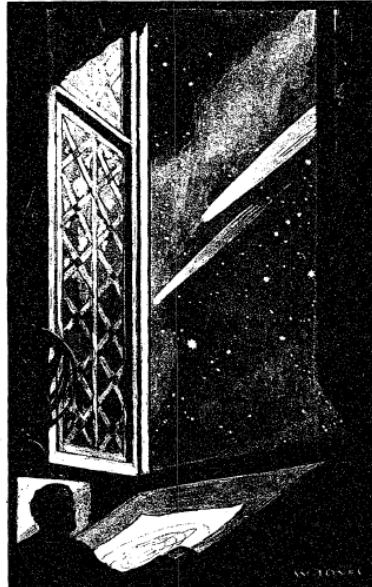
Thus we reach an interpretation of the relation of science to religion which is very different from the customary view. From the study of history, one is inclined to regard religion and science as irreconcilable antagonists, and this for a reason that is very easily seen. For any one who is pervaded with the sense of causal law in all that happens, who accepts in real earnest the assumption of causality, the idea of a Being who interferes with the sequence of events in the world is absolutely impossible. Neither the religion of fear nor the social-moral religion can have any hold on him. A God who rewards and punishes is for him unthinkable, because man acts in accordance with an inner and outer necessity, and world, in the eyes of God, is as little significant as his own existence object is for the movements which it makes.

SCIENCE, in consequence, has been accused of undermining morals—but not wrong. The ethical behavior of man is better based on sympathy, education and social relationships, and requires no support from religion. Man's plight would indeed be sad if he had to be kept in order through fear of punishment and hope of reward after death.

It is, therefore, quite natural that the churches have always fought against science and have persecuted its supporters. But, on the other hand, I assert that the cosmic religious experience is the strongest and the noblest driving force behind scientific research. No one who does not appreciate the sacredness, and, above all, the devotion without which pioneer creatives in scientific thought cannot come into being, can judge the strength of the feeling out of which alone such work, turned away as it is from immediate practical life, can grow. What a deep faith in the rationality of the structure of the world and what a longing to understand even a small glimpse of the reason revealed in the world there must have been in Kepler and Newton to enable them to unravel the mechanism of the heavens, in long years of lonely work!

Any one who only knows scientific research in its practical applications may easily come to a wrong interpretation of the state of mind of the men who, surrounded by skeptical contemporaries, have shown the way to kindred spirits scattered over all countries in all centuries. Only those who have deduced their own views to similar ends can have a living conception of the inspiration which gave those men the power to remain loyal to their purpose in spite of countless failures. It is the cosmic religious sense which grants this power.

A contemporary has rightly said that the benefits of all ages man who were inspired by this highest religious experience; often they appeared to their



"What a Deep Pain There Must Have Been * * * To Unravel the Mechanism of the Heavens in Long Years of Lonely Work!"

does not involve an anthropomorphic idea of God; the individual feels the vanity of human desires and aims, and the nobility and marvelous order which are revealed in nature and in the world of thought. He feels the individual destiny as an imprisonment and seeks to experience the totality of existence as a unity full of significance. Indications of this cosmic religious sense can be found even in

New York Times (9th Nov, 1930)

Three Stages of Religion

1) The Religion of Fear (early Torah)

2) The social or moral conception of God, which arises from the desire for

guidance, love, and support. A God

who rewards and punishes, who

comforts in distress and preserves the

souls of the dead. (Gospel)

Both are anthropomorphic.

Third Stage: “the Cosmic Religion”

The individual feels the futility of human desires and aims and the sublimity and marvelous order which reveal themselves both in nature and in the world of thought. **Individual existence impresses him as a sort of prison, and he wants to experience the universe as a *single significant whole*.** ... The religious geniuses of all ages have been distinguished by this kind of religious feeling, which knows no dogma and no God conceived in man’s image; so that there can be no church whose central teachings are based on it.

(An impersonal religion)

Examples: Democritus, Sanctus Franciscus Assisiensis, Spinoza

Criticisms of "the Cosmic Religion"

THE RELIGION OF RESEARCH.

Among the sermons preached yesterday may be reckoned the article by ALBERT EINSTEIN in THE NEW YORK TIMES on "Religion and Science." He describes the "religion of fear" among primitive peoples—fear of hunger, of wild animals, of illness and death—showing itself in deeds and sacrifices intended to secure the protecting favor of an anthropomorphic divinity. Next came the religion which has its source in the social feelings of human beings—in the longing for guidance, love, comfort by a Providence who protects, decides, rewards and punishes.

DR. WARD ATTACKS EINSTEIN THEORIES

Declares Scientist Overlooks "Overtones of Sin" in Urging "Searchers After Truth."

ASSAILS MODERN WRITERS

Says Interpretation of Evil as Mere Self-Expression Is to Blame for Crime.

Unemployment, governmental corruption and the prevalence of crime were attributed yesterday to the modern generation's interpretation of sin as something archaic by the Rev. Dr. Harry F. Ward of the Union Theological Seminary at the James Memorial Chapel, 120th Street and Claremont Avenue. Dr. Ward criticized the stand taken by Dr. Albert Einstein in his article in yesterday's TIMES Magazine, in which the scientist called for "cosmic experiences" and "searchers after truth" rather

EINSTEIN'S FAITH DEFENDED.

Rabbi Freehof Says His Point of View Is Basic in All Religions.

The attitude of Albert Einstein toward the universe proves surely that if he is not formally religious he has the point of view which is the basis of all religions, Rabbi Solomon B. Freehof of Chicago told the congregation of the Free Synagogue, worshipping in Carnegie Hall, in a sermon yesterday morning on "The Religious Philosophy of Albert Einstein."

"The anti-religious view of the universe looks upon the world as a clearly understood machine in which every 'riddle' is either solved or on the way to solution," he said. "Furthermore, the anti-religious view considers the universe as hostile and alien to the aspirations of man. To Einstein the universe is essentially mysterious. He confronts it with awe and reverence. The universal reveals itself in wisdom and beauty. He bases his ethical hopes on it."

The Impersonality of God

RELIGION OF GOOD URGED BY EINSTEIN

He Tells Philosophers It Is
More Worthy Than 'Concept
of a Personal God'

DECRIES FEAR AS A BASIS

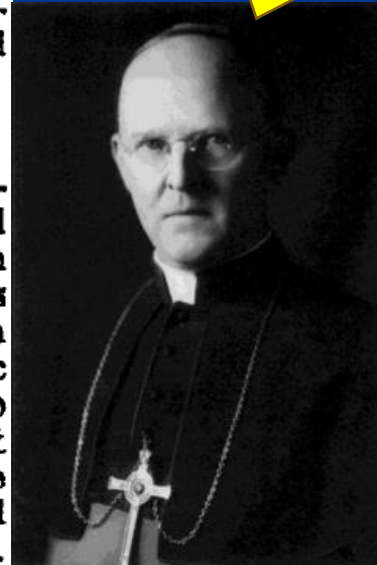
Various Other Plans Offered
for Unifying Democracy
Against Totalitarianism

"The more a man is imbued with the ordered regularity of all events," Professor Einstein continued, "the firmer becomes his conviction that there is no room left by the side of this ordered regularity for causes of a different nature. For him, neither the rule of human nor the rule of Divine Will exists as an independent cause of natural events.

Admits Refutation Impossible

"To be sure, the doctrine of a personal God interfering with natural events could never be refuted in the real sense by science, for this doctrine can always take refuge in those domains in which scientific knowledge has not yet been able to set foot. But I am persuaded that such behavior on the part of the representatives of religion would not only be unworthy but also fatal.

It is sad to see a man, who comes from the race of the Old Testament and its teaching, deny the great tradition of that race."

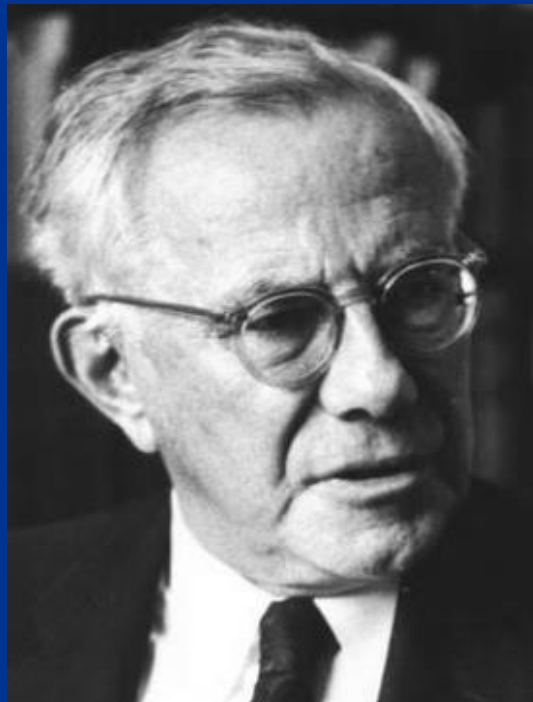


The Impersonality of God

I cannot conceive of a God who rewards and punishes his creatures, or has a will of the kind that we experience in ourselves. Neither can I nor would I want to conceive of an individual that survives his physical death; let feeble souls, from fear or absurd egoism, cherish such thoughts. I am satisfied with the mystery of the eternity of life and with the awareness and a glimpse of the marvelous structure of the existing world, together with the devoted striving to comprehend a portion, be it ever so tiny, of the Reason that manifests itself in nature.

(The World As I See It, 1930)

What does the impersonality of God mean for Einstein?



Paul Tillich (1886-1965)

DAS PROBLEM DES „PERSÖNLICHEN GOTTES“

EINE AUSEINANDERSETZUNG MIT ALBERT EINSTEIN

(1940)

Vor einiger Zeit hielt Albert Einstein einen Vortrag über „Wissenschaft und Religion“.¹ Seine Ausführungen erregten heftigen Widerspruch sowohl bei Theologen wie bei religiös empfindenden Menschen, weil er die Idee eines „persönlichen Gottes“ verwarf. Wenn es nicht Einstein, der große Umgestalter unseres physikalischen Weltbildes, gewesen wäre, hätten seine Argumente nicht eine solche Erregung hervorgerufen, denn sie waren weder neu noch überzeugend. Aber aus dem Munde Einsteins als Ausdruck seiner geistigen und sittlichen Persönlichkeit wurden sie bedeutsam. Deshalb ist es gerechtfertigt, daß die philosophische oder apologetische Theologie sich mit Einsteins Kritik befaßt und darüber hinaus eine Lösung zu entwerfen versucht, die seine Kritik anerkennt, aber sie zugleich widerlegt.



Paul Tillich (1886-1965)

(**“The experience of the numinous”**) can occur in connection with the intuition of the **“grandeur of reason incarnate in existence,”** it can occur in connection with the belief in “the significance and loftiness of those superpersonal objects and goals which neither require nor are capable of rational foundation” — as Einstein says. ... But since it is **“inaccessible”** for any objectivating concept, it must be expressed in symbols. One of these symbols is the **“Personal God.”** It is the common opinion of classical theology, practically in all periods of Church history, that the predicate “personal” can be said of the Divine only symbolically or by analogy or if affirmed and negated at the same time. It is obvious that, **in the daily life of religion, the symbolic character of the idea of the “Personal God” is not always realized.**

Determinism

EINSTEIN: Look here. Indeterminism is quite an illogical concept. What do they mean by indeterminism? Now if I say that the average life-span of a radioactive atom is such and such, that is a statement which expresses a certain order, *Gesetzlichkeit*. But this idea does not of itself involve the idea of causation. We call it the law of averages; but not every such law need have a causal significance. At the same time if I say that the average life-span of such an atom is indetermined in the sense of being not caused, then I am talking nonsense. I can say that I shall meet you to-morrow at some indetermined time. But this does not mean that time is not determined. Whether I come or not the time will come. Here there is question of

the time will come. Here there is question of confounding the subjective with the objective world. The indeterminism which belongs to quantum physics is a subjective indeterminism. It must be related to something, else indeterminism has no meaning, and here it is related to our own inability to follow the course of individual atoms and forecast their activities. To say that the arrival of a train in Berlin is indetermined is to talk nonsense unless you say in regard to what it is indetermined. If it arrives at all it is determined by something. And the same is true of the course of atoms.

Determinism and Free Will

EINSTEIN: Honestly I cannot understand what people mean when they talk about the freedom of the human will. I have a feeling, for instance, that I will something or other; but what relation this has with freedom I cannot understand at all. I feel that I will to light my pipe and I do it; but how can I connect this up with the idea of freedom? What is behind the act of *willing* to light the pipe? Another act of willing? Schopenhauer once said: *Der Mensch kann was er will; er kann aber nicht wollen was er will* (Man can do what he wills but he cannot will what he wills).

I do not believe in freedom of the will. Schopenhauer's words: "Man can do what he wants, but he cannot will what he wills" accompany me in all situations throughout my life and reconcile me with the actions of others even if they are rather painful to me. This awareness of the lack of freedom of will preserves me from taking too seriously myself and my fellow men as acting and deciding individuals and from losing my temper.

Free Will and Morality

As late as 1948, answering Besso's commendation of the Christian maxim "Love thy enemy," Einstein wrote that he agreed as far as actions are concerned. "But for me," he continued, "the cogitative basis is the trust in an unrestricted causality. 'I cannot hate him because he *must* do what he does.' That means, for me more Spinoza than the Prophets."²⁸

The Comprehensibility of the World

... But the creative principle resides in mathematics. In a certain sense, therefore, I hold it true that pure thought can grasp reality, as the ancients dreamed. ...



The Comprehensibility of the World

Ordo et connexio idearum idem est, ac ordo et connexio rerum.

(Order and connection of ideas is the same as order and connection of things)

(Spinoza)

But does that require a notion of God?

The Reality of External World and Einstein's Methodology of Philosophy of Religion

TAGORE: ... Therefore, the world apart from us does not exist; it is a relative world, depending for its reality upon our consciousness. There is some standard of reason and enjoyment which gives it truth, the standard of the eternal man whose experiences are made possible through our experiences.

...

EINSTEIN: Truth, then, or beauty, is not independent of man?

TAGORE: No, I do not say so.

...

EINSTEIN: I agree with this conception of beauty, but not with regard to truth.

TAGORE: Why not? Truth is realized through men.

EINSTEIN: **I cannot prove my conception is right, but that is my religion.**

III. Theology and Einstein's Physics

Relativity and Time

Now he (Besso) has departed a little ahead of me from this quaint world. This means nothing. For us faithful physicists, the separation between past, present, and future has only the meaning of an illusion, though a persistent one."

(Einstein 1955)

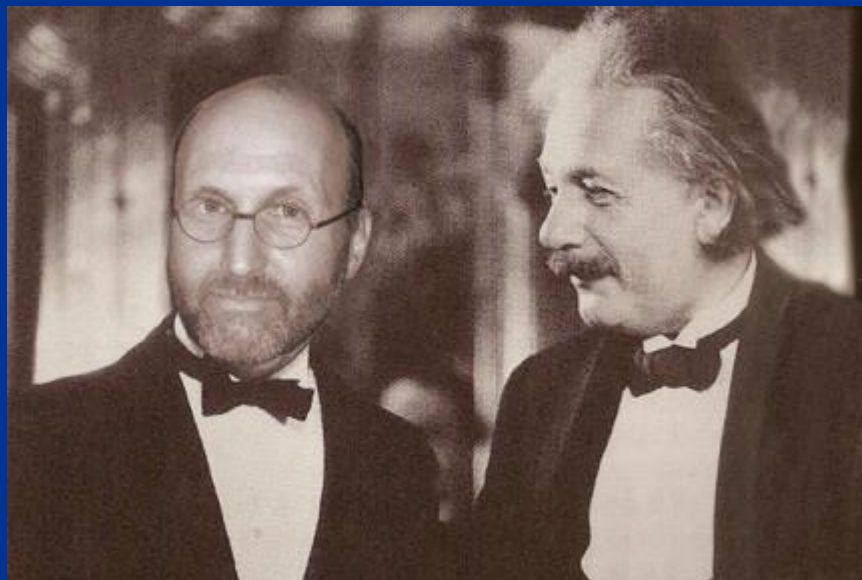
From the standpoint of Christian theology, an undifferentiated, quantitatively measurable flow of time misses the messianic aspects of Christian faith. A Christian understanding of time must insist on a qualitative difference between past, present, and future. The notion of historical time as a single line moving into the future smacks more of a deistic model in which a predetermined divine plan is implemented. Or it assumes a quasi-scientific view of historical causality in which the past simply determines the future

(Brroke 2006)

III. Theology and Einstein's Physics

Relativity and Time

Can **A theory** of time, or **growing block theory** be compatible with general relativity?



See you next term!