



Novel

Novel Sans

Novel Sans Condensed

Novel Sans Rounded

Novel Mono

abcdefghijklmnopqrstuvwxyzßfbfifkflft
 I234567890#\$%€£F€¥wàáâãäåãäå
 ABCDEFGHIJKLMNOPQRSTUVWXYZ&
 1234567890@.,:;!?)]]}S*“”<><<>>J

Novel – Basic Characters

About: Novel is the humanist Antiqua typeface family within the largely extended Novel Collection, also containing Novel Sans, Novel Sans Condensed Pro, Novel Mono, Novel Sans Rounded and Novel Sans Office.

Classic proportions of a Renaissance Antiqua combined with modern details let Novel appear as a friendly and elegant but functional typeface. The almost upright letters of the narrow Italics create a vital contrast to the generous construction of the roman.



Features: Novel [914 glyphs] comes in 12 styles and contains small caps, alternate glyphs, many ligatures, lining figures [proportionally and monospaced], hanging figures [proportionally and monospaced], small caps figures [proportionally and monospaced], positive and negative circled figures [UC & LC], superior and inferior figures, fractions, arrows for uppercase and lowercase and many more OpenType™ features.

Language support: Afrikaans, Albanian, Basque, Bosnian, Breton, Catalan, Chichewa, Croatian, Czech, Danish, Dutch, English, Esperanto, Estonian, Faroese, Finnish, French, Frisian, Gaelic (Scots), Galician, German, Greenlandic, Hungarian, Icelandic, Indonesian, Irish, Italian, Kashubian, Kurdish, Latvian, Lithuanian, Luxembourgian, Maltese, Maori, Norwegian, Occitan, Polish, Portuguese, (Rhaeto-) Romance, Romanian, Sami, Serbian (Latin), Slovak, Slovenian, Sorbian, Spanish, Swahili, Swedish, Tswana, Turkmen, Turkish, Walloon, Wolof, Yapese.

Extra Light
Light
Regular
Semi Bold
Bold
Extra Bold

Extra Light Italic
Light Italic
Regular Italic
Semi Bold Italic
Bold Italic
Extra Bold Italic

EXTRA LIGHT SMALL CAPS
LIGHT SMALL CAPS
REGULAR SMALL CAPS
SEMI BOLD SMALL CAPS
BOLD SMALL CAPS
EXTRA BOLD SMALL CAPS

EXTRA LIGHT ITALIC SMALL CAPS
LIGHT ITALIC SMALL CAPS
REGULAR ITALIC SMALL CAPS
SEMI BOLD ITALIC SMALL CAPS
BOLD ITALIC SMALL CAPS
EXTRA BOLD ITALIC SMALL CAPS



Astrophysics

Novel – Extra Light

Stellar matter

Novel – Semi Bold Italic

Expanding cosmos

Novel – Extra Bold

Radiation pressure

Novel – Light

Spherical solutions

Novel – Semi Bold

Extra-galactic nebulae

Novel – Extra Bold Italic



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubbel’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaître when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubble’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaître when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubbel’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaître when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubble’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaître when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubbel’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaitre when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubbel’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaître when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubbel’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaître when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubbel’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaitre when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubbel’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaitre when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubbel’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaître when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubbel’s exceedingly important investigations have shown that the extra-galactic nebulae ... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaitre when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



The manuscript under discussion has been assigned the year 1931 at the Albert Einstein Archive. However, this dating is no longer certain as the manuscript was mistaken for a draft of a different paper until now. The statement “Hubbel’s exceedingly important investigations have shown that the extra-galactic nebulae... possess a Doppler effect proportional to their distance” gives confidence that it was written after Hubble’s seminal publication of 1929.

The first steady-state models of the universe were considered many times in 20th century cosmology. In 1918, the American physicist MacMillan proposed a continuous creation of matter from radiation in order to avoid a gradual “running down” of the universe due to the conversion of matter into energy in stellar processes. MacMillan’s proposal was enthusiastically received by Millikan, who suggested that the process might be the origin of cosmic rays. The idea of a continuous creation of matter from radiation was also considered by Tolman as a means of introducing matter into the empty universe.

In 1928, James Jeans speculated that matter was continuously created in the centre of the spiral nebulae: “The type of conjecture which presents itself, somewhat insistently, is that the centres of the nebulae are of the nature of ‘singular points’, at which matter is poured into our universe from some other spatial dimension ... so that they appear as points at which matter is poured into our universe from some other, and entirely extraneous spatial dimension, so that, to a denizen of our universe, they appear as points at which matter is continually created”. Other scientists considered the possibility of creation of matter from empty space. Similar ideas were explored by the Swedish Svante Arrhenius and the German chemist Walther Nernst. However, these theories did not concern the continuous creation of matter in an expanding universe.

It should come as no great surprise that when confronted with empirical evidence for an expanding universe, Einstein once considered a stationary or steady-state model of the expanding cosmos. There is a great deal of evidence that Einstein’s philosophical preference was for an unchanging universe, from his introduction of the cosmological constant to the field equations in 1917 to keep the universe static to his well-known hostility to the dynamic models of Friedman and Lemaitre when they were first suggested. Indeed, a model of an expanding cosmos in which the density of matter remains unchanged seems a natural successor to Einstein’s static model of 1917, at least from a philosophical point of view. On the other hand, it seems very probable that Einstein decided against steady-state solutions because they were more contrived than evolving models of the cosmos. This suggestion fits very well with our view of Einstein’s pragmatic approach to cosmology in these years.



Designer:
Christoph Dunst

Publishing Date:
2008

Font Software:
Version 1.0

Contact:
Atlas Font Foundry
Friedrichstrasse 236
10969 Berlin/Germany

+49 30 55145455 (phone)
info@atlasfonts.com
www.atlasfonts.com

Copyright:
©2008 Atlas Font Foundry. All rights reserved.
Atlas Font Foundry® and Novel Collection® are registered
trademarks of the Atlas Font Foundry.