Dr. Fernando J. Ballesteros

VNIVERSITAT DE VALÈNCIA

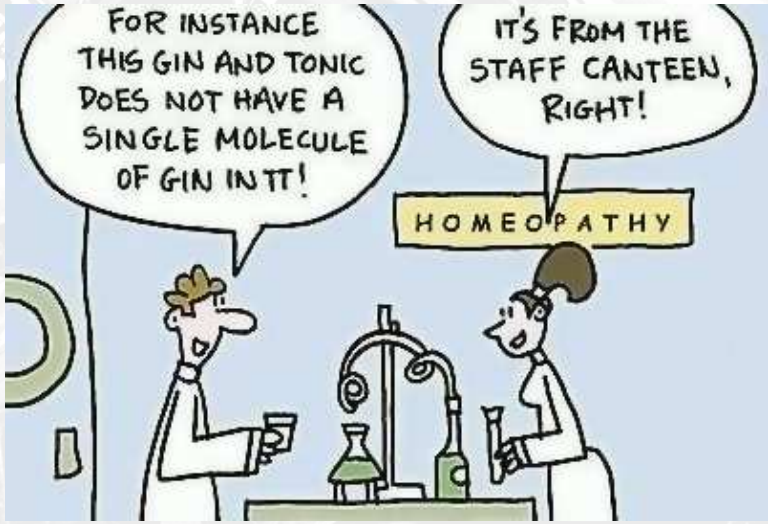
Observatori Astronòmic

POE DESDE LA CIENCIA

PASIÓN POR LA CIENCIA

- Desde joven fue muy aficionado a la ciencia en general y a la astronomía en particular.
- Se pasaba las noches contemplando el firmamento con su telescopio.
- En la Universidad muestra aptitudes notables para la física y las matemáticas.
- Ávido lector de literatura de divulgación científica, de física y astronomía.
- Fan de los acertijos y problemas lógicos

- Introduce en sus relatos gran cantidad de elementos científicos y tecnológicos que ayudan a incrementar la verosimilitud de los mismos.
- Fe en la lógica: es el padre del detective científico.
- Explica el componente sorprendente o maravilloso de sus relatos mediante la ciencia → Ciencia Ficción
- Por ese motivo, sus escritos son a menudo obras de anticipación.
- En sus engaños juega con la credibilidad del lector: advierte del peligro de dar algo por cierto sólo porque lleva el barniz del lenguaje científico.

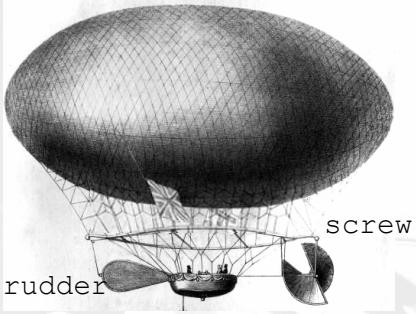


"The Balloon Hoax" (13 abril 1844, The New York Sun)

... The screw consists of an axis of hollow brass tube, 18 inches in length, through which, upon a semi-spiral inclined at 15 degrees, pass a series of steel-wire radii, 2 feet long, and thus projecting a foot on either side. These radii are connected at the outer extremities by 2 bands of flattened wire; the whole in this manner forming the framework of the screw, which is completed by a covering of oiled silk cut into gores, and tightened so as to present a tolerably uniform surface. At each end of its axis this screw is supported by pillars of hollow brass tube descending from the hoop. In the lower ends of these tubes are holes in which the pivots of the axis revolve. From the end of the axis which is next the car, proceeds a shaft of steel, connecting the screw with the pinion of a piece of spring machinery fixed in the car. By the operation of this spring, the screw is made to revolve with great rapidity, communicating a progressive motion to the whole. By means of the rudder, the machine was readily turned in any direction...

Científicamente impecable

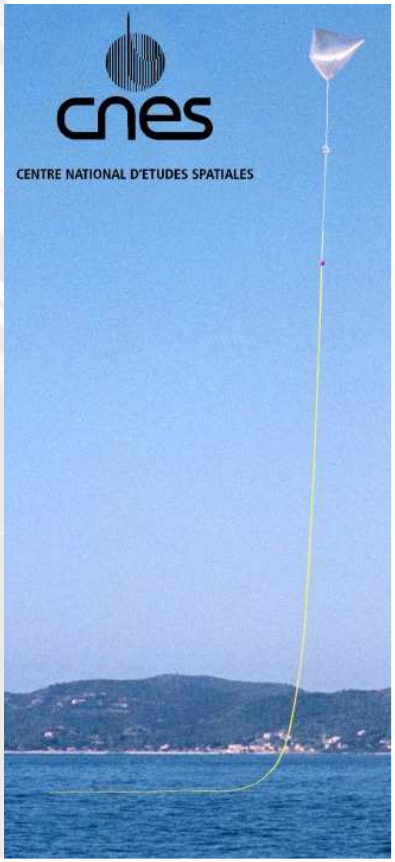
The mails from the South last Saturday night not having brought a confirmation of the arrival of the Balloon from England, the particulars of which from our correspondent we detailed in our Extra, we are inclined to believe that the intelligence is erroneous. The description of the Balloon and the voyage was written with a minuteness and scientific ability calculated to obtain credit everywhere, and was read with great pleasure and satisfaction. We by no means think such a project impossible.



El Victoria

El R34

...To check this ascent, the only recourse is (or rather was, until Mr. Green's invention of the guide-rope) the permission of the escape of gas from the valve; but, in the loss of gas, is a proportionate general loss of ascending power; so that, in a comparatively brief period, the best-constructed balloon must necessarily exhaust all its resources, and come to the earth. This was the great obstacle to voyages of length. The guide-rope remedies the difficulty in the simplest manner conceivable. It is merely a very long rope which is suffered to trail from the car, and the effect of which is to prevent the balloon from changing its level in any material degree...



CIENCIA FICCIÓN

"The Unparalleled Adventure of One Hans Pfaall" (1835)

I then took opportunities of conveying by night, to a retired situation east of Rotterdam, five iron-bound casks, to contain about fifty gallons each, and one of a larger size; six tin tubes, three inches in diameter, properly shaped, and ten feet in length; a quantity of a *particular metallic substance, or semi-metal*, which I shall not name, and a dozen demijohns of *a very common acid*. The gas to be formed from these latter materials is a gas never yet generated by any other person than myself - or at least never applied to any similar purpose. I can only venture to say here, that it is *a constituent of azote*, so long considered irreducible, and that its density is about 37.4 times less than that of hydrogen. It is tasteless, but not odorless; burns, when pure, with a greenish flame, and is instantaneously fatal to animal life. Its full secret I would make no difficulty in disclosing, but that it of right belongs (as I have before hinted) to a citizen of Nantz, in France, by whom it was conditionally communicated to myself.

El propio Poe afirma en el postscript que todos los detalles están bien fundamentados, aunque "estira", pero no viola, principios científicos básicos.

Ciencia ficción "hard" (con pifias).

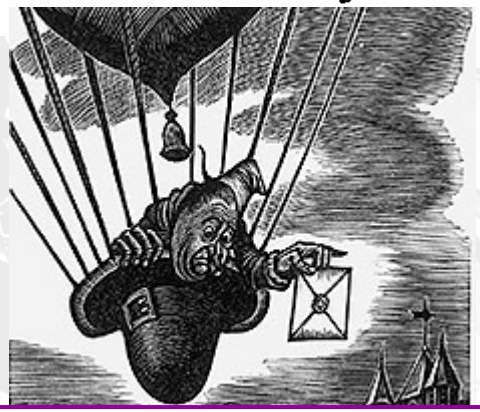
cleveita

60 años después

The New York Times
Published: May 7, 1895

FICTION ANTICIPATES SCIENCE

Hans Pfaall's Balloon Seems to Have Been Filled with the Gas Recently Found in the Air by Prof. Ramsay.



A remarkable instance of imagination being unable to overstep the bounds of the possible, or of reality being obliged to follow fiction, is afforded by the discovery of helium. One might have imagined that when Prof. Ramsay discovered a new element in the air, he was out of reach of the novelist. Not a bit of it. Edgar Allan Poe had been there before him. Or if we put it the other way, when Edgar Allan Poe thought he was inventing an impossible new gas which should enable Hans Pfaall to float his balloon, he was merely roughly

We hope our readers will remark how very closely the manufacture of helium follows Poe's receipt. To begin with, helium is prepared by pouring a very common acid, i. e., sulphuric acid, on "a particular metallic substance or semi-metal."

Clearly Edgar Allan Poe invented helium as much as Jules Verne invented the submarine boat. After this one wonders how long it will be before a projectile is shot on to the moon, or the centre of the earth reached by way of an extinct crater.

From The London Spectator.

The world hears a great deal from the critics of fiction, about wild imaginings, impossible situations, stories that are spoiled by beings far removed from the plane of human experience, and of plots so far-fetched and extravagant as to be utterly absurd. Yet, strange as it sounds, we believe that these complaints are usually ill-founded. There are plenty of bad plots and foolish situations, but their badness and foolishness consist far less often in their impossibility than is popularly imagined. A man may, of course, sit down and concoct a monster, but as a rule the human imagination is singularly limited and confined. In the region of the human comedy, it seldom or never travels outside the region of actual experience, while even in the romance of marvel and adventure, the novelist as often as not is only "a little previous,"—that is, he merely invents and discovers quicker than the le-

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done in a London laboratory. The Lancet of last Saturday quotes the passage from Edgar Allan Poe, in which Hans Pfaall describes how he produced his new gas, lighter than hydrogen. Here is the extract:

I then took opportunities of conveying by night, to a retired situation east of Rotterdam, five iron-bound casks, to contain about fifty gallons each, and one of a larger size; six tin tubes, 3 inches in diameter, properly shaped, and 10 feet in length; a quantity of a particular metallic substance, or semi-metal, which I shall not name, and a dozen demijohns of a very common acid. The gas to be formed from these latter materials is a gas never yet generated by any other person than myself—or, at least, never applied to any similar purpose. I can only venture to say here that it is a constituent of azote, so long considered irreducible, and that its density is about 37.4 times less than that of hydrogen. It is tasteless, but not odorless; burns, when pure, with a greenish flame, and is instantaneously fatal to animal life. Its full secret I would make no difficulty in disclosing but that it of right belongs (as I have before hinted) to a citizen of Nantz, in France, by whom it was conditionally communicated to myself.

The same individual submitted to me, without being at all aware of my intentions, a method of constructing balloons from the membrane of a certain animal, through which substance any escape of gas was nearly an impossibility. I found it, however, altogether too expensive, and was not sure, upon the whole, whether cambric muslin with a coating of gum caoutchouc was not equally as good. I mention this circumstance because I think it probable that hereafter the individual in question may attempt a balloon ascension with the novel gas and material I have spoken of, and I do not wish to deprive him of

We hope our readers will remark how very closely the manufacture of helium follows Poe's receipt. To begin with, helium is prepared by pouring a very common acid, i. e., sulphuric acid, on "a particular metallic substance or semi-metal."

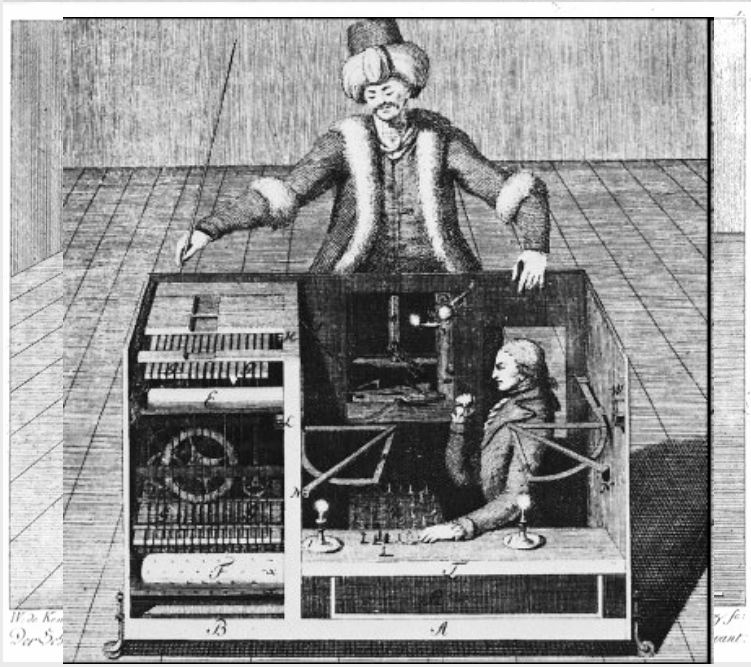
ably very much less than that of hydrogen. Azote is another name for nitrogen—a zoe, without life. Hence, if Hans Pfaall's gas was not helium it was something very like it. Curiously enough, the writer in The Lancet suggests that helium will be used for the exact purpose for which its fictional inventor destined it. "If helium could be obtained in tolerable quantity, what an important bearing it might have in aeronautics. Thus, if it be much lighter than hydrogen its lifting power would be much greater, and the cumbersome and clumsy dimensions of our present balloon, it is easy to see, could be reduced

Clearly Edgar Allan Poe invented helium as much as Jules Verne invented the submarine boat. After this one wonders how long it will be before a projectile is shot on to the moon, or the centre of the earth reached by way of an extinct crater.

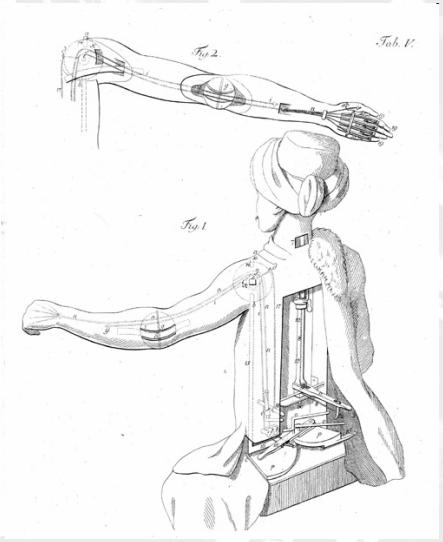
EL TURCO

Poe además de emplear la ciencia para su literatura, también puso su literatura al servicio de la ciencia .

En 1854, tras 85 años de éxitos y de pasar por varios propietarios, resulta destruido en un incendio.



Maelzel's Chess-Player (1836)



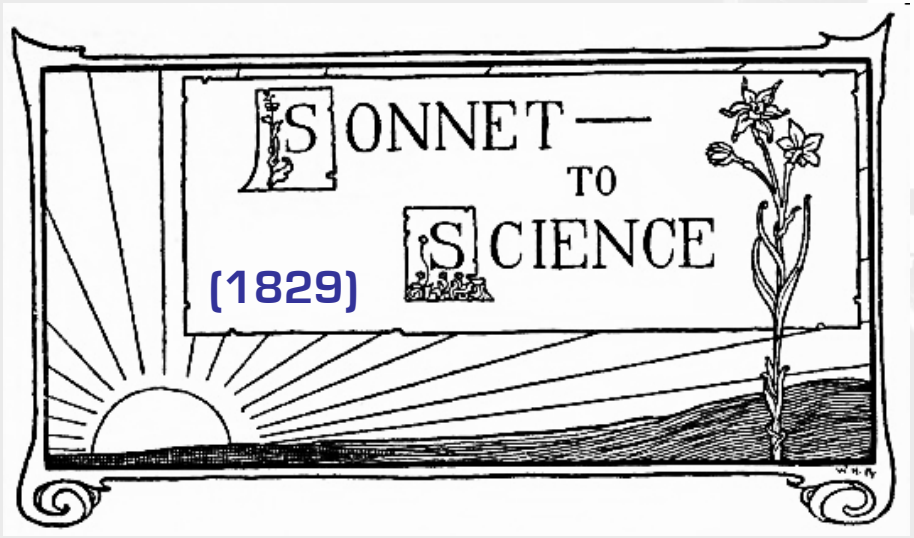
«...In attempting ourselves an explanation of the Automaton, we will, in the first place, endeavor to show how its operations are effected, and afterwards describe, as briefly as possible, the nature of the "observations" from which we have deduced our result...»

« When the machine is first rolled into the presence of the spectators, a man is already within it.»

Elemental

- **Autómata jugador de ajedrez del s. XVIII**
- **Construido en 1770 por el barón von Kempelen.**
- **Ofrecía 500 rublos a quien lo venciera.**
- **En 1804 pasa a manos de Johann Maelzel**
- **¡Ganó al mismísimo Napoleón!**
- **Viajó a numerosos países, incluidos los Estados Unidos, donde derrotó a Poe.**

UNA RELACIÓN DE AMOR - ODIO CON LA CIENCIA



Poe echa en cara a la ciencia su exceso de confianza en el método inductivo - deductivo.

S XIX, apogeo del inductivismo, basado en el método de Bacon y reelaborado por John Stuart Mill

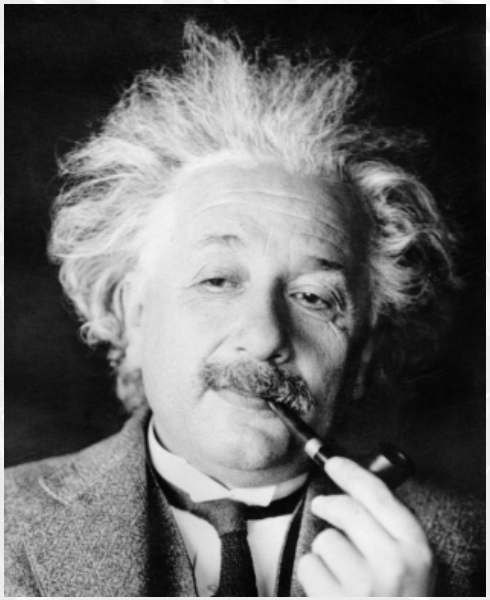
Poe defiende un mayor papel de la intuición y la imaginación.

Ningún método sustituye la inteligencia, creatividad o imaginación.

Science! true daughter of Old Time thou art!
Who alterest all things with thy peering eyes.
Why preyest thou thus upon the poet's heart,
Vulture, whose wings are dull realities?
How should he love thee? or how deem thee wise?
Who wouldst not leave him in his wandering
To seek for treasure in the jewelled skies,
Albeit he soared with an undaunted wing?
Hast thou not dragged Diana from her car?
And driven the Hamadryad from the wood
To seek a shelter in some happier star?
Hast thou not torn the Naiad from her flood,
The Elfin from the green grass, and from me
The summer dream beneath the tamarind tree?

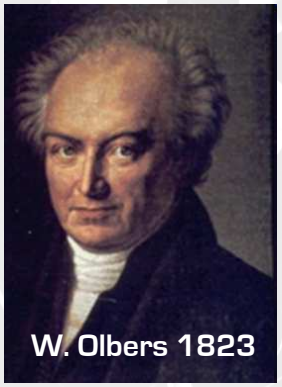
Fines del XIX y ppios. del XX, crítica al inductivismo: Mach, Karl Popper

El papel de la imaginación es imprescindible en la ciencia.



¿POR QUÉ ES OSCURA LA NOCHE?

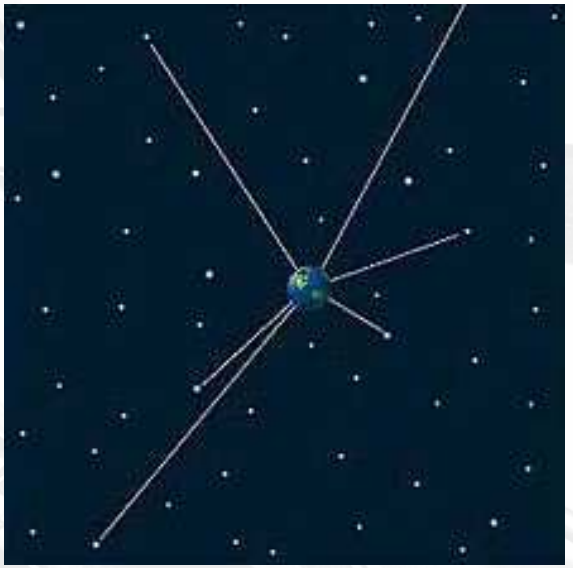
Universo infinito en espacio y tiempo comúnmente aceptado en el s. XVIII



W. Olbers 1823

Keppler fue el primero en darse cuenta.

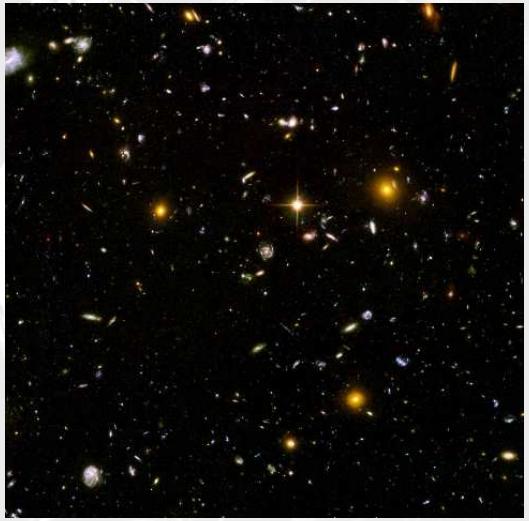
Miremos donde miremos, siempre encontraremos una estrella.



Comunidad científica (inicios s. XX): aunque el Universo fuera infinito, debe tener una cantidad de materia FINITA.

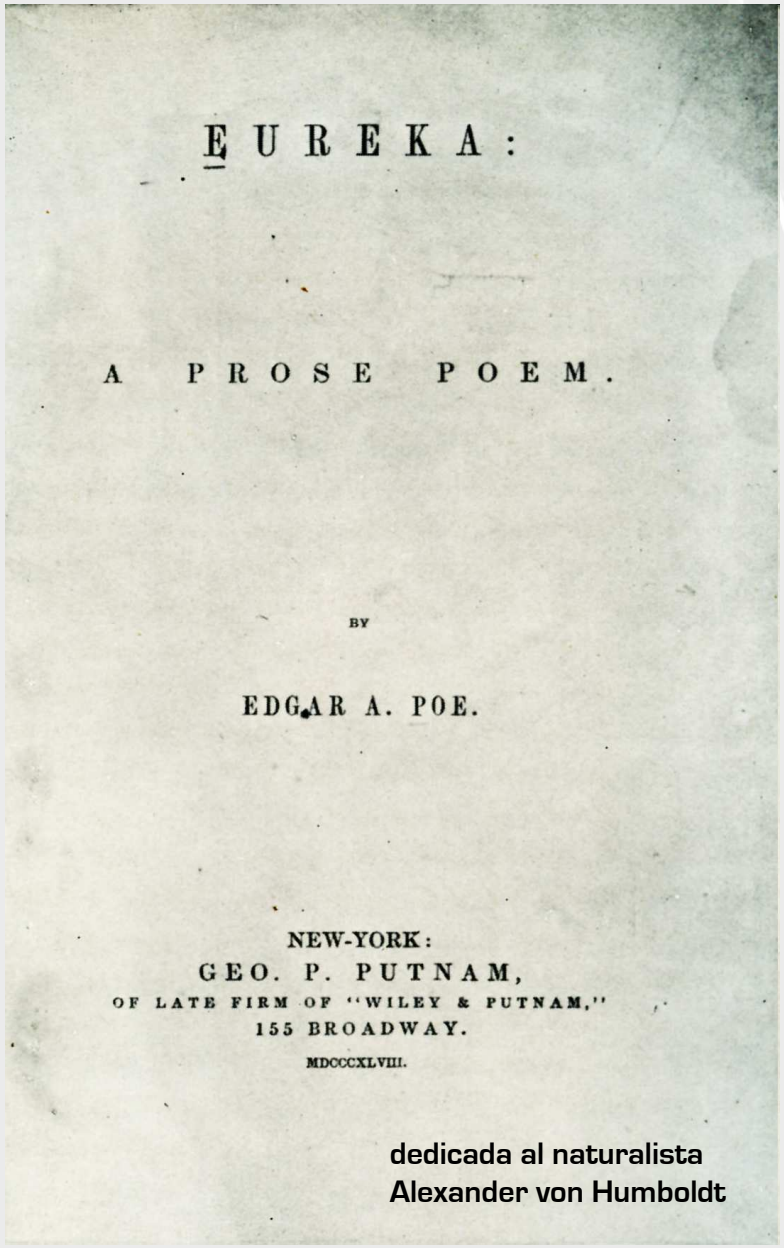
Estructura finita aplanada en rotación: La Galaxia

...pero entonces Hubble descubrió LAS galaxias (1924 - 1929)



...y de vuelta a la paradoja...

EUREKA, UN VUELO DE LA IMAGINACIÓN



EUREKA:

A PROSE POEM.

BY

EDGAR A. POE.

NEW-YORK:
GEO. P. PUTNAM,
OF LATE FIRM OF "WILEY & PUTNAM,"
155 BROADWAY.
MDCCCXLVIII.

dedicada al naturalista
Alexander von Humboldt

"I design to speak of the Physical, Metaphysical and Mathematical – of the Material and Spiritual Universe: of its Essence, its Origin, its Creation, its Present Condition and its Destiny"

En "Eureka", Edgar Allan Poe encuentra la solución a la paradoja de Olbers:

"Were the succession of stars endless, then the background of the sky would present us a uniform luminosity, like that displayed by the Galaxy -since there could be absolutely no point, in all that background, at which would not exist a star. The only mode, therefore, in which, under such a state of affairs, we could comprehend the voids which our telescopes find in innumerable directions, would be by supposing the distance of the invisible background so immense that no ray from it has yet been able to reach us at all."

1º: La velocidad de la luz es finita.

2º: La luz de las estrellas más lejanas aún no nos ha llegado.

Lemaitre

↑

Big Bang

→ **¡El universo tuvo un inicio en el tiempo!**

Más aciertos de Eureka:

- **Agujeros negros**
- **Otras galaxias**
- **Inexistencia del Éter**
- **Divisibilidad del átomo**

INCOMPRENSIÓN

What I have propounded will (in good time) revolutionize the world of Physical and Metaphysical science. I say it calmly -but I say it.

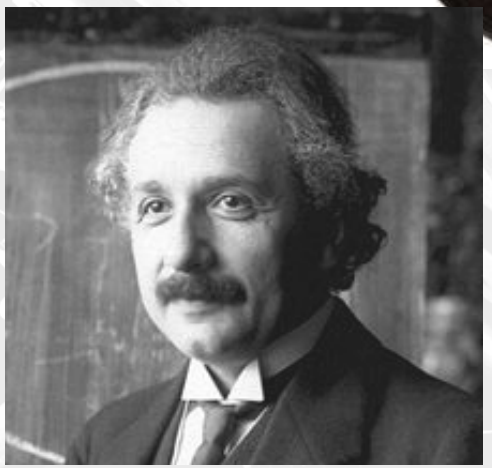
- **Rechazo universal de Eureka, tanto por parte de la comunidad científica como literaria... e incluso por algunos de sus amigos.**

500 ejemplares

...Y RECONOCIMIENTO

A. Eddington (~1930):

"Poe, besides being fairly well informed in science and mathematics, seems to have had the mind of a mathematician. [...] Eureka is not a work of dotage or disordered mind."



A. Einstein (1934):

"*eine schöne Leistung eines ungewöhnlich selbständigen Geistes* (a very beautiful achievement of an unusually independent mind)"

ASTRONOMÍA Y UN POEMA

The skies they were ashen and sober;
The leaves they were crisped and sere -
The leaves they were withering and sere;
It was night in the lonesome October

[...]

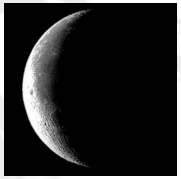
And now, as the night was senescent
And star-dials pointed to morn -
As the star-dials hinted of morn -
At the end of our path a liquescent
And nebulous lustre was born,
Out of which a miraculous crescent
Arose with a duplicate horn -
Astarte's bediamonded crescent
Distinct with its duplicate horn.

And I said: "She is warmer than Dian;
She rolls through an ether of sighs -
She revels in a region of sighs:
She has seen that the tears are not dry on
These cheeks, where the worm never dies,
And has come past the stars of the Lion
To point us the path to the skies -
To the Lethean peace of the skies -
Come up, in despite of the Lion,
To shine on us with her bright eyes -
Come up through the lair of the Lion,
With love in her luminous eyes."

[...]

Astarte → Venus

Diana → Luna



¿En algún octubre anterior a diciembre de 1847, Venus y la Luna estuvieron cerca de la constelación de Leo?

publicado en diciembre de 1847
¿escrito, cuándo?

31 de octubre de 1847