

# Belgian world famous scientists

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## **Contents**

**Humanities ('Artes')**

**Medicine**

**Science and engineering**

**Some modern names**

## Erasmus (Geert Geerts) (Rotterdam 1466-67-69 - Bazel 1536)

- Studied at many schools in the Netherlands
- Priest
- Studied in Paris, London
- Got to know Henry VIII, Thomas More
- Offered professorship in Leuven by rector Adrianus ('college of the pope', Pauscollege)
- founded Collegium Trilingue
- wrote *Laus Stultitiae* (still very popular)
- Advisor to Emperor Charles V
- Sympathetic to Luther (1517) but also critic
- Humanism, tolerance, general culture and civilisation, common sense, no dogma's
- Collected works: culture, ethics, religion (translation of Greek bible)
- 11<sup>th</sup> in most famous Belgian ranking
- In 2016: Utopia exhibition @ Leuven (M) (large collection of letters of Erasmus & More)



## Rembert Dodoens (Mechelen 1517 – Leiden 1585)

- Physician and botanist
- Studied in Leuven (collegium Trilingue)
- Courses from Gemma Frisius
- Physician of the Emperor Maximiliaan II, Vienna
- Professor @ Leiden
- Cruydt-boek
- [Carolus Linnaeus](#)



Genus [Dodonaea](#) and species

[Epilobium dodonaei](#),

[Ilex dodonaea](#),

[Comocladia dodonaea](#),

[Phellandrium dodonaei](#),

[Smyrnum dodonaei](#),

[Hypericum dodonaei](#)

[Pelargonium dodonaei](#).



## Andreas Vesalius

(Andries van Wesel Brussels 1514 – Zakynthos 1564)

- Physician and anatomical pioneer
- [\*De humani corporis fabrica libri septem\*](#)  
(*Seven books over the human body*)
- Student in Leuven and Paris
- Counteracted Galenus teachings from 2nd century  
by propagating the importance of observations  
(cfr. Leonardo da Vinci)
- Disagreed with some professors in Leuven and left for Padua to become professor
- Vivisection on bodies of hanged criminals and living animals
- Subject to many critics, left academia
- Became personal physician to Emperor Charles V and Filips II
- Died when returning from pilgrimage (after dead of a patient ?)
- 6th in most famous Belgian ranking
- Exhibition on 'Vesalius' october 2014



# Andreas Vesalius



De humani corporis fabrica libri septem

# Mercator

**Gerard Kremer (Rupelmonde 1512 – Duisburg 1594)**

- born 20 years after Columbus
- Cartographer, geographer, instrument builder
- studied in Leuven
- Started with maps of Holy Land, Flanders
- Coined the word 'atlas'
- Invented the 'Mercator projection' :  
(preserve surface, form, angles, distance)  
to be useful @ sea: compass so angle preservation
- Chronology: history of the world  
(Big history)
- 8<sup>th</sup> in most famous Belgian ranking



## Henri Pirenne (Verviers 1862 – Ukkel 1935)

- Professor Medieval History @ University Gent
- Histoire de Belgique, 7 parts (no longer reference)
- Mohamed and Charlemagne (no longer reference)
- Prisoner of War in First World War
- Nr. 106 in most famous Belgian ranking





## Adolphe Sax (Dinant, 1814-1894)

- Builder of musical instruments
- Saxophone
- First time played behind curtain because of patent pending
- Instrument production plant "Adolphe Sax & Cie"
- Nr. 12 in most famous Belgian competition



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## Jules Bordet (Zinnik 1870, Brussels 1961)

- Immunologist & microbiologist
- Nobel prize medicine 1919  
[immunoglobuline \*in vivo\*](#)
- A lot of honorary degrees
- Basis of many diagnostic tests
- Discovered Bacteria Bortadella pertussis (kinkhoest)
- Founder of Institut Pasteur in Brussels



## Corneille Heymans (Gent 1892 – Knokke 1968)

- Professor Gent , Medicine and Farmacology
- Nobelprize Medicine: Blood pressure and oxygen feedback by chemoreceptors towards brains and heart
- Many dr. h.c. ; ‘world traveler’ for WHO



## Pieter de Somer (Niel 1917 – Leuven 1985)



- Physician , microbiology, immunology
- Professor @ K.U.Leuven
- Penicilline: Industrial Production
- [Recherche et Industrie Thérapeutiques](#) (R.I.T.)
- [GlaxoSmithKline](#): Largest producer of human vaccins
- Founded Rega Institute
- First layman rector of K.U.Leuven 1968 – 1985
- Split the university
- Built Campus Gasthuisberg, Campus Heverlee, Campus Kortrijk
- Speeches
  - Against nuclear missiles
  - To the pope: The right for absolute scientific freedom

## Christian de Duve (Surrey 1917 - 2013 )

- Professor @ UCL & Rockefeller Institute
- Worked on 'insuline'
- Nobel prize 1974: organelles in biological cells (lysosoom, peroxysoom)
- Dr. H.C. @ many universities
- Author of 3 very readable books



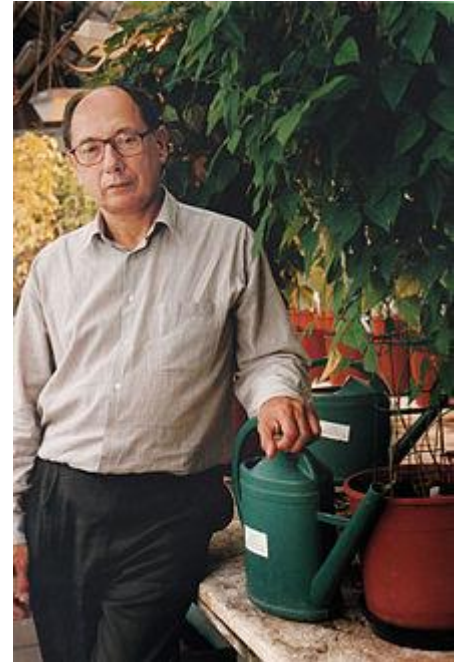
## Paul Janssen (Turnhout 1926 – Rome 2003)

- Medicine and pharmacology
- Founded Janssen Pharmaceutics 1953 now 4500 employees
- Joint Venture in Xian (first company)
- → Johnson & Johnson since 1961
- 22 dr. h.c.
- Developed himself more than 80 drugs/medicines
- 5 of his are on the list of WHO as 'indispensable'
- nr. 2 in most famous Belgian ranking



## Marc Van Montagu (Gent 1933 - )

- Molecular biology
- Discovered gen transfer mechanism between *Agrobacterium tumefaciens* and plants
- = foundation of plant genetic modification
- Founded Plant Genetic Systems in 1982
- Scientific Director of VIB till his retirement
- Candidate Nobel prize !!





## Desire Collen (Sint-Truiden 1943 - )

- Medicine, Chemistry and biotechnology
- Trombolysis, hemostase
- Discovered role of molecule [Tissue plasminogen activator](#) (tPA)
- Patented, licensed to Genentech; 150 mio usd royalties
- Most cited scientist in Flanders
- Scientific Director VIB until retirement
- Founded new, succesful company Thrombogenics



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## Simon Stevin (Bruges 1548 – Leiden 1620)

- Physics, mathematics, engineering
- Decimal number system
- Engineering: hydrology, geography
- Invented the 'sailing car'
- Words like 'wiskunde', 'wijsbegeerte'
- Wisconstighe Ghedaectenissen*
- Main advisor of Prins Maurits (Holland)
- Went away to escape from Inquisition (Duke of Alva)

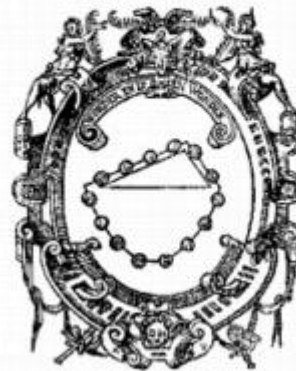
*Simon Stevin*



*Wonder en is gheen wonder*



DE  
BEGHINSELEN  
DER WEEGHCONST  
BESCHREVEN DVER  
SIMON STEVIN  
van Brugghe.



TOT LEYDEN,  
Inde Druckerij van Christoffel Plantijn,  
By François van Raphelinghen.  
c1d. Id. LXXXVI.

THIENDE. 13  
HET ANDER DEEL  
DER THIENDE VANDE  
WERCKINGHE.  
I. VORSTEL VANDE  
VERGADERINGHE.

*Wesende ghegeven Thiensdetalen te vergaderen: hare Somme te vinden.*

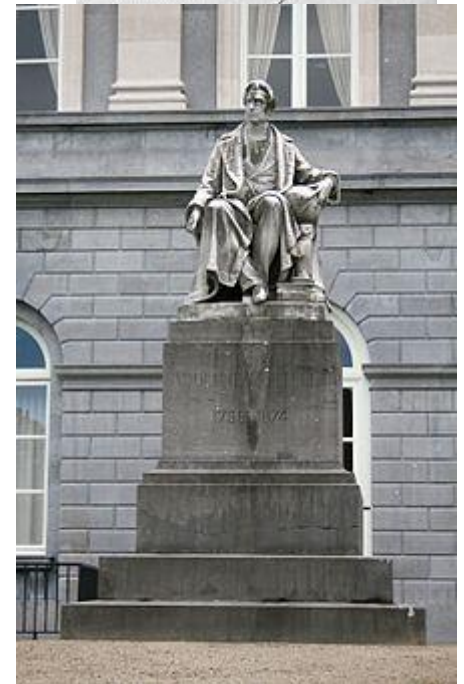
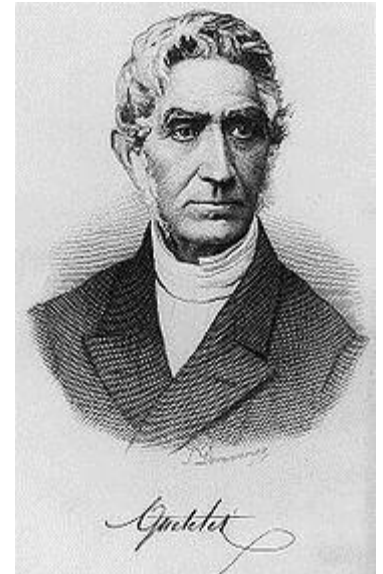
THEGHEGEVEN. Het sijn drie oirdens van Thiensdetalen, welker eerste 17 ② 8 ① 4 ③ 7 ④, de tweede, 37 ② 6 ① 7 ③ 5 ④, de derde, 875 ② 7 ① 8 ③ 1 ④, TBEGHEERDE. Wy moecten haer Somme vinden. WERCKING.

Men sal de ghegeven ghetalen in oirden stellen als hier neven, die vergaderende naer de ghemene maniere der vergaderinghe van hcelegetalen aldus:	② ① ③ ④
	2 7 8 4 7
	3 7 6 7 5
	8 7 5 7 8 1
	9 4 1 3 0 4

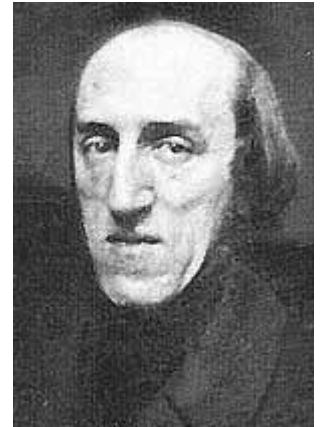
Comt in Somme (door het 1. probleme onser Franscher Arith.) 9 4 1 3 0 4 dat sijn (twelck de teeckenen boven de ghetalen staende, anwijfen) 9 4 1 ③ 3 ① ③ 4 ③. Ick segghe de selve te wesen de ware begheerde Somme. B e w e s. De ghegeven 17 ② 8 ① 4 ③ 7 ④, doen (door de 3. bepaling) 17 ② ① ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒ ㉓ ㉔ ㉕ ㉖ ㉗ ㉘ ㉙ ㉚ ㉛ ㉜ ㉝ ㉞ ㉟ ㊱ ㊲ ㊳ ㊴ ㊵ ㊶ ㊷ ㊸ ㊹ ㊺ ㊻ ㊼ ㊽ ㊾ ㊿ 1 ① 2 ② 3 ③ 4 ④ 5 ⑤ 6 ⑥ 7 ⑦ 8 ⑧ 9 ⑨ 10 ⑩ 11 ⑪ 12 ⑫ 13 ⑬ 14 ⑭ 15 ⑮ 16 ⑯ 17 ⑰ 18 ⑱ 19 ⑲ 20 ⑳ 21 ㉑ 22 ㉒ 23 ㉓ 24 ㉔ 25 ㉕ 26 ㉖ 27 ㉗ 28 ㉘ 29 ㉙ 30 ㉚ 31 ㉛ 32 ㉜ 33 ㉝ 34 ㉞ 35 ㉟ 36 ㊱ 37 ㊲ 38 ㊳ 39 ㊴ 40 ㊵ 41 ㊶ 42 ㊷ 43 ㊸ 44 ㊹ 45 ㊺ 46 ㊻ 47 ㊼ 48 ㊽ 49 ㊾ 50 ㊿ 51 ① 52 ② 53 ③ 54 ④ 55 ⑤ 56 ⑥ 57 ⑦ 58 ⑧ 59 ⑨ 60 ⑩ 61 ⑪ 62 ⑫ 63 ⑬ 64 ⑭ 65 ⑮ 66 ⑯ 67 ⑰ 68 ⑱ 69 ⑲ 70 ⑳ 71 ㉑ 72 ㉒ 73 ㉓ 74 ㉔ 75 ㉕ 76 ㉖ 77 ㉗ 78 ㉘ 79 ㉙ 80 ㉚ 81 ㉛ 82 ㉜ 83 ㉝ 84 ㉞ 85 ㉟ 86 ㊱ 87 ㊲ 88 ㊳ 89 ㊴ 90 ㊵ 91 ㊶ 92 ㊷ 93 ㊸ 94 ㊹ 95 ㊺ 96 ㊻ 97 ㊼ 98 ㊽ 99 ㊾ 100 ㊿ 101 ① 102 ② 103 ③ 104 ④ 105 ⑤ 106 ⑥ 107 ⑦ 108 ⑧ 109 ⑨ 110 ⑩ 111 ⑪ 112 ⑫ 113 ⑬ 114 ⑭ 115 ⑮ 116 ⑯ 117 ⑰ 118 ⑱ 119 ⑲ 120 ⑳ 121 ㉑ 122 ㉒ 123 ㉓ 124 ㉔ 125 ㉕ 126 ㉖ 127 ㉗ 128 ㉘ 129 ㉙ 130 ㉚ 131 ㉛ 132 ㉜ 133 ㉝ 134 ㉞ 135 ㉟ 136 ㊱ 137 ㊲ 138 ㊳ 139 ㊴ 140 ㊵ 141 ㊶ 142 ㊷ 143 ㊸ 144 ㊹ 145 ㊺ 146 ㊻ 147 ㊼ 148 ㊽ 149 ㊾ 150 ㊿ 151 ① 152 ② 153 ③ 154 ④ 155 ⑤ 156 ⑥ 157 ⑦ 158 ⑧ 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㉘ 1279 ㉙ 1280 ㉚ 1281 ㉛ 1282 ㉜ 1283 ㉝ 1284 ㉞ 1285 ㉟ 1286 ㊱ 1287 ㊲ 1288 ㊳ 1289 ㊴ 1290 ㊵ 1291 ㊶ 1292 ㊷ 1293 ㊸ 1294 ㊹ 1295 ㊺ 1296 ㊻ 1297 ㊼ 1298 ㊽ 1299 ㊾ 1300 ㊿ 1301 ① 1302 ② 1303 ③ 1304 ④ 1305 ⑤ 1306 ⑥ 1307 ⑦ 1308 ⑧ 1309 ⑨ 1310 ⑩ 1311 ⑪ 1312 ⑫ 1313 ⑬ 1314 ⑭ 1315 ⑮ 1316 ⑯ 1317 ⑰ 1318 ⑱ 1319 ⑲ 1320 ⑳ 1321 ㉑ 1322 ㉒ 1323 ㉓ 1324 ㉔ 1325 ㉕ 1326 ㉖ 1327 ㉗ 1328 ㉘ 1329 ㉙ 1330 ㉚ 1331 ㉛ 1332 ㉜ 1333 ㉝ 1334 ㉞ 1335 ㉟ 1336 ㊱ 1337 ㊲ 1338 ㊳ 1339 ㊴ 1340 ㊵ 1341 ㊶ 1342 ㊷ 1343 ㊸ 1344 ㊹ 1345 ㊺ 1346 ㊻ 1347 ㊼ 1348 ㊽ 1349 ㊾ 1350 ㊿ 1351 ① 1352 ② 1353 ③ 1354 ④ 1355 ⑤ 1356 ⑥ 1357 ⑦ 1358 ⑧ 1359 ⑨ 1360 ⑩ 1361 ⑪ 1362 ⑫ 1363 ⑬ 1364 ⑭ 1365 ⑮ 1366 ⑯ 1367 ⑰ 1368 ⑱ 1369 ⑲ 1370 ⑳ 1371 ㉑ 1372 ㉒ 1373 ㉓ 1374 ㉔ 1375 ㉕ 1376 ㉖ 1377 ㉗ 1378 ㉘ 1379 ㉙ 1380 ㉚ 1381 ㉛ 1382 ㉜ 1383 ㉝ 1384 ㉞ 1385 ㉟ 1386

## Adolphe Quetelet (Gent 1796 – Brussels 1874)

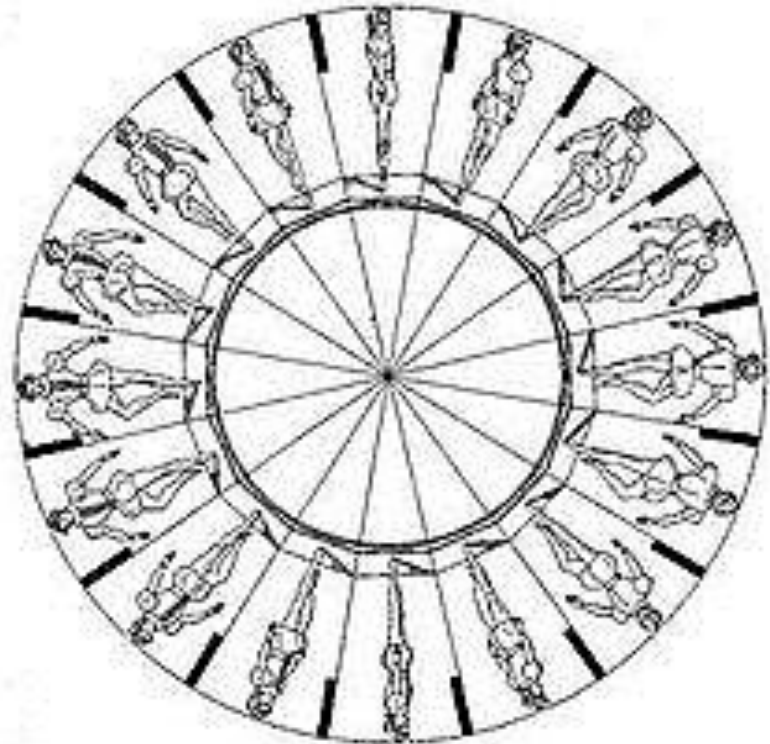
- Astronomer, mathematician, statistician, sociologist
- Build the Royal astronomical institute in Brussels
- pioneer in meteorite research
- origin of statistics (Gauss) lies in astronomy
- introduced statistics in sociology (criminality, population,...)  
l'homme moyen
- inventor of the Body Mass Index or BMI (= Queteletindex)
- co-founder of ULB
- 40 year secretary *l'Académie royale des Sciences, des Lettres et des Beaux-Arts de Belgique*
- nr. 86 in most famous Belgian ranking



## Joseph Plateau (Brussels 1801 – Gent 1883)



- Physicist and mathematician
- Studied in Liege; Professor physics in Gent
- Discovered vision delay in the eye: visual imprint of an image after seeing it (stare in a light source)
- Origin of fenakistiscope → cinematograph → movie industry
- Surface tension problem = Plateau problem
- became blind from staring in the sun
- 164th in most famous Belgian ranking



## Charles-Jean de la Vallée Poussin (Leuven 1866 – Brussels 1962)

- trained as engineer
- research as Mathematician
- worked with Camille Jordan & Henri Poincare
- & Hermann Schwarz & Henri Lebesgue
- Prime number theorem 1896



describes the [asymptotic](#) distribution of the [prime numbers](#).

How are the primes distributed amongst the positive integers? If a [random](#) integer is selected near to some large integer  $N$ , the [probability](#) that the selected integer is prime is about  $1 / \ln(N)$ , where  $\ln(N)$  denotes the [natural logarithm](#) of  $N$ .

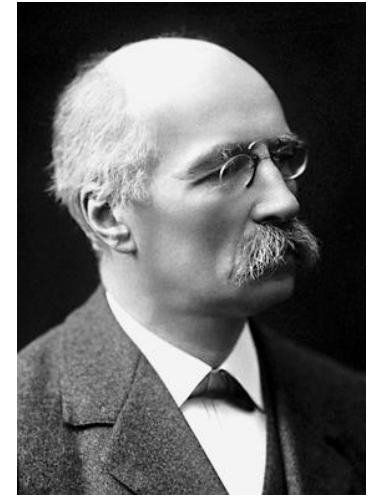
For example, near  $N = 1,000$ , about one in seven numbers is prime, whereas near  $N = 10,000,000,000$ , about one in 23 numbers is prime.

In other words, the average gap between consecutive prime numbers near  $N$  is roughly  $\ln(N)$

- Promotor of Georges Lemaitre
- First chairman of International Union of Mathematicians

**Paul Otlet (1868-1944)**

**Henri Lafontaine (1854-1943)**

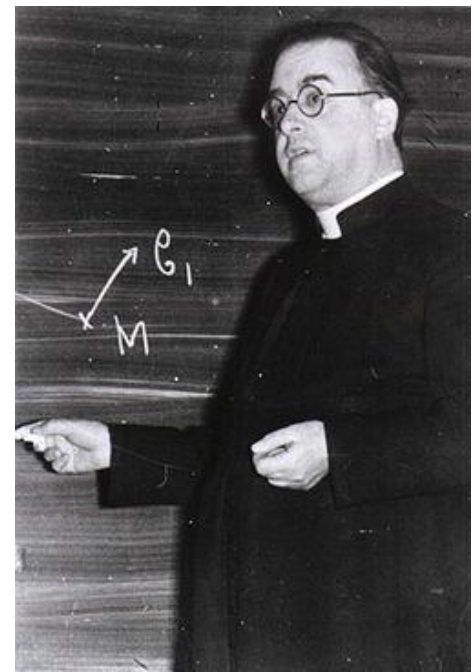


- Fathers of information/documentation science
- Precursors of Google
- Nobel Peace Prize 1913

The **Mundaneum** was an institution created in 1910, following an initiative begun in 1895 by Belgian lawyers [Paul Otlet and Henri La Fontaine as part of their work on documentation science. It aimed to gather together all the world's knowledge and classify it according to a system they developed called the Universal Decimal Classification. Otlet and La Fontaine organized an International Conference of International Associations which was the origin of the Union of International Associations \(UIA\).](#)

## Mgr. Lemaitre (Charleroi 1894 – Leuven 1966)

- priest and scientist: cosmology, astrophysics
- Professor @ Leuven
- General theory of relativity:  
Expanding Universe (1927) and 'Big Bang' (1931)
- Chairman of the Pontical Academy of Science
- PhD (1920) with Charles de la Vallée-Poussin
- PhD [1920](#) with [Charles de la Vallée-Poussin](#)
- Worked in Cambridge with Arthur Eddington and followed  
Courses from Ernest Rutherford
- Studied the 'De Sitter' model
- 2<sup>nd</sup> PhD @ MIT 1927: *"The gravitational field in a fluid sphere  
of uniform invariant density according to the theory of relativity"*
- Met with Hubble, Millikan, Slipher (spectral red shift):  
inspiration for cosmic expansion
- Disbelief from Einstein !
- Next step: backward conclusion: big bang (originally nick name !)
- Founded the Leuven Computer Center in the 50-ties
- Nr 61 in most famous Belgian ranking





Georges  
Lemaître's

Big Bang

In Modern  
Cosmology

A Celebration

7 May 2014



A public symposium with

Malcolm Longair – The Birth of Modern Cosmology  
Konrad Kuijken – Galaxy Evolution

Oriel Goobar – Dark Energy  
Christophe Ringeval – Big Bang Afterglow

Alvaro Gimenez –  $\Lambda$ CDM and Cosmology  
Bernard Schutz – Spacequaker

Thomas Hertog – Universe or Multiverse?  
Jean-Pierre Luminet – Lemaître. The Scientist

Dominique Lambert – Lemaître. The Man

Registration and Information:  
[fy.kuleuven.be/ster/meeting/lemaître](http://fy.kuleuven.be/ster/meeting/lemaître)

Promotiezaal - Universiteitshal  
Naamsestraat 22. 3000 Leuven. Belgium

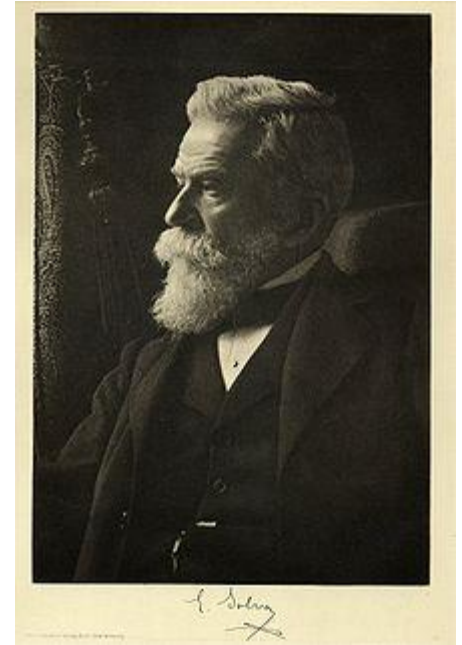
KU LEUVEN



Belgian High Representation  
for Space Policy  
[www.bhrs.be](http://www.bhrs.be)

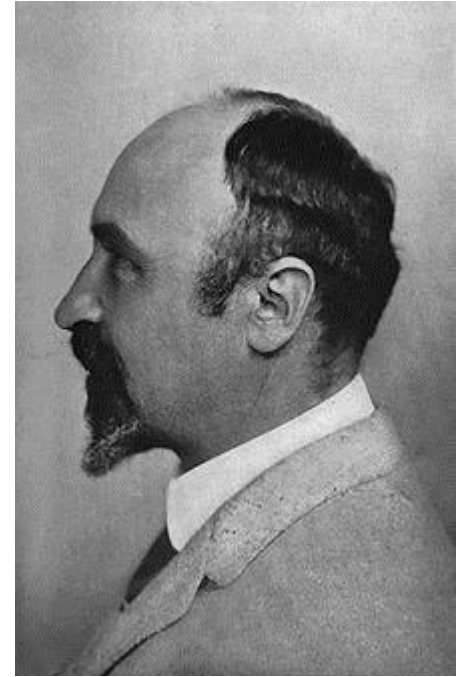
## Ernest Solvay (Roosbeek 1838 – Brussels 1922)

- Belgian chemist and entrepreneur
- Developed process to make natriumcarbonate (soda-salt)
- Multibillionair by starting chemical world concern Solvay
- Institut Solvay @ Universite Libre de Bruxelles
- Famous Solvay Scientific Conference (this year 100th)
- Nr. 39 in most famous Belgian ranking



## Leo Hendrik Baekeland (Sint-Martens-Latem, 1863-1944)

- Belgian – American chemist
- To America inspired by biography of Benjamin Franklin
- Velox – photo-paper: sold to Kodak for 750 000 usd
- Bakelite: First synthetic polymer from fenol & formaldehyde
- = polyoxybenzylmethyleenglycolanhydride patented
- multimillionaire
- nr. 32 in most famous Belgian ranking
- Time Magazine: one of 100 most influential 20th century people



## Ilya Prigogine (Moskva 1917- Brussels 2003)

- Physics-chemistry, philosopher of science
- Dissipative structures
- Dynamical systems far from equilibrium
  - e.g. planet Earth – Sun – space
- Order from chaos
- Professor @ ULB
- Nobel prize Chemistry 1977



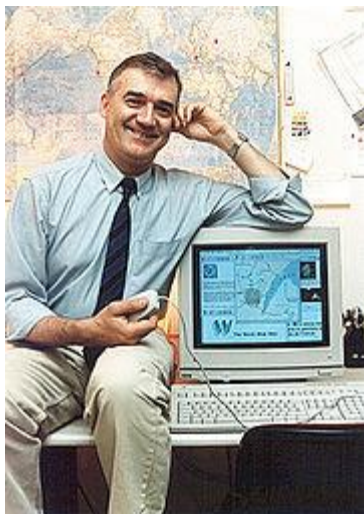
## **Contents**

**Humanities ('Artes')**

**Medicine**

**Science and engineering**

**Some modern names**



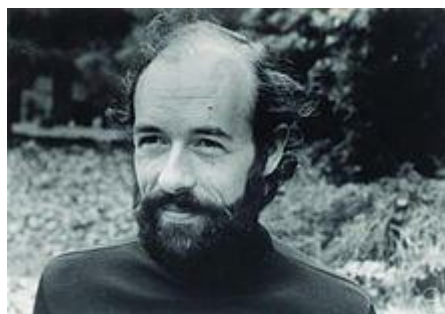
**Robert Cailliau**  
CERN, father of  
internet



**Pattie Maes**  
Ambient intelligence  
Medialab MIT



**Ingrid Daubechies**  
Wavelets (mpg)  
Princeton



**David Ruelle**  
Chaos theory



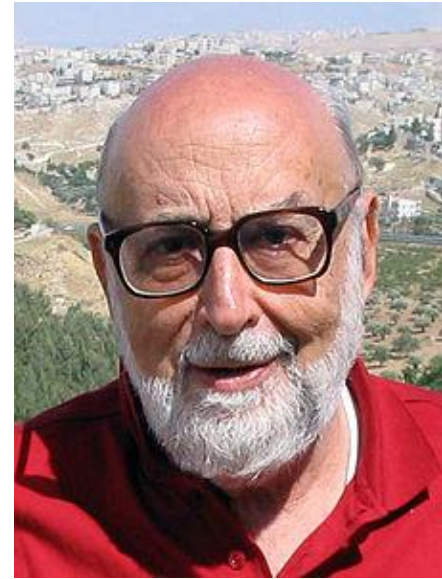
**Jean Bourgain**  
Fields Medal mathematics



**Pierre Deligne**  
Fields Medal mathematics

## Francois Englert (1932 - )

- Professor ULB (Brussels)
- Engineer with PhD in physics
- Nobel prize physics 2013 with Peter Higgs
- Englert – Brout – Higgs Boson



### BROKEN SYMMETRY AND THE MASS OF GAUGE VECTOR MESONS\*

F. Englert and R. Brout

Faculté des Sciences, Université Libre de Bruxelles, Bruxelles, Belgium

(Received 26 June 1964)

It is of interest to inquire whether gauge vector mesons acquire mass through interaction<sup>1</sup>; by a gauge vector meson we mean a Yang-Mills field<sup>2</sup> associated with the extension of a Lie group from global to local symmetry. The importance of this problem resides in the possibility that strong-interaction physics originates from massive gauge fields related to a system of conserved currents.<sup>3</sup> In this note, we shall show that in certain cases vector mesons do indeed acquire mass when the vacuum is degenerate with respect to a compact Lie group.

Theories with degenerate vacuum (broken symmetry) have been the subject of intensive study since their inception by Nambu.<sup>4-6</sup> A characteristic feature of such theories is the possible existence of zero-mass bosons which tend to restore the symmetry.<sup>7,8</sup> We shall show that it is precisely these singularities which maintain the gauge invariance of the

those vector mesons which are coupled to currents that “rotate” the original vacuum are the ones which acquire mass [see Eq. (6)].

We shall then examine a particular model based on chirality invariance which may have a more fundamental significance. Here we begin with a chirality-invariant Lagrangian and introduce both vector and pseudovector gauge fields, thereby guaranteeing invariance under both local phase and local  $\gamma_5$ -phase transformations. In this model the gauge fields themselves may break the  $\gamma_5$  invariance leading to a mass for the original Fermi field. We shall show in this case that the pseudovector field acquires mass.

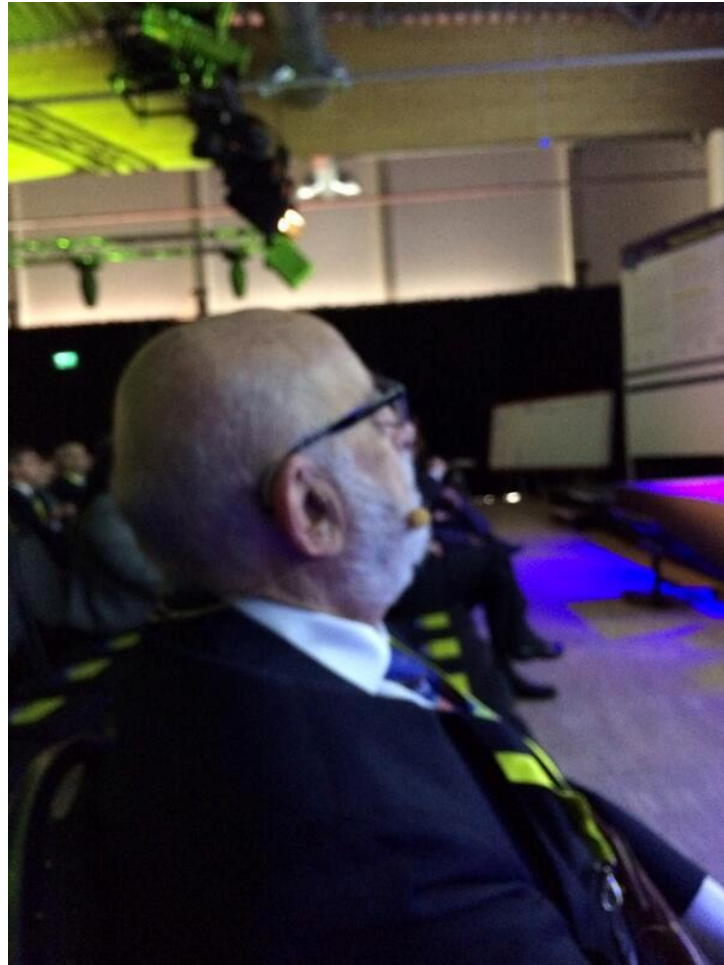
In the last paragraph we sketch a simple argument which renders these results reasonable.

(1) Lest the simplicity of the argument be shrouded in a cloud of indices, we first consider a one-parameter Abelian group, representing, for example, the phase transformation



**Bart De Moor**

[@DeMoorBart](#) In afwachting van komst koning Filip, zit ik naast Nobelprijswinnaar fysica Englert op opening [scws2014.be](#)  
[pic.twitter.com/DbvcRldy0A](#)





## Websites

- <http://www.famousbelgians.net/>
- [http://www.eupedia.com/belgium/famous\\_people.shtml](http://www.eupedia.com/belgium/famous_people.shtml)
- [http://en.wikipedia.org/wiki/List\\_of\\_Belgians#Scientists](http://en.wikipedia.org/wiki/List_of_Belgians#Scientists)