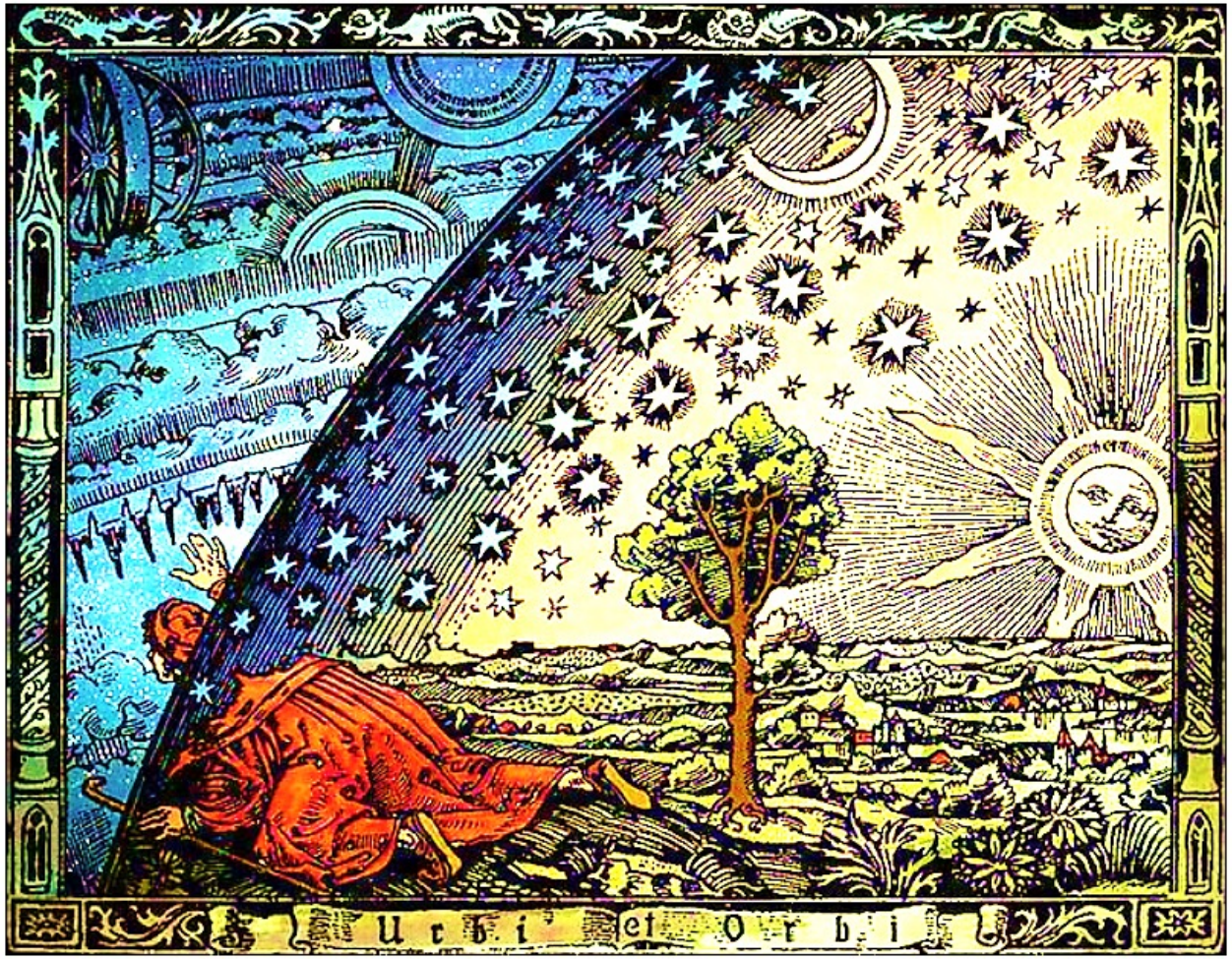
MPG HLL Inauguration Ceremony and Semiconductor Symposium

Conference dinner welcome address

Garching b. München, 8.10.2024


AUGUSTINER BRAU
Lass Dir raten, trinke SPATEN.



Camille Flammarion, „Un missionnaire du moyen“, 1888
Holzschnitt, nachträglich koloriert


NOBELPRISET I FYSIK 2024
THE NOBEL PRIZE IN PHYSICS 2024
KUNGL. VETENSKAPS AKADEMIEN
John J. Hopfield
Princeton University, NJ, USA
Geoffrey E. Hinton
University of Toronto, Canada
"för grundläggande upptäckter och uppfinningar som möjliggör maskininlärning med artificiella neuronnätverk"
"for foundational discoveries and inventions that enable machine learning with artificial neural networks"
KUNGL. VETENSKAPS AKADEMIEN
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RESEARCH ARTICLE | 15 SEPTEMBER 2004

Neuromuscular control of trout swimming in a vortex street: implications for energy economy during the Kármán gait FREE

James C. Liao

+ Author and article information

J Exp Biol (2004) 207 (20): 3495–3506.

https://doi.org/10.1242/jeb.01125 **Article history**

Split-screen Views PDF

SUMMARY

Approximating the complexity of natural locomotor conditio
mechanisms that enable animals to successfully navigate th
vortices shed from a cylinder, fishes hold station by adopting
gait, whereby the body of the fish displays large,lateral oscill
the vortex shedding frequency of the cylinder. Although field
turbulent flows over uniform currents, the effect of hydrody
control and energetics of locomotion is still poorly understo
to measure red and white axial muscle activity for rainbow tr
a vortex street. When trout Kármán gait, they show a signific

Physics

JOURNAL ARTICLE

How side effects can improve treatment efficacy: a randomized trial Get access

Lieven A Schenk ✉, Tahmine Fadai, Christian Büchel

Brain, Volume 147, Issue 8, August 2024, Pages 2643–2651, https://doi.org/10.1093/brain/awae132

Published: 03 May 2024 **Article history** ▾

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Abstract

While treatment side effects may adversely impact patients, they could also potentially function as indicators for effective treatment. In this study, we investigated whether and how side effects can trigger positive treatment expectations and enhance treatment outcomes.

In this pre-registered trial (DRKS00026648), 77 healthy participants were made to believe that they will receive fentanyl nasal sprays before receiving thermal pain in a controlled experimental setting. However, nasal sprays did not contain fentanyl, rather they either contained capsaicin to induce a side

Medicine

JOURNAL ARTICLE

Factors Involved in the Ejection of Milk Get access

Ely Fordyce, W. E. Petersen

Journal of Animal Science, Volume 1939, Issue 1, December 1939, Page 80, https://doi.org/10.1093/ansci/1939.1.80

Published: 01 December 1939

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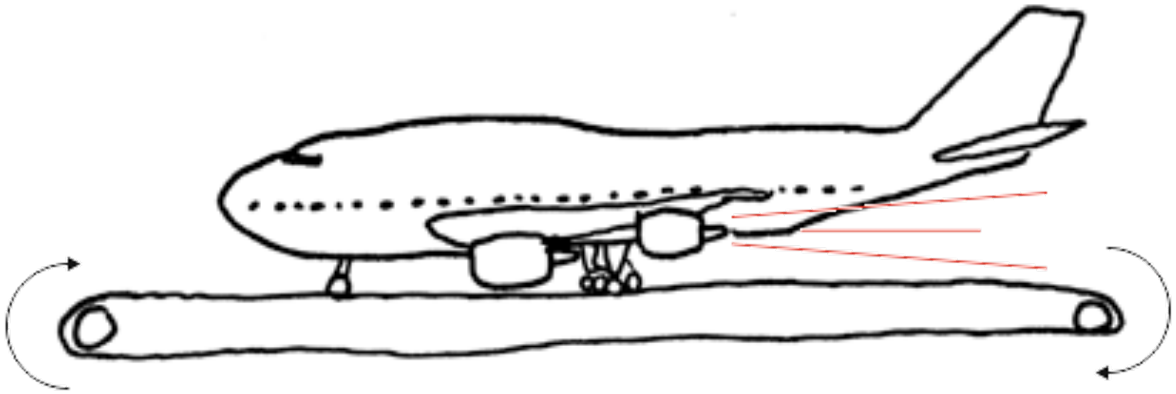
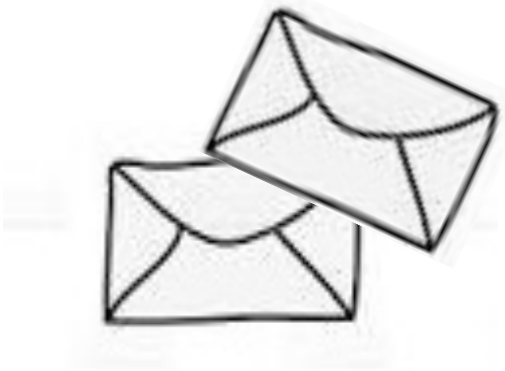
sed due to a lack of differentation between secretion and
he alveoli and small ductules. Sympathetic denervation of
er of several cows in the Kentucky Agricultural
rd revealed the fact that the nervous control of the
rect rather than direct. Milk was not ejected in either half
fright or intravenous injection of adrenalin at the start of

osterior lobe fractions (pitocin and pitressin) caused a
ge of the gland. When these were injected following fright
the milk was ejected after a lapse of thirty seconds. At
rmal milkings intravenous injections of posterior lobe
mpt resumption of ejection of milk. Such strippings

Biology

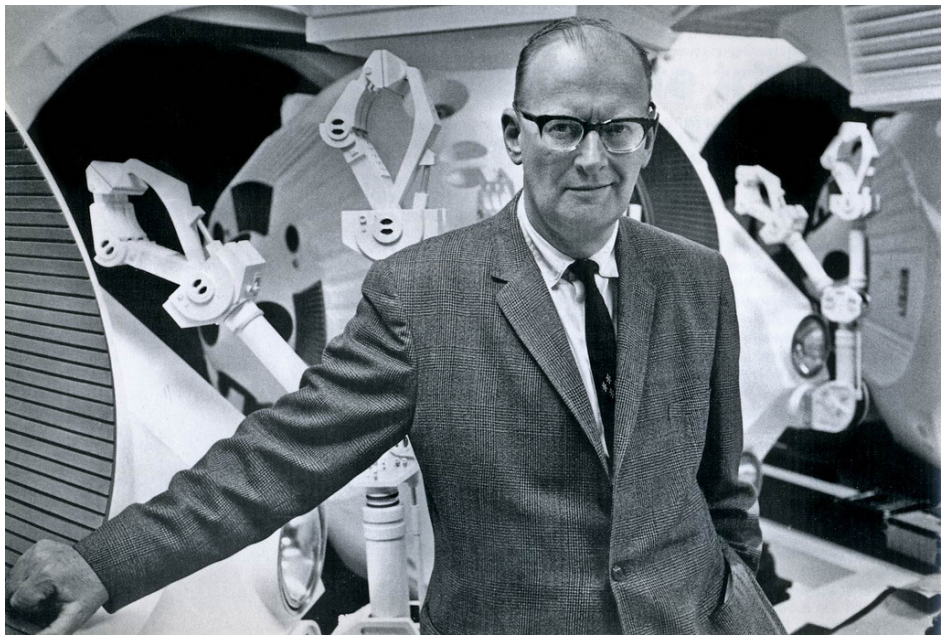


https://blog.xkcd.com/2008/09/09/the-goddamn-airplane-on-the-goddamn-treadmill/



https://brilliant.org/wiki/two-envelope-paradox/

https://en.wikipedia.org/wiki/Feynman_sprinkler

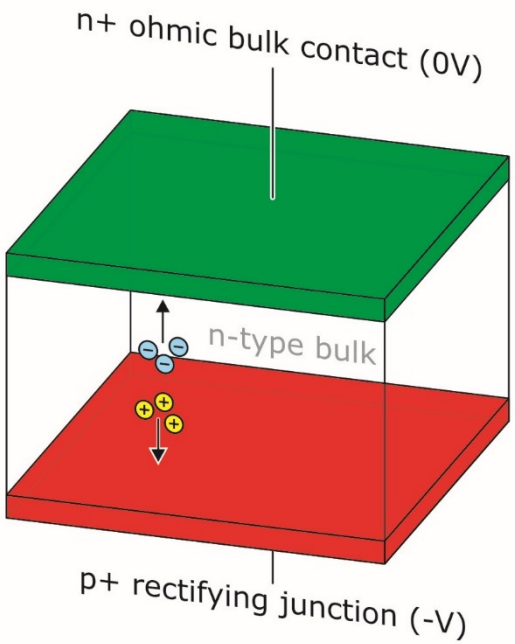


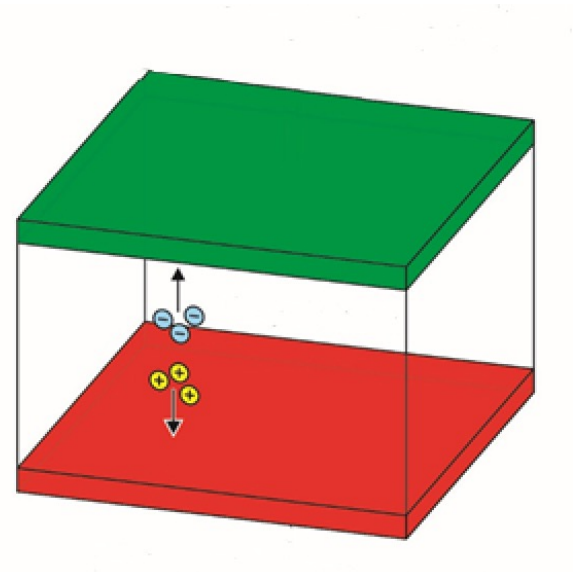
Sir Arthur C. Clarke (1917-2008)

“The only way of discovering the limits of the possible is to venture a little way past them into the impossible.” [1]

Arthur C. Clarke

[1] “Hazards of Prophecy: The Failure of Imagination" in the collection *Profiles of the Future: An Enquiry into the Limits of the Possible* (1962, rev. 1973), p. 21.


n+ ohmic bulk contact (0V)
n-type bulk
p+ rectifying junction (-V)



$$C = \frac{Q}{U} = \epsilon_0 \cdot \epsilon_r \cdot \frac{A}{d}$$

$$\Delta U = \frac{\Delta Q \cdot d}{\epsilon_0 \cdot \epsilon_r \cdot A}$$

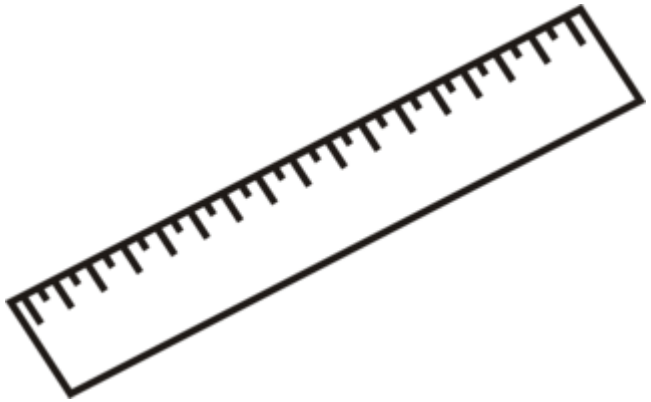
$$\Delta V = \pi \cdot r^2 \cdot \Delta h$$

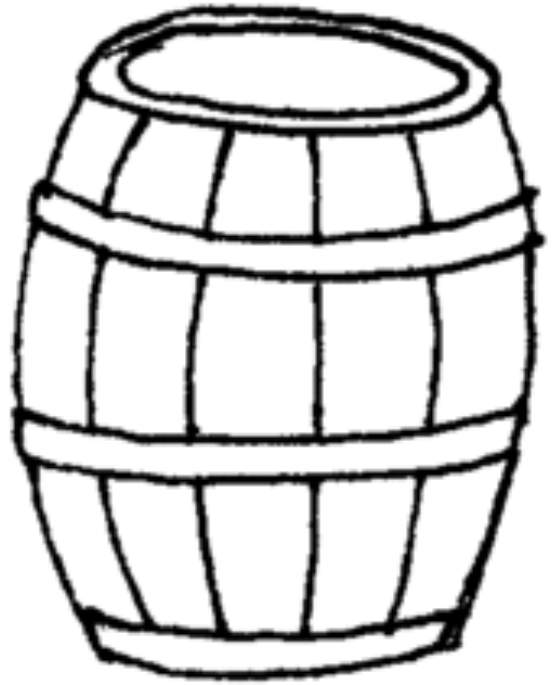
$$\Delta h = \frac{\Delta V}{\pi \cdot r^2}$$

$$V = \pi \cdot r^2 \cdot h$$

$$\Delta V = \pi \cdot r^2 \cdot \Delta h$$

$$\Delta h = \frac{\Delta V}{\pi \cdot r^2}$$





8 cm

0.2 µm - 60 µm

20 cm

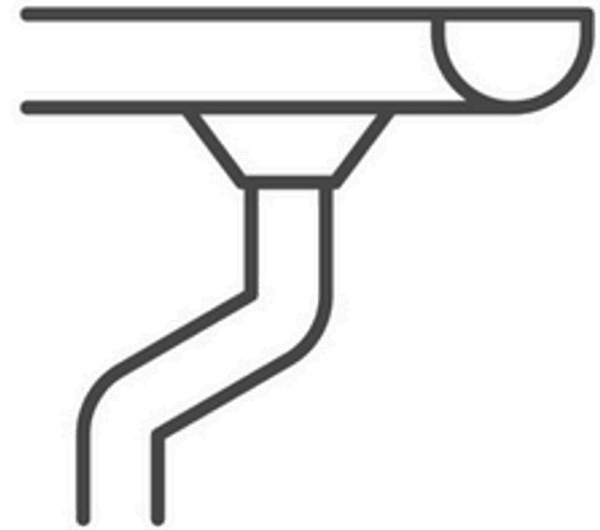
30 nm -10 µm

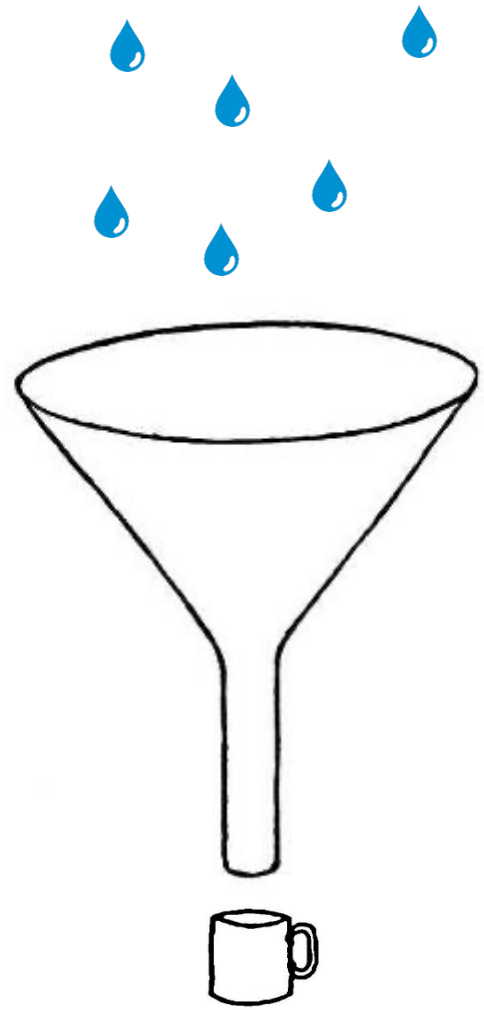
40 cm

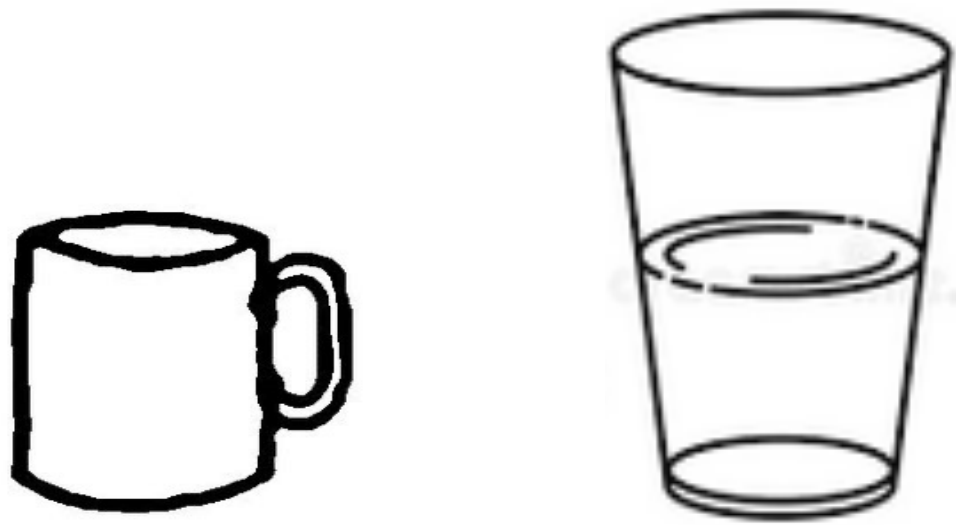
8 nm – 2.4 µm

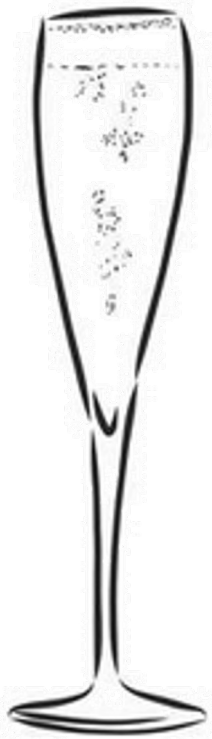
1 m

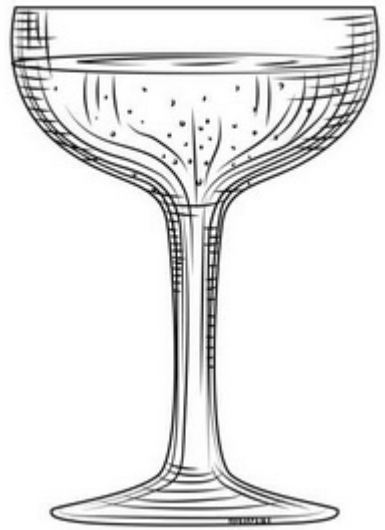
1.3 nm - 0.4 µm

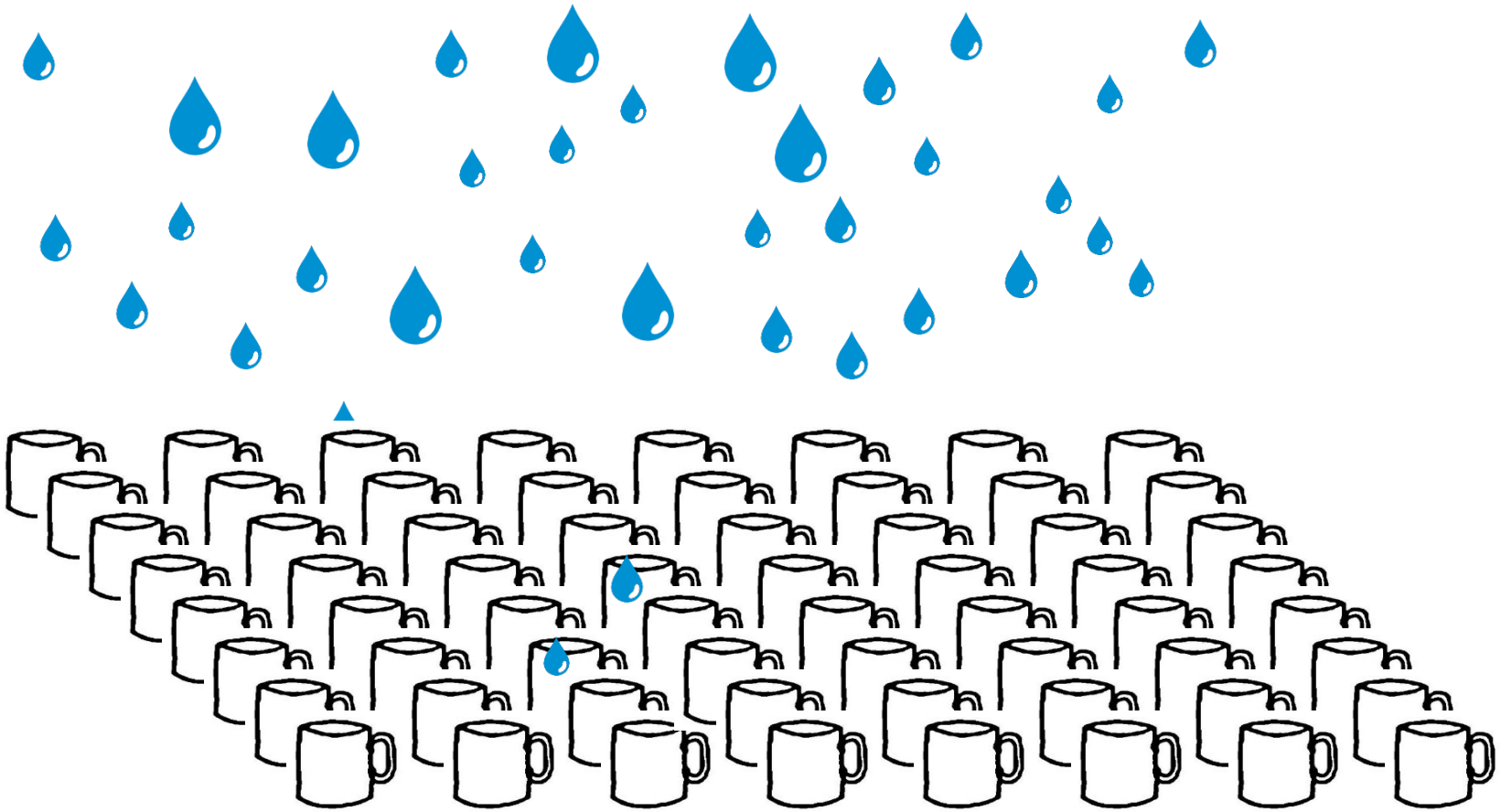


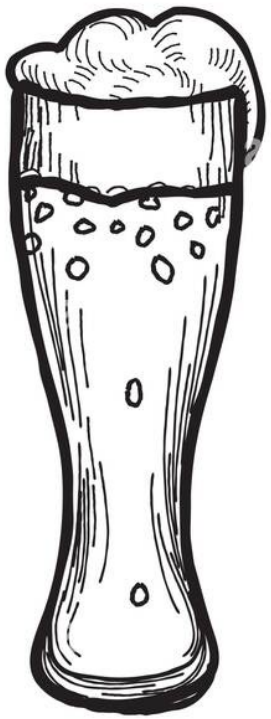




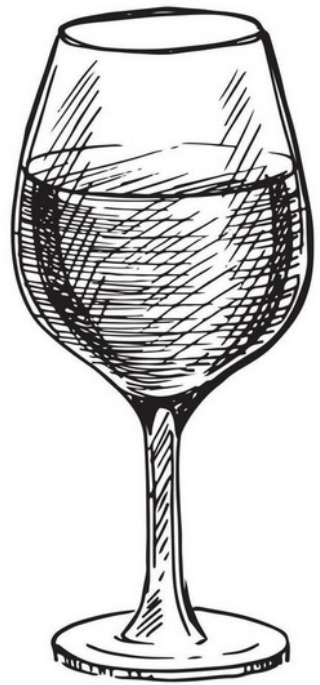


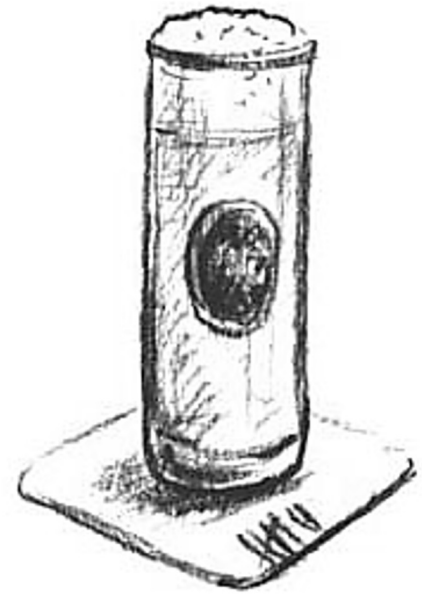


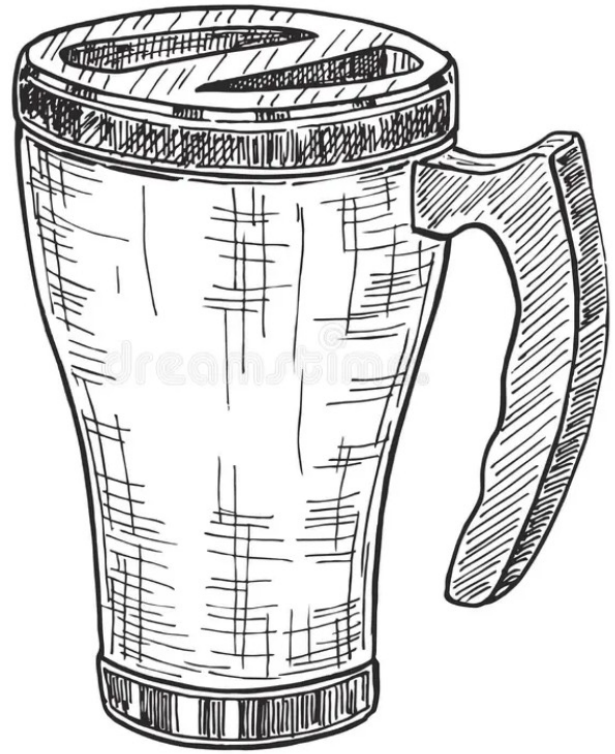


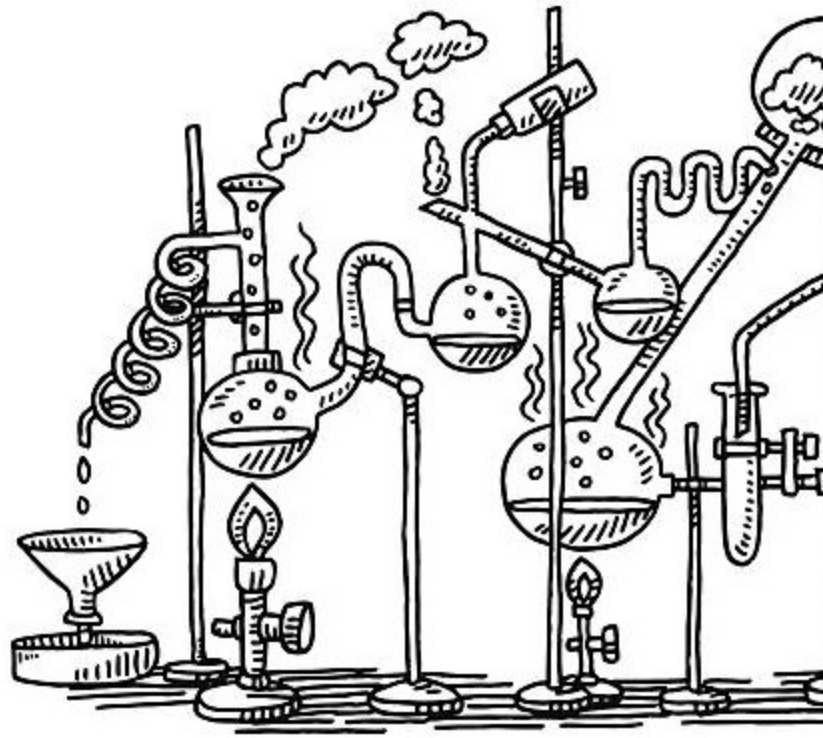


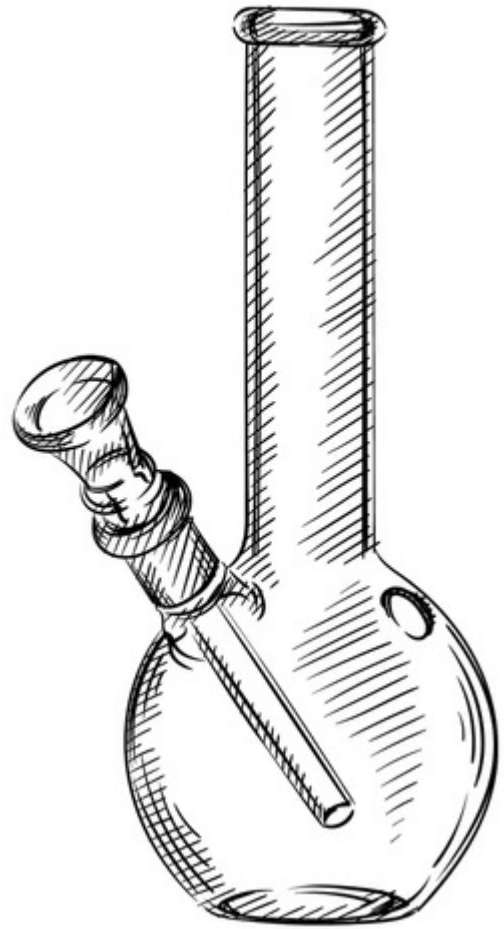










“Any sufficiently advanced technology is indistinguishable from magic.” [2]

Arthur C. Clarke

[2] “Hazards of Prophecy: The Failure of Imagination" in the collection *Profiles of the Future: An Enquiry into the Limits of the Possible* (1962, rev. 1973), p. 36.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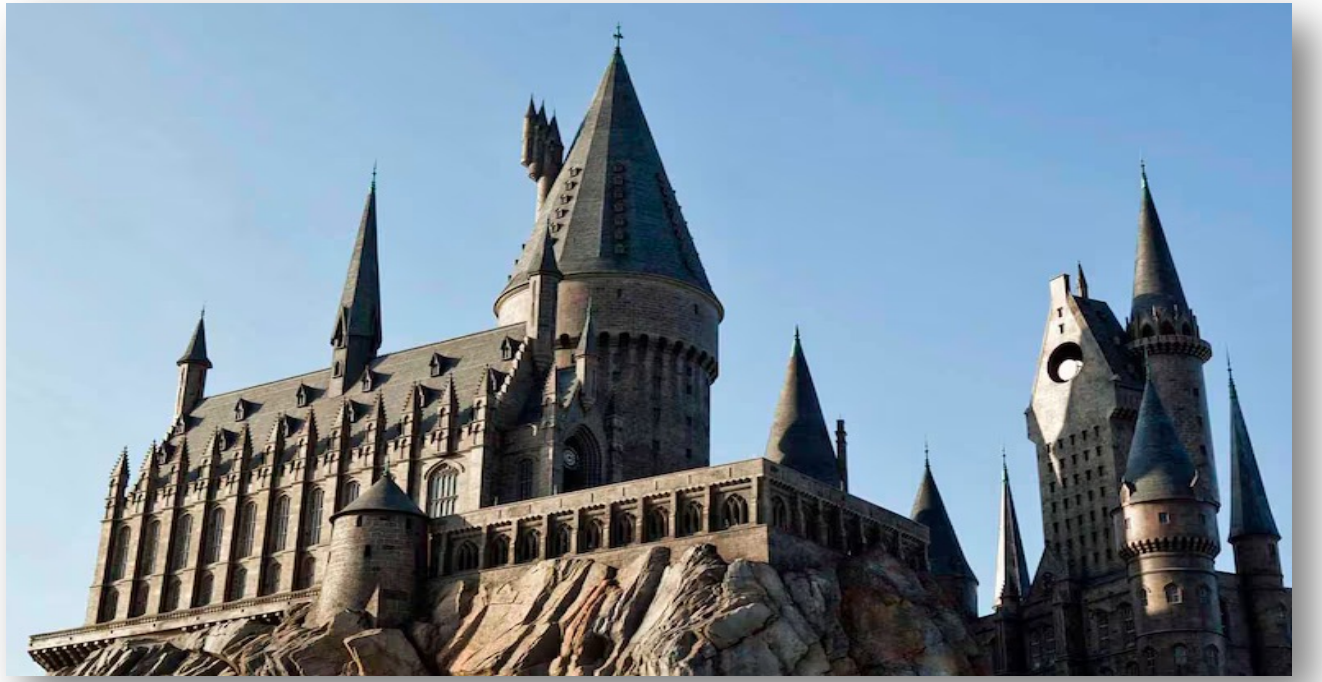
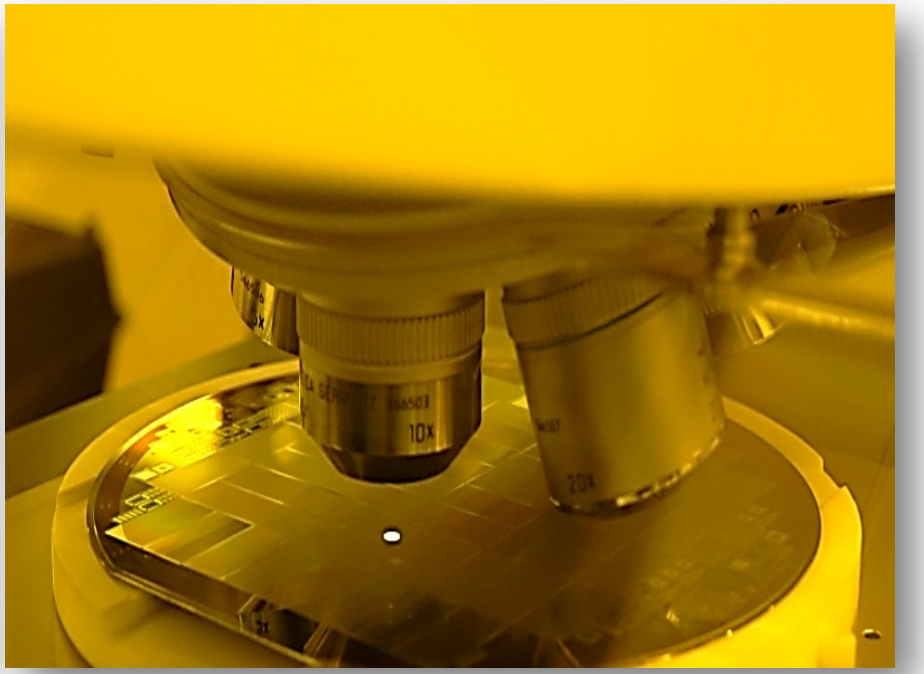
MAX PLANCK

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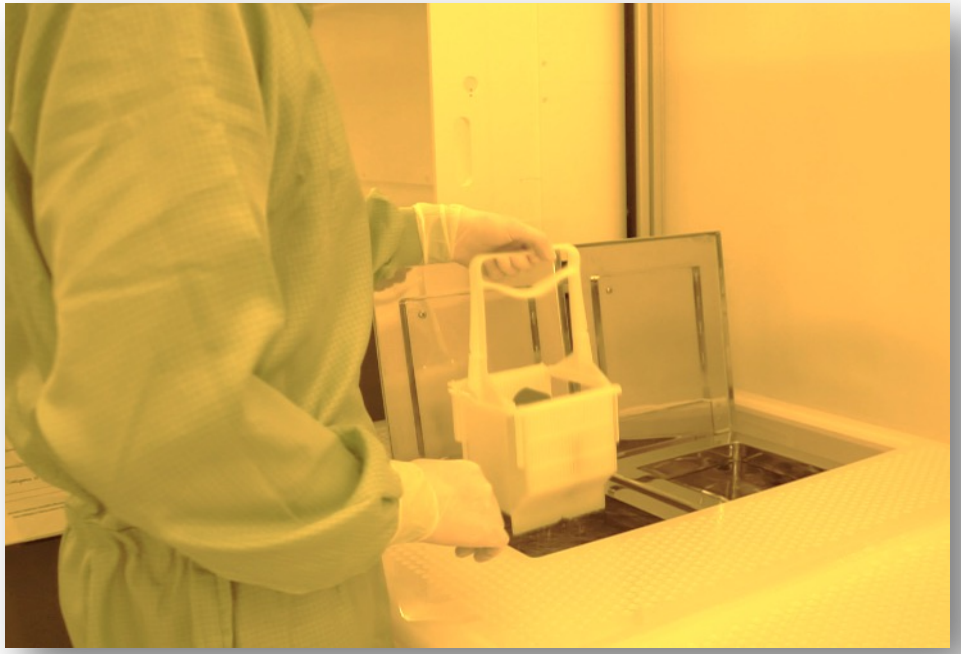

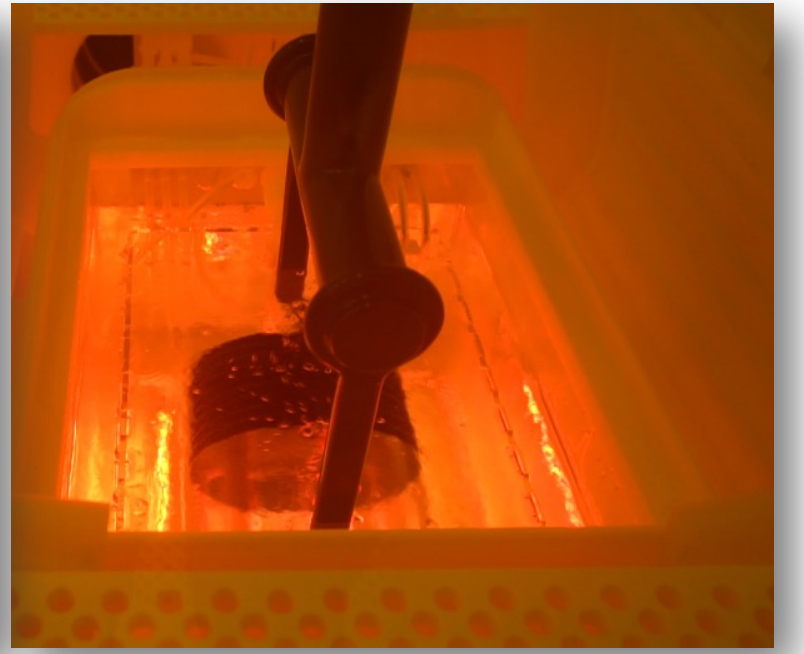

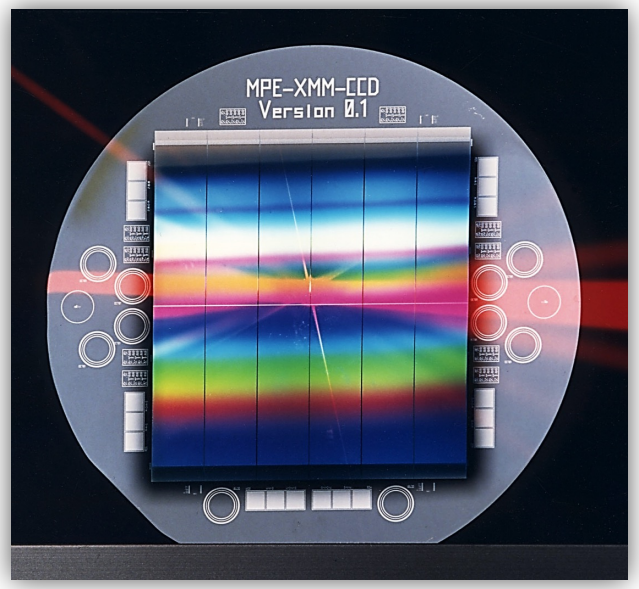
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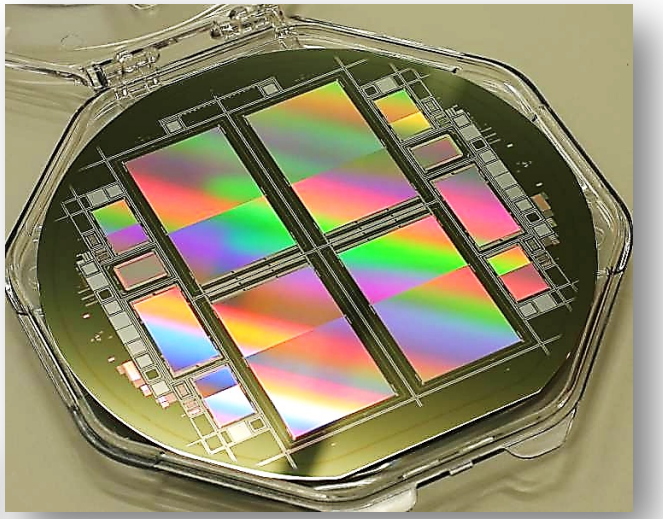

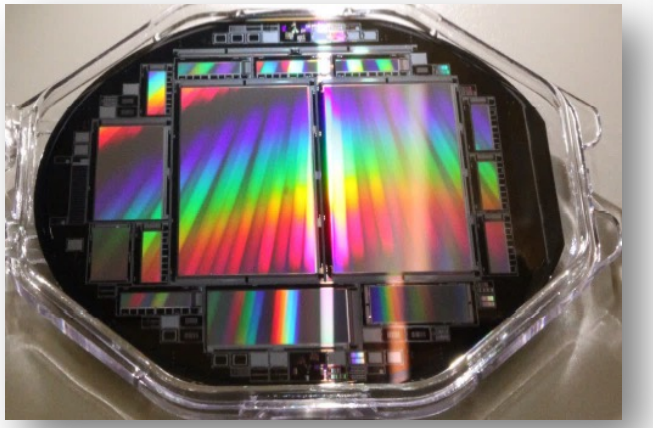

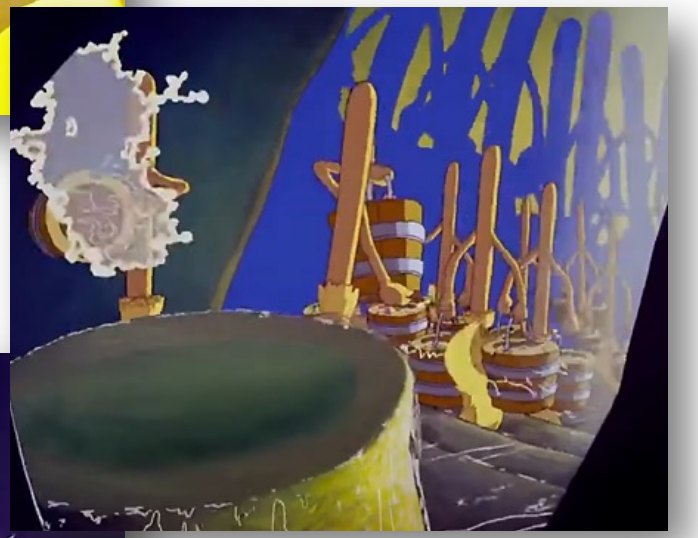


35
30
25
CAUTION
WET
FLOOR

“When a distinguished but elderly scientist states that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong.” [3]

Arthur C. Clarke

[3] “Hazards of Prophecy: The Failure of Imagination" in the collection *Profiles of the Future: An Enquiry into the Limits of the Possible* (1962, rev. 1973), pp. 14.

1874: „[...] advised him [Max Planck] to apply his talents to a different discipline as it appeared (to von Jolly) that all that there was in physics was detailed work for second-class minds.“

Philipp von Jolly to young Max Planck

1883: “X-rays will prove to be a hoax.”

Lord Kelvin

1889: “Fooling around with alternating current (AC) is just a waste of time. Nobody will use it, ever.”

Thomas Edison.

1932: “There is not the slightest indication that nuclear energy will ever be obtainable. It would mean that the atom would have to be shattered at will.”

Albert Einstein

1981: “No one will need more than 637KB of memory for a personal computer. 640KB ought to be enough for anybody.”

Bill Gates

1992: “The idea of a personal communicator in every pocket is a “pipe dream driven by greed.”

Andy Grove, then CEO of Intel.

2007: “There’s no chance that the iPhone is going to get any significant market share.”

Steve Ballmer

"As three laws were good enough for Newton, I have modestly decided to stop there". [4]

Arthur C. Clarke

Sir Isaac Newton's cat
forgotten hero of science

[4] "Hazards of Prophecy: The Failure of Imagination" in the collection *Profiles of the Future: An Enquiry into the Limits of the Possible* (1962, rev. 1973), pp. 36.