# Some comments on the acute need to (re)connect with the broad public about fundamental science

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*[who is not a science historian, nor is a social scientist]*

**These comments are obviously triggered by the current US situation with public funding for fundamental science (that is the science that has no immediate, conceivable application at the time of execution).**

**However:**

**The general indifference, if not contempt, for science has matured, at least in the US, over long time**

**I am hearing similar concerns by colleagues abroad, most notably/surprisingly in Cina!**

**Until very recently, the US was almost unique in funding science just for its own value. (almost) no questions asked about applications.**

**This comes directly from the famous:**

**"Science the Endless Frontier"** ***A Report to the President by Vannevar Bush, Director of the Office of Scientific Research and Development, July 1945***

**[https://www.pi.infn.it/~giorgio/INFN/3M/SciencetheEndlessFrontier.pdf]**

**The NSF was founded on these principles.**

**Other countries just followed.**

**Which is not to say this was always smooth sailing. For instance, Bob Wilson, the founding director of FNAL, had to clarify this in a congressional hearing (excerpt lifted from FNAL's web site):**

**SENATOR PASTORE.** Is there anything connected in the hopes of this accelerator that in any way involves the security of the country?

**DR. WILSON.** No, sir; I do not believe so.

**SENATOR PASTORE.** Nothing at all?

**DR. WILSON.** Nothing at all.

**SENATOR PASTORE.** It has no value in that respect?

**DR. WILSON.** It only has to do with the respect with which we regard one another, the dignity of men, our love of culture. It has to do with those things. It has nothing to do with the military. I am sorry.

**SENATOR PASTORE.** Don't be sorry for it.

**DR. WILSON.** I am not, but I cannot in honesty say it has any such application.

**SENATOR PASTORE.** Is there anything here that projects us in a position of being competitive with the Russians, with regard to this race?

**DR. WILSON.** Only from a long-range point of view, of a developing technology. Otherwise, it has to do with: Are we good painters, good sculptors, great poets? I mean all the things that we really venerate and honor in our country and are patriotic about. In that sense, this new knowledge has all to do with honor and country but it has nothing to do directly with defending our country except to help make it worth defending.

**Of course, Wilson's point of view is correct, and it appeals to us particularly.**

**Yet, I am afraid, in the current conditions is not enough.**

**It is not clear to me why, but, gradually, the broad public has lost interest for science.**

- **Maybe the sophistication that science reached left common people too far behind.**
- **Maybe we have made PR mistakes: nuclear reactor safety, Ebola transmission.**
- **Maybe social media accelerated the process.**
- **Maybe there is something unavoidable.**

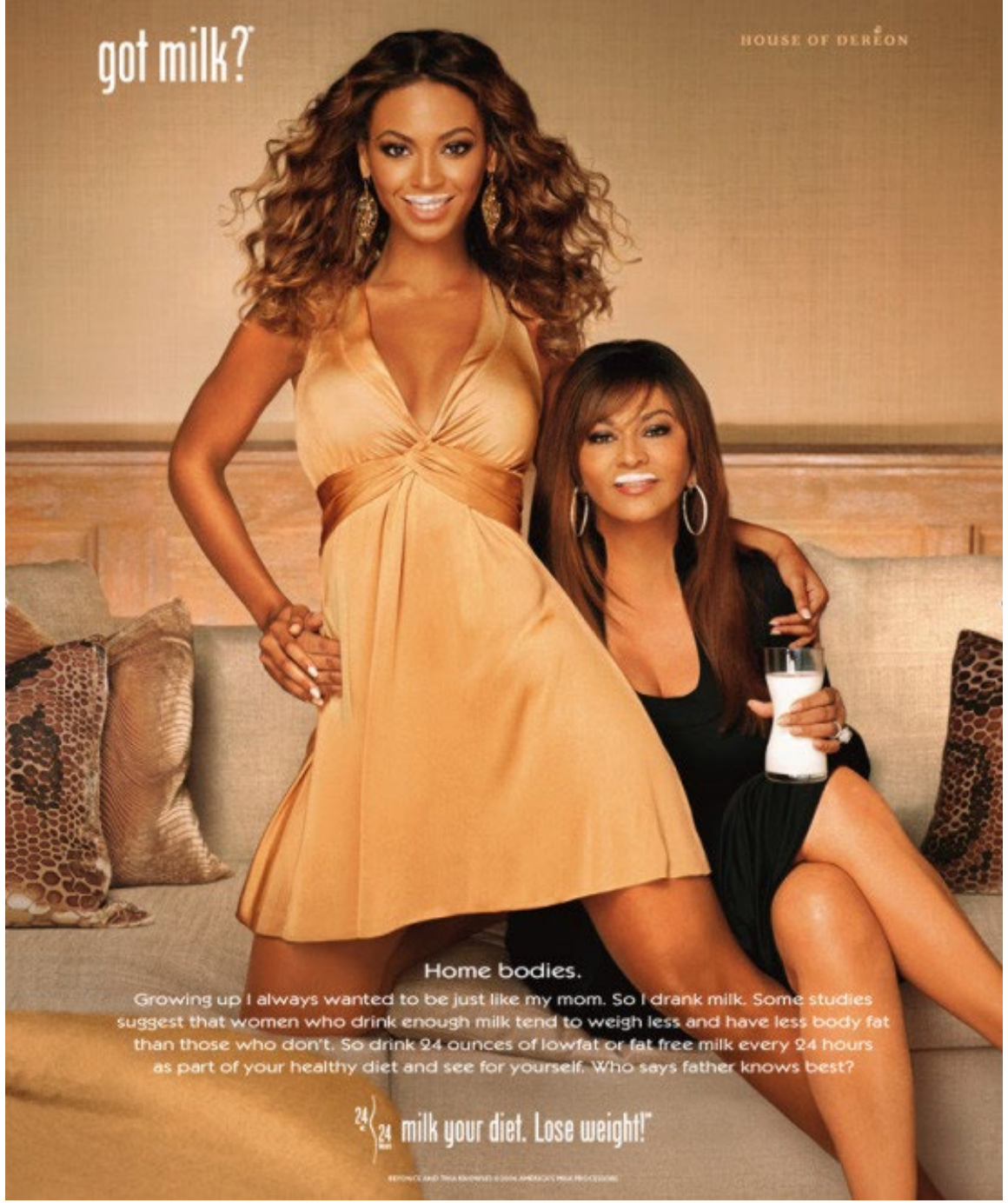
For one thing, we often take our “way of doing things” for granted.

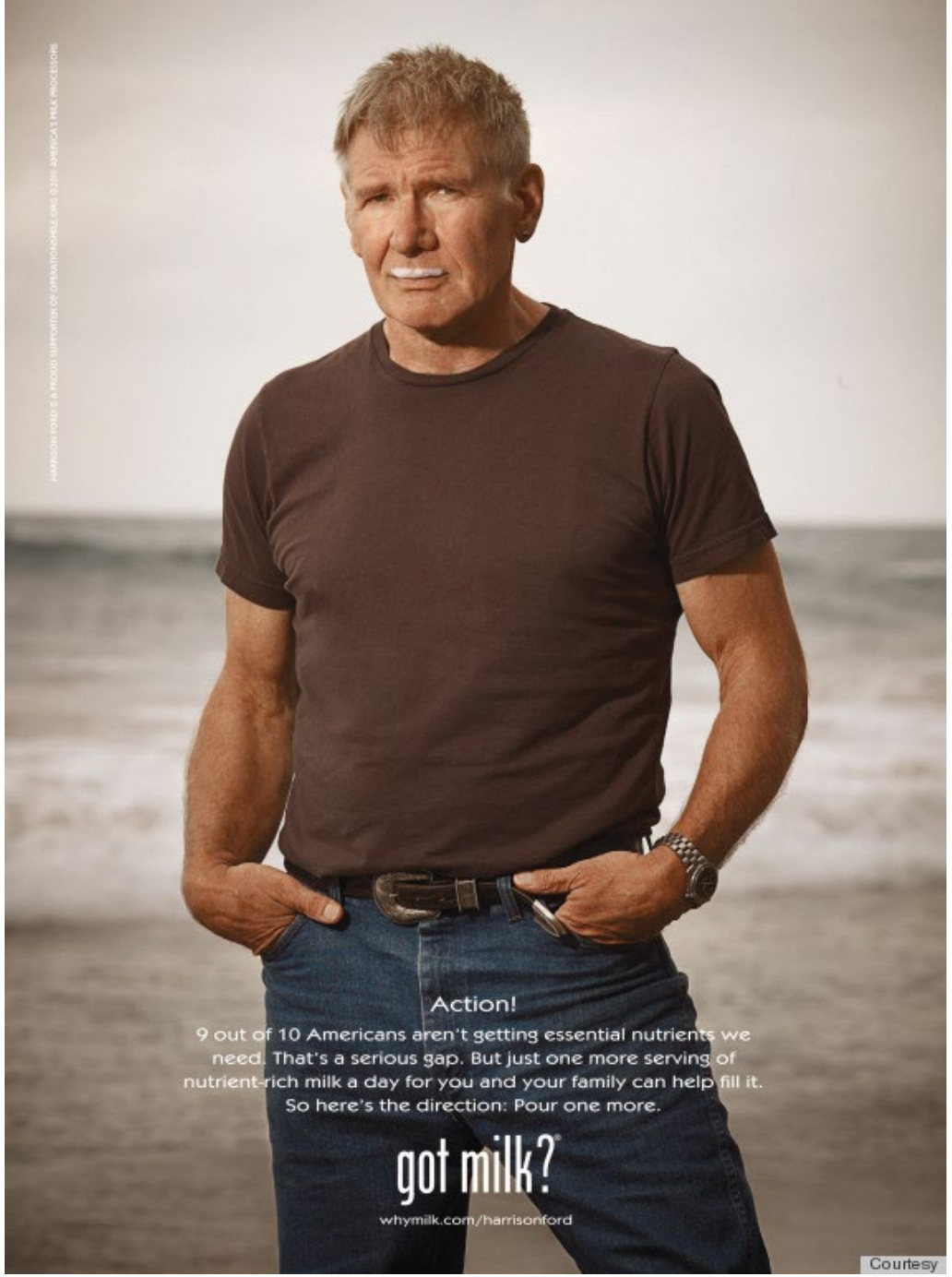
We also have an idea of outreach which is lofty but entirely inadequate from this point of view.

We do outreach by giving lectures about science. This is great for increasing STEM enrollment. It may even get some adult nerd-type to pay more attention.

But we need to address the vast majority of people, who DO NOT WANT TO KNOW, and, probably, do not have the tools to understand anyway.

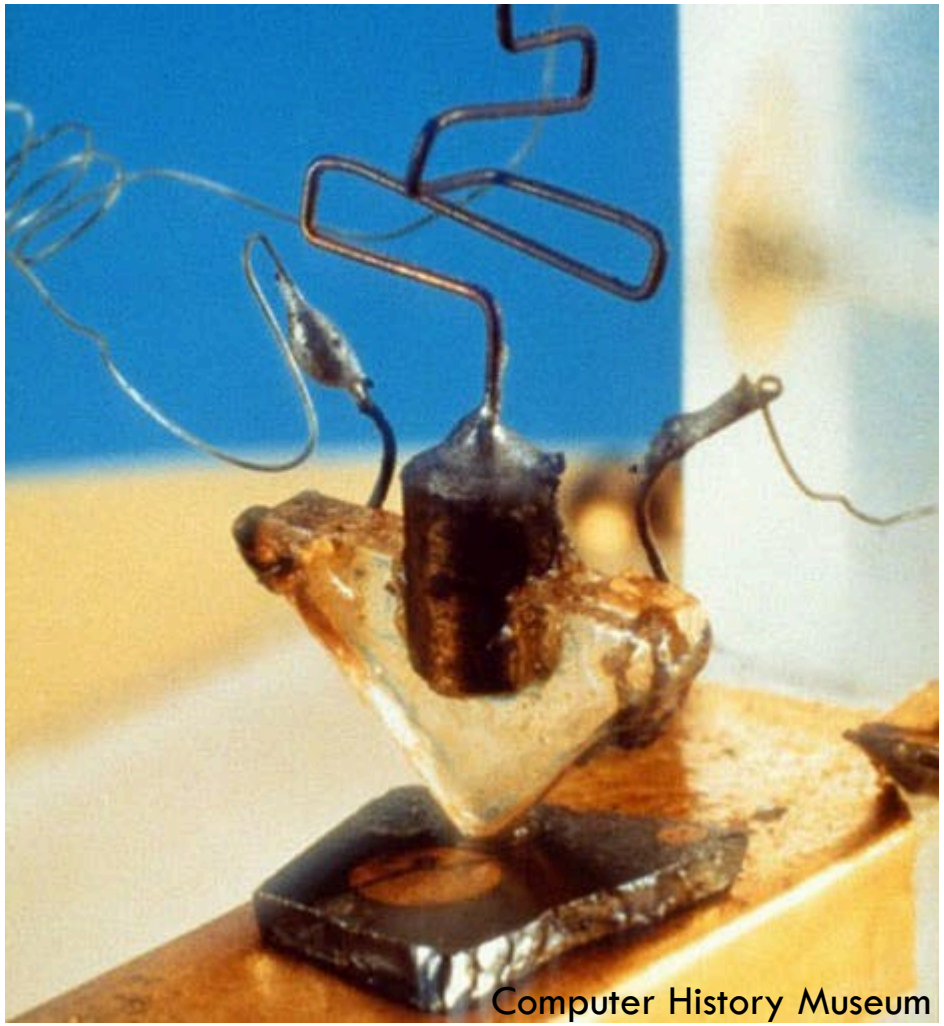
We need a PR campaign, which is a very different beast from our standard outreach.


got milk?
HOUSE OF DERÉON
Home bodies.
Growing up I always wanted to be just like my mom. So I drank milk. Some studies suggest that women who drink enough milk tend to weigh less and have less body fat than those who don't. So drink 24 ounces of lowfat or fat free milk every 24 hours as part of your healthy diet and see for yourself. Who says father knows best?
24 oz. 24 hours milk your diet. Lose weight!™


Action!
9 out of 10 Americans aren't getting essential nutrients we need. That's a serious gap. But just one more serving of nutrient-rich milk a day for you and your family can help fill it. So here's the direction: Pour one more.
got milk?
whymilk.com/harrisonford

Courtesy

# This was the first transistor

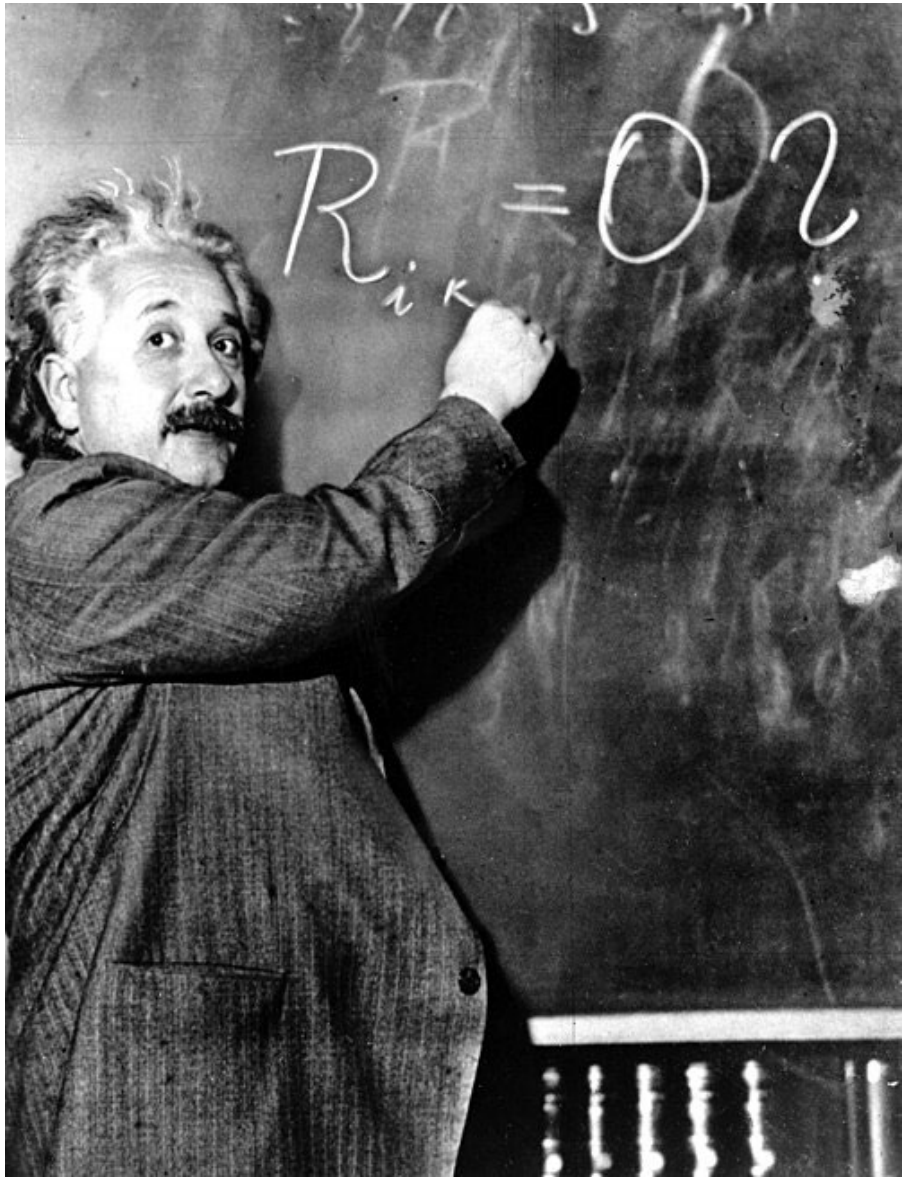


# And this contains 20 billion transistors

# Fundamental science:
# Curiosity today, better life tomorrow

***Tell a politician***

# This is Einstein working on General Relativity

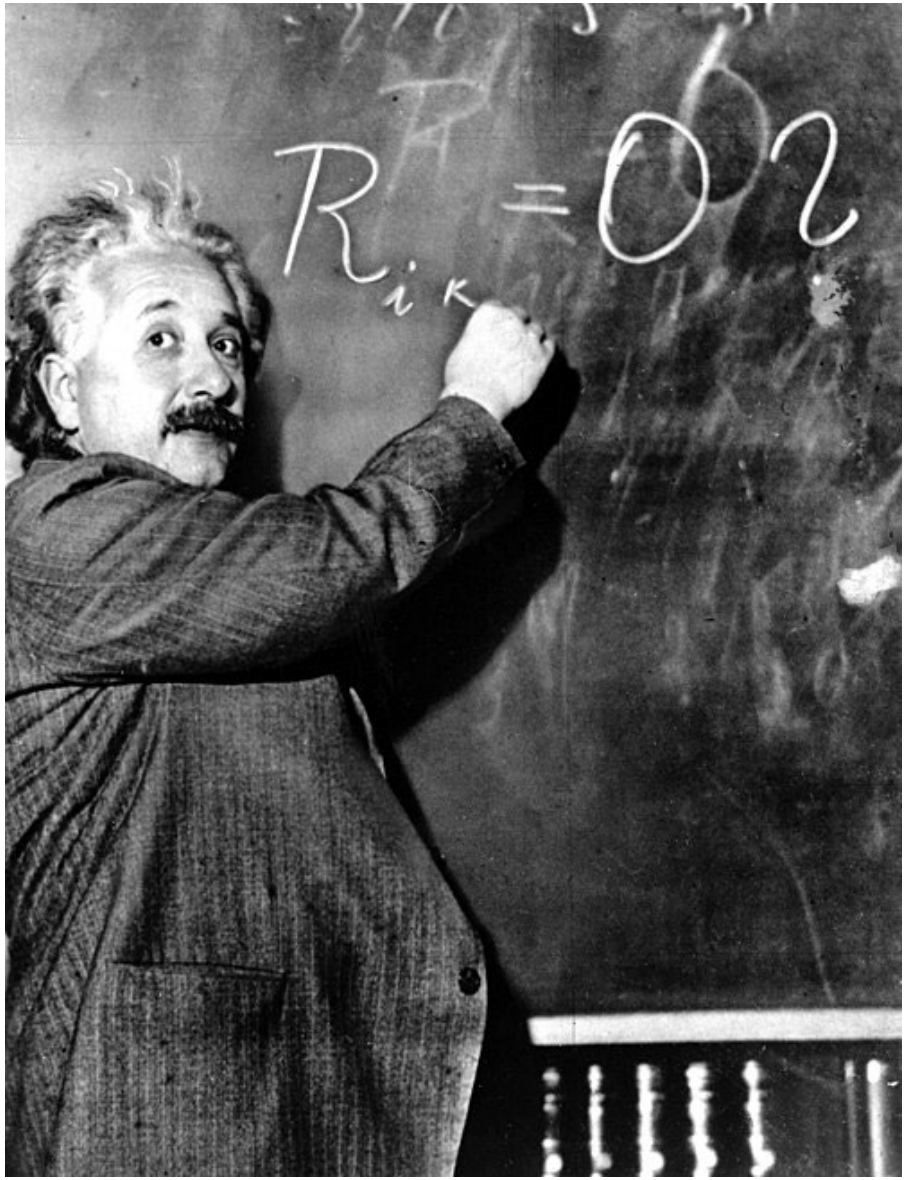


# And GPS requires Einstein's General Relativity to optimize farming

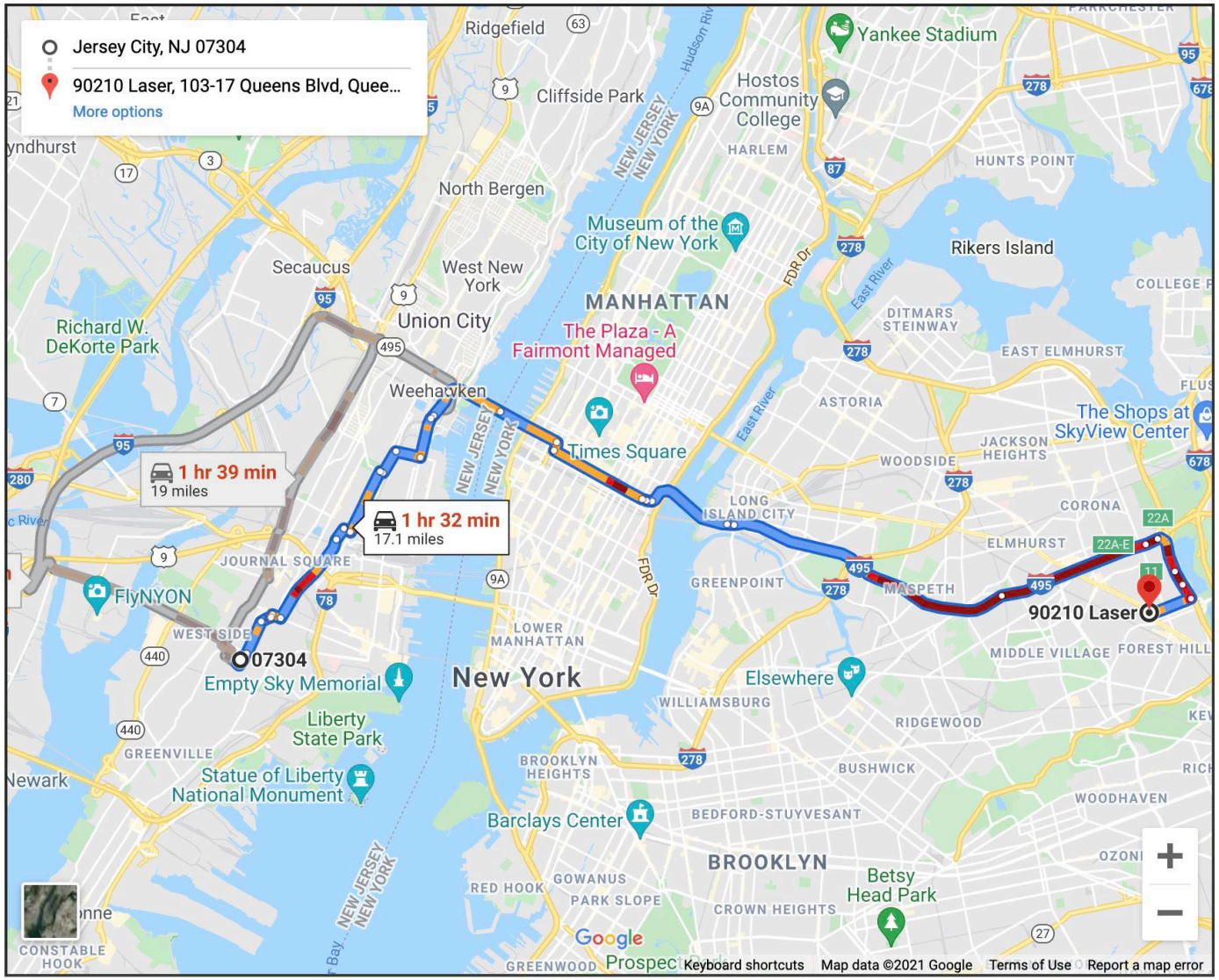
# Fundamental science:
# Curiosity today, better life tomorrow

***Tell a politician***

# This is Einstein working on General Relativity



# And GPS requires Einstein's General Relativity to guide you.



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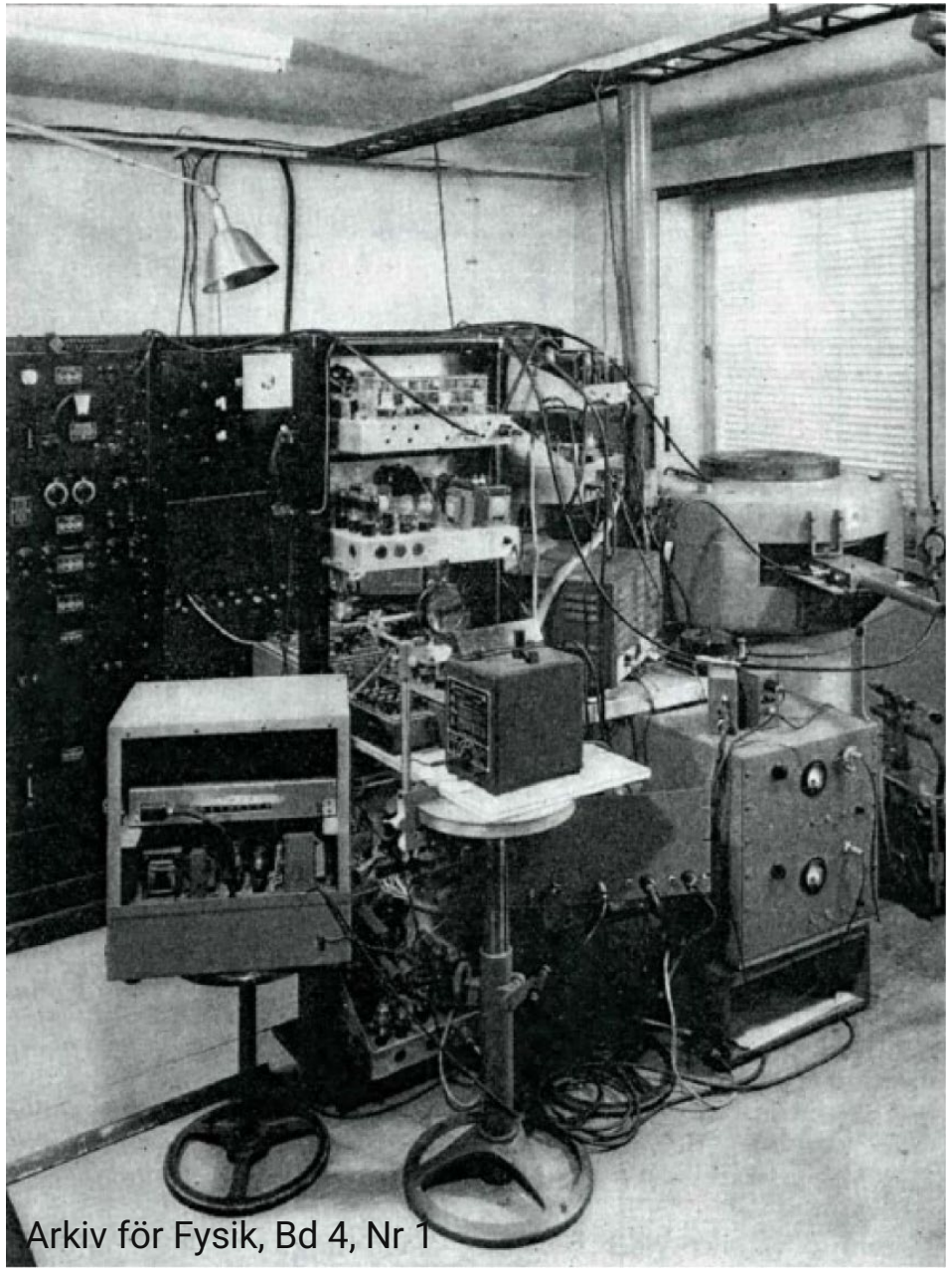
***Tell a politician***

# This is an early magnetic resonance experiment



Arkiv för Fysik, Bd 4, Nr 1

# And this can detect cancer

Philips

# Fundamental science:
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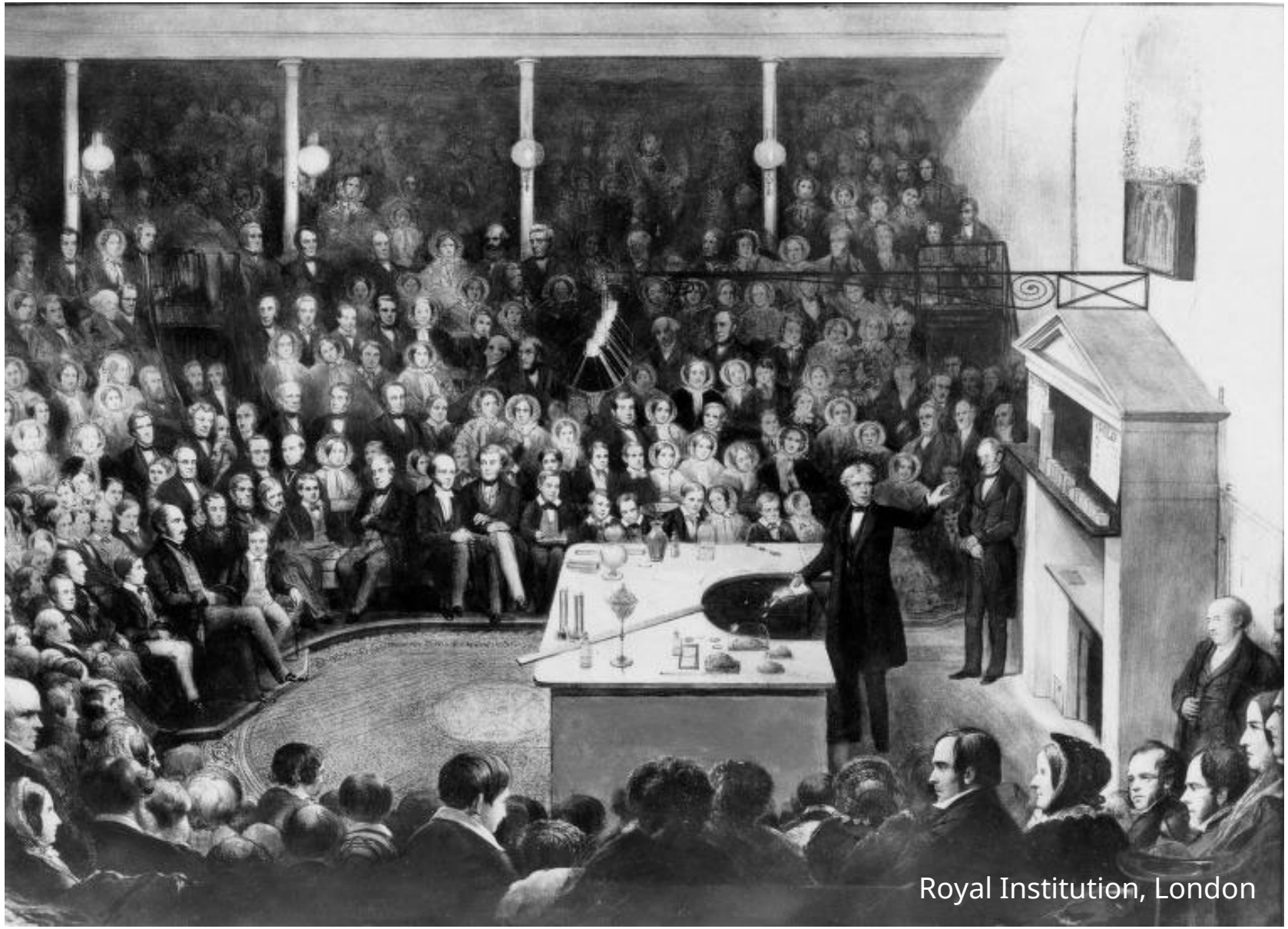
***Tell a politician***

# This is Michael Faraday lecturing on electricity



# And this can power 100,000 homes

# Fundamental science:
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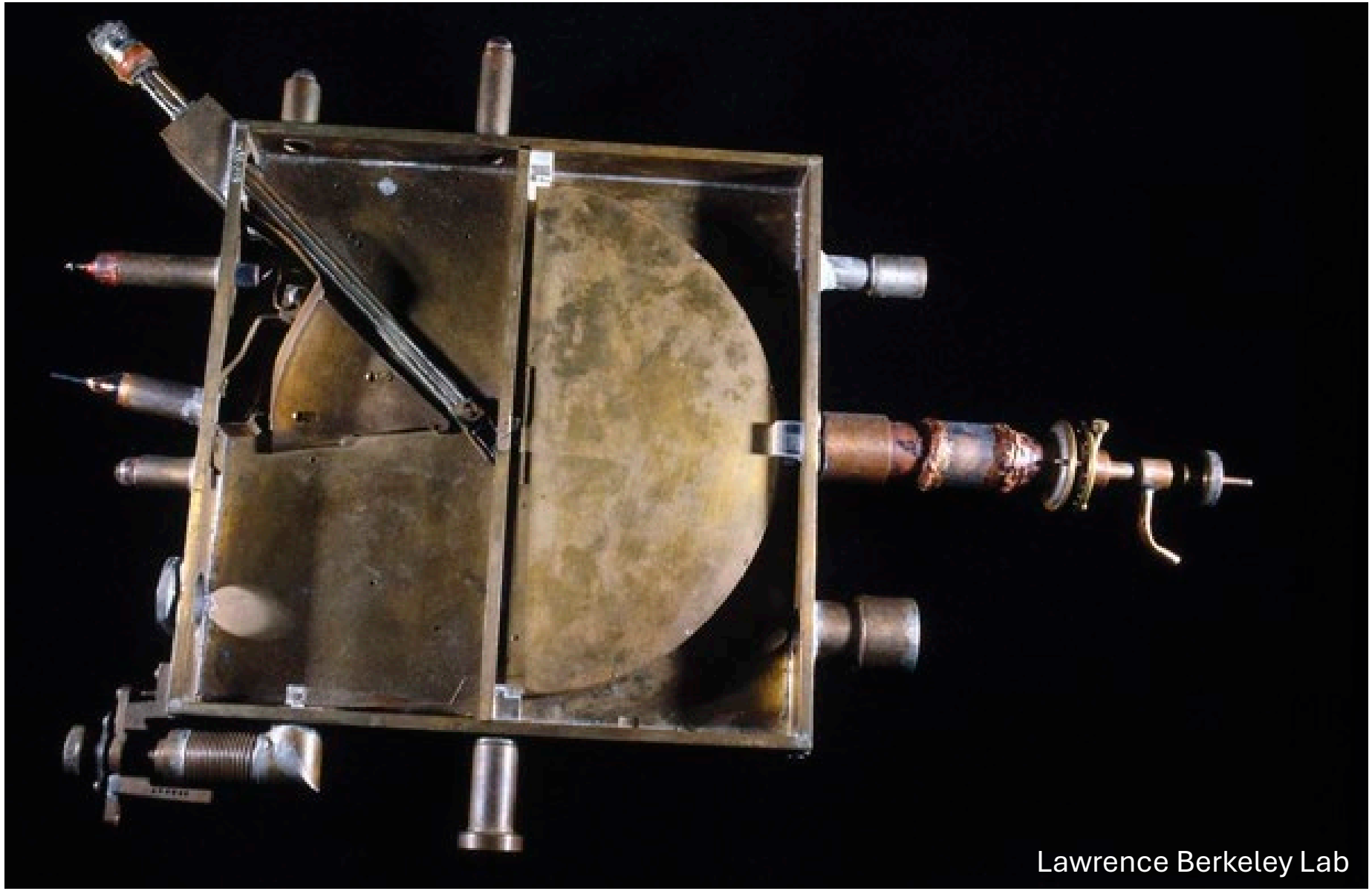
# This is one of the first particle accelerators



# And this accelerator can treat cancer

Washington University, St. Louis

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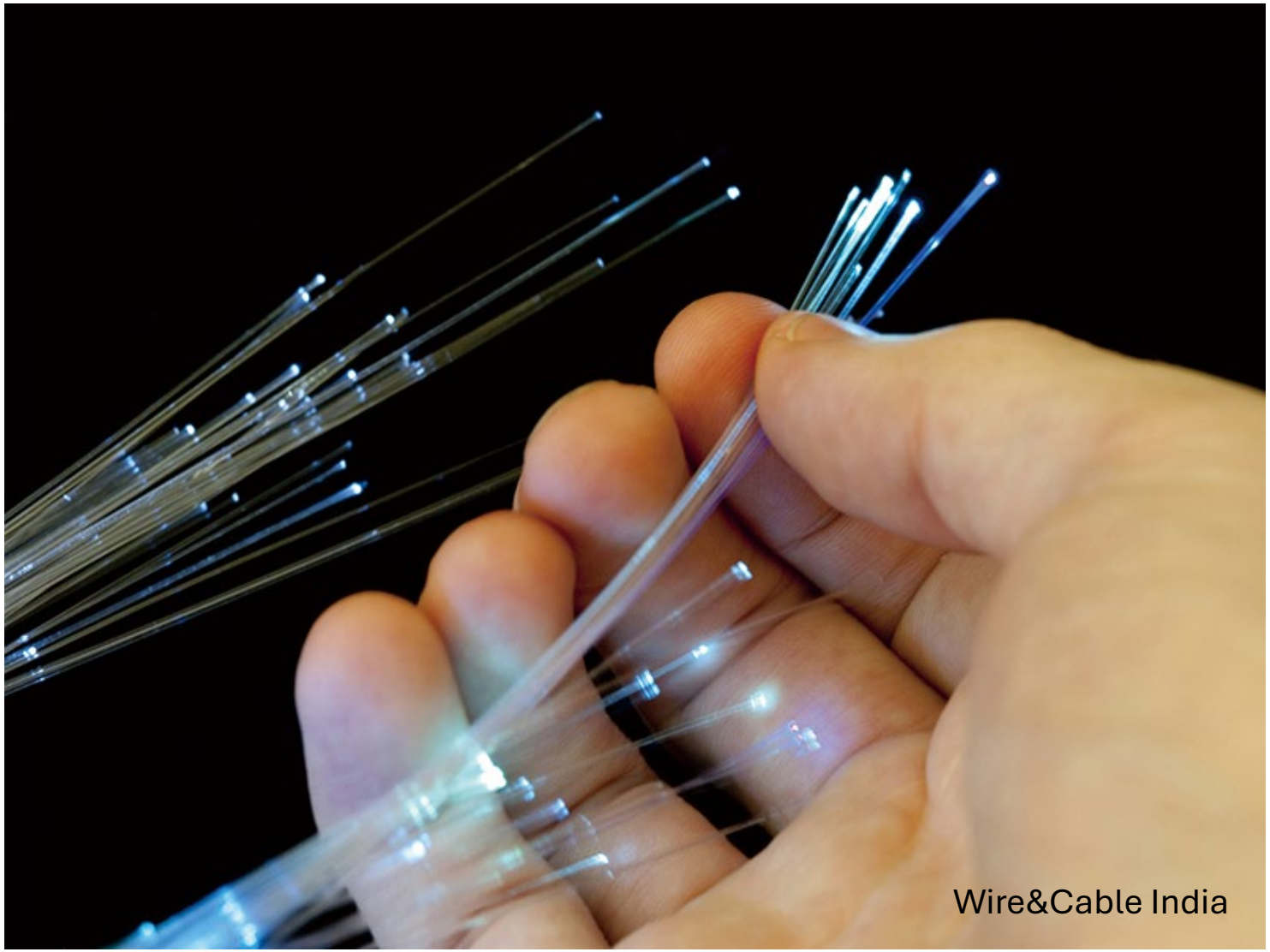
***Tell a politician***

# This is Isaac Newton studying how glass bends light

# And these are fibers channeling light and carrying millions of conversations thousands of miles away



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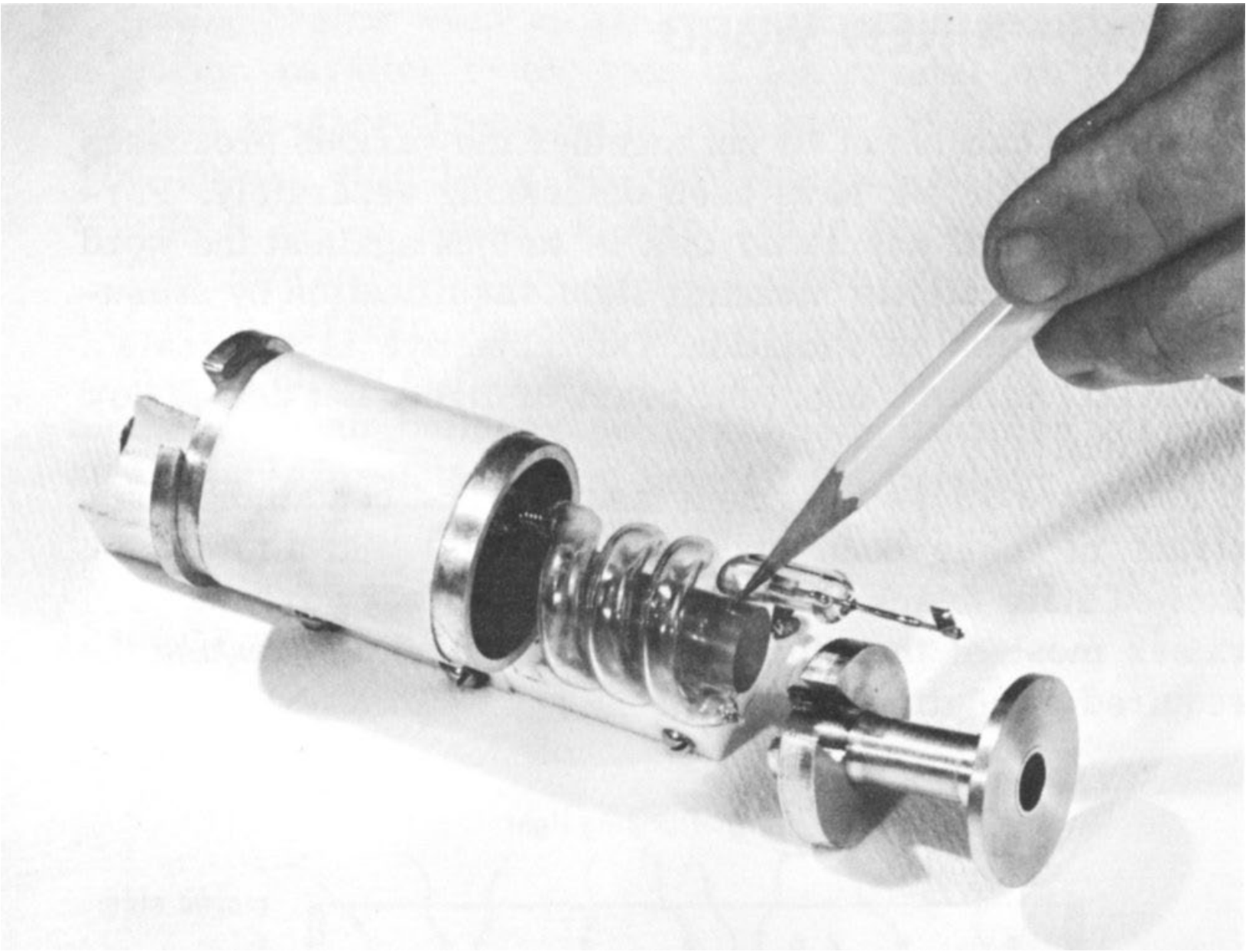
# These are the parts of the first laser



# And this is a self driving car using a LIDAR

*Justin Sullivan | Getty Images News | Getty Images*

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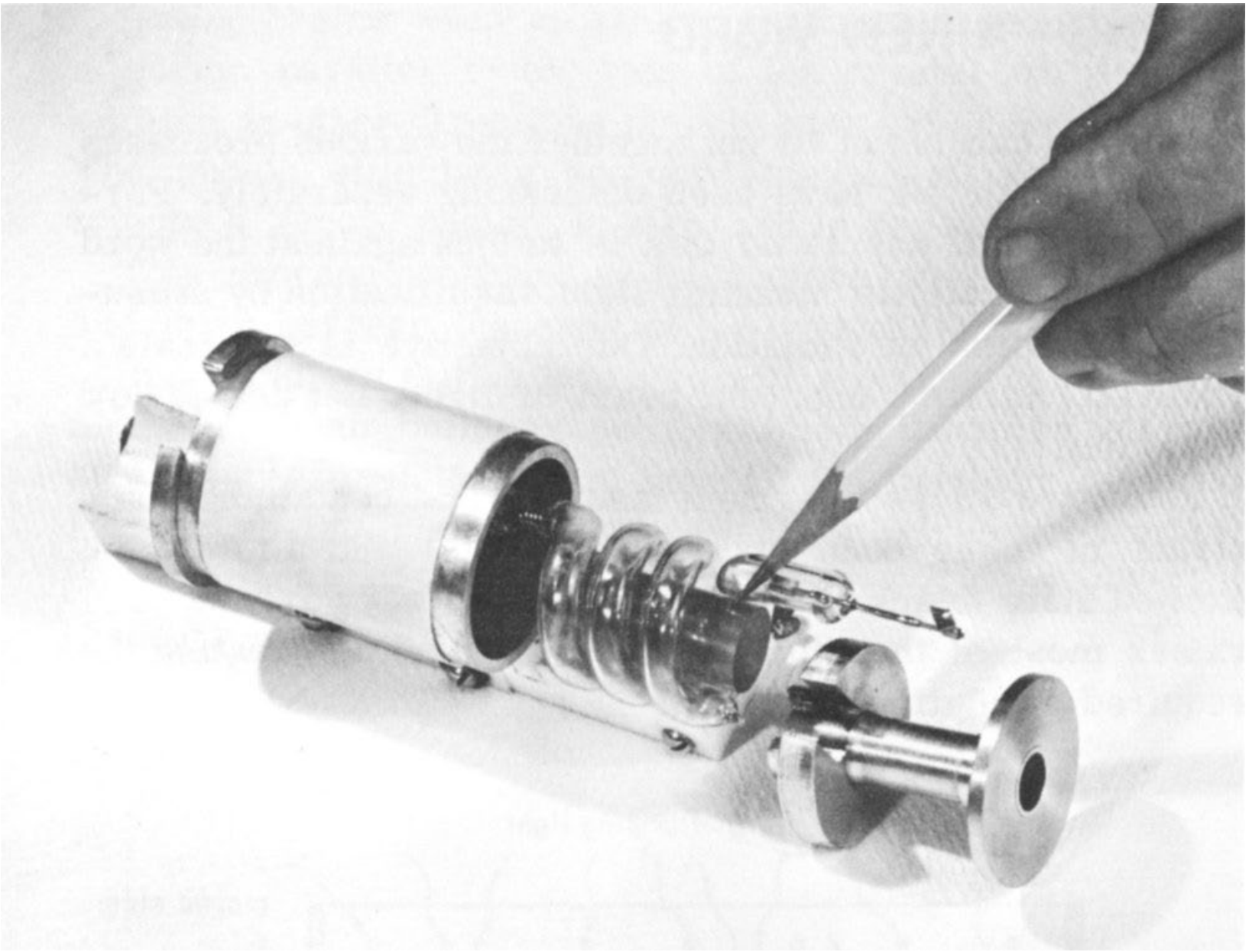

# And laser surgery can restore 20/20 vision

National Naval Medical Center/Wikipedia

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