

HANNES ALFVÉN BIRTH CENTENNIAL

30 May 2008

A pictorial tribute

**Remembering
a great scientist, a genuine humanitarian, and a remarkable
human being**



Hannes Olof-Gösta Alfvén (1908 - 1995)

Site created by

[Bibhas De](#)

May 30, 2008 marks the birth centennial of Nobel Prizewinning Swedish physicist Hannes Alfvén. This site is a pictorial tribute to him, composed of material culled from the Internet as well as from private files. You can read a biography of Hannes Alfvén [here](#).



Marc Chagall: *Bouquet pour ...*

A FINE LINEAGE



(Image source: Arrhenius - nobelprize.org; Klein - www.kosmologika.net)

The legendary scientist Svante Arrhenius had a most illustrious student, physicist Oskar Klein. Klein's student was Hannes Alfvén. Interestingly, Alfvén would come to be a close collaborator of Gustaf Arrhenius, grandson of Svante Arrhenius.



(Image source: nobelprize.org)

The famed Swedish physicist (Nobel Laureate) Manne Siegbahn was also a teacher to Hannes Alfvén.



(Image source: answers.com)

The noted Swedish composer Hugo Alfvén was Hannes Alfvén's uncle.

Stories about Hannes Alfvén

(Contributed by Carl-Gunne Fälthammar)

THE MAKINGS OF HANNES ALFVÉN



(Image courtesy Carl-Gunne Fälthammar)

Hannes Alfvén as a child reading a book on Popular Astronomy by Camille Flammarion.

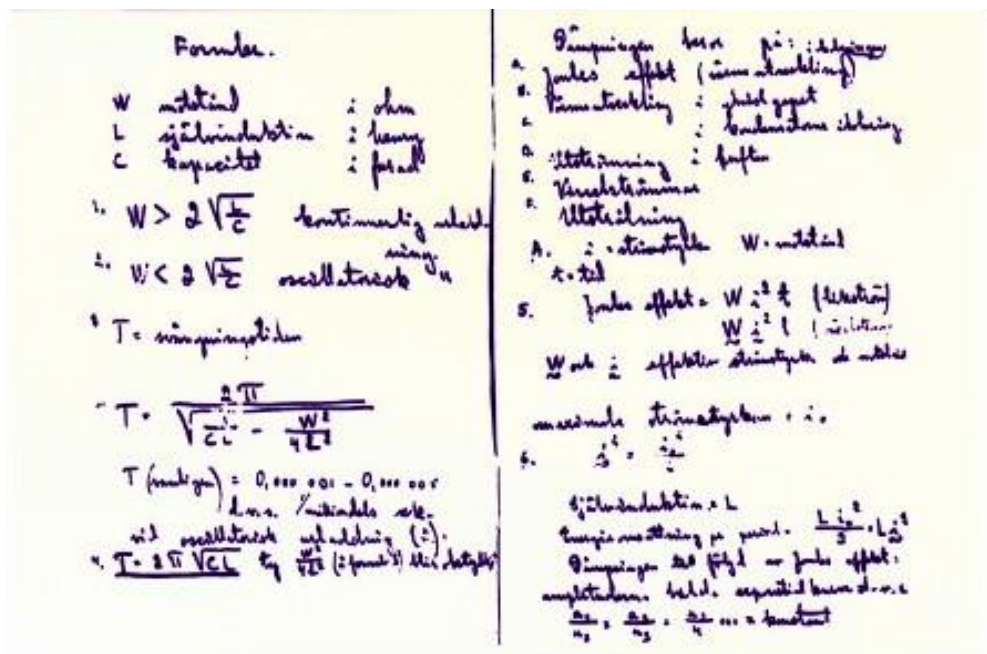
According to Hannes' own account, two childhood experiences had a significant influence on his intellectual development and scientific career. One was a book on popular astronomy by Camille Flammarion, which he was given at a young age and which kindled a lifelong fascination with astronomy and astrophysics.



(Image source: wikimedia)

Sixteenth century woodcut of a man exploring the meeting of the Earth and the Sky, by Camille Flammarion.

The other experience was that he joined the school's radio club where he was an active member and built radio receivers. This instilled in him a profound interest in electronics. Therefore, as a scientist, Hannes was inclined to look at astrophysical problems from an electromagnetic point of view, and this turned out to be very fruitful. When his book *Cosmical Electrodynamics* was published in 1950, one of the reviewers, T. G. Cowling, referred to him as "an electrical engineer in Stockholm".



(Image courtesy Carl-Gunne Fällhammar)

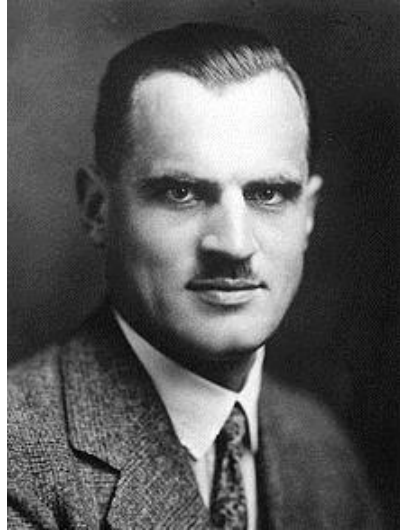
Pages from 15-year-old Hannes Alfvén's notebook.



Professor Hannes Alfvén on the day he received his doctorate from the University of Uppsala in 1934. Young Doctor Alfvén – then 26 years of age – stands at the right hand of his Promoter (centre), while at the left hand we see Doctor (since Professor) Bengt Edlén, both of whom received their doctors' laurel as the only physicists in this group of graduants. (Reproduced by courtesy of the photographer, Professor Pol Swings.)

[Photo: Professor Polidore Swings (1906-1983), Belgian astrophysicist]
Hannes Alfvén receives his Ph. D.

REMARKABLE ENCOUNTERS

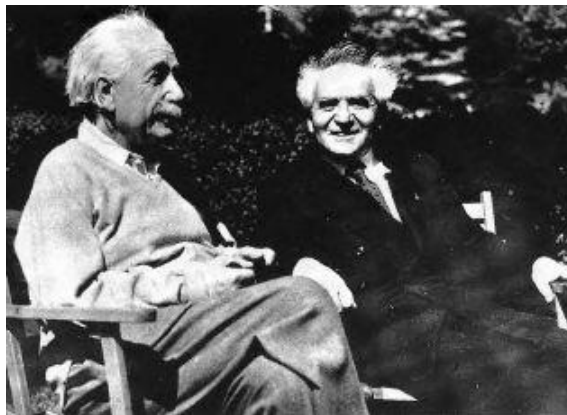


In his meeting with Arthur H. Compton at a conference in London about 1934, they discussed Alfvén's recently published paper on cosmic radiation, a paper with which Alfvén himself was not happy. Compton said: "Don't give it up too easily." Later Alfvén was to write about this meeting: "As he was one of the great authorities on cosmic radiation this was an enormous encouragement to me. In retrospect this may have been the trigger which brought me into astrophysics. It happened at a time when almost everybody was running towards nuclear physics. It saved me from the guilt associated with atomic bombs and nuclear energy which every nuclear physicist of today must feel at the bottom of his heart."



(Source: wikipedia)

Alfvén had enough of an association with Edward Teller to write with him one or two papers on cosmic radiation. Later Alfvén wrote about his first encounter with Teller at a talk given by the latter: "It was the first time I heard Teller and did not know that this dynamic personality always makes everybody laugh – independent of whether he speaks about his dear atomic bombs or astrophysics."



(Image courtesy <http://th.physik.uni-frankfurt.de>)

The former Israeli Prime Minister David Ben-Gurion met Albert Einstein. The two hit it off famously. They had a great meeting of minds.

Sometime after this, Hannes Alfvén was brought to the presence of Prime Minister Ben-Gurion. The latter was curious about this young Swedish scientist who was being much talked about. After a good chat, Ben Gurion came right to the point: "Do you believe in God?"

Now, Hannes Alfvén was not quite prepared for this. So he considered his answer for a few brief seconds. But Ben-Gurion took his silence to be a "No." So he said: "Better scientist than you believes in God."

(As told by Hannes Alfvén to Asoka Mendis)



(Image courtesy: http://www-lgit.obs.ujf-grenoble.fr/users/albouss/public_html/RECHERCHE/WebAlfvén/images/youngAlfvén.jpg)

Young Hannes Alfvén

Stories about Hannes Alfvén

(Contributed by Carl-Gunne Fälthammar)

SHADES OF DIFFICULTY



(Image courtesy <http://th.physik.uni-frankfurt.de/>)

Lord P. M. S. Blackett, Nobel Prizewinning British physicist

Hannes Alfvén discovered and laid down the foundations of the science of Magnetohydrodynamics. This subject combines the complexities of electromagnetism and hydrodynamics. Thus, in short hand:

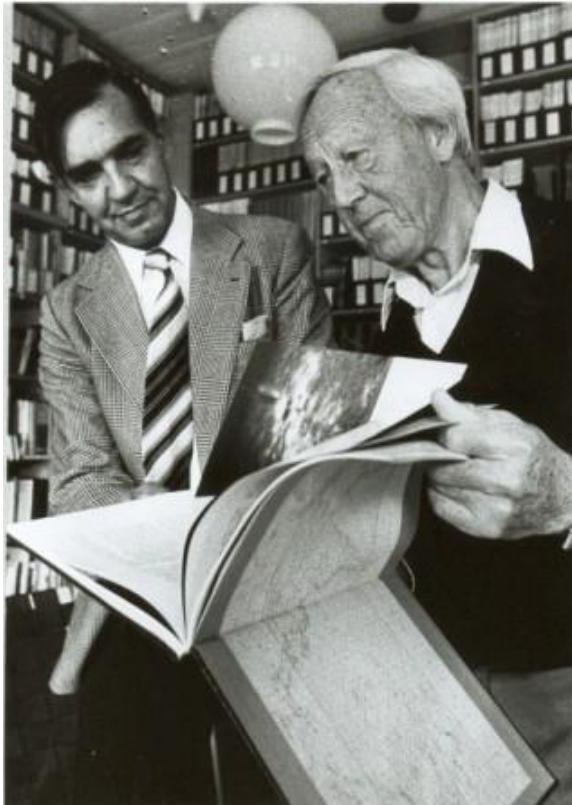
Electromagnetism + Hydrodynamics = Magnetohydrodynamics.

The 1948 Nobel Laureate in Physics, Lord Blackett, used to express this to his students as follows:

“Electromagnetism is difficult, hydrodynamics is very difficult, but magnetohydrodynamics is damn difficult.”

THE PROTÉGÉS

For most of his professional life, Alfvén's scientific home in Sweden was the Royal Institute of Technology (KTH) in Stockholm. Here he nurtured many a young mind – each special in his or her own way. The following two exemplify:



(Image source: Fälthammar and Alfvén - Carl-Gunne Fälthammar)

Hannes Alfvén with Carl-Gunne Fälthammar at a press conference arranged by the Swedish Science Research Council 29 August, 1980.

If there is one who can be identified as Alfvén's closest protégé, colleague, friend, advisor and confidante, he would be Professor Carl-Gunne Fälthammar. The lifelong association started when Fälthammar came to Alfvén as a young graduate student. Later, the student would fill his professor's big chair at KTH. Everytime a retired Hannes Alfvén came for his six-months-a-year visit to KTH, Fälthammar moved out of his office and camped out in a small room so Alfvén could continue in the familiarity of his old "chair". The medals, awards, lectures etc that carry Alfvén's name today have been instituted through Fälthammar's tireless effort to pay homage to his teacher.



Professor Bosse Lehnert (Bo Lehnert) is an equally close scientific protégé. He reflects that side of Alfvén which is concerned with deep insight into the very basic nature of things. He has proposed ideas that go to the most fundamental questions of physics. This can be said of few physicists today.



THE US YEARS: THE DUUMVIRATE



For many years, Hannes Alfvén commuted between the US and Sweden, spending six months each year at the University of California, San Diego. Here, two of his closest collaborators, friends and confidantes were Professor Gustaf Olof-Svante Arrhenius (Swedish-born) of the Scripps Institution of Oceanography, and Professor Devamitta Asoka Mendis (Sri Lankan-born) of the Department of Applied Physics. Alfvén discussed science with them almost on a daily basis, and socialized with them frequently.



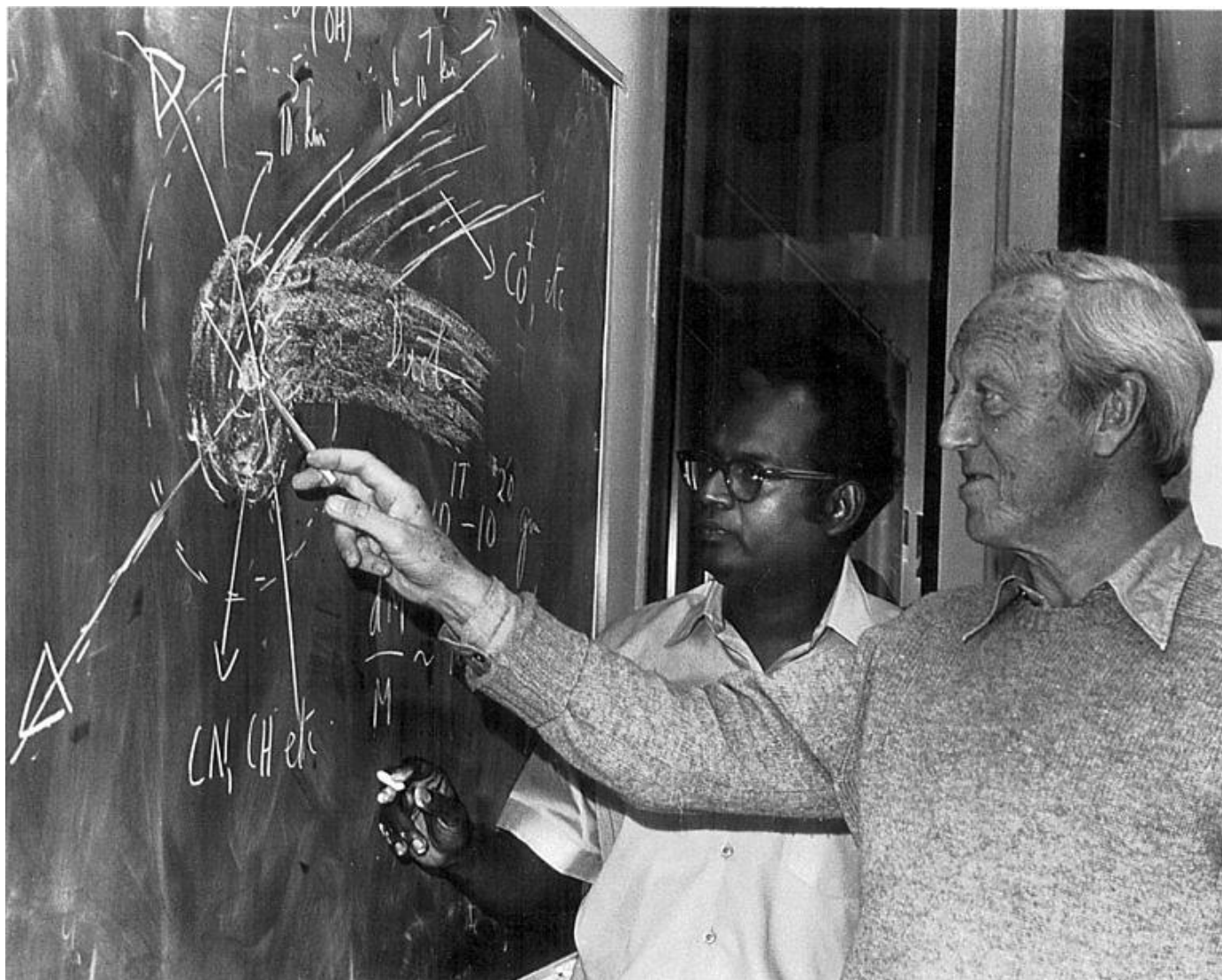
Hannes Alfvén and Gustaf Arrhenius find a quiet corner at a party at the Mendises to talk shop.



Hannes and Kerstin Alfvén in 1972 outside their La Jolla Shores home



Jenny and Gustaf Arrhenius (1972 photo) were at the same time friends and family to the Alfvéns in La Jolla.



Hannes Alfvén and Asoka Mendis discuss a model of the cometary core
(*Courtesy D. Asoka Mendis*)

Stories Hannes Alfvén liked to tell

THE SUNFLOWER STORY



High up north in Sweden in summertime, all day long and all summer long, the sun just makes a small circles in the sky, never setting. Round and round it goes in the sky. Then this season ends, the sun sets and darkness returns.

In a village there, about this time, a guest came to spend a few days, very first time in that area. On the first dark night, he went to bed. Suddenly, he woke up with a start on hearing strange intermittent sounds from the garden outside: *Whoosh, swoosh, shoo, sheesh....* The guest got most scared and woke up his host. The host told him: "Not to worry. The sunflowers are unwinding."

THE US YEARS: THE STUDENTS

In the early 1970s, Hannes Alfvén had two graduate students at UCSD, Wing-Huen Ip (originally from Hong Kong) and Bibhas Ranjan De (originally from India.)



Graduation Party at the Alfvéns in La Jolla in December 1973. From left: Diana and Wing-Huen Ip, Bibhas and Gopa De.

(Hannes Alfvén would joke to Asoka Mendis: "Between the two of my graduate students, I have a grand total of four letters in the last names!")

[Photo: Kerstin Alfvén]



Hannes Alfvén's student Wing-Huen Ip is a renowned space scientist and astronomer. It has been said that he has published more papers in the internationally renowned journals *Science* and *Nature* than any other

Chinese-speaking scientists. He has also held the position of Vice President of the National Central University of Taiwan. What many may

not know is that he is a very fine artist - his main medium being oil painting.

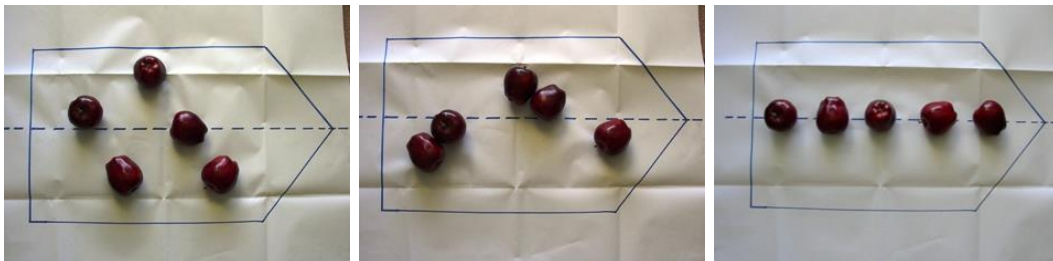
[Photo courtesy: www.chinapost.com.tw]

Stories about Hannes Alfvén

DON'T JUDGE A PAPER BY ITS TITLE!

In 1971 Alfvén published a remarkable paper titled *Apples in a spacecraft* in *Science Magazine* (6 August 1971). It had to do with Gravitation and Celestial Mechanics. Basically, his revolutionary new idea in Gravitation was this: Suppose there is a jetstream of particles (chunks of rocks, say) orbiting a planet. The particles in the jet stream will collide with one another. Our intuition suggests that these collisions would cause the jet stream to spread out because of diffusion. However, Alfvén showed that the jet stream would in fact become narrower and narrower. The result will be that the jet stream will eventually coalesce to one or more secondary bodies, in this case planetary satellites.

For pedagogic reasons, and also being slightly mischievous, Alfvén chose the particles to be apples (as in Newton's apple!), and he chose to place them inside an orbiting spacecraft. Then he argued as follows:



At first, the apples will be floating inside the spacecraft in the "weightless state." The dashed line represents the orbit of the spacecraft.

As the apples move around in the spacecraft, they will collide with one another, at least partially inelastically.

Each such collision will make the orbits of the colliding apples more similar. The end result will be that all the apples will line up along the orbit.

This effect has been called *Negative Diffusion*.

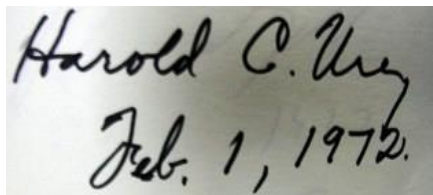
One morning in the Fall of 1971, Alfvén – just arrived from Sweden for his annual six-month stay in La Jolla - is sitting in his fourth floor office of the APIS Building in UCSD. His office door, as is usual, is closed. A student knocks and enters. He finds that Alfvén is smiling to himself, looking most amused. The student asks: "Something amusing?!"

Alfvén replies: "When I published the paper, I hoped there would be rather much interest in it. There has of course been interest, but look who from!"

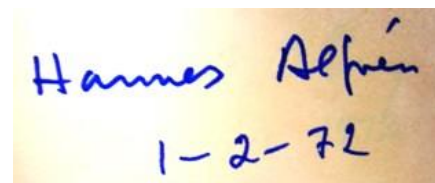
Alfvén then pushes towards the student a stack of printed Reprint Request cards that had arrived for this paper. They were for the most part from various universities and government laboratories. They were from such places as "Department of Agronomy", "Department of Microbiology and Immunology", "Department of Space Biology", ... There is a vague recollection that there was also one from the research laboratory of a major food giant. The paper has since been entered into the database of www.pubmed.gov, a medical literatures archive.



THE US YEARS: A NOBLE RIVALRY



Harold C. Urey
Feb. 1, 1972.



Hannes Alfvén
1-2-72

(Image source: Urey - wikipedia; Alfvén - nobelprize.org)

Some may have thought that UCSD "Upper Campus" was too small a place to hold two scientific giants: Chemist Harold C. Urey and physicist Hannes Alfvén – Nobelists both. They differed colorfully on their views on the origin of the Moon. One

unverifiable story has it that some unknown individual left a message posted on the door of Alfvén's office: "Alfven, you are wrong about the Moon." You might think that having the two giants on your Ph. D. thesis committee would give you great bragging rights. In actual fact it would not have been a good idea at all! But when it came to the cause of peace, the two collaborated most eagerly.

Stories Hannes Alfvén liked to tell

THE STORY OF THE THREE FINNISH TROLLS



The Finns are famously known to be quiet and reserved people. So are reportedly Finnish trolls!

In a very desolate part of Northern Finland, three companionable trolls took up lodgings on three adjacent mountain peaks. All around them was just the snowy silence. Even the snowfall did not make any sound. A hundred years passed. Then one of the trolls said: "It is nice up here." Then another hundred years passed. The second troll responded: "Yes, it is." After that, another two hundred years passed. The third troll spoke up: "Heck! If there is going to so much talking here, I am going to move."

THE US YEARS: LIFE WITH FRIENDS AND FAMILY



Kerstin and Hannes Alfvén in La Jolla, about 1971.



Alfvén in his La Jolla home with Gopa De, Janine Mendis and Bibhas De (Drs. all!).
(Photo: Kerstin Alfvén)



A typical dinner party at the Alfvéns. Alfvén is pouring wine at the head of the table.
Standing near him is his friend, physicist William B. Thompson.
(Photo: Kerstin Alfvén)



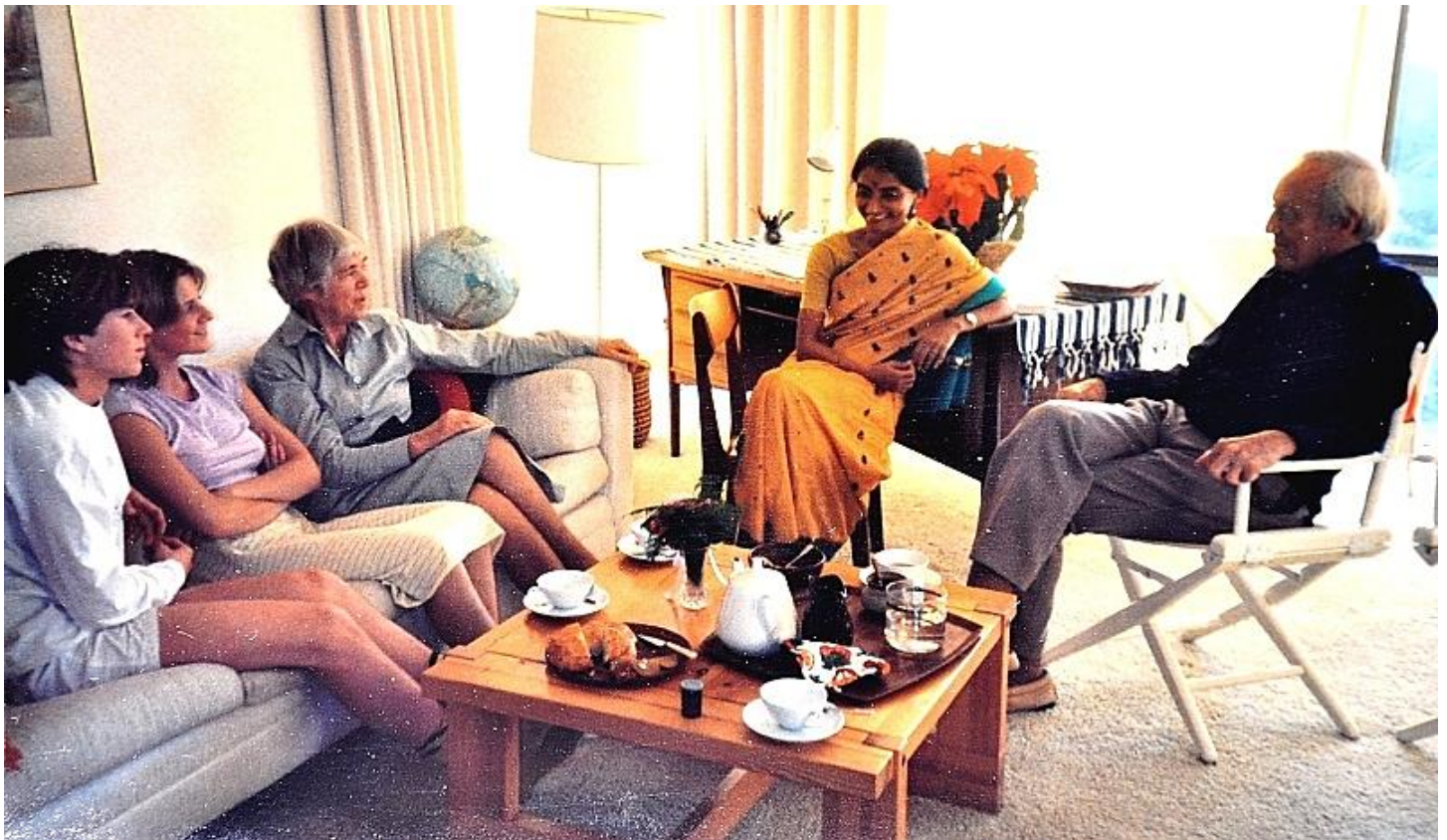
This fabric art that hung in the La Jolla home of the Alfvéns was a favorite conversation piece



Hannes and Kerstin Alfvén at the Des in Houston, about 1980.



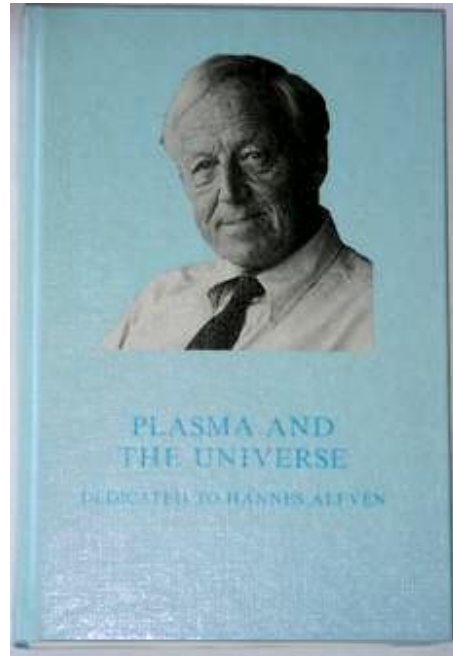
Hannes Alfvén and Gopa De the same evening.



A leisurely afternoon tea at the Alfvén home in La Jolla. Shown are (L. to R.) the Alfvéns' two visiting grandchildren, Kerstin Alfvén, Gopa De and Hannes Alfvén.

THE 80th BIRTHDAY CELEBRATION IN STOCKHOLM

Many colleagues and friends of Hannes Alfvén collaborated to produce a Festschrift honoring him on his 80th birthday, 30 May 1988.



The Festschrift.



Hannes Alfvén acknowledges the tribute (This is the obverse of a picture postcard Alfvén sent to Bibhas and Gopa De.)

Dear Birkbeck and Goppa,
My most cordial thanks to you for
the Festschrift. I had heard rumours that
something was planned but not in any wildest
imagination could I guess that it was
such an impressive book. I know that to
a large extent it is due to your competent
and hard work for which I am very grateful.
We look forward to seeing both of
you in La Jolla.
Your very old friend Hannes.

A thank-you note from Hannes Alfvén (The reverse of the same postcard.)

HANNES ALFVEN
8110 El Paseo Grande, #403
La Jolla, Calif. 92037
(619) 454-1378

Oct 20, 1988.

Dear Bibhas and Gopa,

Kerstin and I are now back in LaJolla. First of all we would like to thank you once again for the fantastic Festschrift to my birthday. We know very well that it was mainly your tremendous effort which made it such a memorable book.

We should like very much to see you here. We have tried several times to phone you but so far without success. Could you perhaps ^{reschedule} a Saturday or Sunday for us in a near future here in LaJolla?

With most friendly greetings
Kerstin + Hannes.

A most heart-warming letter!

Stories Hannes Alfvén liked to tell

THE STORY OF THE PASTOR'S BIBLE

(A commentary on certain scientific colleagues!)



During his Sunday sermons, a pastor was most concerned that his points and arguments on the scriptures clearly got through to his audience. He enunciated his reasoning most meticulously, placing the proper intonation and the right emphasis and the clearing-of-the-throat at just the right points.

One day, someone got to see the pastor's personal copy of the Bible. It was copiously annotated in the margins on how to speak and where to place emphasis! Repeatedly, there was this particular instruction written: "This is a very weak argument. Shout at the top of your voice."

SOME INTERESTING CORRESPONDENCE



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GEORGE C. MARSHALL SPACE FLIGHT CENTER
HUNTSVILLE, ALABAMA 35812

IN REPLY REFER TO: DIR

NOV 18 1969

Dr. Hannes Alfvén
Department of Applied Physics and
Information Science
University of California, San Diego
La Jolla, California 92037

Dear Dr. Alfvén:

Thank you for your memorandum "Mission to an Asteroid" which I found to be very interesting. The scientific objectives that you spell out are intriguing and worthwhile.

As you probably know, NASA has not yet been able to firmly establish its future missions. The principal constraint upon the missions we will be able to undertake will be the financial limitations imposed upon NASA. At this time we cannot predict with any degree of certainty if an asteroid mission will become a reality.

I am forwarding your memorandum to Dr. William Lucas, Director of Program Development in our Center. Dr. Lucas' organization is responsible for advanced planning of missions such as the one described in your paper. Dr. Lucas' people will consider the mission that you propose, along with other candidate missions.

Thank you for sending your very interesting paper to us.

Sincerely yours,

Wernher von Braun
Director

A letter from rocket pioneer Wernher von Braun to Hannes Alfvén
(Courtesy D. Asoka Mendis)



THE ROYAL
INSTITUTE OF
TECHNOLOGY

Department of Plasma Physics

Stockholm, April 14, 1987

Dr. Marek Thee
International Peace Research Institute
Rådhusgt. 4
0151 Oslo 1
NORWAY

Dear Marek,

(1) There are strong arguments for the view that the Universe is matter-antimatter symmetric and that annihilation plays a major role in the evolution of the Universe - although this is not the generally accepted view.

(2) It is generally agreed that there is no antimatter in the solar system.

(3) Production of appreciable quantities of antimatter is an extremely complicated process.

(4) I conclude that it is extremely unlikely that antimatter will be of any military importance.

Kind regards,

Hannes Alfvén

Postal address:
The Royal Institute of Technology
Department of Plasma Physics
S-100 44, STOCKHOLM, Sweden

Street address:
Teknikringen 32
Stockholm

Telephone:
08 - 267 70 00

Circle address:
Techology

Telex:
704187 KTH SWEDE SW

(Courtesy <http://cui.unige.ch/isi/sscr/phys/L-Alfven.jpg>)
Antimatter for Peace!

THE SALK INSTITUTE

May 20, 1977

Dr. Bibhas R. De
Visiting Research Scientist
The Lunar Science Institute
3303 Nasa Road 1
Houston, Texas 77058

Dear Bibhas,

I haven't yet had time to come to grips with the big, fat Alfvén-Arrhenius book so the basis of your argument is lost on me, but the paper itself seems clear and straightforward. It so happens I am just writing to Carl Sagan so I've put in a word for you. I do hope he publishes it.

I go away for six weeks on Sunday, but we hope to be back in our new house for the whole of July. Will you be here then? If so, do get in touch with my secretary here who will give you our new address and telephone number. It would be nice to see you both again.

Best wishes,

Yours sincerely,

A handwritten signature in cursive script that reads "Francis". The signature is written in dark ink and has a horizontal line underneath the name.

F. H. C. Crick
Ferkauf Foundation Visiting Professor

FHCC:kv

Post Office Box 1809, San Diego, California 92112 • Telephone (714) 453-4100

Sir Francis Harry Compton Crick tried to lend a helping hand!

Stories about Hannes Alfvén

A REUNION IN BEIJING

[When China opened up in the 1970s following social reforms, the Alfvéns were among the early foreigners invited to visit China. The following story is slightly embellished – but only slightly.]



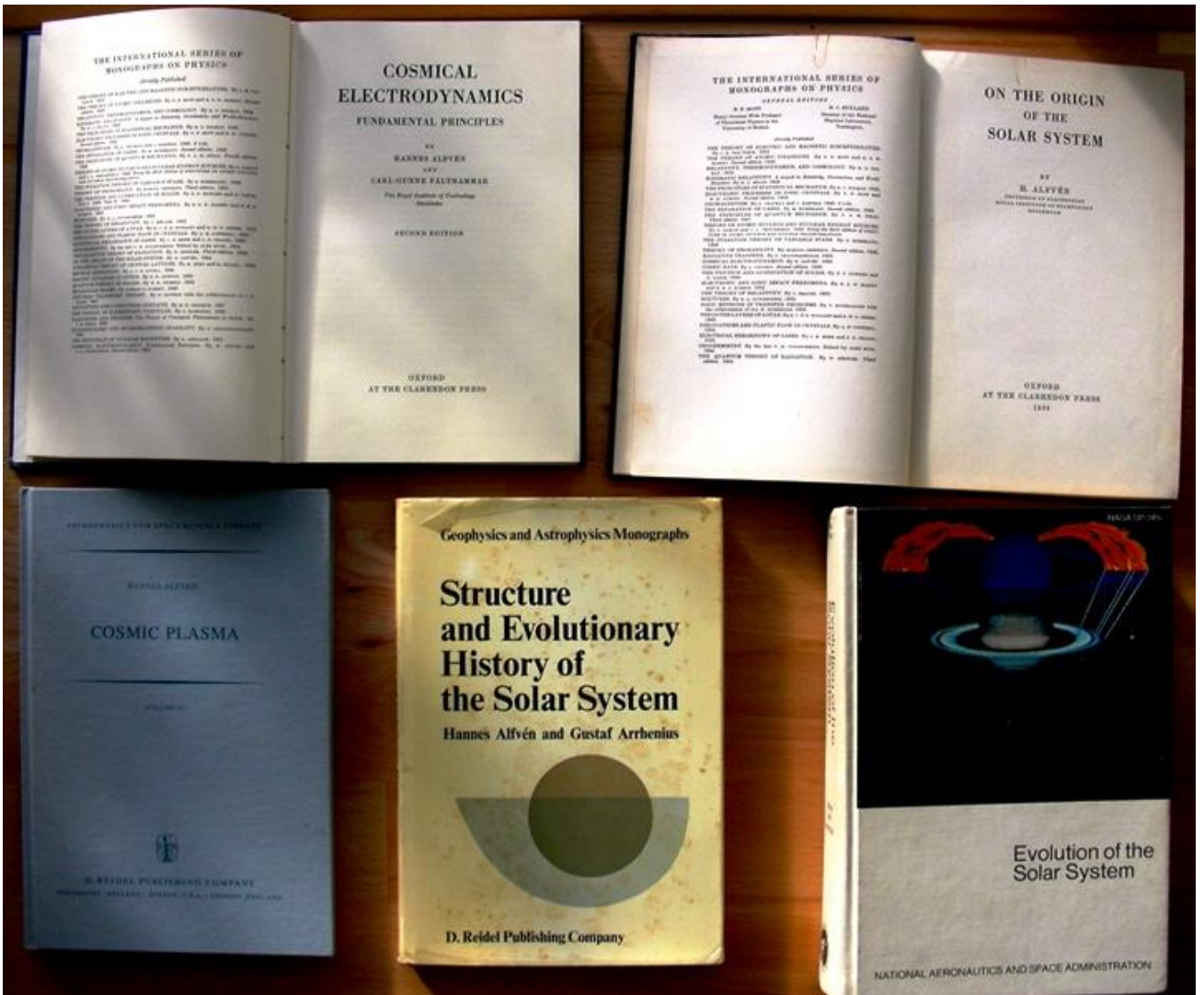
Hannes and Kerstin Alfvén had a very good visit in China, and appreciated the warm hospitality there. They were particularly interested in population planning, and were able to learn for themselves what methods were being implemented.

In one of the cities, Shanghai say, Hannes unmindfully pushed his bedroom slippers under the bed before he went to sleep. They left the hotel the following morning, and forgot to pack the out-of-view slippers. No big inconvenience. One could after all do without bedroom slippers.

The Alfvéns continued their tour, traveling from city to city. Eventually, they came to Beijing, finished their tour and caught the outbound flight. The engines started and the flight crew was about to close the door. Suddenly, there came running – huffing and puffing – a Chinese government official. He used his authority to enter the plane. He made his way to where the Alfvéns were seated, and offered with his both hands a paper package. The bedroom slippers from Shanghai! The official explained that they were trying to catch up with the visitors from city to city, and was glad to finally catch up with them here. He also apologized profusely for the inconvenience the visitor suffered as a guest in his country.



HANNES ALFVEN'S OEUVRE

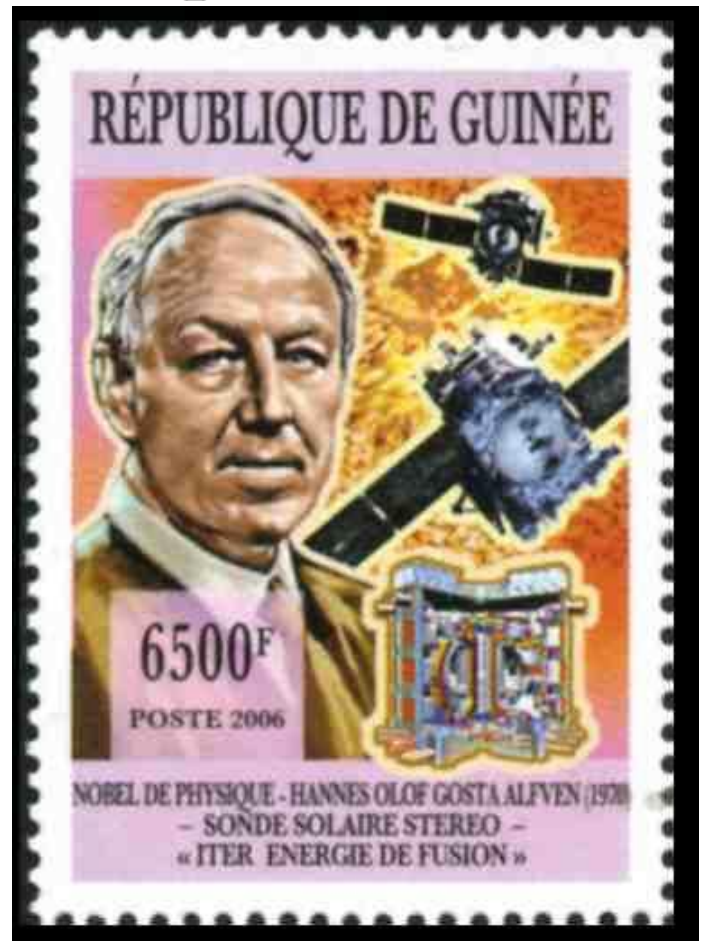


Alfvén's academic books



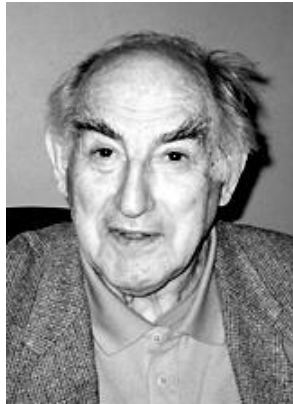
Alfvén's non-academic books

POSTAGE STAMPS...ETC



Stories about Hannes Alfvén

THE STORY OF THE CORDIAL DEBATERS



(Image source: nobelprize.org)

Nobel prizewinning Russian physicist/astrophysicist Vitaly Lazarevich Ginzburg – a giant of Russian science

At a symposium on radio astronomy in 1966 the following exchange of remarks took place.

H. Alfvén. [V. L.] Ginzburg has said that it is absolutely clear that cosmic radiation plays a decisive role in the galaxy. I am not at all sure about this, because what we observe and what we conclude from observation are so different. . . . It may very well be that 99% of the cosmic radiation is a local phenomenon confined to our environment in the same way as the Van Allen radiation belts are confined to the earth's magnetic field.

Ginzburg answers: The arguments against the solar or local origin of cosmic rays are numerous. . . . The radio-astronomical evidence is quite strong. . . . However, I agree that it is extraordinarily difficult to disprove anything.

Alfvén: To disprove anything is very difficult, but also to prove it.

Ginzburg: Fortunately it is possible to do something. I have worked in the field for some years, and I can say in the course of time the argument slowly improves. So I hope during my lifetime I shall see the full victory of these things.

Alfvén: I hope you will live very long.

(Image source: "Memoirs of a Dissident Scientist" by Hannes Alfvén, *American Scientist*, vol. 76, May-June 1988)



MAY HIS NAME INCREASE....



The Alfvén Medal is awarded by the European Geophysical Society
(Courtesy: www.lgit.obs.ujf-grenoble.fr/users/talbouss/public_html/RECHERCHE/WebAlfven/images/hannes_alfven_medal.jpg)



The Alpha-Centauri Medal was conceived by Hannes Alfvén, for award to the first person who proves whether this star is made of matter or antimatter. A physical medal was actually produced, and placed in the custody of the American Geophysical Union.
(Courtesy: EOS)



The Alfvén Lectures are hosted by the Royal Institute of Technology, Stockholm
(Image source: wikimedia)

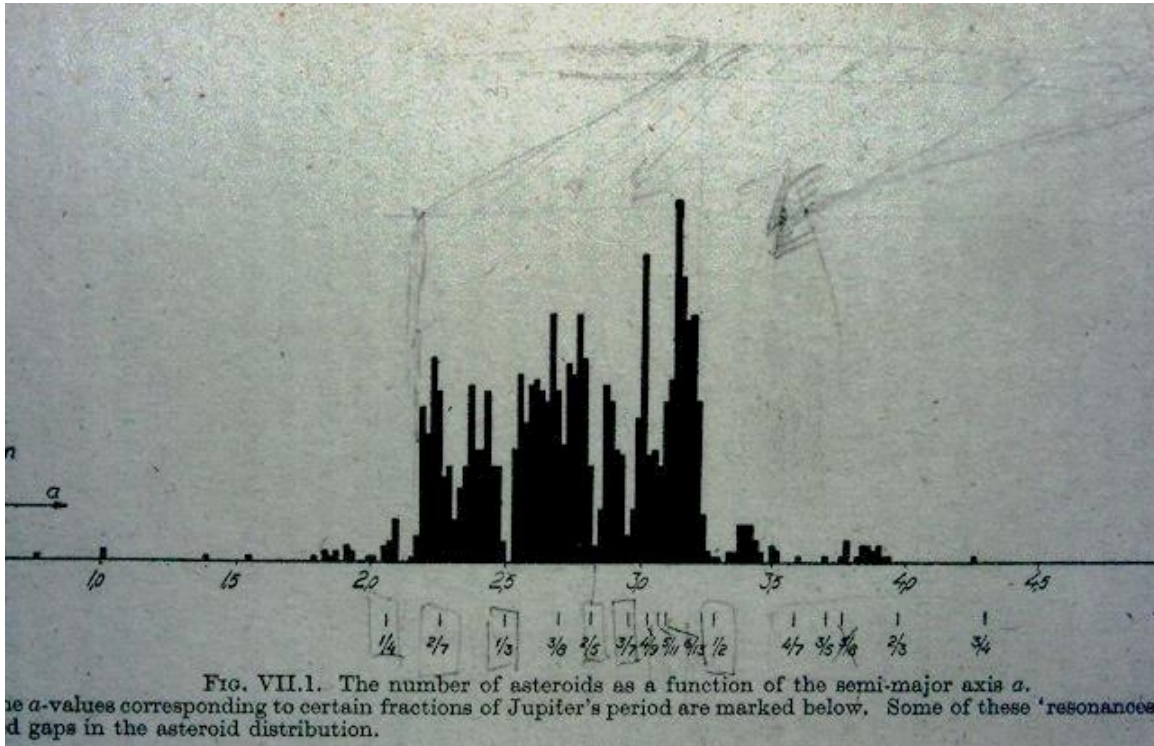


Professor Dr. Friedrich Wagner of the Max-Planck Institute is one of the winners of the Alfvén Prize, awarded by the European Physical Society (not to be confused with the Alfvén Prize named after the uncle!)
(Image source: <http://www.energy2050.se/>)

ASTEROID 1778 ALFVEN

A heavenly body named after Hannes Alfvén (A Main-belt asteroid, discovered on September 26, 1960 by PLS at Palomar Observatory)

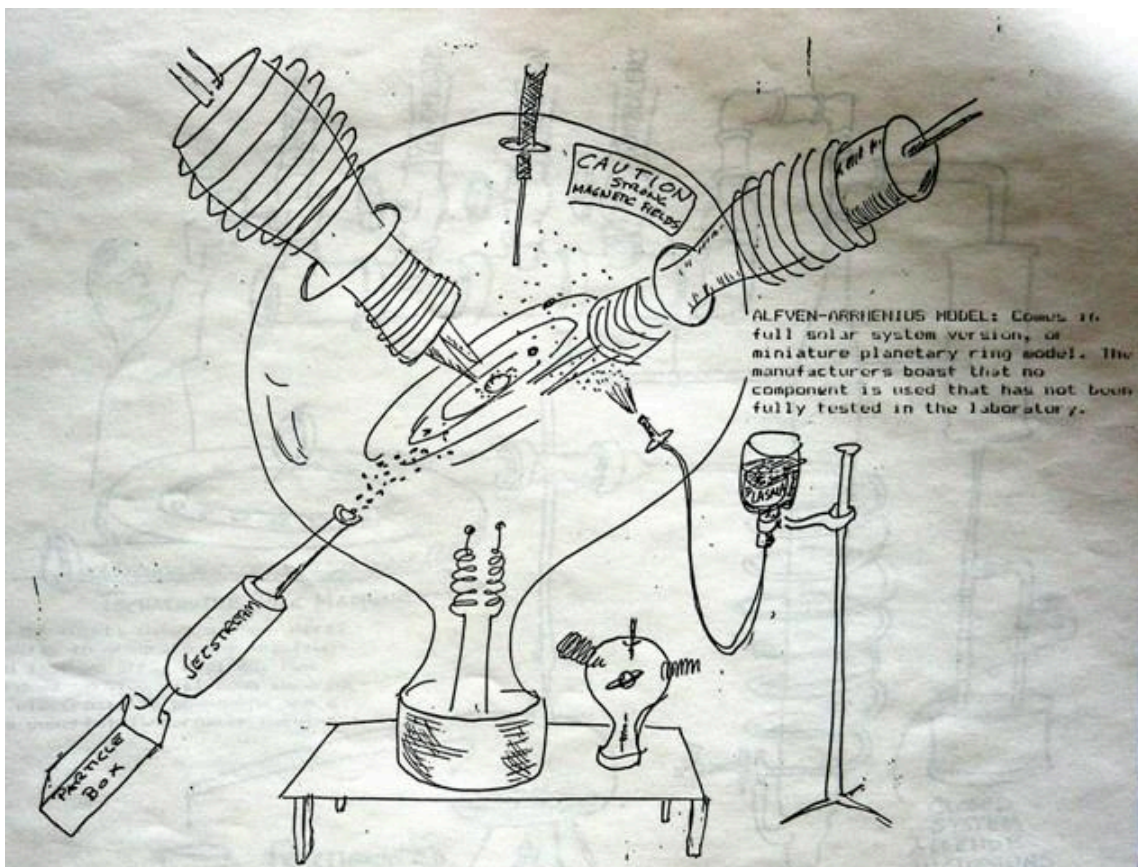
SCIENCE

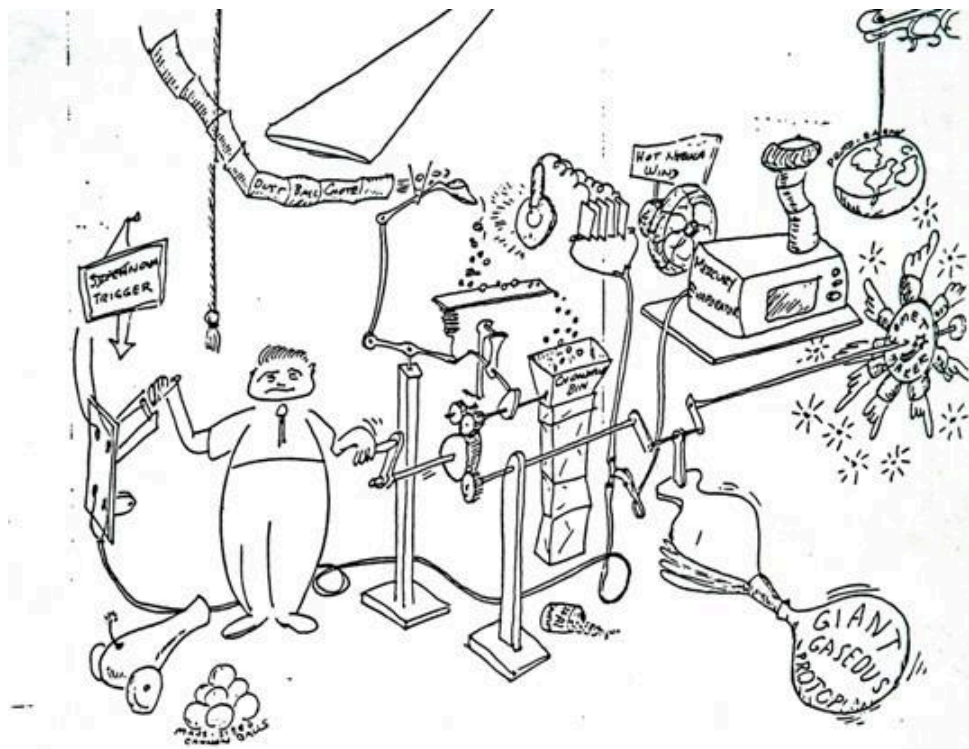


In his personal copy of his 1954 book *ON THE ORIGIN OF THE SOLAR SYSTEM*, Alfvén wrote things in pencil. On this diagram, it appears that he was trying out his theory of the "Hetegetic Shadow" effect on the Asteroidal Belt.

LIGHTER SIDE OF SCIENCE

One of Hannes Alfvén's principal and lifelong scientific interests was the origin of the Solar System. In this area he collaborated with Gustaf Arrhenius, and their joint effort came to be known as the Alfvén-Arrhenius Theory. Among their contemporary rival theorists was Harvard professor A. G. W. Cameron. Below are cartoons of these two theories by an unknown artist (Anybody know?).



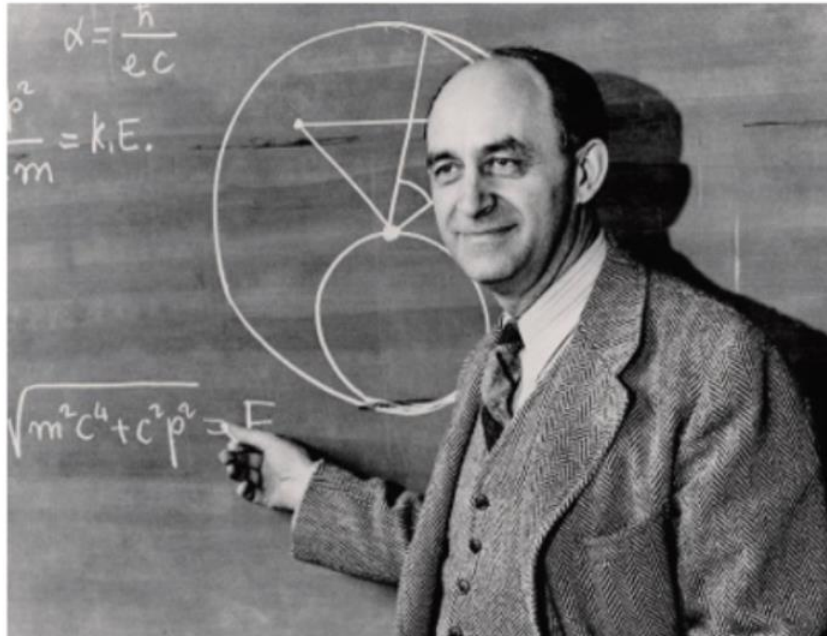


CAMEFON MODEL: This rickety but venerable model has remained in operation continuously for more than twenty years. Its longevity is at-

Stories about Hannes Alfvén

THE "OF COURSE!" STORY

(in Alfvén's own words)



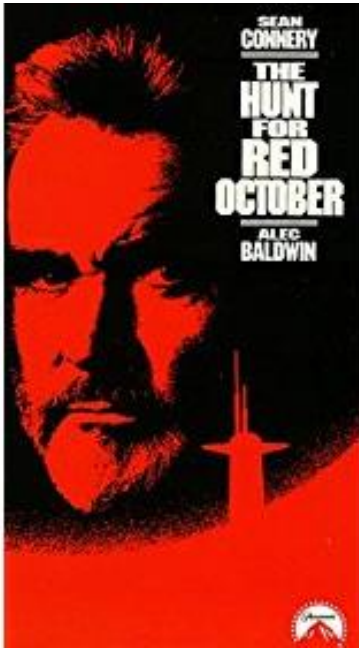
(Image source: atomicheritage.org)

My brief visit to Chicago in 1948 had also another consequence. One of the members of the seminar was Enrico Fermi, who got interested in the origin of cosmic rays. After the seminar he asked me to explain what the magnetohydrodynamic waves were. Since I published my first paper in 1942 very few people – with Lyman Spitzer and Martin Schwarzschild as the most prominent exceptions – had believed in them. I got letters from colleagues who asked me whether I had not understood that this was nonsense. ...

Fermi listened to what I said about them for five or ten minutes, and then he said: "Of course such waves could exist." Fermi had such an authority that if he said "of course" today, every physicist said "of course" tomorrow.

(From: "Memoirs of a Dissident Scientist" by Hannes Alfvén, *American Scientist*, vol. 76, May-June 1988)

AT THE MOVIES!



(Image source: Poster – [Amazon.com](https://www.amazon.com); model – [fantastic-plastic.com](https://www.fantastic-plastic.com))

Hannes Alfvén discovered the science of Magneto hydrodynamics. The 1990 movie thriller *The Hunt for Red October* was premised on a novel submarine propulsion system called the magneto hydrodynamic or "caterpillar" drive. Look at the big tank-like thing underneath the submarine. It may be just a stand for the model, but there should be something like this. Here, seawater passed through a tunnel (as air in a jet engine), forced by crossed electric and magnetic fields that have been set up within the tunnel. As the water is forced through the tunnel, the submarine is pushed forward, much like a jet plane.

PEACE



(Image source: Rotblat – nobelprize.org; Russell – wikipedia; Eaton – wikipedia)

The *Pugwash Conferences on Science and World Affairs* were conceived jointly by Sir Joseph Rotblat and Sir Bertrand Russell. Their idea was realized through the financial help of wealthy businessman Cyrus Eaton. Hannes Alfvén was President of the *Pugwash Conferences* from 1970 to 1975, at a time the Doomsday Clock of the *Bulletin of the Atomic Scientists* remained precariously poised (India exploded her first nuclear device):

1. 1949
USSR's first nuclear test



2. 1953
US tests first hydrogen bomb



3. 1974
India tests its first nuclear device



4. 1981
Soviet war in Afghanistan continues



5. 1991
End of cold war



6. 2007
North Korea conducts nuclear test



7. 2015
Climate change and nuclear weapons modernisation

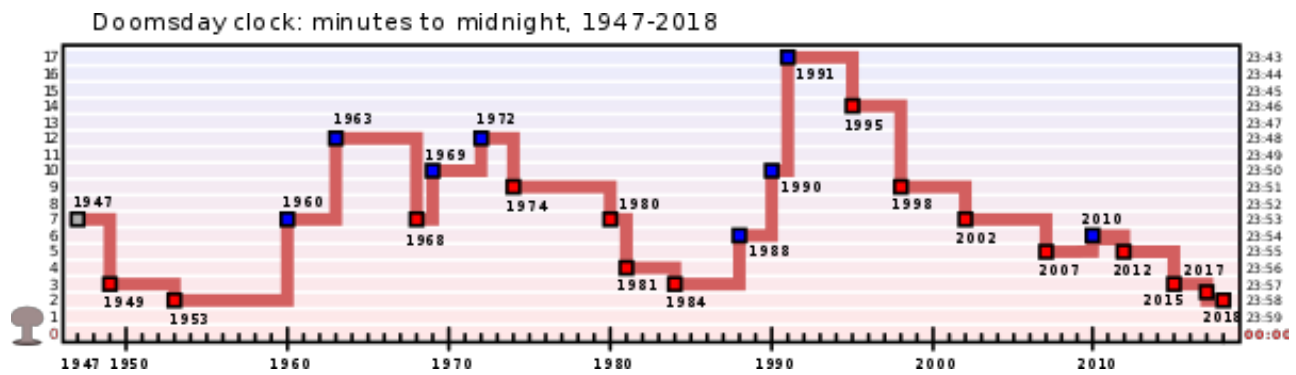


8. 2017
Trump's comments on climate change and nuclear proliferation



9. 2018
Failure of world leaders to address the largest threats to humanity





(Image source: [wikimedia.org](https://commons.wikimedia.org/wiki/File:Doomsday_Clock.jpg))

Alfvén was a friend to Rotblat and met Eaton. Whether or not he knew Bertrand Russell is not known. Alfvén was also involved, as a contributor, with the *Bulletin*. In 1995, Rotblat and the *Pugwash Conferences* jointly received the Nobel Prize for Peace.



(Image source: [nnn.se](https://www.nnn.se))

The erstwhile Swedish Prime Minister Olof Palme ran his campaign on a strong antinuclear platform on the advice of Alfvén (and won.)



(Image source: cornell.edu)

In an IAEA Conference on nuclear power in Salzburg, Austria in May 1977, Hannes Alfvén - the only person with a nonnuclear stand - publicly debated Hans Bethe (above), a major player in nuclear weaponry. Alfvén did so in presence of all the gathered high and mighty, government "nuclear" officials from around the world. Such is how gutsy Hannes Alfvén was, and such is how genuine his humanism was. Years later, Bethe himself would take a stance similar to Alfvén's, and become a peace-lover.



Hannees Alfvén with necklace of feathers. This picture was taken at La Jolla Shores January 28, 1986, when Hannes had just returned from a peace research conference inaugurating the United Nations Year of Peace (1986) at the University of the South Pacific in Fiji.

(Courtesy Carl-Gunne Fälthammar)

A BEHIND-THE-SCENES PEACEMAKER

Hannes Alfvén's role in the peace movement is not widely known. The following few items of correspondence show how, those who were or are well-known in the World stage, were in touch with him and relied on him.

[The originals of these letters are kept in the personal files of Alfvén archived at the Geisel Library of the University of California, San Diego. Thanks are due to Professor Asoka Mendis for hosting me at UCSD.]

Peace Nobelist Elie Wiesel to Hannes Alfvén:

THE ELIE WIESEL FOUNDATION FOR HUMANITY

666 FIFTH AVENUE, 11th FLOOR, NEW YORK, NY 10103 • (212) 399-4485

July 15, 1987

Professor Hannes Alfvén
APIS
University of California,
San Diego
La Jolla, CA 92037, USA

Dear Professor Alfvén:

I am writing to invite you to a conference of Nobel Laureates to be held in Paris, January 18-22, 1988.

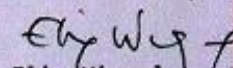
The purpose of the conference is to address the principal moral and political problems that challenge humankind as we approach the next century and to explore creative solutions to them. A formidable agenda, I know.

The conference grows out of the belief that each of us feels a profound responsibility to confront those issues that affect all humanity. That children are starving, that wars continue to be fought, that oppressive regimes flourish, that the potential for nuclear destruction exists -- for us, none of these problems is an abstraction. We know that science and human genius can be used on behalf of humankind. That is why President François Mitterrand and I jointly invite you to be our guest at a conference which would enable each of us -- regardless of our particular discipline or area of expertise -- to discuss, formulate and communicate our ideas about these critical issues.

We intend to open in plenary session on Monday, January 18, 1988, and through seminars, formal and informal discussions, to search for new ways to approach these important issues. Our hope is that our deliberations will bear fruit and inspire a dialogue with those in positions of power. Your participation will add breath and depth to our discussion. President Mitterrand and I both hope you will be able to attend.

I am enclosing a copy of the conference proposal and would welcome your suggestions and comments. Details about travel and hotel arrangements will be sent at a later date. In the meantime, please return the enclosed response card indicating your acceptance in principle of our invitation. I know your time is precious and you have many commitments. And yet, I am hopeful that we shall meet in Paris next January. We have many important matters to discuss.

Yours sincerely,


Elie Wiesel

Enclosure

French President Francois Mitterrand to Hannes Alfvén:

LE PRÉSIDENT DE LA RÉPUBLIQUE

Paris, le 15 juillet 1987

Monsieur le Professeur,

Par la nature de vos réflexions et l'ampleur de votre travail, vous savez mieux que personne combien sont complexes les problèmes qu'affrontent aujourd'hui nos sociétés : le sous-développement, le chômage, les déséquilibres écologiques, les nouvelles perspectives de la biologie constituent, parmi d'autres, des sujets auxquels les hommes d'action ne pourraient fournir de réponses sans l'aide des plus grands experts.

Au moment où la science pourrait favoriser un développement considérable si elle s'inscrivait dans un ordre international juste et libre, je serais très heureux de discuter de tout cela avec vous.

Aussi j'apprécierais hautement que vous puissiez participer à la réunion des lauréats du Prix Nobel que je souhaite organiser du 18 au 22 janvier 1988.

Le Professeur Elie Wiesel, Prix Nobel de la Paix 1987, vous suggère par ailleurs quelques thèmes qui pourraient être abordés dans cette réunion, à laquelle j'attache le plus grand prix.

Dans l'espoir de vous y rencontrer, je vous prie de croire, Monsieur le Professeur, à l'expression de mes sentiments les meilleurs.

François Mitterrand

François MITTERRAND

Monsieur le Professeur Hannes ALFVEN

Swedish Prime Minister Olof Palme to Hannes Alfvén:



PRIME MINISTER

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Date

December 11, 1985

Dir

6345/85

Professor Hannes Alfvén
University of California,
San Diego C-014
LA JOLLA, CALIFORNIA 92093
U.S.A.

California, San Diego, La Jolla, CA 92093-0175. Unless permission is granted neither this print nor the words on it may be reproduced in any form; used

Dear Hannes,

Thank you for your letter of October 18, and for your information about the conference at The University of the South Pacific. I would be glad if you would be willing to transmit a message from me to the conference. Could you please send me some more information about the subject matters for the sessions, and about when the conference will take place, so that I can send you the message well in advance?

Regarding your question about support from Swedish sources for your travel to this conference, I am afraid that there is no direct government source which would be applicable in this case. I would recommend, however, that you contact one or several of the more private sources which are available for work in this field. I refer, for example, to Myrdalstiftelsen, fredsårsdelegationen (chairman: Jan Bergquist) and Pugwash.

With the best wishes for a Merry Christmas and a Happy New Year,
Yours sincerely,

Olof Palme

Hannes Alfvén to Swedish Prime Minister Thorbjörn Fälldin and others:

Till Torbjörn Fälldin
Birgitta Hambræus
Bengt Sjönell

Det är glädjande att höra hur striden mot atomreaktorerna utvecklas i Sverige. Här i USA har jag fått kontakt med Ralph Nader, och jag deltar i hans stora kampanj mot atomenergien.

Hur viktig än atomenergifrågan är, så är naturligtvis atombombsfaran ännu viktigare. I bifogade PM har jag försökt klargöra några viktiga aspekter, bl.a. kopplingen mellan atomenergi och atombomber. Även om vi i Sverige inte har atombomber, är närheten till de 10 000 atombomberna i Europa ett fruktansvärt hot och jag tror att den viktigaste svenska säkerhetsfrågan är hur man skall kunna eliminera dem. Detta bör väl närmast ske genom en koordinering av en diplomatisk aktion och direkta personliga kontakter med miljövänner på kontinenten.

Med bästa Julhälsningar,

Hannes Alfvén.

Peace Nobelist Joseph Rotblat to Hannes Alfvén:

PROFESSOR J. ROTBLAT

TELEPHONES:
01-253 9875
01-253 0661 EXT. 114
01-606 7777 EXT. 352

PHYSICS DEPARTMENT,
THE MEDICAL COLLEGE OF
ST. BARTHOLOMEW'S HOSPITAL,
CHARTERHOUSE SQUARE,
LONDON, EC1M 6BQ

30 November 1973

Professor Hannes Alfvén
University of California
San Diego
La Jolla
California 92037
USA

Dear Hannes,

Since you were the originator of the idea of a World Energy Institute, I feel I ought to convey to you my unhappiness about the way the organization of the Energy Symposium has developed, and why I decided to withdraw from it.

After the Oxford Conference which approved your idea of a study for the need of a World Energy Institute, I thought that this may be a suitable task for the British Pugwash Group, and I set up a study group of young scientists in Oxford to prepare background material for a Pugwash Symposium on the need for such an Institute.

At the meeting of the Executive Committee held in January in Moscow, I suggested that the British Pugwash Group be given the task of organizing this Symposium. Herbert Marcovich, who was at that time still on the Executive Committee, said that the French Group was also interested in this Symposium, and that they would be able to provide the necessary finances for the Symposium. Since our financial status in Britain was pretty low at the time, after the big expense which we incurred in organizing the Oxford Conference, we very gladly accepted the offer of the French Group, and we agreed that this might be a joint effort by the French and British Pugwash Groups.

This suggestion was again put forward to the Continuing Committee at its meeting in Sofia in April, and it was recommended that the two Pugwash Groups should proceed in organizing this Symposium, which at that time was definitely stated to be an investigation into the need for, and terms of reference of, a World Energy Institute.

In the middle of June I attended a meeting in Paris with the French Pugwash Group to discuss the organization of the Symposium. There, for the first time, I learnt that the French Pugwash Group did not want to be concerned with the proposed Institute, but rather make a study of the energy problem as such. When I say French Pugwash Group, I should really say that one individual,

continued.../

Professor Hannes Alfvén
La Jolla

- 2 -

30 November 1973

Ignacy Sachs, pushed forward this idea as he was not at all interested in the World Energy Institute. He is a very persuasive man and managed to get the French Group on his side. I pointed out to them that in view of the multitude of institutes and societies which are already studying the energy problem with far greater resources than we can ever muster, a substantive discussion on energy by a Pugwash Symposium would hardly contribute anything new and would be a wasteful effort, but I could not move them.

In order to end the deadlock I suggested the following solution: the French Group would prepare a paper explaining their view and the reason why the Symposium should deal with the energy problem as such; the British Group would prepare a paper explaining why the Symposium should deal with the World Energy Institute; these two papers would then be sent to a number of people who would be likely to be invited to the Symposium, to obtain their views. Then these views would be considered by the Continuing Committee at its meeting in Aulanko. We agreed that the French Group would send me their document by the end of June. This, however, they did not do, and it was not until the middle of August that I received not the document as agreed, but two papers by French people giving their own assessment of the energy problem.

By that time it was too late to solicit views from outside experts and, therefore, I brought the two papers to the meeting of the Continuing Committee in Aulanko where they were discussed. You will remember that you yourself expressed doubts about the two French papers and, after some discussion, the Continuing Committee suggested that both Groups should continue their efforts of arranging the Symposium to be mainly concerned with the World Energy Institute.

We had some preliminary discussions in Aulanko about the programme of the Symposium and then about a month later, on 12 October, there was a meeting in London of the British Group concerned with this programme and Herbert Marcovitch representing the French Group, together with Bernie Feld. At that meeting the British Group presented their background paper (enclosed) and Marcovitch brought along a document embodying the views of the French Pugwash Group (also enclosed). The latter document was used as a basis for discussion of the agenda. After a long discussion we reached a compromise solution which is presented in document entitled Item A. The compromise consisted of dividing the Symposium into two parts. The first, which would consist of a review and a discussion of the problem, would have been largely of an educational nature and serve as a background for part B, which would be the proper Pugwash Symposium. The two items under B - one, 'energy: a source of conflict or co-operation', and the second, 'terms of reference for the World Energy Institute' - are par excellence Pugwash topics, and it was hoped that they would produce some good proposals. The meeting also agreed that this document should go to the Executive Committee for approval.

continued.../

30 November 1973

The next event was a meeting held by the French Pugwash Group on 24 October at which Bernie Feld was present (although I did not know about this until a few days ago). At this meeting Ignacy Sachs put forward an entirely different agenda which was based again on a substantive discussion on the whole energy problem and left out the World Institute altogether. This agenda (Item B) was adopted by the French Group which completely ignored the decisions made a few weeks earlier at the joint meeting of the two Groups. Moreover, they did not convey this new project to the British Pugwash Group for their comments, but instead sent it directly to the Executive Committee, which met on 17 November. Astonishingly, the Executive Committee approved this new agenda, but added that the Symposium should be in two parts and that the second part, to be prepared by the British Group, should deal with the Energy Institute.

I was unable to be present at the meeting of the Executive Committee, as I was in Japan, and have learnt about these decisions only a few days ago after my return.

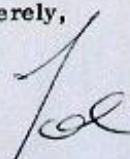
I am most unhappy about these decisions and about the prospects of this joint Symposium. Firstly, I still feel that a discussion by Pugwash on energy as such will be futile. It certainly goes against the recommendation of Working Group 5 in Aulanko, which was approved by the Continuing Committee, which states specifically "Pugwash should not squander its efforts on the many aspects of energy problems that are being adequately treated elsewhere, or on those better suited to investigation by others, but should identify and pursue those aspects where the particular characteristics and competence of Pugwash may make a difference". Secondly, the reversal of a decision reached by both Groups together, and the fact that the British Group was not even notified about the new agenda, demonstrate a lack of spirit of co-operation which augurs badly for future collaboration.

Since I have very strong feelings on this subject, and if I were to continue the work on behalf of the British Group, I would be bound to get myself into quarrels and heated arguments, I prefer to withdraw my own participation. I hope that someone else, who feels less strongly, can be found to take over from me the convenorship of the Symposium on behalf of the British Group.

I am sorry that this has happened, but I am convinced that with the present arrangement we shall spend a large effort on something to which we can contribute very little, and the question of the Institute will be relegated to a very minor role, which is completely contrary to the original idea.

With best regards,

Yours sincerely,



Peace Nobelist Joseph Rotblat to Hannes Alfvén:

PROFESSOR J. ROTBLAT

TELEPHONES:
01.253 9875
01.253 0661 EXT. 114
01.608 7777 EXT. 357

PHYSICS DEPARTMENT,
THE MEDICAL COLLEGE OF
ST. BARTHOLOMEW'S HOSPITAL,
CHARTERHOUSE SQUARE,
LONDON, EC1M 6BQ

11 June 1974

Professor H. Alfvén
Department of Plasma Physics
The Royal Institute of Technology
S-100 44 Stockholm 70
Sweden

Dear Hannes,

Thank you very much for your letter of 7 May which I found most interesting. A few things have happened since that time which have a bearing on the issue which I would like to discuss with you. I note that you will be in London at the end of June and I should certainly very much like to have a chat with you at that time. Would you please let me know when you expect to arrive and how long you will stay, also whether you need accommodation in London. I could probably arrange for you a room in the College Hall.

With best regards,

Yours sincerely,



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REFLECTIONS

Dec 23 - 85

Dear Bibhas,

Thank you for your very nice letter of Dec 19 - 85.

Some Publishers have invited me to write my autobiography and some people here told me that they would like to write my biography. My standard answer has been njet.

I feel that there is - and must always be - an enormous difference between the life I live and my life in print. It would be highly disturbing to me if both existed at the same time.

So, dear Bibhas, my answer must remain njet.

With kindest regards, also to Gopa,
Your friend
Hannes

*A rare glimpse at Hannes Alfvén the private person:
In this letter, he responds to a request from Bibhas De to write
something about his life and work.*



Hugo Alfvén and Hannes Alfvén are not the only famous Alfvéns! Some may not have heard of them, but know well about the famed author Inger Alfvén, daughter of Hannes Alfvén.



Hannes Alfvén's son Gosta Alfvén is a distinguished medical researcher.

flickr



This photo is no longer available

(Image source: farm1.static.flickr.com)

Before they moved to Stockholm proper, Hannes and Kerstin Alfvén lived in the suburbs, in a bucolic area in the woods. There were Swedish Gold Rain trees in these woods - much like the above in Visby - which brought great joy to them when in bloom.



*Hannes and Kerstin Alfvén strolling on the beach at La Jolla Shores,
January 1986.
(Courtesy Carl-Gunne Fälthammar)*



Hannes and Kerstin Alfén in their La Jolla home in 1988.



*Hannes with daughter Cecilia (face obscured), granddaughter Camilla (standing) and great grandson Albin on his 86th birthday, 30th May 1994. The photo was taken at the Royal Institute of Technology on the occasion of his receiving the Dirac Medal of the University of New South Wales and the Australian Physical Society.
(Courtesy Carl-Gunne Fälthammar)*



Green Flash

Hannes Alfvén had a deep and abiding fascination with GreenxFlash – a rare and momentary phenomenon that occurs on the horizon during the progression of sunset. He has taken many a visitor to his home for a sunset walk on the seashore of La Jolla to treat them to this wonder of nature. He claimed to have witnessed the phenomenon himself.

(Courtesy: <http://www.icstars.com/Mad/Astro/GreenFlashW.jpg>) .



*Resting place of the Alfvéns in Djursholm, Sweden
(Courtesy: www.findgrave.com; photo: Klas Grönqvist) .*



HANNES ALFVÉN (1908 - 1995)