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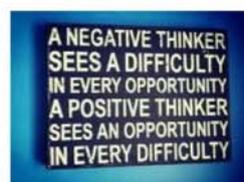
## Folder Folders / Nano Solex / Didactical Potential



Project tool: NANOSOLEX.

## Didactical potential and teaching philosophy of the Solex

Anyway...



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#### Didactical potential and teaching philosophy of the Solex

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### Overall aim of this tool

### Definition of Frontier Research

Renewable energy systems are a matter of frontier research. Frontier research means investigation and development of things beyond the frontier of general or standard knowledge.

The European Commission urges for frontier research as a response to the following risks Europe is exposed to:

(Quotation)

- losing part of its heritage and identity;
- becoming a continent of imitators rather than innovators;
- losing out economically, as well as politically, in a globalising world; and
- giving up on the aspiration of developing its own vision of a desirable future for humanity and
- maintaining the capacity to shape it.<sup>[1]</sup>

### Definition of frontier research

Frontier research stands at the forefront of creating new knowledge and developing new understanding. Those involved are responsible for fundamental discoveries and advances in theoretical and empirical understanding, and even achieving the occasional revolutionary breakthrough that completely changes our knowledge of the world.

- Frontier research is an intrinsically risky endeavour. In the new and most exciting research areas, the approach or trajectory that may prove most fruitful for developing the field is often not clear. Researchers must be bold and take risks. Indeed, only researchers are generally in a position to identify the opportunities of greatest promise. The task of funding agencies is confined to supporting the best researchers with the most exciting ideas, rather than trying to identify priorities.
- The traditional distinction between 'basic' and 'applied' research implies that research can be either one or the other but not both. With frontier research11 researchers may well be concerned with both new knowledge about the world and with

generating potentially useful knowledge at the same time. Therefore, there is a much closer and more intimate connection between the resulting science and technology, with few of the barriers that arise when basic research and applied research are carried out separately.

- Frontier research pursues questions irrespective of established disciplinary boundaries. It may well involve multi-, inter- or trans-disciplinary research that brings together researchers from different disciplinary backgrounds, with different theoretical and conceptual approaches, techniques, methodologies and instrumentation, perhaps even different goals and motivations<sup>[2]</sup>.

*Linking science to technological innovation. Europe's relative slowness in entering and exploiting new fields of technology closely linked to scientific knowledge has adverse consequences for its ability to generate innovations.*<sup>[3]</sup>

(End of Quotation).

Well, this tool is not a forum to discuss whether bureau-crazing frontier research is an oxymoron similar to dehydrating water.

### Education of frontier researchers: Some unpleasant truths

So, the pedagogical challenge is: How to educate students to develop the gifts and abilities of frontier researchers? As education is a socially embedded process, it has to face the big opponent: The savage mind. The evolutionary legacy of the "savage mind" can hamper an adequate reaction to the pending crisis for the following reasons:

- The anthropological subtext of technology, addressing what Claude Lévi-Strauss addressed as savage mind<sup>[4]</sup>. The non-intellectual mind is the evolutionary legacy of all human beings, responsible for horror and suspense movies, although people know by intellect that the monsters are faked. But the movie is addressed to the savage mind. This evolutionary legacy makes people think that, when faced with problems of substantial complexity, spiritual purification and social engineering in the interest of a supposed "supreme will" rather than technological engineering based on moving one's mind and frontier-research may solve the problem
- The phenomenon of political leaders with simple but anti-rational messages talking about ethics and evoking elements of a civilization's cultural memory to say that humankind is now punished by climate change for its sins as was the case with the Biblical cities of Sodom and Gomorrah.

People are condemned and shall do penance<sup>[5]</sup>

The efficiency of such rituals to improve anything can be discussed. So: how to support our future frontier-researchers to keep on keeping on against all odds of a retro-enlightened public?

### The consequences of not deciphering technology - the bionics issue

The first to practice bionics (new term for biomimicry) was the Austrian Frontier scientist Victor Schaubberger.

In spite of the mythological halo around him, the European Union's water framework directive insists that rivers have to allow fishes swimming upstream - which is impossible by conventional measures of river engineering. It's only Victor Schaubberger's technology to allow this, but Victor Schaubberger's bionics started during the 1920ies and were too far beyond the frontier of knowledge to be really grasped. Therefore a mythological shroud developed - which is now to be deciphered by order of the European Commission.

Therefore we have to make clear (a) the relation between magic and technology so that (b) we can discuss Victor Schaubberger's bionics.

### Deciphering the magic shape of technology - the first step to decipher technology

Teaching that in ancient Empires Technology has always had the halo of magic and was never addressed to the public: The commoners had to be kept loyal to the religiously rooted ideology by displaying the acts of gods - and this was why the first machinery was developed in Greece during the Hellenistic Time.

 <http://www.youtube.com/watch?v=GrI1FsH4UH8>

This is now proven for the simple machinery of Heron of Alexandria. See that functional model

Door opener:  <http://www.youtube.com/watch?v=LE2qyZ7hUxU>

Source: <http://www.youtube.com/watch?v=GhU74ukJxlo>

The key to thermodynamics was used for animating gods - Heron's <sup>[6]</sup> thermodynamic door opener

This door opener, according to a German documentation, gave Robert Stirling the idea to develop the Stirling engine.

Mystification of technology was not only a matter of ancient Greece or the Hellenistic kingdoms - it was also a matter of modern science when for instance the prominent anthropologist Maurice Godelier stated, that in ancient South America the Incas presented themselves as gods to the commoners to guarantee the reproduction of the natural and social world.



... with that kind of multigradiental seedling nurseries (Type Moray <sup>[7]</sup>) they could do so in real - but this is a different story.

So: Mystification of technology is a common antropological feature. Now it's a matter of sustainable enlightenment to get that demystified and to identify those social groups having interest in keeping people duff.

### The problems of deciphering Victor Schaubergers bionics 📄

Victor Schaubergers <sup>[8]</sup> started the development of his astonishing technology by artificial waterways for timber transport which were based upon the very nature of water and not on scientific hydrological models. The key element of his bionic technology is the vortex.

Due to the peculiarities of the history of the 20th century especially in German speaking Central Europe the findings of Victor Schaubergers are disguised by a shroud of right winged esoterica. This concerns especially his approach to sustainable aircrafts based on vortex technology and air-water mixture as fluid for innovative turbines.

No wonder that especially Schaubergers sustainable aircraft belonged to the category of "super-weapons" - in German: Wunderwaffen (miracle weapons). The most prominent example for them is the first mid-range rocket, V-2 developed in Peenemünde, not developed by Schaubergers, but by Wernherr v. Braun, from which modern space technology has been developed by both, the USA and the USSR. The need to propel them by renewable energy is easily explained: The Nazis had no other anymore: The V-2 rocket was propelled by alcohol developed out of 1 tons of potatoes - thereby rejecting the modern myth that sustainable aviation should be impossible. But the V-2 was relatively simple, the first small liquid rockets were developed by a freelancer association known as V f R during the 1920ies in Germany where pioneers such as Hermann Oberth, Klaus Riedel and others were members <sup>[9]</sup>: Oberth's dissertation was rejected by the university of Heidelberg- the fate of a frontier researcher in "Good Old Europe": But now peaceful rocketing (for communication satellite networks) is a part of the modern world - allowing you to call your oversea girl- or boyfriend, a small but important parcel of promoting global harmony and understanding.

The problem with "miracle weapons" is that once the technology is understood, the technology loses its magic - and Schaubergers turbines still do have their magics.



This tool is to be used as supporting material for teaching online. The aim is to make renewable energy (solar energy) visible by experiments. (The description is more in detail in the German Lehrerhandbuch due to the harshness of Central European schools).

The experiments are intended to turn thermodynamic engineering VISIBLE.

Therefore many videos are put online.

Teachers are required to go across this side and prepare their own show concerning on issues they emphasize upon.

Students should follow them online, searching for their own information and perhaps constructing their own experiments. Due to the democratic tradition of the English speaking world, the sober, Oswald-Spengler-like "Lehrerhandbuch" (Teacher's manual for German speaking teachers) is obviously not necessary.

Therefore these issues concern

- physics
- engineering
- deciphering hitherto mystified technology such as those of Victor Schaubberger (heavily mystified, even for war purposes).

## How to use this didactical material?

Use a video beamer, a laptop and make a audiovisual show to your class in a way, that they can repeat it themselves by the Internet. But first go through the sites and make yourself a list of important items - your own script.

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... to be continued (on demand) 

Detailed elaboration at the German [NanosolexLehrerhandbuch](#) as tests for students etc. are being developed there.

Windfall module (work in progress): Sustainable [Aviation](#)

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<sup>[1]</sup> The term frontier research has been coined by the European Union, see here:  [http://ec.europa.eu/research/future/pdf/hleg\\_fullreport\\_frontier\\_research\\_april2005.pdf](http://ec.europa.eu/research/future/pdf/hleg_fullreport_frontier_research_april2005.pdf) Document, p.17

<sup>[2]</sup> European Commission, op.cit, p. 18

<sup>[3]</sup> : op.cit, p. 12

<sup>[4]</sup> The problem with translating "La pensée sauvage" into English is that it is either the way of thinking that allowed the Neolithic Revolutionists to domesticate and develop the cultivars without universities of agriculture, on the other side magics is also explained by that

<sup>[5]</sup> <http://www.youtube.com/watch?v=e4q6eaLn2mY>, taken from Monthy Python and the Holy Grail.

<sup>[6]</sup> Background information:  [http://nereus.mech.ntua.gr/pdf\\_ps/heron.pdf](http://nereus.mech.ntua.gr/pdf_ps/heron.pdf)

<sup>[7]</sup> <http://macareo.pucp.edu.pe/~jearls/documentosPDF/theCharacter.PDF>

<sup>[8]</sup> [http://en.wikipedia.org/wiki/Viktor\\_Schaubberger](http://en.wikipedia.org/wiki/Viktor_Schaubberger): Even the Wikipedia presents more controversy than facts

<sup>[9]</sup> The entire pre-war history of rocketing is now available in the Peenemunde museum: <http://www.peenemuende.de/index.php?id=40&L=1>

<sup>[10]</sup> The thesis is in English, can be downloaded from  <http://portal.tugraz.at/portal/page/portal/Files/i2130/pdf/Lehre/dissertationen/englisch/PhD-thesis-Sindelar.pdf> - quoted from the discussion site from the English Wikipedia