

*ASFPG 2014*

The art and science of image making:  
technoscientific imaginaries and their normative implications

Alice Benessia



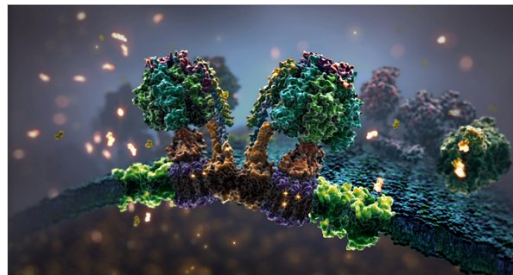
UNIVERSITA  
VALLE D'AOSTA  
UNIVERSITE  
VALLEE D'AOSTE



WONDER  
*(we want)*

It is based on the idea of technoscience as a tool to produce objective knowledge in discovering, revealing and understanding the intrinsic beauty of the most remote and inaccessible natural phenomena.

Truth and beauty: Epistemic marketing and the heroism of vision

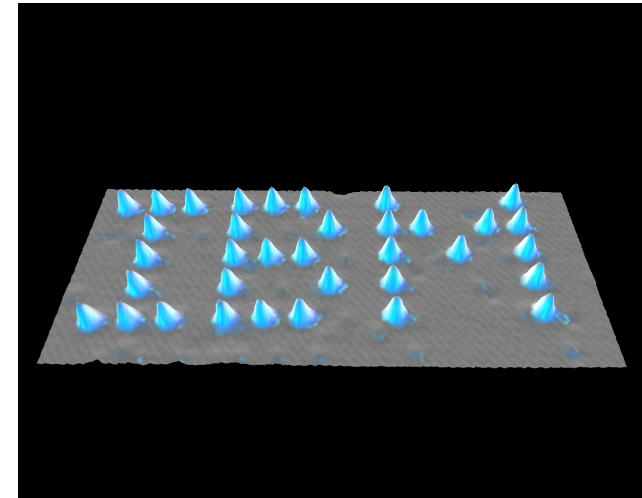
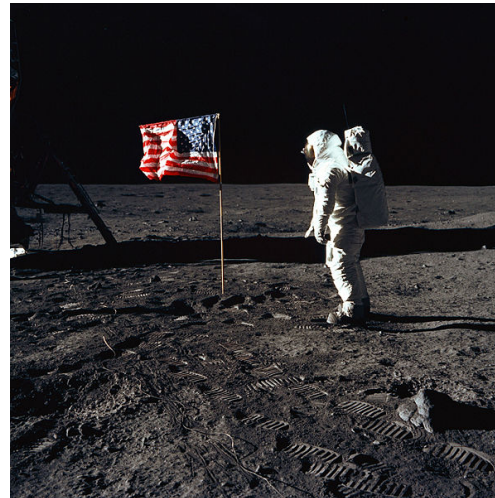
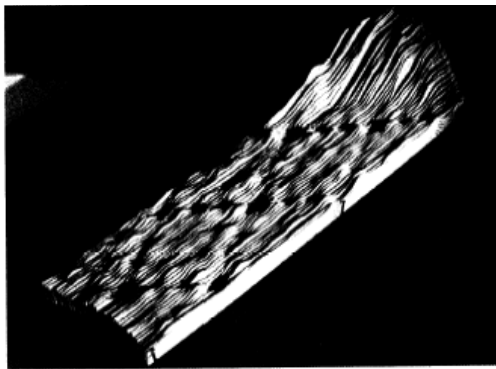


*POWER*  
*(we can)*

It is based on the idea of technoscience as a tool to extend indefinitely the limits of human being and agency through the creative manipulation of socio-environmental systems.

From discovering to invention/atrefact.

From representation to demonstration.

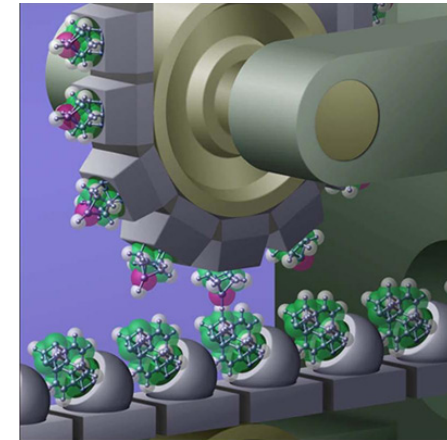
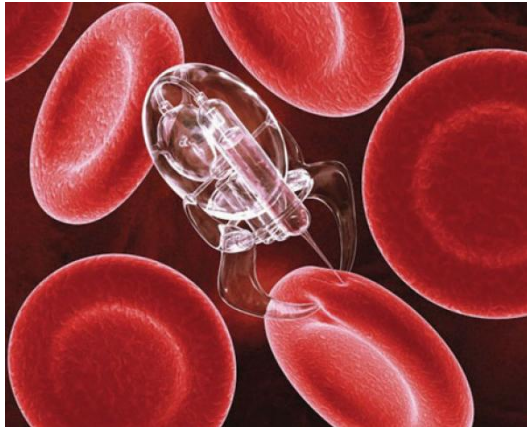


# CONTROL

*(we can)*

It is based on tehcnoscience as a tool for governing and ultimately eliminating the intrinsic complexity of the open field implementation.

*in vitro vs in vivo*



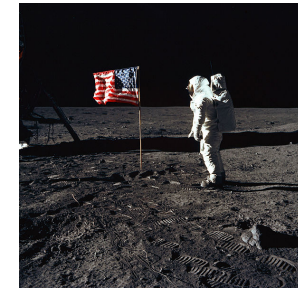
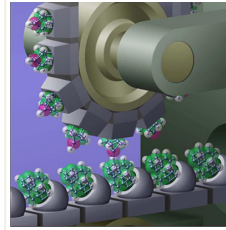
## URGENCY *(we need)*

It is based on the necessity to use technoscience, as emerging from the imaginaries of wonder, power and control, to manage and solve the complex socio-environmental problems that “afflict” the planet on global scale.

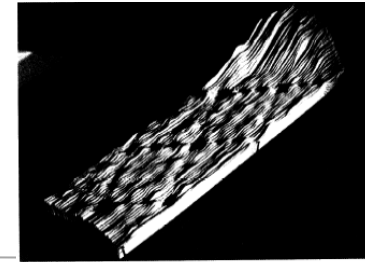
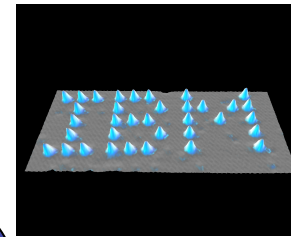
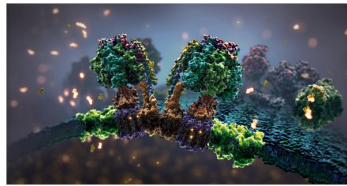
Silver-bullet approach



CONTROL



*in vitro in vivo*



technoscientific artefact

POWER

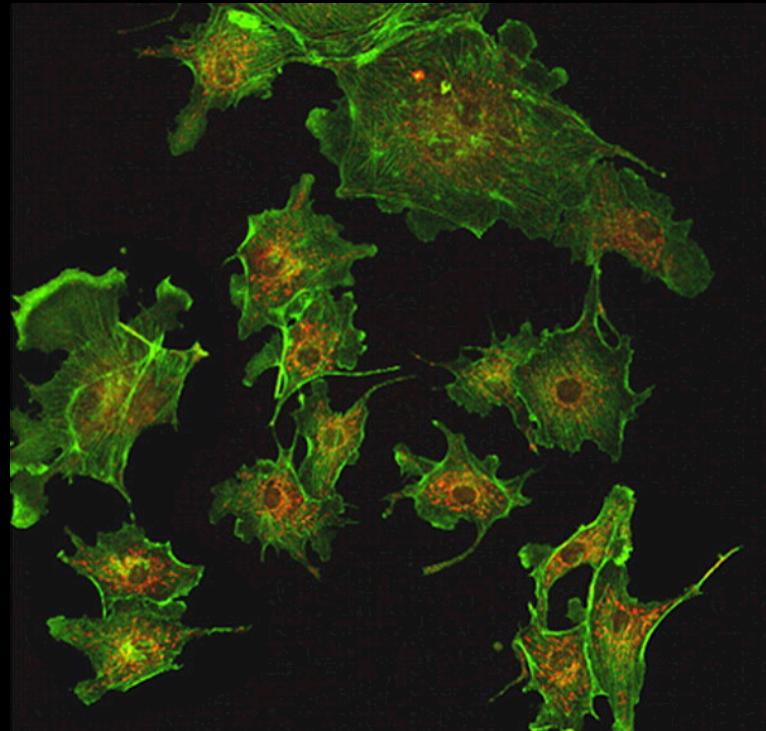
WONDER

*epistemic marketing*

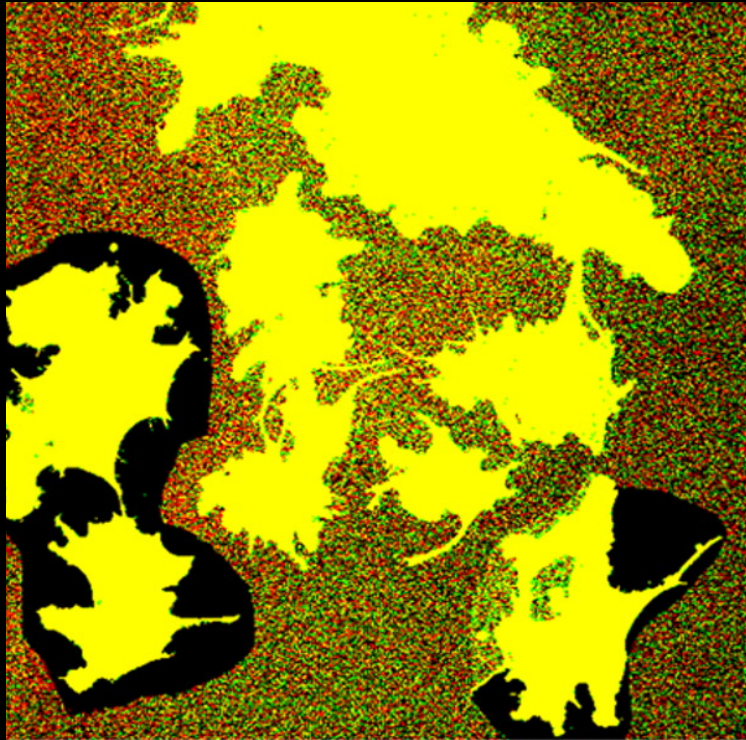


URGENCY

*silver-bullet approach*



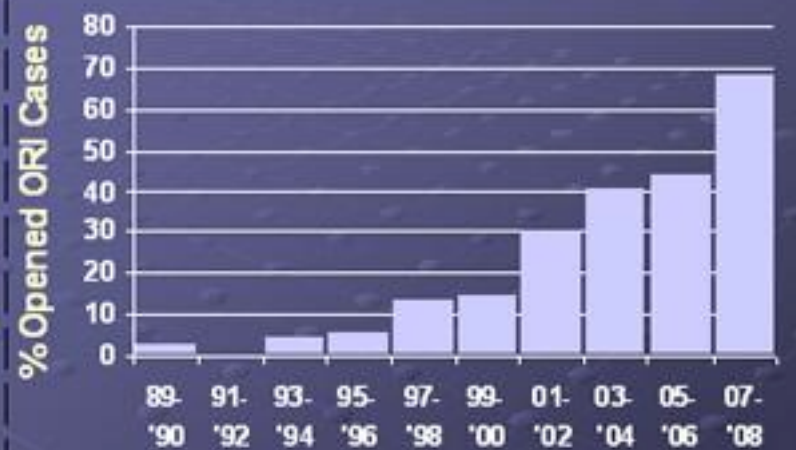
© Rockefeller University Press



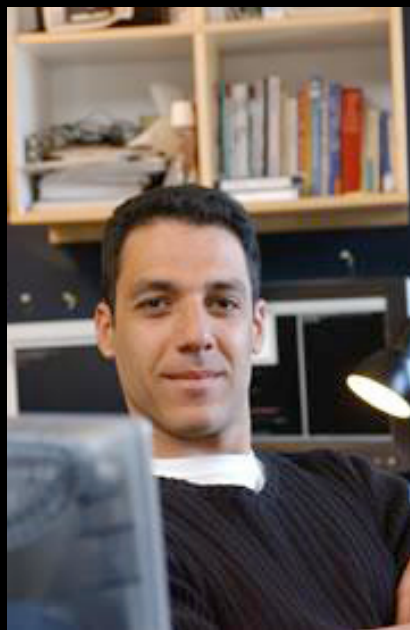
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### ORI Cases With Questioned Images



2-Year Reporting Period ('89-90 to '07-08)



Hani Farid  
Dartmouth College  
Grant from the Federal Bureau of Investigation

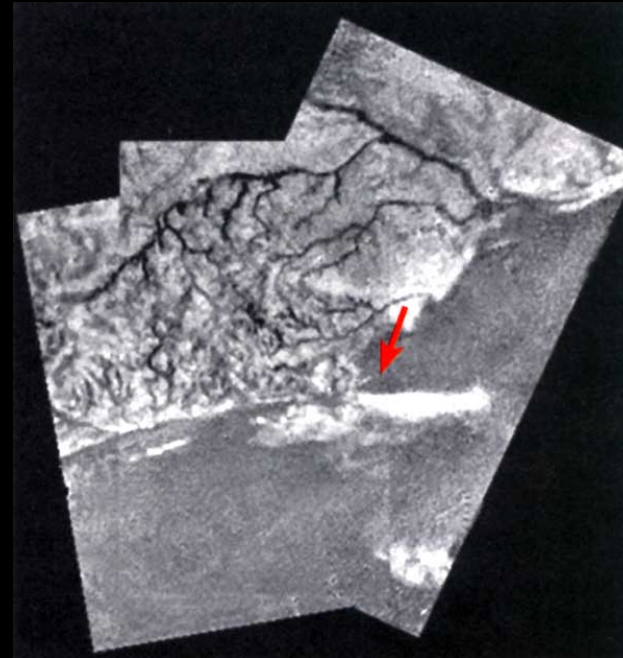
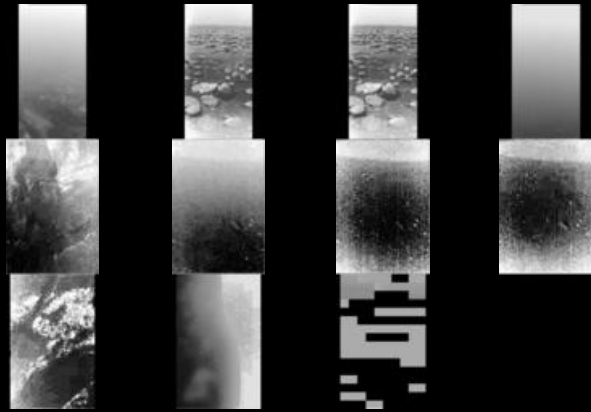


The Innocents

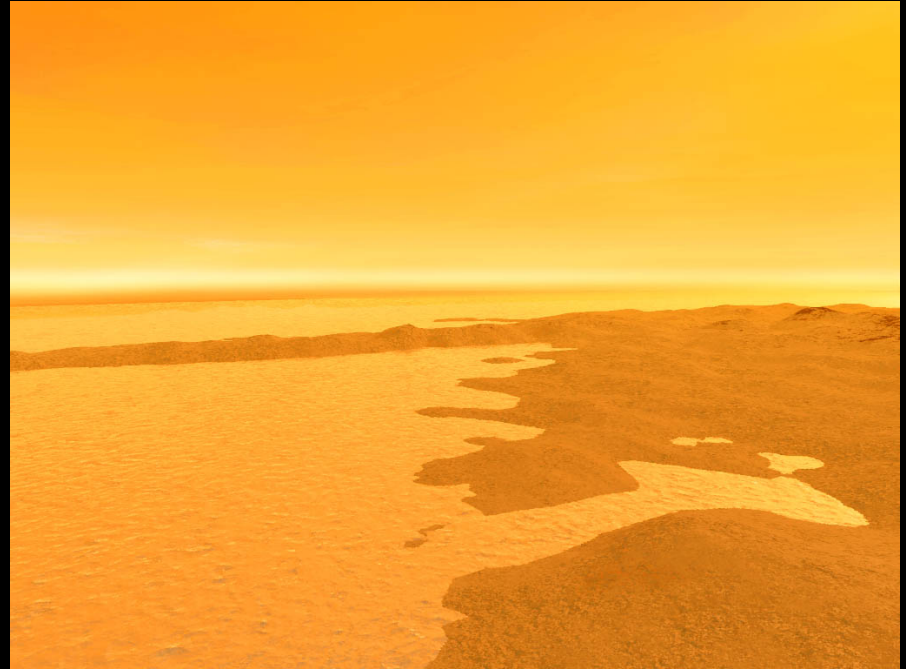
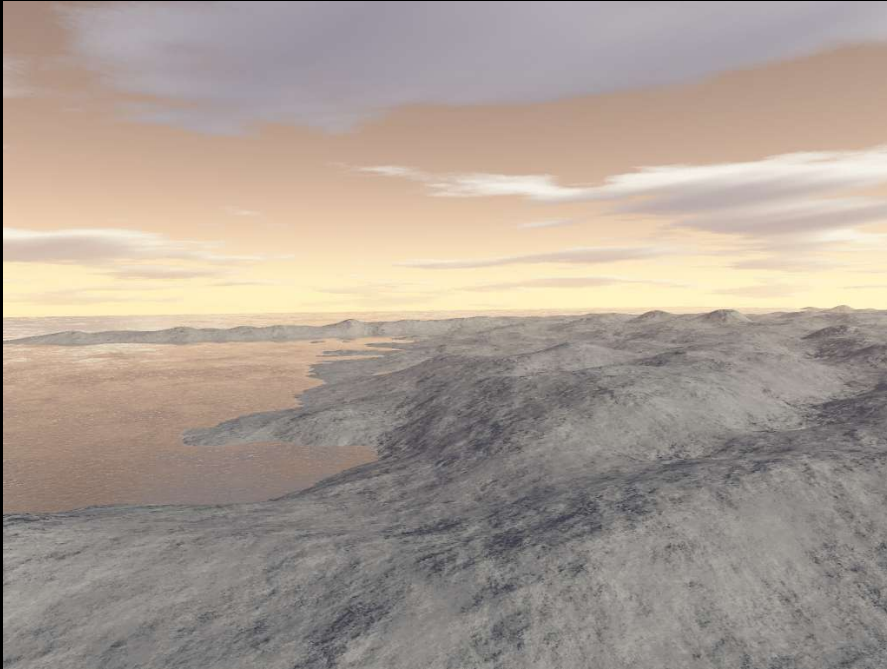
2003

© Taryn Simon

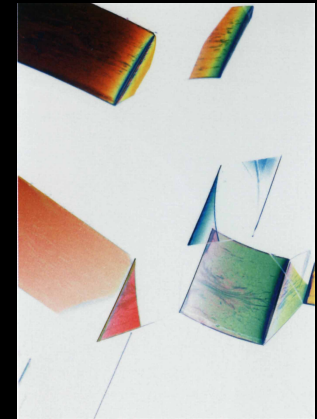
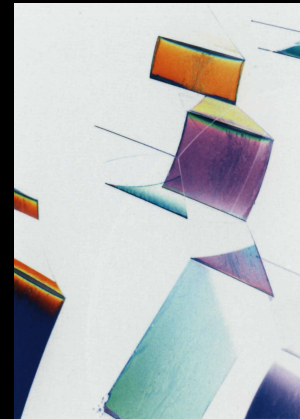
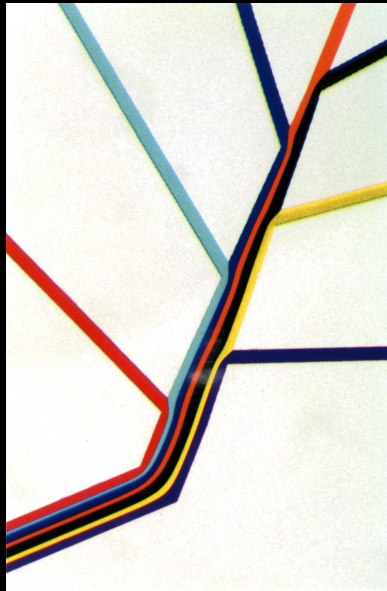


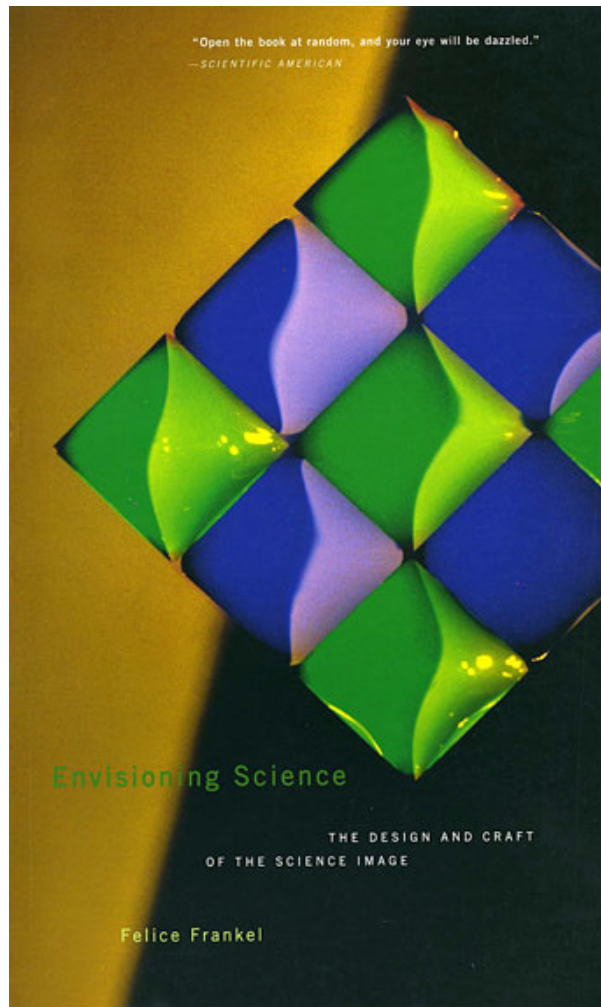


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©Mike Zawistowski/ESA/NASA/JPL/University of Arizona





*Envisioning science:  
The design and craft of Science Images  
2002*

*Felice Frankel*

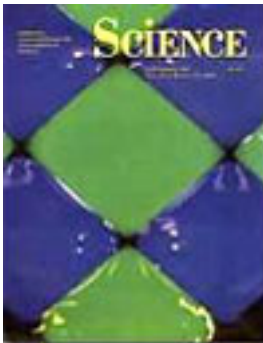
This book is about *a new kind of science image*, an image that communicates your work more effectively to both colleagues and the general public. The science pictures you see have a component that is sometimes called ‘artful’ a word, I, like you should be wary of using. *They might appear as personal interpretations but they are not. They are honest documentations of scientific investigations.* However, they have an additional quality not usually present in science image – they somehow include *the marvel* of whatever phenomena I intend to capture.

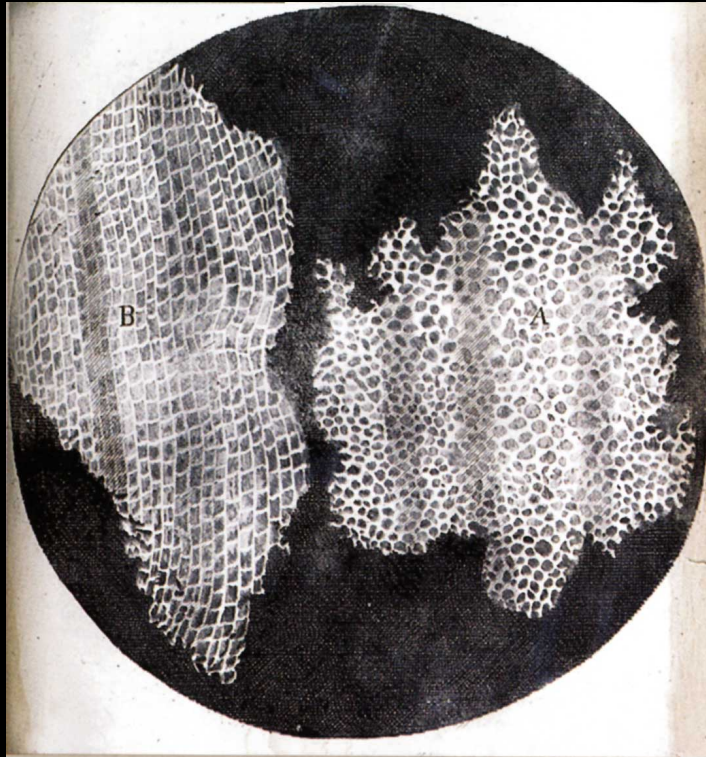


## *ScienceBlogs 2008*

*Felice Frankel*

[Artists] take a line that they see in the science and just expand it without any...I'm going to say "reverence" to the information in the science. So that's why it's very important for people not to look at my pictures as art. That's not my intention. *The images are not about me or my emotions.* They're images of science that I've used photographic tools to bring out. [...] A 'pretty' picture of science *is not mere decoration* but one that reveals *the beauty and substance that is already there.*



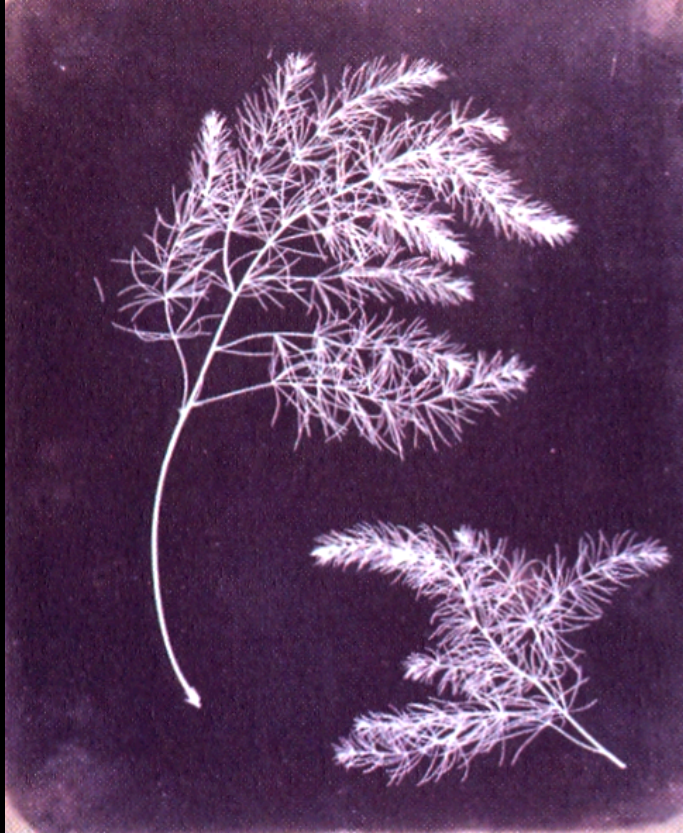


*Robert Hooke*

*1662*

*Micrographia*

In this kind I here present to the World my imperfect Indeavours; [...] I hope, they may be in some measure useful to the main Design of a reformation in Philosophy, if it be only by showing, that there it not so much requir'd towards it, any strength of Imagination, or exactness of Method, or depth of Contemplation [...] as *a sincere Hand, and a faithful Eye, to examine, and to record, the things themselves as they appear.*  
(Micrographia p.8)



...the plates of this work have been obtained by the mere action of Light upon sensitive paper. They have been formed or depicted by optical and chemical means alone, and without the aid of any one acquainted with the art of drawing. It is needless, therefore, to say that they differ in all respects, and as widely as possible, in their origin, from plates of the ordinary kind, which owe their existence to the united skill of the Artist and the Engraver. They are impressed by Nature's hand;

The pencil of nature, W. Fox Talbot 1844

# VISUAL STRATEGIES

## A PRACTICAL GUIDE TO GRAPHICS FOR SCIENTISTS AND ENGINEERS

Yale University Press, 2012. Coauthored with Angela H. DePace



### **E.O. Wilson, Harvard University**

In this technoscientific century, with knowledge doubling every decade, researchers and designers alike need to ramp up their presentation of the material they describe.

This beautifully illustrated book shows how.

### **Philip Campbell, Editor-in-Chief, Nature**

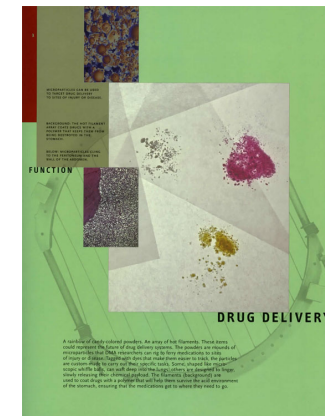
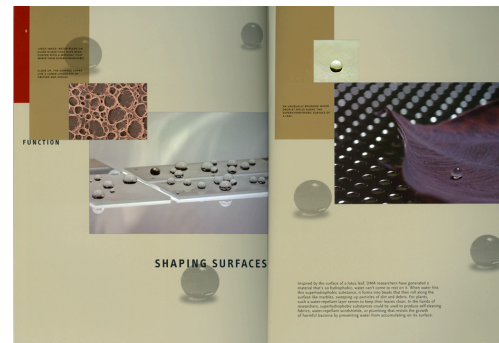
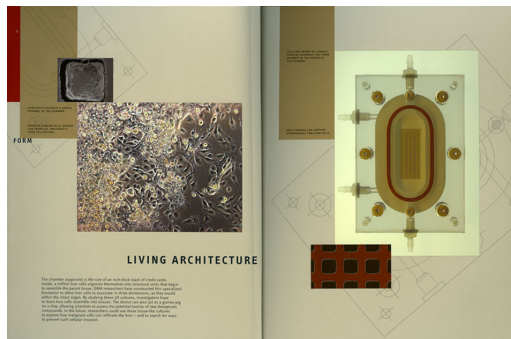
Scientists presenting even simple data to busy journal readers are well advised to invest some thought in their visual comprehensibility and impact. This unique book provides exactly what they need.



## The DuPont MIT Alliance (DMA) booklet

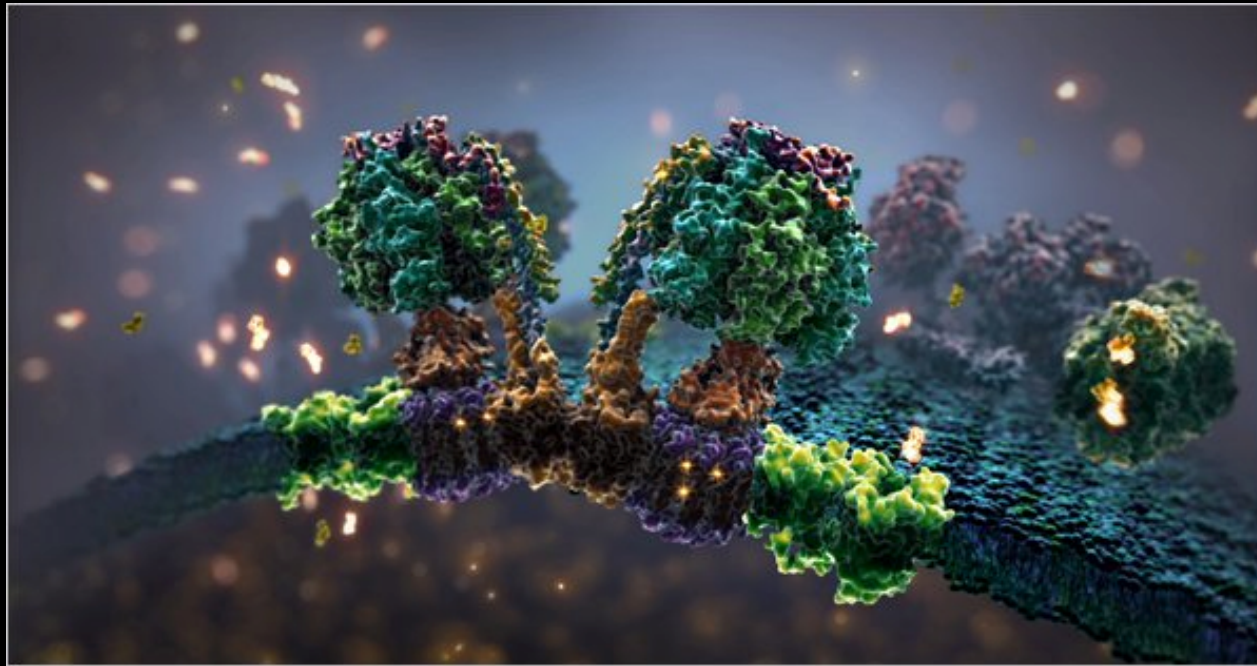
By partnering with nature, the DMA team of researchers opened the door to advances that no one yet imagined. For the booklet, I created a series of images from various labs and enhanced already existing images to best communicate the DMA's exciting work.

The designer was Stuart McKee. Text was written by Karen Hopkin. The DuPont liaison was Deborah L. Liczwek.



I want the world to love science as I do.

F. Frankel



**The BioVisions Project**  
Harvard University

**The Inner Life of the Cell**  
**Powering the Cell: Mitochondria**

<http://multimedia.mcb.harvard.edu>



## **Robert H. Lue, Harvard Medical School, BioVisions Project**

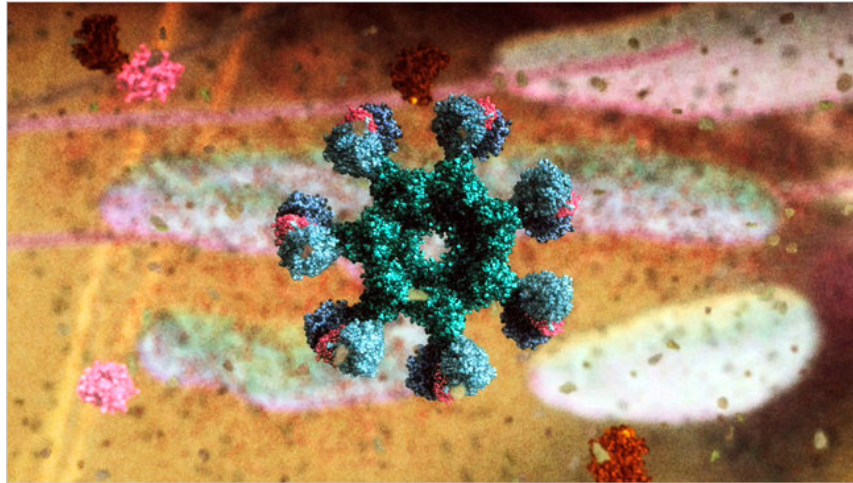
A moving image is worth 10.000 words.

Flying in the mitochondria is would be like flying over the Grand Canyon, it would be the most spectacular landscape you could imagine.

Right now I think it is like a gold rush. A lot of things that we have shown have never been shown.

We need to communicate to the public what's happening at the molecular level, at the cellular level, at the whole organism, at the whole ecosystem level. What is happening with the living world and I think visualization is going to be absolutely fundamental for that.

[video.nytimes.com/video/2010/11/15/science/1248069334032/the-animators-of-life.html](http://video.nytimes.com/video/2010/11/15/science/1248069334032/the-animators-of-life.html)



## **Drew Berry: Animations of unseeable biology**

TEDX

Filmed May 2011 at TEDxSydney

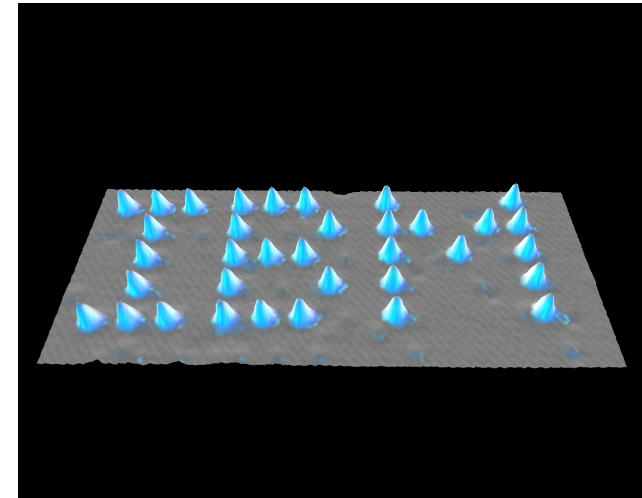
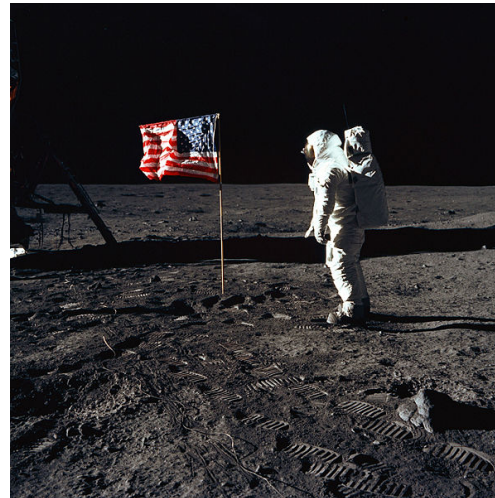
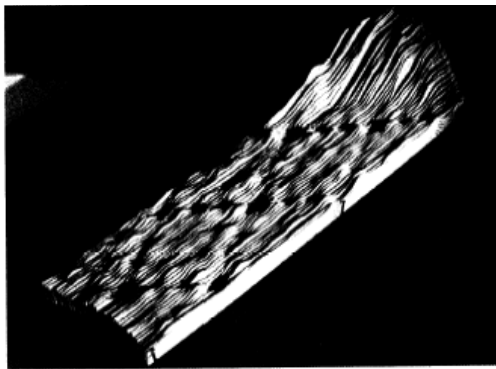
Exploring at the frontier of science, at the frontier of human understanding, is mind-blowing. Discovering this stuff is certainly a pleasurable incentive to work in science. But for most medical researchers -- discovering the stuff is simply steps along the path to the big goals, which are to eradicate disease, to eliminate the suffering and the misery that disease causes and to lift people out of poverty.

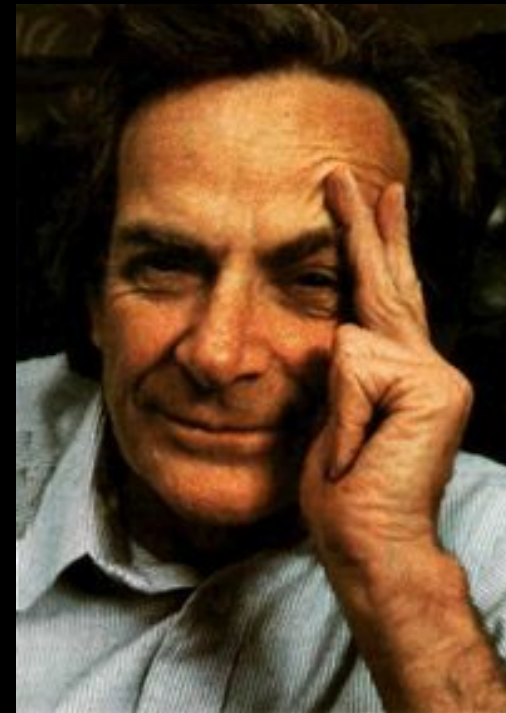
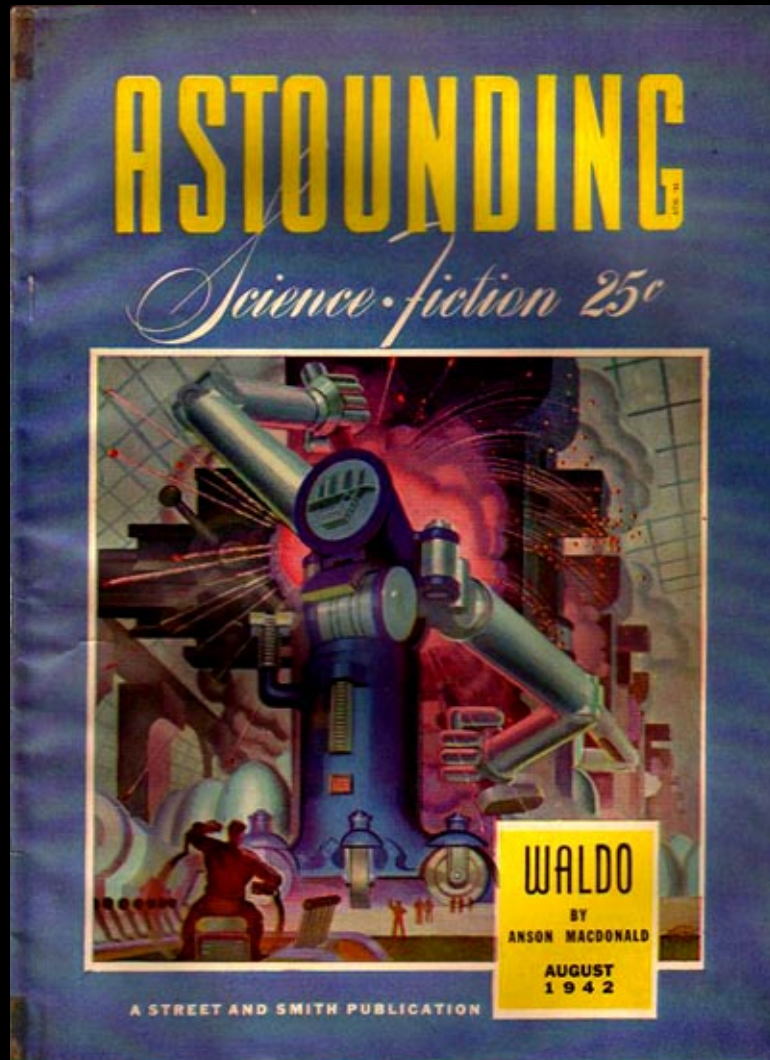
*POWER*  
*(we can)*

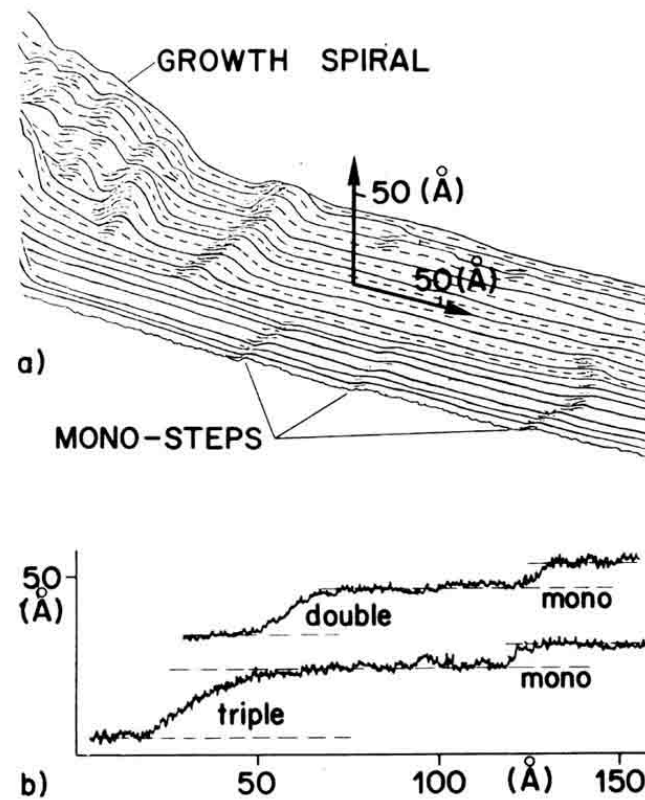
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From discovering to invention/atrefact.

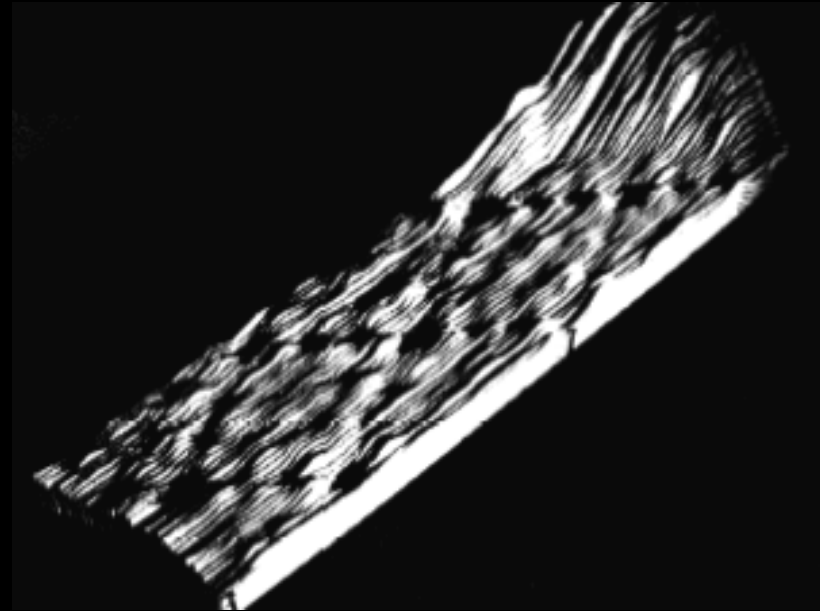
From representation to demonstration.



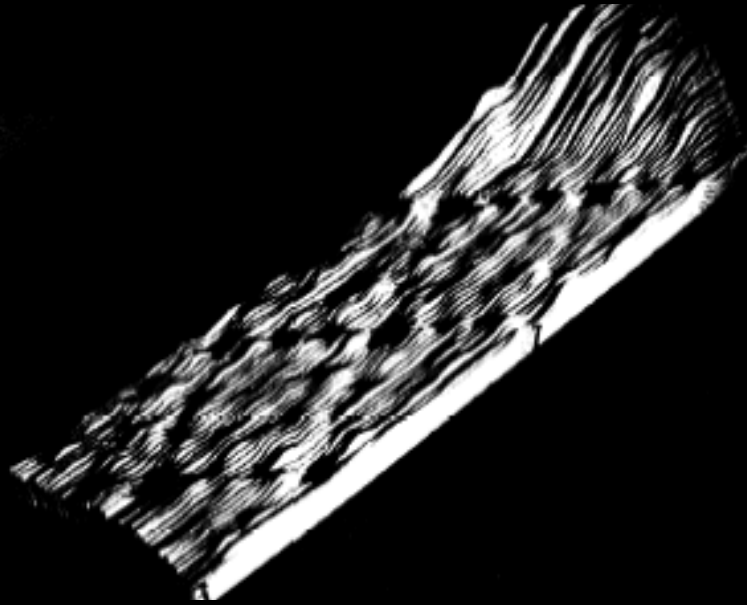




Binnig G., Rohrer H., Gerber Ch. e Weibel E. 1982. Surface Studies by Scanning Tunneling Microscopy. Physical Review Letters 49, 1, pp. 57-60.



Binnig G., Rohrer H., Gerber Ch. e Weibel E. 1982. Surface Studies by Scanning Tunneling Microscopy. *Physical Review Letters* 49, 1, pp. 57-60.



Binnig G. 1986. *Nobel Lecture*,  
[http://nobelprize.org/nobel\\_prizes/physics/laureates/1986/binnig-lecture.html](http://nobelprize.org/nobel_prizes/physics/laureates/1986/binnig-lecture.html)

Art and Science are both products of the creativity of Man, and the beauty of nature is reflected in both. Ruedi Rempfler, the sculptor, found his interpretation in the deformation of a surface. It was the tension of the sphere in its environment which fascinated him, more than the mere portrayal of its shape. An independent creation, its visual and conceptual similarity with Fig. 6 is astounding. Original sculpture by Ruedi Rempfler, photograph courtesy of Thomas P. Frey.



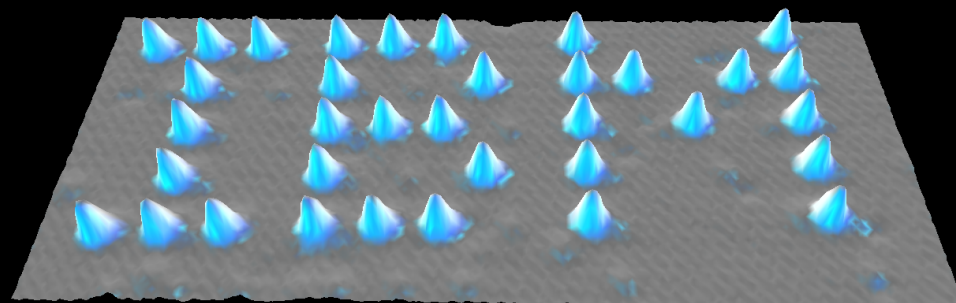
Fig. 8. Artist's conception of spheres.

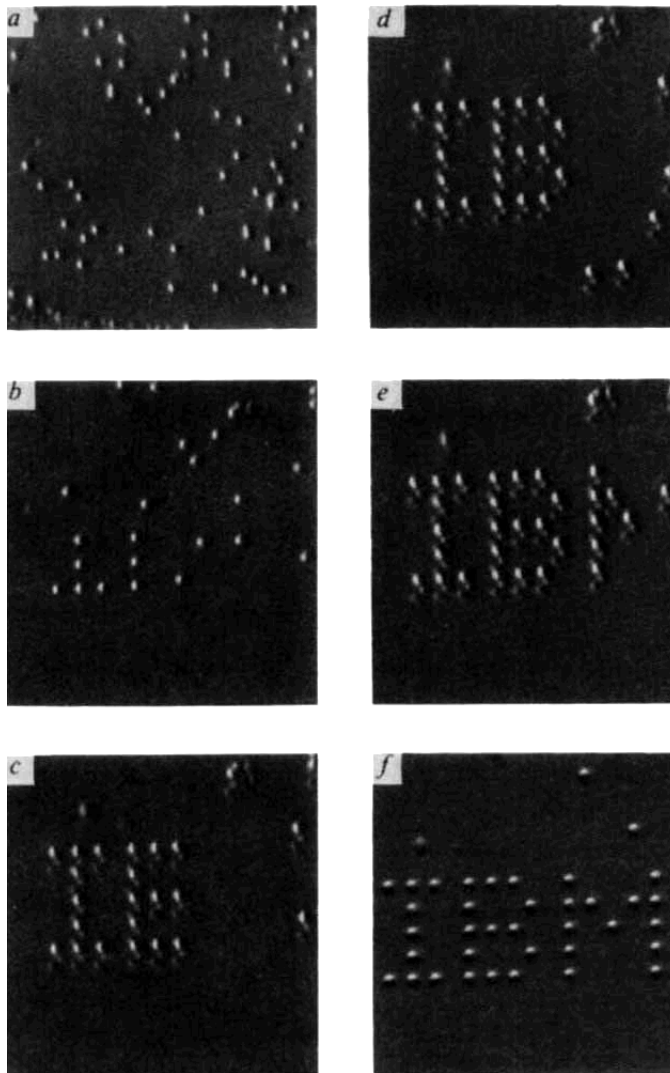


The STM's "Years of Apprenticeship" have come to an end, the fundamentals have been laid, and the "Years of Travel" begin. We should not like to speculate where it will finally lead, but we sincerely trust that the beauty of atomic structures might be an inducement to apply the technique to those problems where it will be of greatest service solely to the benefit of mankind.

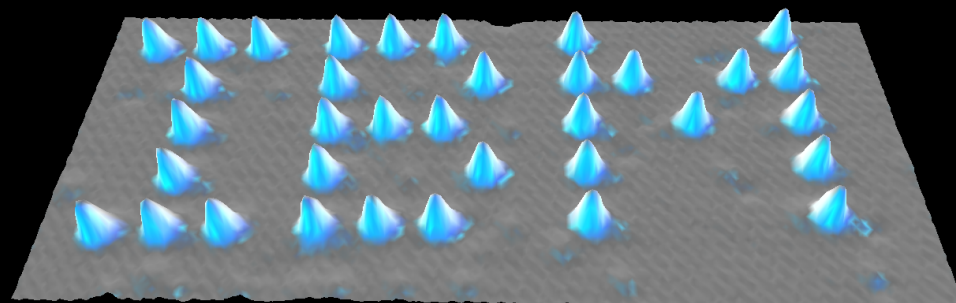
Alfred Nobel's hope, our hope, everybody's hope.

Binnig G. 1986. *Nobel Lecture*,  
[http://nobelprize.org/nobel\\_prizes/physics/laureates/1986/binnig-lecture.html](http://nobelprize.org/nobel_prizes/physics/laureates/1986/binnig-lecture.html)





Eigler D.M. e Schweizer E.K. 1990. *Positioning Single Atoms With a Scanning Tunneling Microscope*. Nature 344, 524, pp.524-526.





An epic drama of  
adventure and exploration



2001: a space odyssey

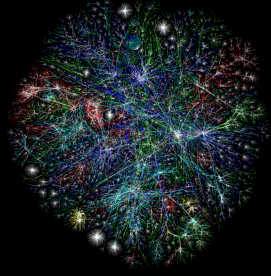
CINERAMA Super Panavision® and Multiscreen

# Do we really want, can and need to be smart?

The imaginaries of the IoT and their inherent contradictions

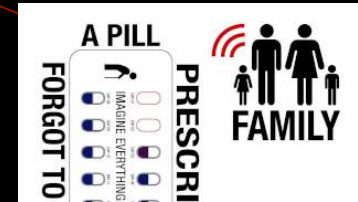
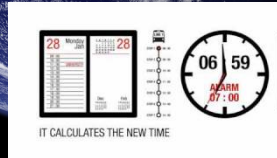
Joint Research Centre – European Commission  
Appointment Letter no. 257235 of the 20th December 2011

CONTROL



We can

POWER



WONDER

We want



URGENCY

We need



# Hybridizing sustainability and the bleating heart

towards the emergence of new (post normal) imaginaries



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IRIS  
ISTITUTO DI RICERCHE  
INTERDISCIPLINARI  
NELLA SOSTENIBILITÀ

## **Hybridizing sustainability and performance work**

Per un presente sostenibile, Centro Studi Sereno Regis, Torino (2009)

Pensieri in piazza, Teatro Sociale di Pinerolo, Pinerolo (2010)

## **International Conference on Sustainability Science Università La Sapienza di Roma (2010)**

Ho tremato con la terra: Un perpetuo circuito di produzione e distruzione  
Gemona del Friuli (2010)

Being there, Calouste Gulbenkian Foundation  
Lisbon (2011)

ECOHEALTH 2014  
Connections for Health, Ecosystems and Society  
The 5th Biennial Conference of the International Association for Ecology and Health



David Waltner-Toews and Alice Benessia  
**The bleating heart.** Cover Essay.  
EcoHealth, September 2014 Vol. 11 (3) : 446-447

SEPTEMBER 2014 • VOLUME 11 NUMBER 3

# ECOHEALTH

*Connections for Health, Ecosystems, and Society*



One Health • Ecology & Health • Public Health

ISSN 1612-9202 (Print)

ISSN 1612-9210 (Electronic)

10393 • 11(3) 279–448 (2014)

 Springer