

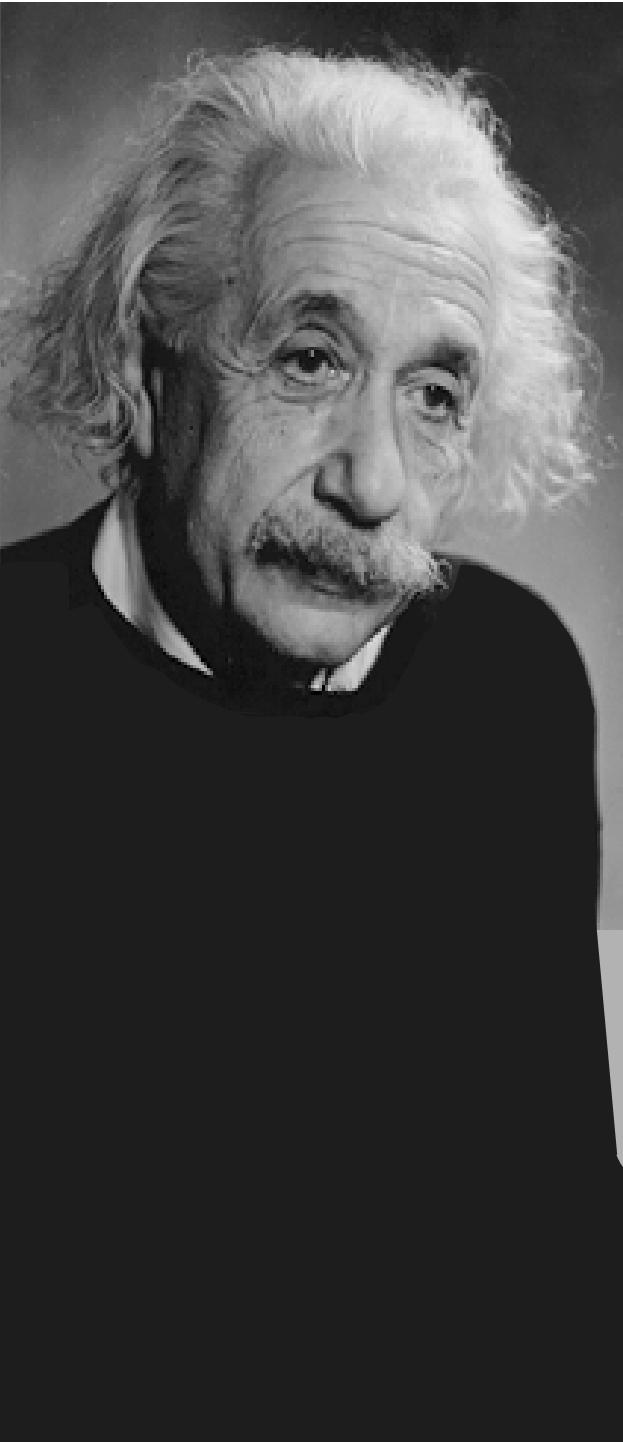
# Communicating with the Public About Science and Technology

An Evolving Dialogue



ADVANCING SCIENCE. SERVING SOCIETY

Fear not, this is not another  
lecture about how or what to teach  
the public....



# *The Expert*





# *The Other Guy*



# *Never Talk About Floods With Noah In the Audience*



The relationship between science  
and society is evolving.....

.....and so must our dialogue  
with the public

The bottom line:

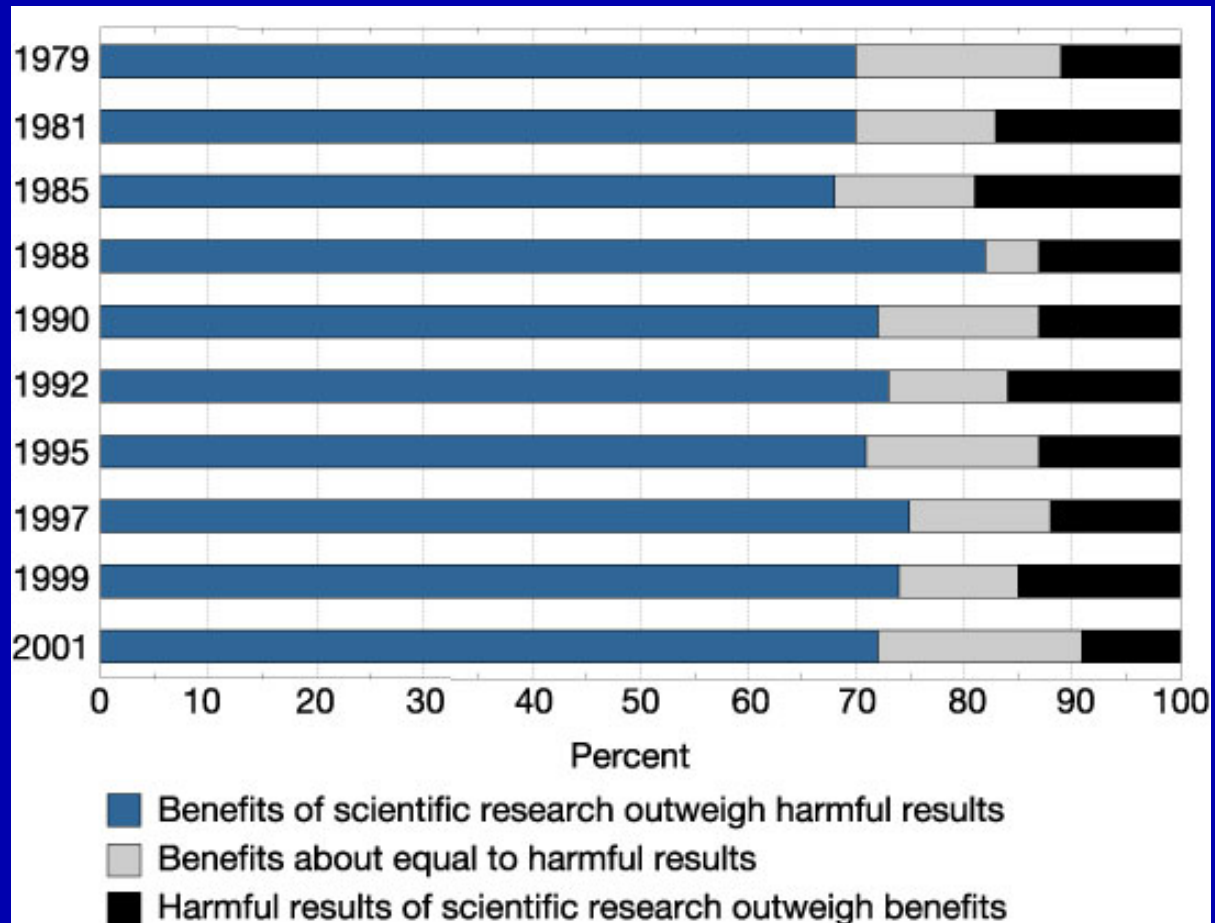
We at AAAS want to work with science and technology centers to forge the new dialogue.

....but first

The relationship between science  
and society is evolving.....

People generally still respect  
science and technology....

## US public assessment of scientific research



People still respect S&T....

....but not everywhere in  
the same way or degree

## In Europe, the overall view of science has deteriorated:

- In 2001, 50.4% of people felt benefits of science outweighed its risks vs. 61.2% in 1992
  - That's almost 20 percentage points below the US.
- Science is definitely *not* seen as a panacea.

Eurobarometer, December 2001

## Attitudes toward science, faith and chance:

For each of the following, do you:	Agree (%)	Not agree (%)
We put too much trust in science and not enough in faith	45.4	36.7
Science is changing our ways of life too quickly	61.3	27.5
Some numbers are particularly lucky for some people	46.1	35.8

## Europeans want scientists to be accountable

For each of the following, do you:	Agree (%)	Not agree (%)
Scientists share responsibility for any use – good or bad – of their discoveries	69.1	18.4
Scientists are responsible for the misuse of their discoveries by others	42.8	42.3
Scientists' knowledge gives them power which makes them dangerous	63.2	24.8
The authorities ought to <i>formally</i> oblige scientists to observe ethical rules	80.3	8.3
Scientists ought to be free to pursue their research as they wish so long as they observe ethical rules	73.5	14.7

US and UK attitudes are quite different...

<b>% agreement</b>	<b>UK 2000<sup>1</sup></b>	<b>US 2001<sup>2</sup></b>
S&T make our lives better	67	86
Science makes our lives change too fast	44	38
The benefits of science are greater than harmful effects	43	72
Science research should be supported by the Government (even if no immediate benefits)	72	82
It is important for me to know about science	59	84

<sup>1</sup>Science and the Public 2000

<sup>2</sup>NSF science and engineering indicators 2002

Specific issues are seen differently in the US and Europe (and within Europe).....

- Attitudes towards:
  - GMOs
  - Therapeutic Cloning
  - Climate Change
  - Nanotechnology

Science is no longer seen as quite so infallible....

- SARS
- Anthrax
- Smallpox vaccinations

There are more and more issues that the public and policy makers want a hand in deciding/regulating:

- Patenting of life products
- Reproductive and therapeutic/research cloning
- Genetic discrimination in insurance, etc.
- Balancing scientific open-ness vs. security

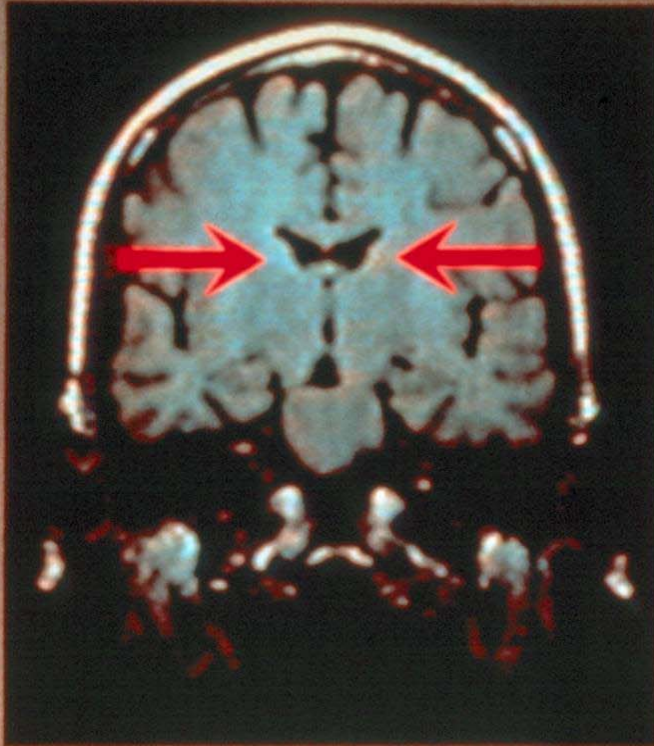
We are getting very close to understanding some contentious and personal issues.

- Genetics of behavior

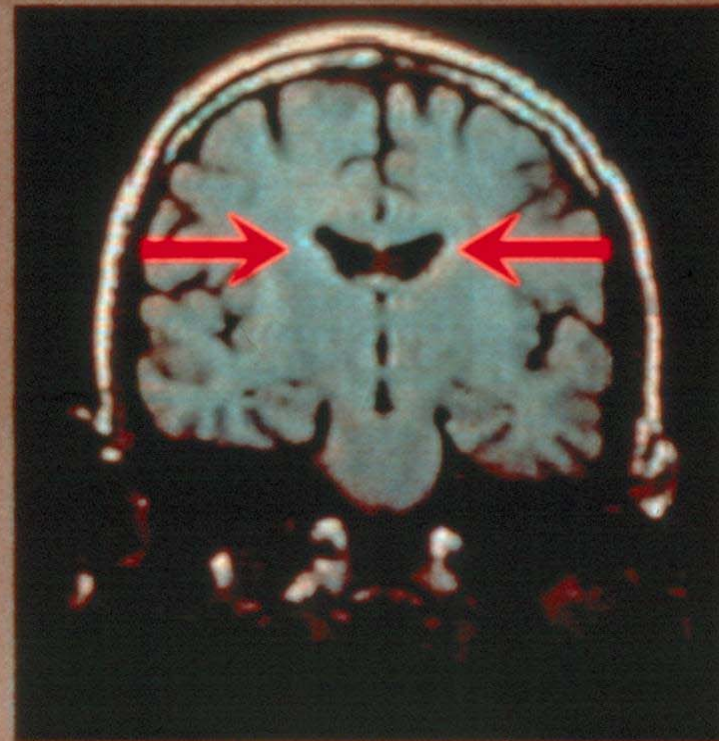
## Genetics of Diseases/Syndromes

### SCHIZOPHRENIA IN MONOZYGOTIC TWINS

Pair no. 2: 44 year old males



UNAFFECTED



AFFECTED

Behavioral genetics of *syndromes*

Behavioral genetics of *symptoms*

Behavioral genetics of *traits*

- Cognitive function
- Intelligence
- Violence

As we learn more about their children,  
people will want to participate/regulate  
the science more.

In biomedical science, patient groups are already asking for more and more participation/inclusion/partnership.

- Public accountability
- Conflicts of interest – an ethically sound culture
- Truly informed consent – protect every research participant

Debra Lappin, 2002/2003

## The public wants a “new deal” with science

- Public is no longer comfortable with paternalism
- Public expects to be invited into a [real] relationship with the institutions it supports
  - They should operate in an atmosphere of transparency of operations and access to information

Some believe there is a growing divide  
between science and society.

“We need to understand the causes of the [growing] divide between science and society and to explore ways of narrowing the gap so that the voice of science can exert a more direct and constructive influence on the policy decisions that shape our future....”

Daniel Yankelovich, Issues in S&T,  
Summer 2003

“The unfortunate reality is that scientists and the rest of society operate out of vastly different worldviews, especially in relation to assumptions about what constitutes knowledge and how to deal with it.”

Daniel Yankelovich, Issues in S&T,  
Summer 2003

## Causes of the “Great Divide”

- Misunderstandings about the word “theory”
- Media insistence on presenting “both sides”
- Science’s assumption that scientific illiteracy is the major obstacle
  - He thinks a little knowledge causes more problems
- The craving [by the public] for certainty about risk and threat



*Science*

**The “Great Divide”**

*Public*

***We Need To Close It!***

## Solutions to the “Great Divide”

We need to move beyond just public *understanding* of science and technology...

## Solutions to the “Great Divide”

- Shift from goal of “science literacy” to the goal of reaching sound “public judgment” on scientific issues

Daniel Yankelovich, Issues in S&T,  
Summer 2003

We need to create a real dialogue  
among scientists, policymakers  
and the general public.

# Public *Engagement* with Science and Technology

In that dialogue, there are many things we need to know from the public, as well as they from us.

## We need to hear from the public about:

- Their concerns about science and technology and their concomitants
  - Risks and benefits
- Their priorities among research areas
- Questions they would like or need us to answer
  - Help frame the research agenda

## They should be brought into:

- Shaping policy
  - Influencing science-based policy
  - Influencing science itself
- Making personal health decisions
- Producing scientific knowledge
  - “Citizen science projects”

What do we need to actually do?  
And how?

## Fundamentals of effective engagement of the public with S&T:

- Build relationships with stakeholders, striving to foster mutual confidence and respect.
  - Be inclusive of diverse perspectives, sectors and cultures.
  - Practice “active listening”
- Build communication around issues informed by S&T, rather than specifics of the S&T itself.
- Practice openness
  - Put information, ideas and debate in the public realm

*Science Communications and Opportunities for Public Engagement,  
Canadian Council of Science and Technology Advisors, 2003*

Many in biomedical science are doing some of it already:

- NIH has incorporated “lay” members in its advisory councils and review groups
- Various bioethics commissions
- Genetics and Public Policy Center
  - Supported by Pew Charitable Trust

But we should be doing much more...and in more domains.

# AAAS Center for Public Engagement with Science and Technology

## Goals of the AAAS Center

- Expand the nature of the dialogue between the public and the scientific community
  - Go beyond simply the unidirectional “educational” stance
  - Make it a *real* information and perspective exchange
- Provide a venue/forum for the new dialogue
  - Town meetings
  - Surveys
  - Consensus type conferences

We want you as partners!!!

## Why science and technology centers?

- Tracks to your missions
  - Excuse the *chutzpah*
- You have expertise
- You have access/venue
- You have high institutional credibility and local importance

## We are kicking this off with

- Town meeting during AAAS 2004 Annual Meeting in Seattle
  - Focus on marine issues

## Purpose of the town meeting

- Air the issue
- Hear concerns
- Invigorate the local dialogue

## Potential outcomes

- Educate everyone
- Highlight problems, contention, concerns
- Identify points of broad agreement
- Inform policy

That's our initial thinking....

What else should we be doing?

Whatever we do, we want you  
as partners.

This public engagement stuff is  
critically important, but tough to do  
well....

# *Working Together We Can Get There!*

