

# Goals for University-based International Science Networks, and Novel Approaches Toward Achieving Them

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# History

**Neurobiologist at  
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years**

**Collaborations in a  
dozen countries**

**18 months ago  
received a  
Jefferson Science  
Fellowship**



doi 10.1098/rspb.2000.1255

**Variation in the volume of zebra finch song control nuclei is heritable: developmental and evolutionary implications**



# Overview and Background



## The Assignment from State:

- 1) Learn about collaborations with the US and find ways to make them better.

## Overall Conclusions:

- 1) Too often, the US is the missing partner
- 2) Significant opportunities abound
- 3) Interest and hopes are high
- 4) One year is too short to make connections, build a network and get projects underway

# The Journey

Over the year, I visited 12 countries, met with hundreds of scientists, and gave public presentations about my research or about the brain generally to ~2500 people (even 11 year olds!).

I met with ministers, heads of national science agencies, rectors, and directors of regional development, as well as university heads and business leaders in the US.



# Science Diplomacy

- This program, and my assignment, are one more indication that the State Dept. is now committed to “**science diplomacy**”-- to making and maintaining such connections as a path to progress, prosperity and friendship.
- Others in the department are concerned with similar issues (USAID, EPSC, STAS, OES et al). My focus is on **regional programs** and **support of science broadly**.
- **Observations and recommendations** based on my experience follow.

# Observation #1: **One size does not fit all**

A huge range of skills, capacity, financial flexibility, commitment to advanced science exists across the hemisphere

## **Suggestions**

- Create more programs to link scientists from the more and the less advanced countries. State is helping with science website, pilot short-term visitor program.
- Take more advantage of the power of the internet: colloquia, shared teaching, DVCs
- Encourage more developed countries to lead

# Observation #2: Act on Political Links

Science financing, goals, priorities, policy are linked to the political world (US & Canada too)

## Suggestions

- Convince the political world of the value of supporting science. NSF now requires applicants to describe “broader impacts”. This should be an automatic part of our work.
- Do outreach--to students, teachers, museums, etc. so they come to value science.



# Observation #3: **Economies of Scale**

Economies of scale could be used in many areas.

But far more engagement occurs with the US than between hemispheric countries.

## **Suggestions**

- Provide access to journals
  - by creating nation- or region-wide programs
- Peer review of grants
  - doing this with other countries increases the pool of reviewers and of grants, making evaluations more objective.
- Such interactions could be catalyzed by IANAS or NAS or the US State Dept.

## Observation #4: **Cost can be modest**

Often, programs that don't cost much can have major effects

### Suggestions

- Fulbright and other targeted training programs
- A program to finance short term visits to labs in the more advanced countries would be highly valuable throughout the hemisphere. This could be funded if many countries made relatively small contributions.
- NSF is interested in contributing to return visits

## Observation #5: “**Lab-to-Market**” is key

1. Relations between universities and industry is often limited, and industry investment in research is low.
2. Every country has industries that rely on science, although many may be small.

## Suggestion

- Universities should be creative about involving industry, for example encouraging partial scholarships, loan of facilities or equipment, internships, promise of jobs.

# Observation #6: Facilitate Training

Obviously, the less-developed countries have the least flexibility to put money into science, and are the least sophisticated about the benefits of science.

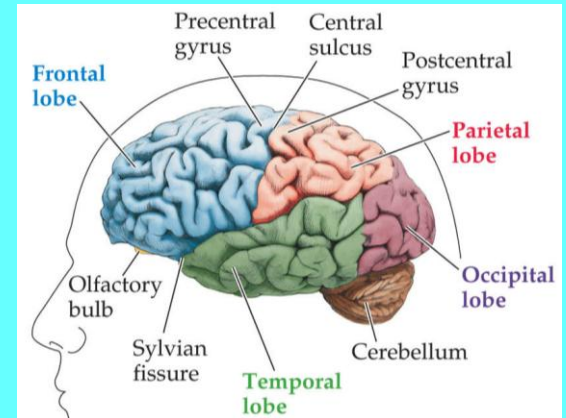
## Suggestions

- Ask US embassies to include science in their programming
- Create training programs (for example, how to find out about, apply for and manage grants)
- Negotiate and support part-time M.S and Ph.D programs for older faculty who can't leave
- Fund joint research (USAID program)
- Publicize countries' scientific appeal

# Observation #7: Human Communication is Fundamentally Social

[With my neuroscientist hat]:

Our brains evolved to be social, to recognize each other, but much more than that, to identify emotion and mood, and to make decisions based on **trust**.



## Suggestion

- Successful programs will start from this. Encourage personal connections between US scientists and scientists governments and the public in other hemispheric countries.



# Continuing Initiatives

Traveling & meeting with scientists. Visiting “Science Corners” and helping to build new ones

Learning about “Lab to Market” training, so as to propose new State programs to bring US expertise to developing universities and countries

Building ties for Cornell (Engineering with Itaipu, Latin-American Studies with senior policy makers)

Creating CienciAmerica website for working scientists

Science Diplomacy-- A way to Make Their Future Brighter, Let Them Contribute to Their Country's Prosperity, and Make Friends for the US in the Process







Thank you!